

# Age-Friendliness of the Urban Design Guidelines of the Cities of Kitchener and Waterloo

by

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# **AUTHOR'S DECLARATION**

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

I understand that my thesis may be made electronically available to the public.

Bhupinder Preet Kohli

## **ABSTRACT**

The fastest growing age group in Canada is seniors aged 65 years or older (Statistics Canada's 2006 & 2007). The population of seniors is projected to increase to 6.7 million by 2021 and 9.2 million by 2041 (nearly one in every four Canadians) (Social Development Canada, 2006a; Statistics Canada, 2007b). Similarly, Population Estimates, Waterloo Region and Ontario, 2011 and Population Projections, Waterloo Region and Ontario, 2016, 2026 & 2036 (Region of Waterloo, 2012b, 2012c) indicate that the Region of Waterloo expects an increase in its senior population by 145.4% from year 2011 to 2036. Due to increased longevity and an increased percentage of older adults, this demographic shift poses challenges for communities, including increased healthcare costs and social isolation among seniors, which may threaten their active participation in the community.

The research question 'Do urban design guidelines of the Cities of Kitchener and Waterloo address the needs of an ageing population?' motivates this study to examine the Urban Design Manuals of the Cities of Waterloo and Kitchener to determine the age-friendliness of the current urban design guidelines, and the role of the built environment in active ageing. The current urban design guidelines of the Cities of Kitchener and Waterloo are compared with the Design of Public Spaces Standards (Accessibility Standards for the Built Environment) by Accessibility for Ontarians with Disabilities Act, 2005 (AODA); the Universal Design Principles; key findings based on the literature review (Levine, 2003; Story, Mueller, & Mace, 1998); and analysed with in-

depth knowledge gained through semi-structured interviews with seniors, planners, and focus groups. The participation of the seniors provided information on the gaps between what already exists and what is required.

The key finding of the report is that the urban design guidelines of the Cities of Waterloo and Kitchener are fairly comprehensive in addressing the needs of seniors, but there is inadequate implementation of these guidelines.

## **ACKNOWLEDGEMENTS**

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A special thanks goes to my husband, Sukhdeep. Thank you 'Jaan' for being there with me in all the ups and downs, and also for supporting my decisions. A very special thanks to my children, Prabh and Mannat, for behaving well and doing well in their studies while I was busy with the thesis.

I would also like to thank my parents for being my permanent participants and inspiration for the study. Thank you dad for reading my papers and advising me. Last but not the least, special thanks to Ruth McNeil and Mary McPherson for editing my papers.

# DEDICATION

To my husband Sukhdeep Sukhija and my parents

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# GLOSSARY

- i. *Age-Friendly Communities (AFC)*: Below are the most commonly recognized definitions of AFCs:
  - a. A widely accepted definition of AFC is the one provided by the World Health Organization (WHO, 2007) - “encourages active ageing by adapting its structures and services to be accessible to and inclusive of older people with varying needs and capacities to enhance quality of life” (p. 1).
  - b. As defined by Public Health Agency of Canada (2009) - “in an age-friendly community, the policies, services and structures related to the physical and social environment are designed to help seniors ‘age actively’. In other words, the community is set up to help seniors live safely, enjoy good health and stay involved” (p.1).
  - c. The National Council on Ageing and Older People (2005) defines AFC as, “one that takes a positive approach to population ageing”, “addresses the needs of older people as a distinct group in society”, and “seeks to remove the barriers that segregate older people from the rest of society”. The key to create an AFC is “timely identification of the tools required for successful planning and a clear understanding of critical concepts including independence, dependence and interdependence in a society for all” (p. 27).

- ii. Active Ageing: WHO (2002) defined active ageing as “the process of optimizing opportunities for health, participation and security in order to enhance quality of life as people age” (2002, p. 1). Another definition of active ageing by European Union (2012) is “active ageing means growing old in good health and as a full member of society, feeling more fulfilled in our jobs, more independent in our daily lives and more involved as citizens” (European Union, 2012, p. 1).
- iii. Age-in-place: Seniors’ preference is generally to remain living in the community, with some level of independence and dignity, rather than in residential care and nursing homes. Numerous reports and studies have found that 80% of seniors wish to remain in their native places (Bayer & Harper, 2000; Hodge, 2008; Special Senate Committee on Aging, 2009).
- iv. Baby Boom Generation: Statistics Canada (2010) defines baby boom, as “a sudden rise in the number of births observed from year to year. It ends when a sudden drop in the number of births is observed” (p. 1). Canadian baby boom generation started in from 1946 to 1965 (Figure: Canada's Baby Boom Generation) (Statistics Canada, 2010).
- v. Built Environment: As defined by the United States’ Department of Health and Human Services (DHHS), the built environment encompasses all buildings, open spaces, street networks that are built, or adapted, by people. The built environment includes houses, institutional and industrial buildings, offices, recreation spaces, parks, and transportation systems. It also covers electric

transmission lines, waste disposal sites, and subway transit systems or highway networks. Land-use and planning policies have an influence on the physical or social aspects of our communities (Srinivasan, O'Fallon, & Dearry, 2003).

- vi. Disability: As defined by Participation and Activity Limitation Survey “disability is an activity limitation or participation restriction associated with a physical or mental condition or health problem” (Statistics Canada, 2007c, p. 8).
- vii. Environmental Press: The demands (such as physical, interpersonal, and social) placed by the environment – physical and/or social – on an individual are termed environmental-press. The environmental-press differs from individual to individual depending on the individual's competencies to respond to the various environmental stimuli (Lawton & Nahemow, 1973; Hodge, 2008).
- viii. Neighbourhood: A neighbourhood is an environment that intricately encompasses both social and physical elements. People call home, the place and the neighbourhood, where they live and prefer to age (Ball, 2012).
- ix. Seniors: For the purpose of this thesis, adults aged 65 years and older are referred as seniors. Old Age Security (OAS) on its website states that Canadians 65 years of age and older start receiving social services (Service Canada, 2013)
- x. Social exclusion: WHO (2008) defined social exclusion as “(a) multidimensional, encompassing social, political, cultural, and economic dimensions, and operating at different social levels; (b) dynamic, impacting in different ways to differing degrees at different social levels over time; and (c) relational” (p. 21).

- xi. Universal Design Principles: Universal Design is a method to achieve "products and environments that can be used effectively by all people, to the greatest extent possible, without the need for adaptation or specialized design" (North Carolina State University, 1997, p. 1 cited in Levine, 2003, p. 6).
- xii. Urban Design: McClure & Bartuska (2007) notes that "Urban design considers the city in three dimensional terms, with an emphasis on the visual spatial quality of the overall built environment" (2007, p. 296).
- xiii. Urban-Form: Urban form is the physical layout of buildings, roads, streets, transportation networks, and open spaces, and how they influence the density, employment and socioeconomic activities of a city. Urban design takes into consideration the important issues of urban-form, such as – a) urban sprawl; b) growth patterns, and c) phasing of developments (City of Prince Albert, 2012; Rodrigue, Comtois, & Slack, 2009).
- xiv. Wayfinding: is defined as "the process by which we find our way from place to place, an essential part of everyday life that makes it possible for us to move about in and engage with our communities" (Figure: Impact of Good Wayfinding) (Hunter et al., 2013, p. 4).



## **PERSONAL FOREWORD**

I was born and brought up in India, where there is an expectation that (usually) sons take care of their ageing parents in joint family settings. Parents take care of their grand kids. They have a number of family members to talk to or share their concerns or views. Grocery stores were just around corners. Getting taxies or auto-rickshaws to go from one place to another in a city was never a problem. Growing up, our family had no car, just two-wheelers or bicycles. When our parents came to North America, they became totally dependent on us. My father took driving lessons at the age of 70 and my mother never got the courage to even think of it. They had to wait for somebody to take them to the grocery store to get essential items, such as milk and bread.

In 2011, I joined the Master's program at the University of Waterloo. I had always been interested in planning issues and I saw this degree as a perfect opportunity to build on my interest and previous qualifications as an Architect. I joined the Social Planning Council of Cambridge & North Dumfries as a volunteer so that I could contribute to my community and, at the same time, better understand the challenges facing these municipalities. I realized that one of the most pressing issues facing Ontario municipalities, similar to other municipalities around North America, was the forthcoming demographic shift with its significant challenges. At that time, I also realized that it is not an individual issue (for example my parents), but a universal concern and an issue I wanted to study further.

Being a resident of the Region of Waterloo, specifically the City of Kitchener, and a mother of teenage and preteen children, I decided to choose the Cities of Waterloo and Kitchener in the Region as my case studies. Once I selected my case studies and topic to study, I started using the local bus (my first experience too!), standing on sidewalks or parking lots of shopping plazas. I joined both the Senior Advisory steering and transportation committees of the Social Planning Council of Cambridge and North Dumfries as a volunteer. In addition, I regularly attended the Senior Advisory Committee of the Region of Waterloo and the Mayor's Advisory Council for Kitchener Seniors (MACKS). During this time, I built a good rapport with the Committee members. These members, mostly volunteers, were from various backgrounds, such as social planning, urban design, politics, health planning, gerontology and seniors' advocacy. Some were retired from their fields but others remain employed. I was also introduced to other professionals and participants (who are 65 years and older) for the purpose of this study. Overall, my community involvement allowed me to connect with professionals and seniors with a varied range of physical abilities. These contacts and participants played a significant role in the data collection for this study.

# CHAPTER 1 - INTRODUCTION

## 1.1 STUDY CONTEXT AND BACKGROUND

North America is now facing a demographic shift and soon will experience an increase in older population, as never experienced before (Ball, 2012; Hodge & Gordon, 2007). According to Social Development Canada (2006) and Statistics Canada (2007), the fastest growing age group in Canada is 65 years or older. The population of seniors is projected to increase to 6.7 million by 2021 and 9.2 million by 2041 (nearly one in every four Canadians). Further, the median age of the national population reached 40.2 years in 2013 (Government of Canada, 2013) and a median age of 44 years will probably be reached by year 2031. Canada's ageing trend is expected to prevail for many decades to come. The Canadian Population Pyramid (Figure: Canadian Population Pyramid) clearly portrays the age-sex makeup of the population. It can be noted that the large bulge of baby boomers has gradually moved up the age-structure with time. A Statistics Canada's 2010 report considers, "[I]n 2009, for every 100 people in the working-age group population, there were 24 children aged 14 years or under and 20 people aged 65 years or over. [And] According to the medium-growth scenario, there would be 26 children and 39 seniors per 100 working-age people in 2036" (Statistics Canada, 2010a, p. 18).

Similarly, Population Estimates, Waterloo Region and Ontario, 2011 (Region of Waterloo, 2012b) and Population Projections, Waterloo Region and Ontario, 2016, 2026 & 2036 (Region of Waterloo, 2012c) indicate that the Region of Waterloo can expect an

increase in its senior population by 145.4% from 2011 to 2036 (Table: Expected Percentage Population Increase, Waterloo Region, 2011-2036 and Figure: Growth in Numbers of Senior by Census division, 2011-2036). The older adult population in the Region of Waterloo, similar to the general population trend in Ontario, is mainly concentrated in the urban areas of the municipalities of Kitchener, Waterloo and Cambridge. These three municipalities account for 42.9%, 19.5% and 24.7%, respectively, of the Region's total older adult population (Figure: Distribution of Adults 55 years and Older in the Region of Waterloo).

Townshend & Walker (2010) suggest that this demographic shift is the most significant factor for Canada's social, cultural, political, and moral change. Such a shift affects the beginning of new lifestyles, marketing patterns, inter-generational relations, and societal approaches to life. Societal approach refers to the community's influence on the choice and type of activities in which seniors participate (Hodge, 2008). Due to increased longevity and an increased percentage of older adults, this demographic shift poses challenges for communities, including social isolation among seniors, increased healthcare costs and may threaten their active participation in the community.

The Region of Waterloo (2010) in its report identified concerns and issues relating to urban design and planning faced by seniors, including: a) activity limitation: 45% seniors in Waterloo Region experienced [physical] activity limitations<sup>1</sup> (p. 12); b)

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1 International Classification of Functioning, Disability and Health (ICF) defines "Activity Limitations are difficulties an individual may have in executing activities" (WHO & ICF, 2002, p. 10)

safety: the Kitchener-Waterloo Metropolitan 2008 Survey found that more than 50% of older adults in the Region felt unsafe walking in parks at night. About 45% participants in the survey felt unsafe at night in the downtown areas, and 28% felt the same in their local neighbourhood. During the daytime, 26% of older adults felt unsafe walking in parks, and 22% felt unsafe in downtown areas (p. 11)<sup>2</sup>; and c) transportation: in 2006, over 90% of adults aged 55 and older in the Region of Waterloo traveled by automobile to and from work, while only 10% used other means of transportation such as public transportation, taxis, walking and cycling. More importantly, on a typical day, nearly 77% of older adults used private vehicles, while only 5% used other modes of transportation. The report also found that less than 3% of older adults in the Region of Waterloo owned a transit pass (p.8).

The above mentioned concerns experienced by seniors are not a new phenomenon, but is the current situation for cities faced with a similar demographic shift (Ball, 2012; Hodge & Gordon, 2007). Furthermore, the lack of sidewalks, safety and security on city streets makes a physical environment uncomfortable for seniors. This aspect, which relates to planning and designing, has been argued in the WHO's (2007) report. The report concluded that seniors do not feel comfortable sharing roads with wheeled traffic, such as bikes, roller-skates, and skate-boards. This situation is one reason, among others, for seniors to stay at home or to use the sidewalks only if necessary, thus, affecting their personal mobility.

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<sup>2</sup> The report did not define either downtown areas.

## 1.2 RESEARCH OBJECTIVES AND QUESTION

The thesis examines the Urban Design Manuals of the Cities of Waterloo and Kitchener to determine the age-friendliness of the current urban design guidelines and the role of built environment in active ageing. I selected the Cities of Kitchener and Waterloo for my case studies because both are twin Cities in the Region of Waterloo, but have a range of design elements, varied size (Kitchener being the larger one) and an increasing senior population (Table 1). As stated above, while these municipalities have one regional goal, they have individual design visions for addressing an ageing population. Furthermore, the City of Waterloo was designated as Age-friendly City by WHO in 2011 (City of Waterloo, 2012b) . Urban design guidelines that meet the criteria of active aging help Cities address health care issues, and allow seniors to make a more meaningful contribution to their communities.

Current urban design guidelines prepared by the Cities of Kitchener and Waterloo are compared with the Design of Public Spaces Standards (Accessibility Standards for the Built Environment) by Accessibility for Ontarians with Disabilities Act, 2005 (AODA); the Universal Design Principles; and key findings based on the literature review (Levine, 2003; Story et al., 1998). Since Universal Design principles in planning and urban design play a significant role in creating accessible communities for everyone with varied physical abilities, these principles are of great importance for a city's

developments<sup>3</sup>. The study also identifies policy gaps in the urban design guidelines of the Cities of Kitchener and Waterloo through a field review of the tools that measure age friendliness of urban form through walkability, the built environment, and mixed land-use policies.

The analysis of urban design guidelines and in-depth knowledge gained through semi-structured interviews with seniors, planners, and focus groups have the following anticipated benefits: 1) to help identify strengths and weaknesses in the Cities of Kitchener and Waterloo's current urban form, and urban design guidelines that measure urban open spaces, walkability, and the built environment for an ageing population; and 2) to suggest a set of very specific changes that the Cities of Kitchener and Waterloo can make to its urban design guidelines to create an age-friendly urban-form.

My research question is — **Do the urban design guidelines of Kitchener and Waterloo address the needs of an ageing population?**

There is a sound knowledge base available on gerontology, housing, transportation and social inclusion; with research capability to initiate sound ageing policies related to needs of the elderly. However, significant research and data is still required to fill the policy gaps in urban design guidelines of a city to create age-friendly communities (AFC). Urban design policy is another planning tool that can be used with housing and transportation policy tools to achieve this goal.

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<sup>3</sup> The detailed explanation of these principles is provided in Chapter 2.

## 1.3 BACKGROUND OF CASE STUDIES - KITCHENER AND WATERLOO

### 1.3.1 GEOGRAPHIC CONTEXT AND POPULATION PROFILE

The Cities of Waterloo and Kitchener are located in the Region of Waterloo in Southwestern Ontario and are also known as twin-cities (Anderson, 2012, p. 307).

Waterloo and Kitchener are located west of the City of Toronto (Figure 1 below) (Google Maps, 2014) and are within the Greater Golden Horseshoe Region (Government of Ontario, 2006).

**Figure 1: Region of Waterloo**



Source: Remax, n.d.



While the land area for the City of Waterloo is roughly half that of Kitchener, their population density is similar (Table 1). According to the Region of Waterloo (2013) census population of the Region of Waterloo, the City of Kitchener and the City of Waterloo was 559,000, 232,000, and 129,100 respectively at the end of the year 2012. The City of Kitchener accounts for 41.5% and the City of Waterloo accounts for 23.1% of the total population of the Region.

**Table 1: Land Area and Population of Cities of Kitchener and Waterloo, and the Region of Waterloo, 2011**

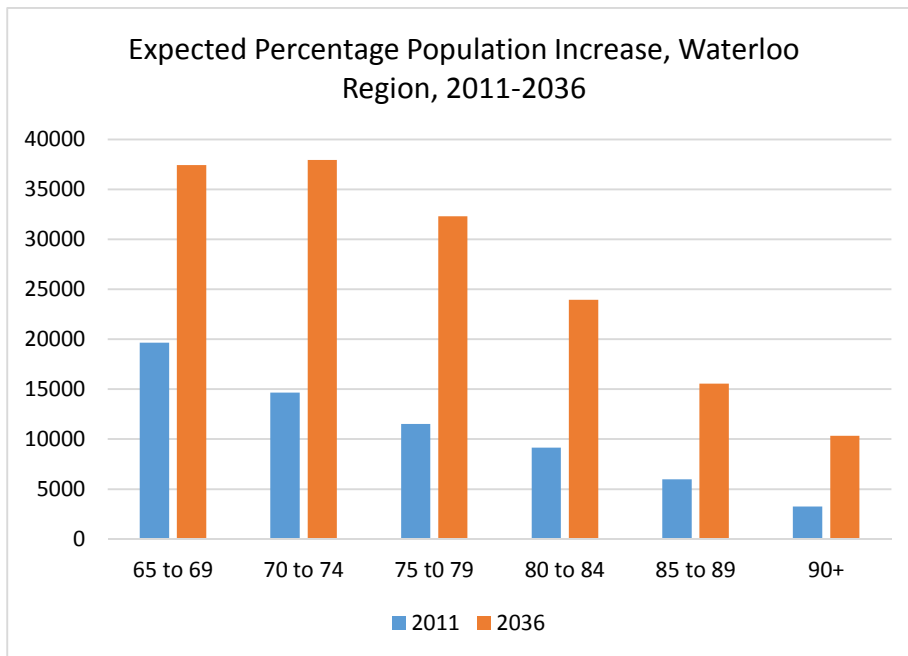
<b>Selected characteristics</b>	<b>Region of Waterloo</b>	<b>City of Waterloo</b>	<b>City of Kitchener</b>
Land Area	1368.94 Sq. Km	64.02 Sq. Km	136.79 Sq. Km
Population per Sq. Km	370	1,543	1,602

Source: Geography Division, 2012; S. C. Government of Canada, 2012

Kitchener's population in 1996 was 178,395 and increased by 6.73% in 2006 to 190,395. However, the percentage increase in seniors' population (65 years or older) was 8.2%. By 2011, the city had experienced a further increase in its total population and senior population from 2006 by 7.50% and 12.30% respectively. In 2001, the City of Waterloo noted a 11.04% increase in total population and 17.60% increase in population 65 years or older from 1996 levels. The percentage increase in population over 2001 to 2006 was similar to the increase over 1996 and 2001. However, from 2006 to 2011, Waterloo saw a 1.34% increase in total population compared to 14.21% increase in seniors' population (Table 13 and Table 14 in Appendix B) (Geography Division, 2012; Region of Waterloo, 2013; Statistics Canada, 2005, 2007a, 2007d).

Figure 2 shows the expected percentage population increase in the Region of Waterloo from 2011 to 2036. The increase in population for those aged 65 years and above (as shown in Figure 3 and Figure 4 below) is expected to continue like other Canadian cities, until the remaining members of the baby boom generation<sup>4</sup> are 65 years of age in year 2030 (Table 15).

**Figure 2: Expected Percentage Population Increase, Waterloo Region, 2011-2036**

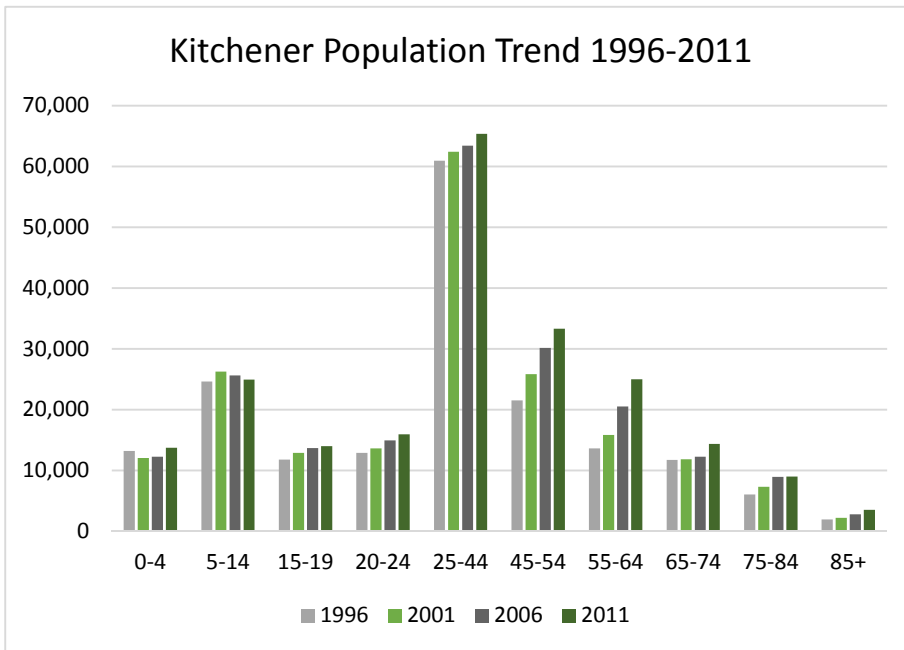


Source: Region of Waterloo, 2012b, 2012c

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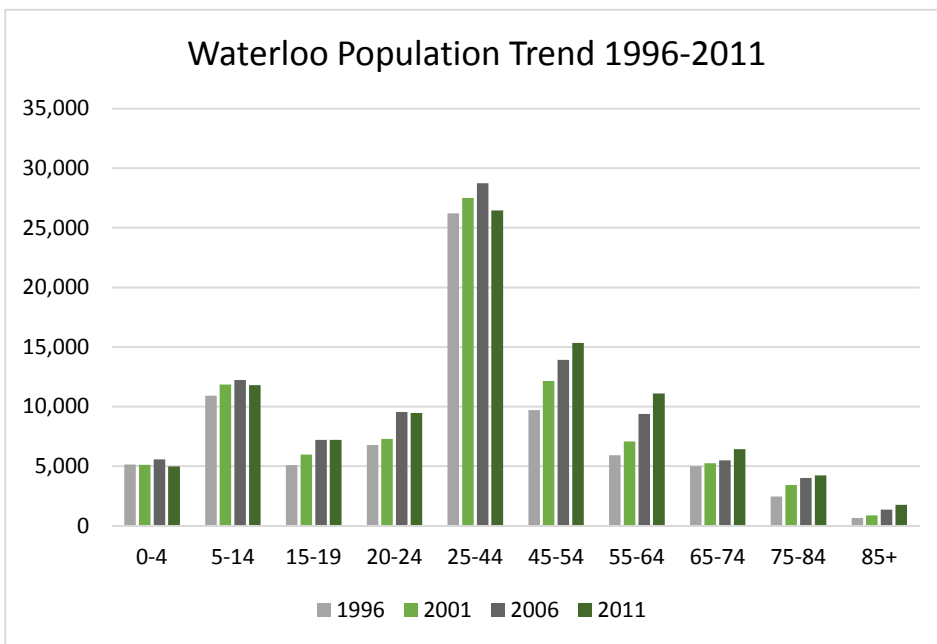
<sup>4</sup> Baby Boom generation - individuals born between 1946 and 1965 (Statistics Canada, 2010b)

**Figure 3: Kitchener Population Trend 1996-2011**



Sources: Geography Division, 2012; Government of Canada, 2007; Region of Waterloo, 2013; Statistics Canada, 2005, 2007

**Figure 4: Waterloo Population Trend 1996-2011**



Sources: Geography Division, 2012; Government of Canada, 2007; Region of Waterloo, 2013; Statistics Canada, 2005, 2007

## **1.4 THESIS ORGANIZATION**

Chapter 1 – Introduction: outlines the study context and background, research objectives and questions, and significance of the study.

Chapter 2 – Literature Review: this section surveys the existing literature and identifies the factors that influence the lives of seniors and persons with disabilities and outlines, if any, policy gaps between what has been done and what can still be accomplished to improve seniors' quality of life (QOL).

Chapter 3 – Research Methodology: outlines the research questions; identifies the research methods; and the strategy applied to address the research question. This chapter also briefly examines the concept of analysis as well as qualitative research methods; and the importance and limitations of these methods in the social sciences.

Chapter 4 - Analysis and Interview Findings: presents the results of analysis, including interviews with planners, seniors, and focus groups. The results are tabulated and graphed for clarity.

Chapter 5 – Conclusions and Recommendations: recommendations based on the SWOT analysis of the survey findings completed in Chapter 4 are presented followed by conclusions in Chapter 5.

# CHAPTER 2 - LITERATURE REVIEW

## 2.1 INTRODUCTION

The research question, 'do urban design guidelines of the Cities of Kitchener and Waterloo address the needs of the ageing population posed in Chapter 1 , motivates this thesis. For the purpose of this research the Cities of Waterloo and Kitchener are chosen as case studies. Hence, the answers to these questions will require a critical analysis of the urban design guidelines for the Cities of Waterloo and Kitchener from the age-friendly principles lens.

The literature review is based on a study of over 170 journal articles, books and newspapers. In addition, 10 Provincial planning policies and legislations were also reviewed.

The review starts by outlining the opportunities presented by active ageing and subsequently discusses ecological theories that emphasize the importance of the physical environment in facilitating active ageing. The concepts of mobility and accessibility as they relate to urban form are also examined. Finally, approaches that planners, urban designers, architects, engineers and related professional could undertake to facilitate active ageing with the policies currently in place in Ontario, followed by Region of Waterloo and Cities of Waterloo and Kitchener, are included along with the summary of the key findings.

## **2.2 CHALLENGES AND OPPORTUNITIES OF AN AGEING POPULATION: WHY IS ACTIVE AGEING CRITICAL?**

The WHO (2002) emphasizes that for an ageing community, physical and social environments should be planned in such a manner that seniors and people with disabilities can enjoy security, and good health, while also contributing to the community in a purposeful way. WHO (2002) further notes that:

Physical environments that are age friendly can make the difference between independence and dependence for all individuals but are of particular importance for those growing older. For example, older people who live in an unsafe environment or areas with multiple physical barriers are less likely to get out and therefore more prone to isolation, depression, reduced fitness and increased mobility problems. (p. 27)

The next section highlights the potential opportunities that active ageing as addressed through urban form may provide to Canada and Ontario – including lower health care costs, allowing seniors to make a more meaningful contribution to society, and other ancillary benefits. The term urban form includes the physical layout of buildings, roads, streets, transportation networks and open spaces, and how they influence the density, employment and socioeconomic activities of a city (Rodrigue, Comtois, & Slack, 2009).

### **2.2.1 MANAGING HEALTHCARE COSTS THROUGH ACTIVE AGEING**

Canada now faces a demographic shift and will soon experience an increase in the number of seniors, on a scale never experienced before (Statistics Canada, 2014; Public Health Agency of Canada, 2009; Hodge & Gordon, 2007; Ball, 2012). One of the

challenges posed by an ageing population is reduced physical ability or disability (Figure: Population with a Disability by Age, 2006). The Government of Canada's (2006) report states that about 4.4 million Canadians (14.3%) had a disability<sup>5</sup> in 2006. The percentage of Canadians with disabilities increased with age, ranging from 3.7% for children 14 years and under to 56.3% for those 75 years and over (Public Health Care Spending per Person per Age Group, 2008) (2006b, p. 7). It is evident that seniors aged 65 and over, constitute a major portion of the population with a disability (Statistics Canada, 2007c). They experience barriers getting around the community and find themselves confined to their homes, or become dependent on others for daily tasks leading to health issues and isolation (Clarke, Ailshire, Bader, Morenoff, & House, 2008; Clarke & Gallagher, 2013; Findlay, 2003; Holt-Lunstad, Smith, & Layton, 2010; Lawton & Nahemow, 1973; Perenboom, Herten, Boshuizen, & Bos, 2004).

The Canadian Mental Health Association estimates that an increasing population of seniors will experience stress because of difficulties in approaching the built environment (Ball, 2012). Physical disabilities, if any, will also compound problems when interacting with the built environment (Clarke et al., 2008; Frank et al., 2003). Furthermore, mobility limitations owing to age, or otherwise, among seniors increases the probability of adverse health and increased mortality rates (Rosso, Auchincloss, & Michael, 2011).

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<sup>5</sup> Participation and Activity Limitation Survey defined disability as an activity limitation or participation restriction associated with a physical or mental condition or health problem. (Statistics Canada, 2007b)

One of the biggest challenges posed by an ageing population is the rising healthcare costs. For example, while those aged 65 years or older represented about 14% of the total population in 2011 (Figure 28), healthcare spending on this cohort represented 44% of the total healthcare expenditure (Figure 30) (Canadian Institute for Health Information, 2011). Further, in 2008, the average amount spent annually on an individual aged 65 years or older was \$10,742; for a senior aged 80 or above this cost was \$18,160. This is just over five times the amount spent on a Canadian between 1 and 64 years of age, which was approx. \$2097. Healthcare spending on a senior, is more than three times the spending on a person younger than 70 years (CIHI, 2010). Statistics Canada (2010) predicts that by the year 2031, seniors will represent 25% of the total population, which points to substantial increases in future healthcare costs. Research done in the field of gerontology indicates that an independent healthy lifestyle and active ageing in later years keeps people free from health problems – consequently decreasing healthcare spending (Paul, Ribeiro, & Teixeira, 2012; Rejeski & Mihalko, 2001; Sfarrer, 2011; *WHO Global Report on Falls Prevention in Older Age*, 2008).

### **2.2.2 ALLOW SENIORS TO CONTINUE TO CONTRIBUTE TO THE SOCIETY**

The senior population has a significant contribution to make in terms of volunteering and community involvement. For example, Statistics Canada (2012) found that Canadians from different age groups are involved in their community by either donating money or time to various charities. As per this report, 36.5% of those aged 65 and older, on a national level, contributed/donated 372 million annual hours, and in Ontario, 38.6% of those aged 65 and older donated 149.5 million annual hours, which is



about 40% of the national contribution. Similarly, 87.2% of the 65 and older age group donated \$2,566.7 million, while Ontario's 65 and older population cohort contributed \$1,305.3 million, which is about 50.8% of the total dollar donation (Statistics Canada, 2012). These findings clearly indicate that the contribution of seniors to society, in the form of hours and dollars, is very significant. Additionally, volunteer involvement keeps seniors active, and it is beneficial to seniors as well as the society. Some of the seniors interviewed are part of various advisory committees and volunteer regularly to support other seniors and persons with disabilities. These seniors are not confined to their homes and are contributing to the society to improve the quality of life for themselves and everyone around them.

### **2.2.3 ANCILLARY BENEFITS**

An age friendly community is beneficial for people of all ages - young people contribute their might in helping the community, while senior people contribute their experience and wisdom. Both young and old working together will reduce stress, thereby improving their quality of life. Also, relations and coordination will facilitate the support, need and comfort in communities (Kaplan, 1997; Newman & Hatton-Yeo, 2008; Waller, Langdon, & Clarkson, 2010).

Canada Mortgage and Housing Corporation (2014) Cities a well-known British gerontologist, Bernard Isaacs, who said "Design for the young and you exclude the old; design for the old and you include the young" (P.4). Barrier-free urban design practices can accelerate the mobility and independence for both seniors and people with disabilities. Consequently, to minimize the health care costs associated with ageing,

and to allow seniors to actively contribute to the community, it is important that urban design meets the needs of seniors (Clarke & Gallagher, 2013; Feddersen, 2009; Hall & Imrie, 2001; Levine, 2003; Ministry of Municipal Affairs and Housing, 2011).

### **2.3 UNIVERSAL DESIGN PRINCIPLES**

Universal design is a method to achieve "products and environments that can be used effectively by all people, to the greatest extent possible, without the need for adaptation or specialized design" (North Carolina State University, 1997, p. 1 cited in Levine, 2003, p. 6). Implementing Universal Design principles in planning and urban design guidelines for a more accessible community for everyone is significant for a city's development. Seniors encounter many challenges that come with age, including physical and emotional stresses. These challenges make it difficult for them to participate freely in the community and perform daily activities. Understanding that every citizen has a role to play in society improves the overall growth of a community and nation, irrespective of the physical challenges faced by citizens at different phases of their lives (Cross, 2011; Story, Mueller, & Mace, 1998). Accessibility issues deprive citizens of their rights to social and political independence and equality, which is discrimination against this minority cohort (Levine, 2003). Levine further advocates that universal principles go beyond common accessibility codes. These accessibility codes require buildings and urban structures to meet minimum standards, whereas the universal design has no "predefined end state" (2003, p. 11).

Although the implementation of Universal Design is considered expensive, Levine (2003) explains that built environments that are accessible today will need little

or no renovations, thus avoiding major costs to retrofit built environment in the future to meet the needs of changing demographic. Levine (2003) has explained thoroughly these principles to create a desktop reference manual with “the most common universal design principles” and has “offer[ed] simple, straightforward examples of how to incorporate those principles into real projects” (2003, p. 5). These principles therefore, aim to eliminate barriers, and ensure accessibility with reduced efforts exerted by a person with disability (Levine, 2003; Story et al., 1998). The Center for Universal Design has also identified seven Principles of Universal Design that provide a clear direction to a design approach for planners, designers, and architects (Table 2).

**Table 2: Universal Design Principles with Urban Design Context**

<b>Universal Design Principles</b>	<b>Definition</b>	<b>Example of Universal Design Principles with Urban Design Context<sup>6</sup></b>
1 — Equitable Use	The design is useful and marketable to people with diverse abilities.	Making urban form including public buildings, outdoor spaces, and community amenities such as sidewalks, trails, parks universally accessible.
2 — Flexibility in Use	The design accommodates a wide range of individual preferences and abilities.	A public space that can be used for more than one purpose such as community meeting or promoting arts purposes.
3 — Simple and Intuitive Use	Use of the design is easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level.	Straightforward street networks with simple flow patterns for easy way-finding
4 — Perceptible Information	The design communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities.	Standard signage and well-marked crossings
5 — Tolerance for Error	The design minimizes hazards and the adverse consequences of accidental or unintended actions.	Increased safety with separate dedicated sidewalks for pedestrian and (safe) bike lanes.
6 — Low Physical Effort	The design can be used efficiently and comfortably with a minimum of fatigue.	Well maintained sidewalks without cracks, smooth and visible curb cuts.
7 — Size and Space for Approach and Use	Appropriate size and space is provided for approach, reach, manipulation, and use regardless of user's body size, posture, or mobility.	Avoiding designs where (tall) buildings overshadow the street or are no longer able to frame the street; and wide sidewalks to accommodate people with mobility devices such as walkers.

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<sup>6</sup> The first two columns are based on Levine, 2003, p. 7; North Carolina State University, 1997, p. 1; Story, Mueller, & Mace, 1998, pp. 34–35.

Source: Adopted from (Levine, 2003; North Carolina State University, 1997; Story et al., 1998, pp. 34–35)

## **2.4 RELATIONSHIP BETWEEN ACTIVE AGEING AND URBAN FORM**

An ageing person may experience diminishing physical health. Gerontology, a branch of medical science, addresses the problems/issues of physical impairment, chronic health problems, and reduced autonomy that relate to the effects of age and ageing, as well as physical functioning and personal activity in everyday life (Institute of Gerontology, 2014). The increasing significance of environmental gerontology acts as a facilitator for age friendly community discussions (Andrews & Phillips, 2004; Minichiello, Browne, & Kendig, 2000; Phillipson, 2011; Wahl, 2003).

One of the most significant contributions in the field of gerontology is the Person-Environment Fit model which was based on the initial research of Lewin & Cartwright (1951). However, Powell Lawton and his team's contribution to the P-E model was more significant and influential. Lawton and his associate Nahemow founded a Person-Environment Fit model that explains the quality of life (QOL) of seniors in later years. Advocates of the model argue that various levels of physical activities of seniors depend on the demands placed on them by their physical settings and their capability to respond to these challenges (Lawton & Nahemow, 1973; Kerr, Rosenberg, & Frank, 2012; Wahl, Iwarsson, & Oswald, 2012; Phillipson, 2011) .

Another significant contribution to the field of gerontology that stresses the importance of the urban form relates to ecological theory. In particular, Lawton and Nehemow identify five environmental elements in the ecological theory of ageing that a

senior encounters in his/her activities (cited in Hodge, 2008), and elaborated on by other researchers. These include: a) Personal Environment, which is the perception of the prevailing situations around a person affecting his/her behaviour - a person's reaction to a situation depends on his/her perception (Lawton & Nahemow, 1973); b) Group Environment, which refers to the pressures attributable to the behaviours of individuals active as a group in some structural relationship (Altman, Lawton, & Wohlwill, 1984; Altman, 1995; Fergus, Valentiner, Kim, & Stephenson, 2009; Hodge, 2008); c) Suprapersonal Environment, which is composed of neighbourhood, age, gender, or ethnic configuration (Eckert & Ittman-Murray, 1984; Rosso et al., 2011); d) Social Environment, which is associated to the norms and values of the community in which seniors live - the way in which the needs and challenges of seniors are balanced in a community comprise the supportive or social environment (Lawton, 1978); and e) Physical Environment, which is linked to the 'non-social' side of the environment where seniors live, communicate and do their daily activities, and include for example, buildings, transport systems, sidewalks, parks. (Lawton, 1978).

This last element, the Physical Environment, refers to urban-form, including the natural and built environments. Seniors' response to different stimuli in the physical, built, social or other environments is identified as the 'interplay' with their environment. For example, the fear of walking on an icy or uneven sidewalk to a public transport stop may create three different responses: 1) a senior can move ahead; 2) a senior may prefer to stay at home; or 3) he or she may use a taxi instead of public transport. These three responses suggest characteristics of stimuli and interplay responses, reflecting

that the action taken by a senior is determined by his/her physical health, capability, and psychological environment (Hodge, 2008). Thus, geographical and/or spatial dimensions have a great impact on seniors' daily activities. Examples of the spatial implications include where seniors go for shopping or for medical care, where their relatives or friends live, and how they get to these destinations.

It is worth noting that discussions on age friendly communities started in the 1980's and 1990s. In fact, this discussion was initiated by the WHO and similar organizations. However, at the beginning of the 21<sup>st</sup> century, environmental gerontology acted as a catalytic agent in creating age friendly communities and gave a new colour to the debate changing the whole scenario (Andrews & Phillips, 2004; Cunningham & Michael, 2004; L. D. Frank, Engelke, & Schmid, 2003; Frumkin, 2004; Handy, Boarnet, Ewing, & Killingsworth, 2002; R. J. Jackson, 2003; Kerr et al., 2012; King, 2008; McCallion, 2007; McClure & Bartuska, 2007; Minichiello et al., 2000; Rosso et al., 2011; Sallis, 2009; Srinivasan, O'Fallon, & Dearry, 2003; Wahl, 2003).

The process of enhancing opportunities for health, active participation and security in order to augment the QOL is termed active ageing (WHO, 2002), which is an essential feature of AFCs. Both individuals and societies benefit from communities or Cities that provide opportunities for active ageing. Regular physical exercise in the form of daily activities can improve health and physical ability, and slow down the ageing process (Booth, Owen, Bauman, Clavisi, & Leslie, 2000). The WHO (2007) recommends that AFC models should cover the issues of accessibility and affordability of facilities. Such models will increase the mobility and sense of freedom among

seniors. Numerous researchers have also highlighted mixed-use compact development that targets the intensification of communities and encourages public transit ridership, which ultimately decreases dependency on cars. In doing so, this strategy deals with, among others, mobility issues that concerns seniors (Dittmar & Ohland, 2003; Michael, Green, & Farquhar, 2006).

The initial push to create age friendly communities came from a response to seniors' wish to stay in their native place and the challenges associated with this. Widely known in the literature as 'age-in-place' or 'ageing-in-place', this concept refers to "[t]he ability to live in one's own home and community safely, independently, and comfortably, regardless of age, income, or ability level" (CDC, 2013, p. 1; Bayer & Harper, 2000; Hodge, 2008; Special Senate Committee on Aging, 2009). Seniors prefer to age-in-place because it creates a friendly psychological environment for them (Public Health Agency of Canada, 2010; Special Senate Committee on Aging, 2009). Research, mainly carried out in 1980s and early 1990s, points to the fact that after retirement, people (seniors) tend to stay in their homes until they die or are not capable of living independently (Cuba & Hummon, 1993, 1993; Eckert & Ittman-Murray, 1984; Lawton, Greenbaum, & Liebowitz, 1980; Rowles, 1994). This idea for ageing in place arose from a desire for security, safety and dignity. That is, seniors feel comfortable among known people with whom they can converse and share their feelings. Ageing in place within a homely environment provides seniors with psychological and emotional satisfaction. As numerous reports and studies have observed, more than 80% of seniors



have a desire to remain in their native places (Bayer & Harper, 2000; Hodge, 2008; Special Senate Committee on Aging, 2009).

Evidence that seniors wish to stay in their native place needs to be viewed in conjunction with research done in the field of gerontology. This research suggests that physical and social environments are significant factors for being well in later life and able to participate/get involved in daily physical activities (Bolívar, Daponte, Rodríguez, & Sánchez, 2010; Cunningham & Michael, 2004; Satariano, 2006). This provides an impetus to plan for age friendly communities. The next section reviews how planners could respond to the challenges/ opportunities posed by an ageing population.

## **2.5 FACILITATING ACTIVE AGEING THROUGH URBAN FORM: PLANNERS RESPONSE**

It is suggested that in age friendly communities, older people find it convenient to enjoy life by participating in the activities of society in a purposeful way. The environment in an age friendly community gives the sense of security by providing programs, policies, and infrastructure associated with a social and physical environment specifically designed for older adults, enabling them to cherish good health independently. The independent lifestyle and involvement in the community in a meaningful way enhances older adults' quality of life (Bolívar et al., 2010; Cunningham & Michael, 2004; Emler & Moceris, 2012; Kerr et al., 2012; King, 2008; McNeill, Wyrwich, Brownson, Clark, & Kreuter, 2006; Phillipson, 2011; Wahl, 2003; Waller et al., 2010).

Hodge (2008) emphasizes the importance of proper urban planning. According to Hodge, planners should consider the impacts that ageing in place has on housing, auto

dependence and safety. Lehning, Chun, and Scharlach (2007) note that age friendly communities should have three all-encompassing characteristics that reflect age related issues of life: a) continuity - age does not put obstacles in the way of individuals pursuing their interests and taking part in activities on daily basis; b) compensation - support, adapting or adjusting the services and infrastructure should be made available to those with varied impairments to facilitate them to meet their basic essentials; and c) challenges - everyone, irrespective of age, gender or ethnicity, must get the opportunity to nurture his/her interests.

The WHO (2007) in its guide highlighted eight features in a checklist that encompass age-friendly communities. These features are: 1) Outdoor Spaces and Buildings<sup>7</sup>; 2) Transportation; 3) Housing; 4) Respect and Social Inclusion; 5) Social Participation; 6) Communication and Information; 7) Civic Participation and Employment Opportunities; and 8) Community Support and Health Services.

Current research shows mobility is related to better wayfinding, reducing the distances for pedestrians, green spaces, and recreation/health clubs. (Clarke & Gallagher, 2013; Kerr et al., 2012; Rosso et al., 2011; Lynott et al., 2009; Renne, 2009; Li, Fisher, Brownson, & Bosworth, 2005; Handy et al., 2002). Wayfinding is defined as “the process by which we find our way from place to place, which is an essential part of everyday life that makes it possible for us to move about in and engage with our

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<sup>7</sup> Focus of this research is the first element detailed out in WHO (2007) report. Outdoor Spaces and Buildings has direct and indirect influence on other elements such as transportation, social and civic participation.

communities” (Hunter et al., 2013, p. 4). Wayfinding also includes street network and signage as important aspects in creating age friendly communities (Figure 31 for impacts of good wayfinding). Furthermore, age-friendly communities include outdoor spaces such as public places, parks, sidewalks, and facilities for taking rest – for example street, furniture and washrooms at reasonable distances.

To create walkable and inclusive age-friendly communities, emphasis should be placed on creating strong public spaces with no implicit or explicit privatization of the public realm. Streets are for everyone, regardless of users’ age and ability, whether motorist, bicyclist or public transit users (Lynott et al., 2009). The Complete Streets Policy<sup>8</sup> states that, “Policies’ direct decision-makers to consistently fund, plan for, design, and construct community streets to accommodate all anticipated users, including pedestrians, bicyclists, public transportation users, motorists, and freight vehicles” (Seskin, 2012, p. 8; Lynott et al., 2009). One example of Universal Design Principle 5 – Tolerance for Error<sup>9</sup> (Levine, 2003; North Carolina State University, 1997; Story et al., 1998), at the community level is to have increased safety with separate dedicated sidewalks for pedestrian and (safe) bike lanes. This principle coincides with the Complete Streets Policy stated above. However, most roads in car-dependent communities are designed for car users only (Rubey & Hofstra University. National

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8 My questionnaire to seniors is based on the checklist I derived at end of Chapter 3 and is adopted from Complete Streets’ toolkit guide.

9 For definition, see Table 2

Center for Suburban Studies, 2009; Renne, 2009; Hodge, 2008; L. D. Frank et al., 2003; Handy et al., 2002; EcoPlan International, 2011).

Local public transport policies require new dimensions, vision and improvement. Three dimensions for improvement are: “(1) providing mobility options; (2) ensuring an accessible mobility environment; and (3) legislative and institutional reforms that will address issues related to transport of elderly and/or physically challenged” (Mercado, Páez, & Newbold, 2010, p. 649). Well-connected street and road networks with efficient transit services play a significant role in planning tools that enable seniors to remain independent and mobile enough to complete their daily tasks, and be part of the social and community activities of their society (Clarke & Gallagher, 2013; Clarke et al., 2008; Rosenbloom, 1988). An easy-to-use transit system considers factors such as, ensuring only a five minute walk time to reach transit stops, well maintained sidewalks connecting home or destinations to transit stops, and increased frequency of transport. These factors are significant for seniors and have been observed as more troublesome than actual time spent on travel (Clarke & Gallagher, 2013; Mathieson, Kronenfeld, & Keith, 2002; Rosso et al., 2011; Satariano, 2006; Warden, 2001).

The significance of the built environment<sup>10</sup> has taken on new dimensions in recent years as a result of development and design to meet the requirements of seniors and persons with disabilities. The basic principle of a built environment adapted for ageing communities is that planners should take into consideration the knowledge base

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<sup>10</sup> Definition of ‘Built-environment’ is provided in section Glossary

and concepts of research associated with ageing (Balfour & Kaplan, 2002; Clarke et al., 2008; Gray, 2012; Howell, 1980) . Howell (1980) has further stated that “the most important point that this material should convey is that older people need variations in the spaces in which they live” (p. 131) because they themselves vary in their lifestyle and requirements. Apart from this fact, they want to be part of society in significant ways (Hall & Imrie, 2001). In the words of Imrie and Hall, “disabled people are also demanding adaptations and changes to buildings to permit them a greater use of the built environment and, consequently, a fuller role in society” (2001, p. x).

Seniors’ desire to play a ‘fuller role in society’ is only possible if the built environment is accessible to seniors and persons with disabilities. However, the existing designs and built environment are often inattentive to their needs, leading to infringement of their civil liberties (Hall & Imrie, 2001). Another aspect of why the built environment is not designed by professionals for the convenience of disabled people relates to ‘institutional ignorance’, ‘problematic attitudes’, and ‘fallacies’ as mentioned by Hall & Imrie (2001). The three reasons why the built environment is not designed for people with disabilities are: a) there is not enough demand by the disabled people themselves; b) making built environment friendly to disabled people is a costly affair; and c) existing provisions in buildings for wheelchair users are sufficient, and technical solutions can be provided without making any change in social cultural attitudes (Hall & Imrie, 2001).

The concept of independent living depends on two factors: independence and integration with society. Independence is functioning and performing the daily activities

of life in ways similar to those of able-bodied individuals (Cisneros, Dyer-Chamberlain, & Hickie, 2012; Hodge, 2008; Lowy, 1989; Paul et al., 2012; Public Health Agency of Canada, 2009; Rowe & Kahn, 1997; Wahl et al., 2012) . Integration with communities refers to the fusion of daily living processes and society as a whole.

Equality in socio-spatial concepts can reform communities to be inclusive. Social differences are the results of denial or failure to develop environments available to meet the demands of every individual who inhabits them, except for seniors or persons with disabilities. Seniors with limited physical abilities face impediments or obstacles in participating in existing and available developments (Cunningham & Michael, 2004; Kelly, 1993; Sugiyama & Ward Thompson, 2008; Waller et al., 2010; Weiss & Bass, 2001). For example, seniors or persons with disabilities are not usually involved in the design processes for the built environment. Segregating seniors or persons with disabilities from such processes result in inaccessible design outcomes (Coleman, 2007; Eason, 1995; Keates, Clarkson, Langdon, & Robinson, 2004; Nasar & Evans-Cowley, 2007). The forces that work against the planning of accessibility have been 'thoughtlessness' and 'malice'. The ways suggested to overcome these hostile forces are to convert 'thoughtlessness' to 'thoughtfulness' and 'malice' to 'sympathy' by implementing minimum adequate standards (Ball, 2012).

Hall & Imrie (2001) emphasis that changes in professionals' institutional ignorance and problematic attitudes is the need of the hour. The ageing population and built environments are issues that now draw the attention of researchers to address the issues of the future in a proper perspective. As suggested, there is a significant body of

literature available that provides guidance to planners and policy makers to help design age friendly communities. It is then up to various levels of government to implement the policies that enable communities to facilitate active ageing a reality.

In the next section, the policies in place at the provincial and municipal levels of government in Ontario to guide urban design are examined to determine the extent to which they contain provisions for designing age friendly communities. Provincial and municipal (?) policies that are premised on creating built environments that are accessible and do not impede mobility for seniors are smart policies that will help reduce the future health care costs associated with an ageing population, as described in Section 2.2.

## **2.6 HIERARCHY OF THE POLICIES INFLUENCING URBAN DESIGN GUIDELINES**

A number of Acts and policies influence urban design guidelines in Ontario. At Provincial level, the Provincial Policy Statements (PPS), Accessibility for Ontarians with Disability Act (AODA), and Places to Grow Act guide the Regional Official Plan of Waterloo Region. The policies included in the PPS form the foundation of Ontario's land use planning system. The Regional Official Plan, which is a legal document, is required under the Provincial Planning Act. The Regional Plan combines the broad policy and regulatory framework established by the Province of Ontario with the community planning goals, objectives and policies developed by the Region and the seven area municipalities (Region of Waterloo, 2010b, p. 3). Official plans for the Cities of Waterloo and Kitchener are guided by the provincial acts and policies, as well as Regional Official

Plan. Municipalities are responsible for implementation for the provincial policies including Provincial Policy Statement.

Provincial Policies and Acts come first in a top to bottom linear hierarchy of the policies and legislation guiding the Urban Design Manuals (UDM) of the Cities of Kitchener and Waterloo. Regional Policies and Official Plans are next in hierarchy before City level Official Plans, which influence these urban design guidelines (Hodge & Gordon, 2008). These Policies and Acts are discussed below.

### **2.6.1 PROVINCIAL POLICY STATEMENT (2005)**

The PPS (2005) provides guidelines on “land use planning and development” at the provincial level. It provides directions to the province by “laying out the policies for boundaries of settlement areas together with intensification and redevelopment that “supports the provincial goal to enhance the quality of life for the citizens of Ontario” (Ministry of Municipal Affairs and Housing, 2005, p. 5). While a set of revised Provincial Policy Statement came into effect on April 30, 2014, current Official Plans and Urban Design Manuals are still based on the PPS 2005. Two particularly important policies in PPS 2005 that guide the Urban Design sections of Official Plans of the Municipalities that are laid out for elderly people and people with disabilities:

Healthy, liveable and safe communities are sustained by improving accessibility for persons with disabilities and the elderly by removing and/or preventing land use barriers which restrict their full participation in society (2005, p. 4 Section 1.1); and



Healthy, active communities should be promoted by providing for a full range and equitable distribution of publicly-accessible built and natural settings for recreation, including facilities, parklands, open space areas, trails and, where practical, water-based resources (2005, p. 10 Section 1.5).

These policies also direct municipalities to remove land use barriers, which limit their full participation in society. This includes accessible built environment and open spaces, which also reiterate with Design of Public Spaces Standards.

In the new Provincial Policy Statement 2014, the policies that are relevant to this study are “improving accessibility for older persons by identifying, preventing and removing land use barriers” ... “promote coordination between municipalities and other levels of government, agencies and boards (e.g., planning for trails, transit and infrastructure)” and “Recognize additional elements of healthy communities, such as community design and planning for all ages” (Ministry of Municipal Affairs and Housing, 2014). These policies are an improvement over the previous version, however, it will take some time for these policies to be reflected in the Official Plans of the Region of Waterloo and its local municipalities. The implementation of these policies may even take longer.

## **2.6.2 PLACES TO GROW (2005)**

The Places to Grow Act sets out policies for growth and development that “support economic prosperity, protects the environment and helps communities achieve

a high quality of life across the province” (Ministry Of Infrastructure, 2005). The Act encourages higher-density developments which support economic prosperity and decisions on how land is developed, resources are managed, and how public dollars are spent (Filion, 2007; Government of Ontario, 2006). Two Growth Plans have been prepared that provides specific direction for development taking place in the areas identified under the plan – the Growth Plan for the Greater Golden Horseshoe and The Growth Plan for Northern Ontario, 2011 (Ontario, 2013). The Region of Waterloo falls under the Growth Plan for the Greater Golden Horseshoe 2006. This 25 year Growth Plan for the Greater Golden Horseshoe promotes the core area of the Cities growing into vibrant and convenient centers to provide more opportunities for living, playing and shopping, which meet the needs of people at any age (Government of Ontario, 2006, p. website). These policies are reflected in Regional growth plans that direct “government investments and policies” and Official Plans (of the Region and the Cities) along with urban design manuals of the municipalities (Ministry Of Infrastructure, 2005).

### **2.6.3 DESIGN OF PUBLIC SPACES STANDARDS (ACCESSIBILITY STANDARDS FOR THE BUILT ENVIRONMENT) BY AODA**

The Ministry of Economic Development, Trade and Employment passed the Accessibility for Ontarians with Disabilities Act in 2005. The Act provides a framework for the development of province-wide mandatory standards on accessibility in all areas of daily life (2005). The AODA has these accessibility standards divided into five areas: customer service, employment, information and communications, transportation, and design of public spaces. The Design of Public Spaces Standards (Accessibility

Standards for the Built Environment) was added to Accessibility for Ontarians with Disabilities Act, 2005 on December 17, 2012. The purpose of the Design of Public Spaces Standards by AODA is to benefit all Ontarians by making “Public spaces and Buildings”, as defined in the Act, barrier free. Starting from January 1, 2015, new construction and major renovation projects will come under this ACT (Ministry of Economic Development, Trade and Employment, 2005).

Involvement of persons with disabilities in development of the standards is a step towards understanding the needs of this cohort towards built environment. Standards Development Committee (selected by the Minister of Community and Social Services for preparation of Design of Public Spaces Standards), consisted of half of the committee members being persons with disabilities or representatives of organizations for persons with disabilities, prepared the Accessibility Standards for the Built Environment (Ontario, 2012). The purpose of the committee was to reflect the experience of individuals with disabilities to help create accessible built-environments for all Ontarians.

#### **2.6.4 REGIONAL OFFICIAL PLAN (ROP) FOR THE REGION OF WATERLOO**

The Regional Official plan was developed in 2009 through consultations with community groups and areas municipalities along with the public to ensure that the Region of Waterloo is a “sustainable and livable community” (Region of Waterloo, 2010b). The Regional Official Plan is a legal document required by the Provincial Planning Act and regulatory framework, which were established by the Province of Ontario keeping in view the community goals and objectives. Future development in the

Region of Waterloo must conform to the policies and goals and objectives laid down in the Official Plan (Region of Waterloo, 2010b).

The Plan does not include age-friendly principles in its five key elements<sup>11</sup>. However, there are some references to these principles in its Chapter 2 (section 2.D.2) and 3. Some of these instances include - “fosters walkability by creating pedestrian-friendly environments that allow walking to be a safe, comfortable, barrier-free and convenient form of urban travel”, “...support a more compact urban form that [is] within a comfortable walking distance of transit” (Region of Waterloo, 2009, p. 17). The Region of Waterloo’s Official Plan, Chapter 3, Liveability in Waterloo Region, states that “A liveable Waterloo Region depends on many interconnected cultural, environmental, social and economic elements” (Region of Waterloo, 2009, p. 33). An effort is being made to make the Region, “become a desirable, accessible and safe community... fostering a high quality of life” (Region of Waterloo, 2009, p. 33). In addition, section 3.B of the Plan recognizes that “a substantial portion of the community does not, or will not, have access to private automobiles either by choice or due to financial, age or physical limitations” (Region of Waterloo, 2009, p. 34).

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11 “a) A fixed border between rural and urban areas; b) Directing growth to make better use of land within the built up areas of the Region; c) Increasing transportation choice, including the creation of a rapid transit system; d) Protecting our drinking water and significant environmental areas; and e) Increasing the quality of life of citizens in Waterloo Region” (Region of Waterloo, 2010b, p. 1)

Policies in the Regional Official Plan are reflected in the Official Plans of the Cities Kitchener and Waterloo (Region of Waterloo, 2010b). The Official Plans of the Cities are discussed in detail in the next section.

## **2.6.5 OFFICIAL PLANS OF THE CITIES OF KITCHENER AND WATERLOO**

### **Official Plan of Kitchener**

The current Official Plan of Kitchener was implemented in 2005 and is currently under review. The final draft of the new Official Plan is available on the City of Kitchener's website (City of Kitchener, 2014). The Official Plan of Kitchener is a policy document outlining the city's long-term objectives and policies. The Urban Design section of the current Official Plan states its objective as creating "a safe, attractive, stimulating, accessible, environment in which to live and work" (City of Kitchener, 2006, pp. 6–1). The final draft<sup>12</sup> of the Official Plan of the City included additional provisions to facilitate more accessible urban form. A proposed policy in the final draft plan states that, "The City will encourage new sites to be designed, existing sites to be redeveloped, the public realm and community infrastructure to be planned to be barrier-free and universally accessible by all citizens. In this regard, the city will enforce the Ontario Building Code and other accessibility related legislation and regulations" (2014, p. 114) to "ensure barriers to pedestrian movement are limited and where feasible

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<sup>12</sup> The Official Plan of the City of Kitchener is under review. The Final Proposed Draft is available for review on Kitchener's website ([www.kitchener.ca](http://www.kitchener.ca))

eliminated, and that pedestrian facilities accommodate persons with varying degrees of mobility” (2014, p. 131).

Section 16.E.22 - Site Plan Control of the proposed policy sets out the requirement for site design to be “barrier-free and universal accessible” (2014, p. 283). The final draft Official Plan does not specifically address needs of the elderly population. However, as cited above, it does lay out policies that can make the city universally accessible by all. It also refers to Universal Design Principles and the AODA 2005. The Urban Design Manual of Kitchener reflects guiding policies laid out in the Official Plan implemented in 2005.

### **Official Plan of Waterloo**

The current Official Plan of the City of Waterloo was implemented in 2012. The vision and principle statement of the Official Plan, in part, is that, “The City will strive to achieve a healthy and sustainable community by adopting “...four principles for growth that aim to provide for a balance of social, cultural, environmental, and economic interests...and a City that is accessible to all” (City of Waterloo, 2012a, p. 7). It further states the Region’s intention to “develop an urban form that...Accommodates all people at all stages of life” (2012a, p. 14). One of the policies, under section 3.11.1 General Urban design guidelines of the Official Plan of Waterloo, sets out a policy stating that “Barrier-free access will be encouraged from the public streets, along pedestrian routes, building entrances and other important destinations” (2012a, p. 40).

The Ministry of Municipal Affairs and Housing (2011) has developed a comprehensive handbook, ‘Planning for Barrier-Free Municipalities: A Handbook & Self-

Assessment Tool' which states that "A barrier-free municipality is one that successfully strives to prevent and remove all barriers in order to promote equal opportunity and participation by residents and visitors with disabilities" (2011, p. 7); it also highlights Universal Design Principles. These are suggestions provided by the Ministry to facilitate municipalities in creating barrier-free communities. Chapter 4: Findings highlights the presence of these in the Official Plans of Kitchener and Waterloo.

#### **2.6.6 URBAN DESIGN MANUALS OF CITIES OF KITCHENER AND WATERLOO**

This section provides an introduction to the Urban Design Manuals of the Cities of and Kitchener and Waterloo. The analysis of these design manuals were based on interviewed participants' responses and key findings of the literature review is provided in Chapter 4.

##### **City of Kitchener's Urban Design Manual**

Kitchener's Urban Design Manual notes that the City has taken several initiatives to improve the quality of life for its residents. The design manual supports these initiatives, which includes Environics Surveys, a Pedestrian Charter and the Healthy Communities Initiative. The city also notes that the Places to Grow Growth Plan guides detailed future expansion in this area and its aspiration to achieve Complete Communities (City of Kitchener, 2012, p. B-97).

The urban design framework of Kitchener also provides guidelines for specific policies laid out in its Official Plan (City of Kitchener, 2006). The scope of these guidelines includes the City's expectations for projects' building location, mass, parking, access and other related specifics (City of Kitchener, 2012, p. B-1). The City's Urban

Design Manual has five principles within the City's vision<sup>13</sup>: function, order, identity, appeal, and built form to accomplish its long term commitment to urban design (City of Kitchener, 2012). This thesis focuses only on the guidelines that create age-friendly communities, as all the principles are not relevant to this research. Therefore, the most pertinent principles are discussed below.

*Function*: The first principle within the Vision “[p]romote accessibility/usability/safety for all groups; [o]ffer choices and variety in terms of housing, commerce and modes of transport; [p]romote the protection and sustainability of natural environments; [and] [e]ncourage strong and clearly defined pedestrian connections and linkages” (City of Kitchener, 2012, p. A–1). The first and last key statements in the Function directly relate to this thesis. The first key statement is about supporting accessibility, usability and safety for all [age or people with varied abilities] groups. The second key statement encourages wayfinding through strong and clearly defined pedestrian connections and linkages.

*Order*: The second principle notes: “[e]ncourage ‘legibility’ in design i.e. clearly understandable design patterns; [p]rovide a balanced and efficient distribution of activities; and [p]romote the continuity and improvement of established development patterns and streetscape design” (City of Kitchener, 2012, p. A–1). This principle is about design elements and focuses on comprehensive design patterns with effective

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13 The City of Kitchener's Vision: “a safe, attractive, stimulating, accessible, environment in which to live and work” (City of Kitchener, 2006, pp. 6–1).



distribution of activities promoting linkages while enhancing existing streetscape design and development. One example of this relates to bike lanes on city streets.

*Identity*: The third principle is about “distinctive and recognizable design”; “focus for activity”, and “[r]einforce neighbourhood character and place making” (City of Kitchener, 2012, p. A–1). However, these key points are not pertinent to this study.

*Appeal*: The fourth principle notes that the built environment be “functional and attractive”, and it should be in an “appropriate scale and a sense of proportion” (City of Kitchener, 2012, p. A–1). The key points that are relevant to this study are “functional” and “appropriate scale and a sense of proportion”. The first key point is detailed in the first principle while the later key point will be compared with the built environment of the city in Chapter 4.

*Built Form*: The last principle is about the “compatible built form”, “high density”, and supporting “compact development in the central neighbourhoods” (City of Kitchener, 2012, p. A–1); these key elements are not applicable to this study.

The Urban Design Manual provides design guidelines to implement the planning principles, and to support municipal staff, developers and similar organisations accomplish the City’s Vision; to implement Places to Grow 2005 Act; and to achieving complete communities<sup>14</sup> (City of Kitchener, 2012, p. B–97).

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<sup>14</sup> Complete Communities provide more opportunities for living, playing and shopping, which meet the needs of people at any age (Government of Ontario, 2006, p. website).

## **City of Waterloo's Urban Design Manual**

The City of Waterloo's Urban Design Manual (2009) is based on the policies outlined in City's 2007 Official Plan. The main purpose of Waterloo's Urban Design Manual is to provide tools and methodologies to implement Waterloo's vision to support "high quality development" in order to create an "innovative and livable city" (City of Waterloo, 2009, p. 3). The design guidelines provide a framework to implement the city's policies and design goals. The City notes that the implementation of these design guidelines is achieved with their development review process at a very early stage such as pre-consultation. The urban design manual explains design expectations for development plans, site plans, building facades and building heights. The manual has five design objectives outlining the foundation for the implementation of these design guidelines (City of Waterloo, 2009, p. 3).

The first design objective is to "Promote [a] High Standard of Urban Design" with focus on "compatible development", "pedestrian-friendly" and "other functional aspects" for all the developments in the city (City of Waterloo, 2009, p. 3). With respect to age-friendly communities, functional aspect 'pedestrian-friendly' for 'high quality of life' is relevant. However, this objective does not specifically talk about accessibility or barrier-free design, which is an integral part of age-friendly communities.

New projects are guided to understand the neighbouring context, respect neighbourhood characteristics, and add to it through the second design objective, which is, "To Respect Context and Promote Sense of Place" (City of Waterloo, 2009, p. 3).

The third design objective, “Enhance Connectivity and Interaction”, directs new projects to “maintain and improve site circulation with an emphasis on pedestrian movement” (City of Waterloo, 2009, p. 4). It is an important design objective and is explored in detail in Chapter 4. The fourth and fifth design objectives promote “Creativity and Innovation” and “Sustainable Design” for new projects through “streetscape character and landmark sites”, intensification, and public realm developments respectively (City of Waterloo, 2009, p. 4). Age-friendly communities’ urban-form facilitates seniors’ desire to be independent, and as such, the last two objectives are not relevant to this study.

## **2.7 KEY FINDINGS**

The literature review has thrown light on ageing, disabilities associated with it, and the influence of the built environment on an ageing population. Age friendly communities increase the level of confidence of seniors with enhanced walkability, accessibility, and opportunities to participate in the community actively. Research done in the field of gerontology also indicates that an independent healthy lifestyle and active ageing in later years could help manage health care costs. Canadian communities including those in Ontario face a challenging situation where urban form developed in the late 20<sup>th</sup> century had no (or minimum) mixed land-use. However, in recent years, there has been a push towards developing more age friendly communities as witnessed by the 2014 Provincial Policy Statement.

The checklist below assesses the extent to which the urban design guidelines of the Cities of Kitchener and Waterloo meet the benchmark for active ageing. In

particular, the assessment checklist in Column 1 of the Table below includes the criteria that any age friendly community should meet, and are based on a review of the literature. These criteria will be assessed in greater detail in Chapter 4. The second column provides greater detail/ sub-criteria on the criteria included in Column 1 of the Table. For example, in order to assess whether a city meets the criteria of walkability it would have to be assessed against several other sub-criteria, such as availability of sidewalk and its width, maintenance, visible and textured curb-cuts. The questionnaire for this thesis was based on the criteria included in Column 1. The final column shows the group to which questions based on the check list criteria were addressed. For example, given the specialized subject matter, questions that assessed whether urban design guidelines refer to guiding principles, such as Universal Design principles, were only posed to planners in the two municipalities. Questions that related to walkability were however, posed to all interview groups including planners, seniors and focus groups.

**Table 3: Assessment Checklist of Key Findings**

Assessment checklist	Detail	Questions directed to:
Reference to guiding principles such as Universal Design principles and AODA (Section 2.3 and 2.5.3)	Accessibility for Ontarians with Disabilities (AODA)	Planners
	Universal Design Principles	Planners
	Analysis of current state of age-friendly (or all-age-friendly) policies	Planners
	Focus on improvement	Planners
Walkability - Wayfinding (Signage), Lighting, Street Amenities (Section 2.4 and 2.5)	Availability of sidewalks and its width, maintenance, visible and textured curb-cuts	Planners, seniors and focus groups
	Shade, resting places, signs/directions for way-finding	Planners, seniors and focus groups
	Adequate street light, overgrown vegetation, properly/improperly maintained locations in the neighbourhoods	Planners, seniors and focus groups
	Accessible, safe, maintained and inviting walkways and benches in parks, trails and picnic facilities	Planners, seniors and focus groups
Built Environment ((Section 2.4 and 2.5)	Building and Street Ratio, mixed land-use policies, and urban design guidelines	Planners, seniors and focus groups
Urban Design issues around Transportation (Section 2.4 and 2.5)	Location of bus stops within a 10-minute walk, maintenance of sidewalks serving bus stops, street crossings near bus stops safe, well-marked transit stops, adequate room for wheelchairs, information for those with limited sights	Planners, seniors and focus groups
	Traffic signals at pedestrian crossings, push-to-walk buttons, adequate crossing time, midblock crossing on long streets, well-marked crosswalks	Planners, seniors and focus groups

## **CHAPTER 3 - RESEARCH METHODOLOGY**

The approach for this project includes the review of documents, including preliminary study of provincial planning documents, the Regional of Waterloo official plan, Kitchener and Waterloo's official plans, and urban design manuals. These documents were compared with key findings from the Literature review. A total number of 19 seniors and two planners - one from the City of Kitchener and the<sup>15</sup> other from the City of Waterloo participated in semi-structured interviews. In addition, two focus groups were arranged in the City of Kitchener, and one Grand River Transit (GRT) official was contacted via email. Consequently, this study relies primarily on qualitative research methods to explore my research question. In the next section i.e. introduction to quantitative and qualitative research, the methods and methodology are described.

### **3.1 INTRODUCTION TO QUANTITATIVE AND QUALITATIVE RESEARCH**

In order to complete the journey of research, the researcher uses various tools, such as interviews, surveys, site visits, and taking photographs as methods of research. A methodology is "the collection of methods or rules by which a particular piece of research is undertaken" (Somekh & Lewin, 2004, p. 346 as cited in Mackenzie & Knipe, 2006, p. 7) and the concepts and standards that strengthen an individual or specific approach for a study. The difference between methods and methodology as put forth by Mackenzie & Knipe (2006) is that "methodology is the overall approach to research linked to the

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<sup>15</sup> Grand River Transit provides public transportation services in the Region of Waterloo

paradigm or theoretical framework, while the method refers to systematic modes, procedures or tools used for collection and analysis of data” (2006, p. 7). Therefore, in simple words, the methods are the procedures or techniques that researchers use to conduct a research. The methodology is the branch of knowledge that employs these methods.

Quantitative and qualitative research methods are generally employed for research purposes in social sciences and other branches of education. Quantitative methods, as is apparent from its ‘word’, relates to mathematical numbers relating to quantity. Quantitative research, as Muijs (2011) cited in Aliaga & Gunderson (2000) is “Explaining phenomena by collecting numerical data that are analysed using mathematically based methods (in particular statistics)” (2011, p. 1). The key words in this definition are “phenomena” and “numerical” data. Phenomena are used in almost all facets of researches, whereas numerical data is focused on quantitative research. Quantitative methods are used when research is examining “how many”, percentage/rate and their relationships with relative factor types of questions (Muijs, 2011, pp. 6–7). These types of research questions involve statistical approach to data collection methods and data analysis.

Qualitative research can be done in an inductive or deductive way. An inductive research method is used when researchers are trying to establish a theory. In this study the theory has already been established (Elo & Kyngäs, 2008). I used deductive qualitative approach to analyse the existing concerns in regards to the urban form and built environment. The topic was observed in various senior advisory committees and

healthy community or similar conferences. The decision to focus on the urban design aspect of the study was made as a result of observations during these interactions, which suggested that more research was needed in this area. The study is concerned with the current social and planning processes along with seniors' verbal input. Data collection and data analysis methods used to complete this study have a subjective and non-numerical approach to it. The next section describes the qualitative research method in detail for this study.

### **3.1.1 QUALITATIVE RESEARCH METHOD**

Qualitative research methods involve collecting data in the form of words and not numbers. Miles & Huberman (1994) suggests that qualitative data is a knowledgeable source with extensive explanations of practises happening in the local framework (1994, p. 1). In one frequently quoted paragraph, Miles & Huberman further elucidates the significance of qualitative research by suggesting that:

Good qualitative data are more likely to lead to serendipitous findings and to new integrations; they help researchers to get beyond initial conceptions and to generate or revise conceptual frameworks. Finally, the findings from qualitative studies have a quality of 'undeniability.' Words, especially organised into incidents or stories, have a concrete, vivid, meaningful flavour that often proves far more convincing to a reader - than pages of summarised numbers. (1994, p. 1)



The qualitative research concerns persons and the activities they do and it is related to the experiences of people about the social functioning and forces that influence their lives. It is a broader term that includes social cohesion in the social structure. Through this umbrella approach, the social functioning and social reality of individuals as well as groups are analysed through their behaviour. The paradigm of social behaviour is investigated and interpreted through the perspective of the actions and reactions of people. Qualitative methodology is useful in the exploration of change or conflict under social paradigm (Atkinson, Delamont, Coffey, Lofland, & Lofland, 2007; Berg, 2012). For example, RK5 suggested “planners can get a lot of information from books/conferences and from academia...The best experience however is always a personal one. Taking the time and effort to use a wheelchair/walker/goggles or any other aid is always a very good lesson for any planner (RK5, personal communication, 2013). These type of inputs from people experiencing these everyday events in ordinary scenarios offer researchers an insight on how people with varied capabilities deal with these situations in real life (Miles & Huberman, 1994).

This study relies on semi-structured interviews, which is a form of qualitative research. I utilized the three methodologies that was suggested by Micheal Quinn Patton (2002) for designing interviews involving open-ended questions. That is, comfortable informal interviews, general interview guides, and standardized open-ended interviews. The comfortable informal interview, which depends on “spontaneous generation of questions” is considered as continuing exploration in the fieldwork (2001, p. 341). The general interview guide, which includes delineating

established issues/concerns, is to be directed to each participant in an interview. For this study, a checklist, as detailed in section 3.4.1 Coding Process and Scheme, was used to derive a standard set of questions covering the main topics of my research. Lastly, the standardized open-ended interview uses a standard set of planned questionnaire for key participants. These questions further probe participants' experiences, behaviors and opinions through the open-ended nature of questions. This methodology is also known as the semi-structured interview approach.

Bernard (2012) suggests that semi-structured interviews are considered suitable where the researcher unable to obtain another planned interview with the key informants. Semi-structured interviews also reflect participant's "knowledge, understandings, interpretations, experiences, and interactions" about the concerns that are being studied (Mason, 2004, p. 1020). Mason suggests that comparatively open, adaptable, cooperative, and easygoing approaches to the interview structure is usually planned to prompt participants' accounts of their own perceptions (2004, p. 1020).

These types of interviews, however, have some advantages and disadvantages associated. Hardon, Hodgkin, & Fresle (2004) observe the strengths and weaknesses of semi-structured interviews outlined by in a report published by WHO and University of Amsterdam. Their list of key strengths and weaknesses of semi-structured interviews is reproduced in its entirety in Figure 5:

**Figure 5: strengths and weaknesses of semi-structured interviews.**

**Strengths and weaknesses of semi-structured interviews**

The **strengths** of semi-structured interviews are:

- depth of information
- respondent can influence the topic, so unexpected issues/topics emerge
- researcher can probe to understand perspectives and experiences
- topic guide ensures that a core list of questions is asked in each interview
- because the order of questions is not fixed, flow and sharing of views are more natural.

The **weaknesses** of semi-structured interviews are:

- trained interviewers are needed to probe without being directive or judgemental
- analysis of findings is difficult - must be done by people who did the interviews
- researcher has to avoid bias in analysis
- researcher needs to know something of the local culture to capture the interviewees real meaning
- analysis is time-consuming
- difficult to generalize findings.

Source: Adopted from: Hardon, Hodgkin, & Fresle, 2004, p. 27)

Acknowledging the strengths and weaknesses of semi-structured interviews prepares new researcher to organize the interview in an informed way. Furthermore, semi-structured interviews provide a medium level of control over the interview process through interview guides or questionnaires. These interview guides cover most of the topic the researcher wants to explore. In addition, as stated by Patton (2002), two out of four key reasons to use standardized semi-structured interviews are that these interviews are very motivated with the intention of using participant's time proficiently, and investigation is simplified with the responses that can be compared easily.

Therefore, semi-structured interviews seemed highly suitable to this research. Although questions requiring a yes/no response were asked at the beginning of the questionnaire, these questions provided me with an opportunity to start a more in-depth conversation with the participants. Participants were also asked participants to elaborate on responses, if they wanted to. This approach was helpful in understanding whether the urban design guidelines of the Cities of Kitchener and Waterloo were meeting the needs of their seniors.

The participants were selected via emails introducing the researcher, advisor and reasons for the study. Interviews with seniors were arranged at their preferred locations. The relaxed and exploratory nature of semi-structured interviews provides an opportunity to the researcher to explore interviewee's responses by requesting further explanation (Drever, 1995; Mason, 2004). For each interview I allotted approximately one hour. However, some of the interviews stretched to one and half hours depending on the details participants wanted to share. In return for participation, I did not provide any compensation to the participants, but offered snacks when an interview took place in a coffee shop. The whole process of interviewing seniors and focus groups took about three months. Table below describes the information of the participants:

**Table 4: Information of the Participants Age-group 65 years or older**

<b>Age-Group</b>	<b>Kitchener (10 participants)</b>	<b>Waterloo (9 participants)</b>
65-69	5 females and 2 males (one person used walking aid and one person used wheelchair)	5 females and 1 male (one person visually impaired)
70-74	1 female and 1 male	2 females
75-79	1 male	0
80-84	0	1 male

In research methodology, direct observations of happenings, situations, behaviours and reactions have been used for a long time. Direct observation is, in fact, helps us understand how and why certain situations develop and happen. Direct observation provides insight into everyday activities, which may remain unreported by participants. Although the drawback of this approach is that the researcher indirectly becomes a participant, it has its advantages in that the researcher is afforded an opportunity to see what is happening and how and why it is happening in social settings (Pauly, 2010; Jersild & Meigs, 1939). Patton (2001) also emphasised this aspect of the direct observation. Some critics are of the opinion that the researcher is a detached observer, but when she observes any aspect, the element of detachment is diluted. The research through direct observation is useful in qualitative research methodology rather than quantitative methodology alone (Pauly, 2010; Patton, 2001; Jersild & Meigs, 1939). After two or three interviews with seniors, I took a direct observations approach to understand their concerns (positive or negative) in depth. In order to do so, I started using active transportation, observing seniors' behaviour and their reactions in different or difficult

situations. In addition, I took pictures and downloaded Google map images to highlight those issues.

### **3.1.2 QUALITY OF RESEARCH METHOD**

In order to achieve quality in research, reliability and validity are significant factors. Qualitative validity occurs when the researcher crosschecks the exactness of the research results by engaging definite techniques, while qualitative reliability occurs when methodologies utilized by the researcher is parallel to methodologies used by other investigators for similar projects (Creswell, 2009).

Engel & Schutt (2012) as cited Miller & Crabtree (1999), recommended that if a researcher follows the guidelines outlined in Figure 6, he or she will perform a successful qualitative data analysis. These guidelines are reproduced in figure below:

#### **Figure 6: Guidelines for Qualitative Data Analysis**

- Know yourself, your biases, and preconceptions.
- Know your question.
- Seek creative abundance. Consult others and keep looking for alternative interpretations.
- Be flexible.
- Exhaust the data. Try to account for all the data in the texts, then publicly acknowledge the unexplained and remember the next principle.
- Celebrate anomalies. They are the windows to insight.
- Get critical feedback. The solo analyst is a great danger to self and others.
- Be explicit

Source: Miller & Crabtree, 1999, p. 142 cited in Engel & Schutt, 2012, p. 303

Baxter & Jack (2008) advises a “novice researcher” to incorporate “key elements” (such as clear research question/s, a case study relevant to questions, purposive sampling) to design the research with the purpose of augmenting the overall quality of the study (2008, p. 556). A detailed research design will enable readers to assess the quality or credibility of research. Therefore, it is important to document the detail of each step taken in the research design process (Baxter & Jack, 2008; Creswell, 2009; Yin, 2003).

### **3.2 RATIONALE FOR SELECTING CASE-STUDY CITES**

The school of researchers who believe in qualitative research are labelled as subjectivists. They use non-numerical data in research and this is why they are neither realists nor objectivities. On the other hand, they are more personal and dispassionate (Baxter & Jack, 2008). Qualitative case study methods provide the techniques and tools to study phenomena and develop theories for the purpose of evaluating programs. In the case study methodology, a particular case or individual is chosen to explore. This method requires background of the case study with the purpose of exploring a phenomenon within its context. Case study “supports the deconstruction and the subsequent reconstruction of various phenomena” (Baxter & Jack, 2008, p. 544; Yin, 2003). Yin (2009) suggests that “a case study is an empirical inquiry that investigates a contemporary phenomenon in depth and within its real context” (2009, p. 18). For this thesis, data is gathered and analysed within a “constructivist paradigm”. Such a constructivist method states that “truth is relative and that it is dependent on one’s perspective”, and allows the understanding and reasons for participants response

(Stake, 1995 and Yin, 2003 in Baxter & Jack, 2008, p. 545). Yin (2009) notes that “the case study’s unique strength is its ability to deal with a full variety of evidence – documents, artifacts, interviews, and observations – beyond what might be available in the conventional historical study” (2009, p. 11). The use of case studies, specifically the Cities of Kitchener and Waterloo, in a naturalistic investigative way allowed for the analysis of urban design guidelines through experiences that seniors face every day when interacting with the urban forms (Ball, 2012; Handy et al., 2002; Kerr et al., 2012; Lincoln & Guba, 1985; Yin, 2003). This approach seemed appropriate since the research question, ‘do urban design guidelines of the Cities of Kitchener and Waterloo address the needs of the ageing population?’, seeks to answer how seniors feel about urban form of these Cities, and whether they think it addresses their need to be independent and participate fully in their community while ageing actively. For this thesis, the emphasis is on contemporary issues related to current urban form. In addition this study, during data collection and data analysis phases, the barriers that cities and their planners face were observed, along with the steps these Cities can take to improve the urban form and become age-friendly communities. Findings from these case studies can be transferred to similar Cities and municipalities (Baxter & Jack, 2008; Gobo, 2004; Yin, 2009).

### **3.2.1 SELECTION OF PARTICIPANTS**

Leedy & Ormrod (2001) explained the importance of the nature of data and its significance in a study and argued that a research is logical if presented with data to substantiate it. To accomplish the objectives of this research, it is imperative to use an



appropriate sample size that is knowledgeable, and can provide insight into the research. Miles & Huberman (1994) suggested that data samples for qualitative research are generally purposive and small, because the data collected through these samples are “nested in their context and studied in depth” (1994, p. 27). Patton (2001) argued that the importance and rationale of focussed samples are in selecting related and information-rich data for in-depth research. “Information-rich” samples can highlight the issues and concerns that are significant to the objective of the study (Patton, 2001, p. 230).

Furthermore, Bernard (2012) emphasizes “Good key informants” (2012, p. 171). These are individuals with whom researcher is comfortable talking with; and they recognise the information the researcher is looking for and willing to provide it or acquire it for him/her. For example, during the research process, the contacts, developed through the various municipal committees, assisted in refining the questionnaires for data collection. Their input at this level clearly indicated that they were very interested in knowing more about this study and its findings, and were willing to provide information.

To answer my research question, I interviewed two planners (one from each city), 10 and 9 senior participants<sup>16</sup> from the Cities of Kitchener and Waterloo respectively. The notation RW# and RK# are used for seniors interviewed from the Cities of Waterloo and Kitchener, respectively. In addition, two focus groups comprised of 12 and 4 members were interviewed from Kitchener. The participants were members

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<sup>16</sup> For this study, adults 65 and older are referred as seniors.

of MACKS (Mayor's Advisory Council for Kitchener Seniors) and DCHC (Downtown Community Health Center) at the time of interview. One GRT (Grand River Transit) official was contacted through email<sup>17</sup>.

Interviews with planners provided in depth knowledge about what the Cities of Kitchener and Waterloo are doing to become age-friendly. Planners can provide insight into the guiding force to achieve the goal and what hurdles they are experiencing in achieving these goals. For this research, seniors (65 years and above) were interviewed since they can shed light on seniors' vision of an age-friendly community and the challenges they foresee. The GRT official can provide information about urban form features that limit seniors from using public transportation.

The notation MP1 was used for the City of Waterloo's Official Planner, while MP2 was used for the City of Kitchener's Planner. Lastly, the GRT official was coded as GRT1.

A typical focus group session consists of a small number of participants under the guidance of a facilitator (Johnson, 2013). Although these types of discussions are organized, they are also flexible and help explore collective experiences rather than individual experiences. The purpose of focus groups discussions is to get an in-depth knowledge of a study topic; to assess and analyse requirements of a cohort; and to investigate new or improved programmes/policies in place.

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17 The only question directed to the GRT official was - what kind of urban design issues do seniors face that limit them using GRT services?

Through these discussions, a researcher can identify the reasons (why and how) for convergence and divergence of participants' views and experiences (Barbour, 2007; Johnson, 2013; Krueger, 2009; Stewart, 2007). Ideally, focus groups should have participants that are similar in age, level of knowledge, interests or working for similar causes. The environment created through this type of focus groups facilitates participants to express their point of views in a comfortable manner (Barbour, 2007; Fern, 2001; Stewart, 2007).

To select participants, a piggyback focus group strategy was utilized. In this strategy "the focus groups are added to another event, meeting, or occasion"... "This strategy works well with professional associations or special interest associations, especially when national representation is desired" (Krueger, 2009, p. 70). To recruit focus groups participants, four associations working for the seniors were contacted. The challenge, however, was obtaining permission from the chairpersons or organisers of the associations. For example, of the four associations, only two from the City of Kitchener responded to my request, allotting one hour for focus group meetings. Negative response from other two associations created an imbalance in focus groups. Both the focus groups, I interviewed, represented and are the voice of seniors of Kitchener in City Hall. Most of the participants of the focus groups were well aware of the issues that seniors face when interacting with the urban form, and the barriers

preventing these Cities from achieving the goal of making age-friendly urban forms. The barriers identified by both focus groups were a lack of funding, and political will or influence on the planning process.

### **3.3 CONTENT ANALYSIS**

Elo & Kyngäs (2008) defined content analysis as a research process that involves investigation and summarisation of written, verbal or visual communication content. Downe-Wamboldt (1992) and Krippendorff (2004) further described content analysis as a methodical and objective approach to finding relationships between different pieces of content and particular themes. Krippendorff (2012) also noted that content analysis is an “analysis of the manifest and latent content of a body of communicated material (as a book or film) through classification, tabulation, and evaluation of its key symbols and themes in order to ascertain its meaning and probable effect” (2012, p. 1). Initially, researchers used to read the contents of a work. This process was time consuming and tedious. However, electronic media such as computers and laptops have facilitated the process of analyzing data and getting the results. This technology has enabled researchers to do the analysis of their data more precisely and accurately, and is one of the most reliable ways of doing analysis (Neuendorf, 2002).

Data collected for this research was in the form of digital audio recordings and observation notes made during interviews with planners, seniors and advocates for seniors. Here, the value of qualitative content analysis is in the form of its text instead of

statistics (Schutt, 2011). Patton (2002) suggests that researchers using qualitative content analysis have one significant purpose, which is to try to understand the true feelings of the contributors, and deduce data in the form of text such that it cannot be judged as right or wrong.

Data from content analysis can be analyzed in an inductive or deductive way. Inductive content analysis is used when researchers are trying to establish a theory. However, in inductive analysis, the available data or knowledge is not sufficient or is uneven. Researchers in this case create various specific themes to find individual inferences, which are then combined to get a broader overall perspective. Deductive content analysis is used when a theory has already been established. A Researcher uses a deductive content analysis approach to analyse existing data in regard to new a framework (Elo & Kyngäs, 2008).

### **3.3.1 LIMITATIONS OF CONTENT ANALYSIS**

Content analysis, like any other research methods, has its limitations. Content analysis, as defined above, suggests that it is a systematic and objective analysis of messages' characteristics. Krippendorff (2004) reasons that the multiple meanings of texts may be "found", "identified", and "described" (2004, p. 22). Text can be interpreted or analyzed in different ways, depending on the reader. Just as with the text, the data can also be subjected to numerous, different analyses. New researchers might be astounded by the options that they have for viewing data because it can be presented in a number of versions such as social or political. Krippendorff (2004) further states that another major limitation of content analysis is reliability. Without reliability, any data can

be considered invalid. Bernard (2012) defines reliability as the ability to achieve similar results utilizing the identical set of instructions and mechanisms. A coding scheme that is clear and concise will provide a certain level of reliability.

### **3.4 LIMITATIONS OF QUALITATIVE RESEARCH METHOD**

Observations made during the interview stage provided a third dimension to the data that otherwise may lack depth. This descriptive data is based on key informant's understandings, experiences, and interactions with the issues and not on numbers. Also, the researcher's influence and his/her point of view may also affect the analysis process (Miles & Huberman, 1994).

Data collected, during interviews with seniors and planners of the Cities of Waterloo and Kitchener ended up on paper as well as a digital recorder. In the process of analysing the data, I experienced some challenges in understanding the recordings and making notes as some meetings took place in busy areas, such as coffee shops. Also, there was no opportunity to contact the participant for clarification after the interview. Processing these observations correctly and concisely is time consuming and requires some level of expertise.

### **3.5 SUMMARY**

For the research question posed for this study, qualitative research methods were considered appropriate. Further, the Cities of Kitchener and Waterloo were included as case studies because both are twin Cities in the Region of Waterloo with a

range of design elements, varied size (Kitchener being the larger one) but face the same challenges posed by an increase in senior population.

The interviewees for this study included one planner from each city, and 10 and 9 participants from the Cities of Kitchener and Waterloo respectively. In addition, two focus groups that comprised of 12 and 4 members respectively were conducted. The participants were members of MACKS (Mayor's Advisory Council for Kitchener Seniors) and DCHC (Downtown Community Health Center) at the time of interview. Interviews with planners provided in-depth knowledge about what the Cities are doing to become age-friendly, as well as highlighting the challenges they face in implementing urban design guidelines. Seniors (65 years and above) and focus groups for this research were interviewed to gain insight on seniors' vision about an age-friendly community, and challenges they foresee. The data collected in the form of audio and paper notes was analysed and reduced in SWOT analysis format.

## CHAPTER 4 - FINDINGS

This chapter presents findings on the research question, ‘do urban design guidelines of the Cities of Kitchener and Waterloo address the needs of the ageing population?’ The findings are based on analysis of the urban design guidelines of both the jurisdictions, in relation to the checklist developed from the literature review.

### 4.1 REFERENCE TO AGE FRIENDLY PRINCIPLES IN URBAN DESIGN GUIDELINES<sup>18</sup>

Age-friendly urban design guidelines have the potential to be a major contributor in allowing the ageing population to be independent, and be part of and contribute to the community. Based on this review, reference to guiding principles is not evident in the Urban Design Manuals of Kitchener (2012) and Waterloo (2009). However, new official plans as well as recent Urban Design Manuals of these Cities have referred to these principles. MP2 noted that there is a strong policy framework within the City of Kitchener through a series of guidelines in the form of Urban Design Manuals, do not refer to specifically refer to notions of “age friendly”, but to universal access, which speaks to a number of possible limitations or challenges with accessibility.

Interviews with planners from both Cities, indicated the importance of the guiding principles. To demonstrate that the Cities have work ahead of them to improve urban form, the planner from Kitchener (MP2) provided an example of a visit to one of the

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<sup>18</sup> Questions pertinent to this sections are: 1) In your opinion, what are the important factors of an age friendly urban form?; 2) Have these policies encouraged them to be independent?; and 3) Have these policies encouraged them to be independent?



sites with KW's accessibility advisory committee and urban designers. These 'fancy' and 'decorated' redesigned public squares had cobblestone pavers or brick pavers that were not smooth. As per MP2's direct observation, "it looked good but the chatter from the wheelchairs, motorized scooters, strollers, walkers, on something like that was horrible. Designers/landscape designers don't often think how that affects someone using that surface. It looks beautiful but is not comfortable for wheelchairs or people using walkers. So these type of regulations are important and make designers think twice about the implications of someone's choices". Another participant with disability noted that, "the aesthetics, primary design objectives and priorities for the City of Waterloo by able bodies [planner] do not support the accessibility standards for seniors". This participant experienced difficulties getting around in the City of Waterloo. The need for more age friendly urban form is in line with the literature that recognizes the importance of understanding the fact that every citizen, irrespective of the physical challenges, plays an important role in society, which improves the overall growth of a community and nation (Hall & Imrie, 2001; Levine, 2003; Story et al., 1998).

Planners from both Cities agreed that the urban guidelines have improved the conditions of seniors. Examples provided include access requirements for parking and flush curbing for entrances into commercial centers. Planners noted that while industrial and multi residential buildings developed prior to late 90's lacked such requirements, all new developments are required to meet these minimum requirements. The Cities also looked at the slopes of ramps and sidewalks so that they are gentle and easier for seniors and peoples with disabilities.

In line with comments from planners, the literature notes that execution of Universal Design Principles in planning and urban design guidelines for a more accessible community for everyone will be of great significance for a city's developments (Levine, 2003; Story et al., 1998). Implementation of Design of Public Spaces Standards by AODA will benefit all Ontarians by making "Public spaces and Buildings" accessible (Ontario, 2012). Based on the document review and interviews addressing the guiding principles, progress has been made, as one of the planners, however, acknowledged that there is still a long way to go.

#### **4.2 WALKABILITY – SIDEWALKS, STREET AMENITIES AND WAYFINDING (SIGNAGE)<sup>19</sup>**

The importance on walkability has been highlighted in the literature review. The words 'walkable' or 'walkability' appeared 22 times in Kitchener's Urban Design Manual and two times in Waterloo's Urban Design Manual. In Waterloo's Urban Design Manual, words walkability/walkable appeared once in the glossary of terms and once in context. Below are some of the excerpts from Kitchener's Urban Design Manual that included the word walkability or walkable:

"[D]esign-based approach is encouraged to create communities that promote a sense of place, have integrated street networks with transit-oriented development, effectively integrate natural and heritage resources and include walkable

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19 To see questions pertinent to this sections are in questionnaires directed to planner, seniors and focus groups (Appendix C)

neighbourhoods with interesting streetscapes, focal points and destinations” (City of Kitchener, 2012, p. A–4). “[To] Create a community of identifiable and walkable neighbourhoods and districts” (City of Kitchener, 2012, p. A–10). Section 4.2, Suburban Neighbourhoods Goal – “To create diverse, attractive, walkable neighbourhoods that contribute to complete communities” (City of Kitchener, 2012, p. A–15).

In the implementation section of its Urban Design Manual, Kitchener understands that each site has “its own design opportunities and challenges”, however, the requirement of primary design objectives should be met. The Primary Design Objectives are “Walkability, Variety, Placemaking, Conservation, Connectivity, Transit Supportive, Safety, Balance and Livability” (City of Kitchener, 2012, p. B–106).

In response to question related to walkability, MP1 noted that the city has created a pedestrian charter. The city also has a citizens’ committee that looks at transportation issues, including walking and biking. MP2 noted that in the city the newer communities and older communities in the downtown are walkable. However, subdivisions developed in 60’s and 70’s were not based on mixed land-use policies. This is consistent with the literature, which indicates that the 20<sup>th</sup> century witnessed a new phenomenon in city planning. New developments and progress saw families and neighbourhoods scattered and spread across larger geographic areas (Ball, 2012). As the homes and residential areas spread across the landscape, walkability was affected (Hodge, 2008).

Table 5 and Table 6 below show the cumulative results of seniors’ responses on questions covered in the two sub-sections, Sidewalks and Street Amenities. Seniors

from both the Cities noted that they have sidewalks, however, factors such as bike users and a lack of resting places have reduced the overall walkability of both Cities.

The detailed analyses are provided in the sub-sections below.

**Table 5: Overall Walkability of the City of Kitchener**

<b>Issues</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
<b>Overall Walkability</b>	<b>43%</b>	<b>40%</b>	<b>30%</b>
Sidewalks	64%	18%	19%
Street Amenities	22%	61%	41%

**Table 6: Overall Walkability of the City of Waterloo**

<b>Issues</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
<b>Overall Walkability</b>	<b>55%</b>	<b>35%</b>	<b>11%</b>
Sidewalks	58%	27%	15%
Street Amenities	51%	43%	6%

**4.2.1 SIDEWALKS**

This section covers issues related to sidewalks, including the availability of sidewalks, well-maintained sidewalks, visible curb-cuts, textured curb-cuts, sidewalk width, and non-pedestrian users on sidewalk. Table 7 and Table 8 are based on the responses of 10 participants and 9 participants from the Cities of Kitchener and Waterloo, respectively. Participants who responded yes or no to a question, were aware of the issue. Participants who responded N/A to a question knew the question, but never looked at the issue from the age-friendly perspective. For example, participants who were using some kind of walking/mobility aid were able to answer the questions

based on curb-cut issues. Some of the respondents noticed the curb-cuts, but did not pay attention if the curb-cuts were textured or not.

**Table 7: Age-friendliness of Sidewalks in Kitchener – Through the Lens of Its Seniors**

	<b>Issues</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
	<b>Sidewalks</b>	<b>64%</b>	<b>18%</b>	<b>19%</b>
1	Availability of Sidewalks	90%	10%	0%
2	Well maintained sidewalks	80%	20%	0%
3	Visible curb-cuts	60%	10%	33%
4	Textured curb-cuts	5%	15%	80%
5	Sidewalk width	100%	0%	0%
6*20	Non-pedestrian users on sidewalk	50%	50%	0%

**Table 8: Age-friendliness of Sidewalks in Waterloo – Through the Lens of Its Seniors**

	<b>Issues</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
	<b>Sidewalks</b>	<b>58%</b>	<b>27%</b>	<b>15%</b>
1	Availability of Sidewalks	94%	6%	0%
2	Well maintained sidewalks	67%	33%	0%
3	Visible curb-cuts	78%	11%	11%
4	Textured curb-cuts	22%	0%	78%
5	Sidewalk width	78%	22%	0%
6*	Non-pedestrian users on sidewalk	89%	11%	0%

Based on this review, over 90% of respondents from both the Cities said that there are sidewalks throughout their neighbourhood. Respondents living on crescents

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20 For questions with asterisk (\*) mark, i.e. question number 6, 14, 15, and 16, if participants choose 'yes' for an answer, then the issue does not reflect age-friendly principles and vice-versa.

indicated that they do not have sidewalks. However, they did not mind this as there is limited traffic on those streets. About 65% of Waterloo and 80% of Kitchener residents indicated that the sidewalks in their neighbourhood are well maintained. According to a recent article in City of Kitchener's Newspaper, the Kitchener Post, there were more than 400 complaints about snow clearing on sidewalks and 30 incidents of "slip & fall" issues (Abrey, 2014). An article (Waterloo should create a city for all citizens) in the newspaper, The Record, argues that, like other cities in North America, City of Waterloo has its focus on growth as directed by the Places to Grow Act and in this process they are marginalizing people with disability (16 per cent of people in Canada have a disability). The article further highlights that the City is "designed to serve the 'average' person and his or her car" and with winter "the impact this oversight has on people with disabilities and seniors is magnified" (Prescott, 2013).

During the researcher's own observations, sidewalks serving bus stops in both cities had huge piles of snow and people with both abled and disabled people having a hard time getting in and out of local buses. As per the P-E theory, these conditions impede older adults' efforts or desire to be independent. These conditions impose challenges for people with limited abilities and can be a threatening condition for older adults using walkers or other aides to move around (Lawton & Nahemow, 1973; Kerr et

al., 2012; Wahl et al., 2012; Phillipson, 2011).



(Kohli, 2014)

Similarly, a number of participants, 89% and 50% from Waterloo and Kitchener respectively, indicated that they feel unsafe due to non-pedestrian traffic on sidewalks. RK11<sup>21</sup> said that “Bikes [on sidewalks make walking difficult] – yes, especially when they go whipping by. A few indicate that they are coming on my left or right, or facing me, which helps. Some of the bikes come so close that you can feel them on you. Skate boarders you can usually hear”. RW6 said, “Bicycles do not belong on sidewalks”.

The comments from one informant, who uses a wheelchair, were in part, “I was upset as much as disgusted by the state of access in the City of Waterloo (and I haven't been around Kitchener much). I had a big wipeout in July 2012 at the corner of Caroline and Erb [Waterloo] for the second time...The city policies around construction are unbelievable (sudden blocked sidewalks). I've talked to the city, GRAAC and the region and they were sympathetic but I didn't have the right people's ears...I'd say this whole

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21 The notation RW# and RK# has been used for seniors interviewed from the Cities of Waterloo and Kitchener, respectively.

experience has been underwhelming to say the least...How about functional design first, cool design second?" (Personal communication, 2011).

A participant, RW5, who uses a mobility aid, noted that, "sidewalks are not wide everywhere, definitely not in Waterloo. Most places in downtown Kitchener are good". The reason might be that the City of Waterloo has two big universities and significant number of students use bike as a mode of transportation.

Similar concerns were expressed by some of the focus group members. These concerns confined these members' senior friends in their homes. Hall & Imrie (2001) notes that people with varied abilities demand changes and adaptation to urban form and built environment to allow them make greater use of the built environment and contribute fully to the society. Universal Design Principles # 1 – Equitable Use; 5 – Tolerance for Error; and 6 – Low Physical Efforts describe that the design should be useful for people with diverse abilities, minimize hazards, and make people use it comfortably and with a minimum of fatigue (Levine, 2003; North Carolina State University, 1997; Story et al., 1998). The main concern that came up was non-pedestrian users on the sidewalks. This issue was raised by both senior participants and focus group members. Participant RK17 uses a bicycle on sidewalks and the reason this participant noted is that the bike lanes are very close to fast moving vehicles and are not safe. Street design providing safety for bicyclists will keep them away from the sidewalks, thus safety for seniors. Urban forms with minimum hazards for pedestrian, bicyclists and other users reflect the Universal Design Principles. One of the questions in the survey was, are crosswalks well-marked? (For example, signage for



pedestrians and vehicles, traffic lights and/or audible signals). About 90% of seniors from Kitchener and 78% of Waterloo identified that the crosswalks in their community are safe. This is in line with Universal Design Principle # 4 – Perceptible Information, which states that design should be able to communicate necessary information effectively to the user regardless of ambient conditions or the user’s sensory abilities (Levine, 2003; North Carolina State University, 1997; Story et al., 1998)

The Region of Waterloo introduced roundabouts in 2004 (Region of Waterloo, 2012a). Most participants and focus group members noted safety issues around them. RW11 noted that, “roundabouts need to be made more accessible, not only for people who are ageing but also visually impaired. Because when you are ageing, you are not as fast as you used to be”. There was no question about roundabouts in the questionnaire however, almost every senior participant and focus groups raised their concerns about these. It was interesting to know how uncomfortable seniors are around roundabouts. One participant (RK18) who lives near Ira-Needle in Kitchener noted that, “I don’t like to go to the Sobeys Market because of the roundabouts. It is very confusing. Some drivers stop and some don’t”. This particular concern is about the design of roundabouts, therefore, does not correspond to Universal Design Principle 5 which is Tolerance for Error.

The Mayor’s Advisory Council for Kitchener Seniors (MACKS), in the focus group meeting, noted that the City [Kitchener] needs to provide a closer look at the length of crossing times. As people age, they need more time to cross. Participant RK14 noted that, “the stoplights with those timing devices [timers] are really good, especially for

seniors because they give an idea to seniors as to how much time they have to cross”. P-E model and Universal Design Principle # 3 & 4 indicate that these type of issues, although minor for abled bodies, facilitate seniors/users to be independent (Lawton & Nahemow, 1973; Kerr et al., 2012; Wahl et al., 2012; Phillipson, 2011; North Carolina State University, 1997; Story et al., 1998; Levine, 2003).

Levine (2003) advocates for, “direct connection from parking lots, sidewalks and public transportation systems to building entrances” (2003, p. 196). Levine (2003) also suggested that, “cane and guide dog users are trained to find curbs at the edges of sidewalks. However, where there are no curbs, like at curb ramps, there is concern that the cane traveler may miss the edge of the sidewalk and step out into traffic” (2003, p. 36). One participant, RK11, for the survey was partially visually impaired and faced issues due to improperly marked crossings and curb cut of a sidewalk and found, along with her/his partner, themselves in the middle of the road in the City of Kitchener. Another issue RK 11 indicated was that heights of planter on sidewalks of Uptown Waterloo are low. This issue was not covered in the questionnaire, but I think it was an interesting point to note. This participant could easily detect higher planters. The bonus of having higher planters is that the edges can be used as a resting place by pedestrians. Application of Universal Design Principle # 2 – Flexibility in Use; 3 – Simple and Intuitive Design; 4 – Perceptible Information; and 5 – Tolerance for Error can easily eliminate above concerns.

The Urban Design Manuals of both Cities include the guideline for the issues raised above (such as well marked and textured curb cuts). However implementation

seems to be an issue in both the Cities from the perspective of those using mobility devices such as walkers, wheelchairs or canes. The importance of implementation has been emphasised in the literature. For example, Bhuyan, Jorgensen, & Sharma (2010) argue that, “[e]ven the best policies can encounter implementation challenges.”... “They need leadership, resources, monitoring, and other inputs to thrive and achieve their goals” (2010, p. 12). The Design of Public Spaces Standards (Accessibility Standards for the Built Environment) by AODA in the “Exterior Paths of Travel” section has policies addressing issues related to sidewalks, curbs, and crossings<sup>22</sup> and general exceptions and limitations are also addressed in the Act<sup>23</sup>. These standards were introduced in December 2013 and starting from January 1, 2015, new construction and major renovation projects will come under this ACT (Ministry of Economic Development, Trade and Employment, 2005). As Cities begin to incorporate and implement these policies in their future Urban Design Manuals, it will help to address the need of an ageing populations.

#### **4.2.2 STREET AMENITIES**

Street amenities include street furniture and street lighting. Both features play important parts in age-friendly communities (Paul et al., 2012; WHO, 2007).

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22 The Design of Public Spaces Standards (Accessibility Standards for the Built Environment) by AODA policy number 80.21 to 80.28.

23 The Design of Public Spaces Standards (Accessibility Standards for the Built Environment) by AODA policy numbers 80.29 and 80.30

Table 9 and Table 10 correspond to the questions inquiring seniors from both the Cities about the street amenities in their Cities.

**Table 9: Age-Friendliness of Street Amenities – City of Kitchener**

	<b>Issues</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
	<b>Street Amenities</b>	<b>22%</b>	<b>61%</b>	<b>41%</b>
7	Shades on sidewalk	65%	35%	0%
8	Resting places	30%	70%	0%
9	Shades on resting places	20%	80%	0%
10	Signs for clear directions for pedestrians	55%	25%	22%
11	Street light	95%	5%	0%
12	Well lit public areas	90%	0%	11%
13	Well lit private areas	60%	20%	22%
14* <sup>24</sup>	Over grown vegetation	20%	80%	0%
15*	Locations where a pedestrian can be isolated	35%	55%	11%
16*	Improperly maintained locations	10%	90%	0%
17	Inviting walkways and benches in parks	80%	10%	11%
18	Accessible facilities in parks	50%	20%	33%

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24 For questions with asterisk (\*) mark, i.e. question number 6, 14, 15, and 16, if participants choose 'yes' for an answer, then the issue does not reflect age-friendly principles and vice-versa.

**Table 10: Age-Friendliness of Street Amenities – City of Waterloo**

	<b>Issues</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
	<b>Street Amenities</b>	<b>52%</b>	<b>43%</b>	<b>6%</b>
7	Shades on sidewalk	44%	56%	0%
8	Resting places	28%	72%	0%
9	Shades on resting places	17%	83%	0%
10	Signs for clear directions for pedestrians	11%	89%	0%
11	Street light	94%	6%	0%
12	Well lit public areas	89%	0%	11%
13	Well lit private areas	61%	39%	0%
14*	Over grown vegetation	39%	61%	0%
15*	Locations where a pedestrian can be isolated	39%	50%	11%
16*	Improperly maintained locations	44%	56%	0%
17	Inviting walkways and benches in parks	78%	22%	0%
18	Accessible facilities in parks	33%	22%	44%

**Street furniture**

One of Waterloo’s Urban Design Manual’s goal is to encourage “opportunities for special paving, landscaping, seating and pedestrian-scale lighting to create pedestrian interest along the street and to promote human-scale dimensions” (City of Waterloo, 2009, Part 2, p. 1). Searching for keywords ‘street furniture’ and ‘benches’ produced 31+15 results in Kitchener’s Urban Design Manual and 16+3 results in Waterloo’s Urban Design Manual. Kitchener’s Urban Design Manual has definitely given more emphasis on this public amenity to make the city more pedestrian friendly than Waterloo. Interviews with seniors highlighted the need of resting places on the street.

70% of seniors from Kitchener and 78% from Waterloo observed lack of resting places on streets. This is a one of the huge concerns seniors have raised generally.

Levine (2003) states that, “[w]ell-designed walkways not only improve pedestrian orientation, but have a social function as well. They channel the flow of traffic, which encourages interaction. Benches and other amenities along walkways enhance this social role” (Levine, 2003, p. 153). Seniors’ concerns regarding the importance of resting places has also been recognised in literature review. Araki, Bartolome, & Minakami (1996) advocated that “amenities such as benches, canopies and landscaping enhance the neighbourhood for pedestrians. They provide a place for people to rest, hold conversations and people-watch, thereby increasing street activity and community interaction” (1996, p. 25).

### **Street lighting**

Waterloo’s Urban Design Manual, in its Pedestrian-Friendly Design section, in part, encourages, “pedestrian-scale lighting to create pedestrian interest along the street and to promote human-scale dimensions” (2009, p. 12). Kitchener’s Urban Design Manual also, in part, encourage planners to, “Ensure streets are well lit. Coordinate street tree plantings and street lighting to avoid blocking street lighting” (2012, p. A–5).

In surveys, about 95% of seniors from both Cities reported that sidewalks in their neighbourhood are well lit. They also indicated that street lights in older communities get blocked by tree branches. They enjoy trees and the shade they provide. However, pruning of branches near light posts can provide better light at late evening times.

The importance of well-lit sidewalks and streets has been emphasised in the literature. The WHO (2007) highlighted the need for proper light on streets and intersections. That is, sufficient and uninterrupted street light increases the safety on the street and improves driving conditions for seniors. Further, the provisions of providing resting places can be found in the Urban Design Manuals, however, planners from both the Cities noted limitation in implementing due to the lack of funding. The reason cited by them and Blais (2010) is continuous downloading of responsibility on the municipalities. Funding issues require an additional approach than having these guidelines in the Manuals.

Wayfinding includes signage and straightforward street network<sup>25</sup>. Significant participants from Kitchener and Waterloo (45% and 89% respectively) conveyed that they are not satisfied with the signage and wayfinding. As an example, one participant (RW8) observed that “signs for the Trans Canada trail sort of disappear and come somewhere else”; he further noted that “As I get older, I would like to see larger street signs. One thing they have done on many of the streets is that they have a sign before you get to the street...Some of the other places at night could use more lighting somehow or some method of helping out - especially seniors because we can’t read small signs. It is difficult. There is a need to have more visible signs during the night times”. Some participants observed that for people on wheelchairs or those using some

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25 Street network and related issues are covered in section Built Environment and Mixed Land-Use Policies

walking aid and for the visually impaired, signs are too high and easy to miss - RK5, RK11, RW11, and Focus Group.

Planners from both the Cities acknowledged that there are concerns about signage. MP2 indicated that “commercial type signage is way too big and overwhelming for what is needed...wayfinding consistency in the city is poor”. MP2 noted, “Some of the way finding is challenging and if you are new to the city there are a lot of challenges there”.

This concern ties back to Principles 3 and 4 of the Universal Design. The literature also showed mobility is related to better wayfinding, reducing the distances for pedestrians, green spaces, and recreation/health clubs. (Clarke & Gallagher, 2013; Kerr et al., 2012; Rosso et al., 2011; Lynott et al., 2009; Renne, 2009; Li et al., 2005; Handy et al., 2002). Design of Public Spaces Standards by AODA in the “Technical Requirements for Recreational Trails” section has policies addressing issues related to way finding and signage<sup>26</sup>. Another policy<sup>27</sup> in the Act, lays out the standards that deals with the issues related to fonts and colours of signage noted by focus group and other participants. These policies will come in force by 2015, however, as noted by planners earlier, the funding to replace these signs is an issue.

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26 Policy 80.9.8

27 Policy number 80.9.8.(2)



## **4.3 BUILT ENVIRONMENT AND MIXED LAND-USE POLICIES<sup>28</sup>**

### **4.3.1 BUILT ENVIRONMENT**

This section deals with general built environment guidelines for Cities.

Kitchener's Urban Design Manual notes that "Good urban design seeks to create a safe, functional and attractive built environment" (2012, p. A-2). Every section of the Kitchener's Urban Design Manual has a goal and a set of guidelines to achieve this goal. Similarly, Waterloo's Urban Design Manual also has guideline objectives for every section.

Waterloo's Urban Design Manual states that it, "Encourages opportunities for special paving, landscaping, seating and pedestrian-scale lighting to create pedestrian interest along the street and to promote human-scale dimensions" (City of Waterloo, 2009, Part 2, p. 1). The Urban Design Manual further notes that the human-scale dimension is lost when the built-environment follows the examples below.

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<sup>28</sup> Refer Appendix C to see questions related to this sections.

**Figure 7: Building and Street Ratio**

Buildings overpower the street (exceed a 1:1 ratio)

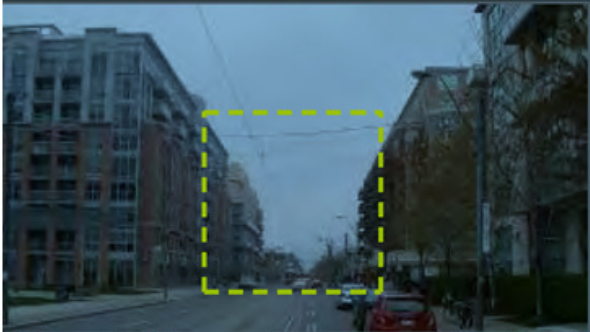


Buildings are no longer able to frame the street (less than a 1:4 ratio)



The examples provided below are recommended for human-scale dimension in the City of Waterloo’s Urban Design Manual. “Pedestrian-friendly design involves a high standard of design in the public and private realm” (City of Waterloo, 2009, p. part 2, 3). The images above and on the side are taken from the Waterloo’s Urban Design Manual.

**Figure 8: Recommended Building and Street Ratio**

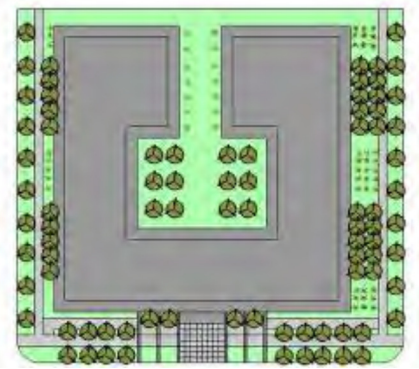


*A 10-storey building can result in a human scale form (Toronto).*



*A 1:2 height-to-width ratio achieves an effective ratio (Markham).*

### Figure 9: Recommended Building and Open Space Ratio



Source: City of Waterloo, 2009, p. part 2, 3

The goal of Site Circulation in Kitchener’s Urban Design Manual is, “[t]o ensure that site circulation is safe and functional for all persons and vehicles” (2012, p. A–18). The examples in Waterloo’s Urban Design Manual and the goal in Kitchener’s Urban Design Manual clearly highlight the importance of a pedestrian friendly built environment.

However, the images in Figure 10, Figure 11, Figure 12, Figure 13, and Figure 14 of plazas from both Cities do not reflect the guidelines from Waterloo and Kitchener’s Urban Design Manuals. For example, the Boardwalk is a relatively a new plaza, opened in 2010. The concept statement on the Boardwalk’s website by Urban Planner MHBC, July 2008, states that “The overall vision is to create a high quality and contemporary mixed use commercial development that considers sustainability principles, provides an exciting, safe, pedestrian friendly and transit supportive urban experience” (The Boardwalk, 2008). Almost 100% of participants including focus groups identified it as a car friendly mall rather than pedestrian friendly. Participants who use some kind of walking aid do not prefer visiting this location.

Figure 10: Site Plan of the Boardwalk, Kitchener-Waterloo



Source: The Boardwalk, n.d.

Figure 11: The Boardwalk, Kitchener-Waterloo



Source: "The Boardwalk," n.d.

**Figure 12: Site Plan of Sunrise Shopping Centre, Kitchener**



Source: Google Maps, 2014

**Figure 13 Sunrise Shopping Centre, Kitchener**



(Kohli, 2013)

**Figure 14: Sportsworld Crossing Plaza, Kitchener**



Source: Sportsworld Crossing Plaza, Kitchener, 2014

Looking at the images above, it is quite evident that these plazas are planned around parking lots. The site plan images above contradict the guideline in Kitchener's and Waterloo's Urban Design Manuals. RK14, who is an active member of various advisory committees and a retired professional, commented that, "the planning officials work closely with the developers. Look at Ira Needles or Sunrise [plazas] ... probably the planning department did not play a big enough role in determining the layout of those, and it is affecting the seniors. They [planners] let the developers dictate the layout and probably should not have. Therefore, I think that the planners should have played a more active role in the development of these plazas". Another common concern raised by seniors is that the sidewalks in these plazas are given the least priority. RK11, who is visually impaired senior, commented that, "these markets are

suicidal for us”. This participant and his/her partner went to a newly built plaza and came back from the bus stop itself. This participant found walking up to the plaza very difficult with cars weaving in and out in the plaza’s parking lot. Sidewalks are peripheral around the parking lot and small roundabouts are only car friendly. To go from one store to another, the majority of participants used their vehicle instead of walking. The concerns raised in this section do not coincide Universal Design Principle # 1 – Equitable Use, 5 – Tolerance for Error and 7 – Size and Space for Approach and Use. These plazas are designed around the parking lot, which means that these are not meant for ‘equitable use’, older people don’t prefer because they don’t feel safe which is opposite of ‘Tolerance for Error’; and seniors also clearly indicated that they don’t walk one store to another which is reverse of ‘size and space for approach’. For example, the Toronto Premium Outlet Mall in Halton Hills, Ontario is an outdoor and pedestrian friendly mall. The courtyard between in the mall is pedestrian only. Below are the figures of the mall.

**Figure 15: Site Plan of Toronto Premium Outlet Mall**



Source: Backseat Stylers, 2013

**Figure 16: Toronto Premium Outlet Mall**



Source: The Canadian Press, 2012



**Figure 17: Toronto Premium Outlet Mall**



Source: Apple Joy D., 2013 from (“Photos for Toronto Premium Outlets | Yelp,” n.d.)



Source: Calvin S., 2014 from (“Photos for Toronto Premium Outlets | Yelp,” n.d.)

The image of the Site Plan for the mall clearly suggests that shops are not peripheral around the parking. Other images illustrate that the courtyard is pedestrian and age-friendly. Also, the design of the mall reflects all seven Universal Design Principles.

When a question related to the concern above was directed to planners and focus groups, they all indicated that there is some degree of political influence. MP1 noted that having policy or guideline is one thing and getting developer to build it into the design is another. The policies and guidelines addressing walkability and accessibility for shopping areas are present in the Manuals. However, looking at the responses, it seems appropriate to involve developers in the planning process to address these concerns. In addition, planners should have more powers to resist political and developer’s influence.

### **4.3.2 MIXED LAND-USE POLICIES**

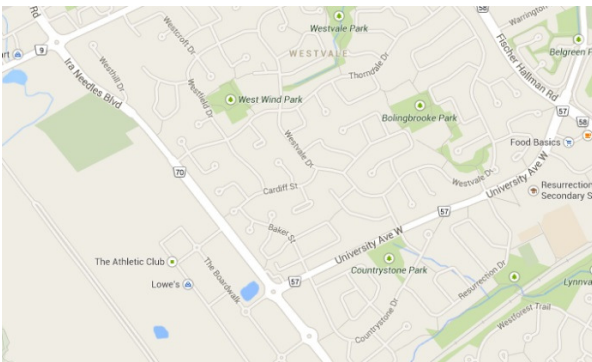
The literature review highlighted the importance of mixed land-use policies for age-friendly communities. Cities developed in the early 20th century were based on mixed land-use zoning. That is, distances to daily amenities such as grocery shops, doctors' offices, or postal offices were within five to ten minutes' walk from residential areas. However, developments done in the late 20<sup>th</sup> century had function-specific zoning which resulted in increased dependency on private vehicles (Hodge & Gordon, 2008; Hodge, 2008; Lawton & Nahemow, 1973; WHO, 2007). The Places to Grow Act, 2005 also emphasises creating mixed land-use communities through mixed housing, amenities and landscapes (Government of Ontario, 2006).

Mixed land-use policies are evident in the Urban Design Manuals of both Cities. A keyword search of the word 'mixed use' revealed 81 entries in Kitchener's Urban Design Manual and 27 entries in Waterloo's Urban Design Manual. The high occurrence of the term 'mixed use' in Kitchener's Urban Design Manual clearly indicate the emphasis the city placed on it and its importance.

Recently built shopping centers, including The Boardwalk at Ira Needles Boulevard, Sportsworld Crossing Plaza or Waterloo Commons have every kind of shopping amenity such as fashion, food, and offices, GRT (Grand River Transit) station. These plazas, however, do not support mixed-use. There are no residential units and most of the buildings are single or two storeyed. Below are two images of maps of newer residential communities from both Cities and other two images from the website of 'Walk Score' - these are a few examples representing the developments occurring

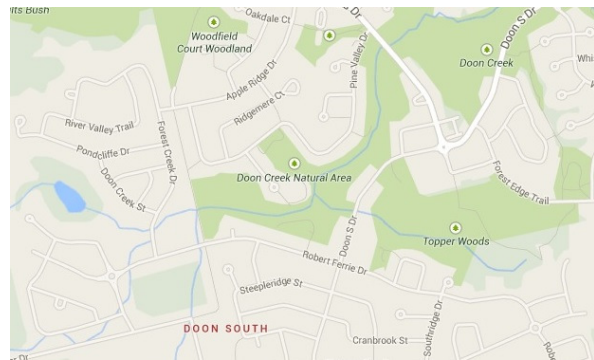
outside city core areas. These images clearly show that the cities do not conform to the mixed land-use policies. Research done by Carr, Dunsiger, & Marcus (2010) noted that Walk Score “significantly correlates” with several metrics to assess “the physical activity environment, including measures of street connectivity, residential density, and access to public transit” (2010, p. 461). The article supports that Walk Score is “a free, easy-to-use, and quick proxy of neighbourhood density and access to nearby amenities” (2010, p. 460). This links walk score to mixed land use policies, which also encompass walkable distances to amenities such as grocery stores, restaurants or doctors’ offices.

**Figure 18: University Ave near Ira-Needles Boulevard, Waterloo**



Source: Google Maps

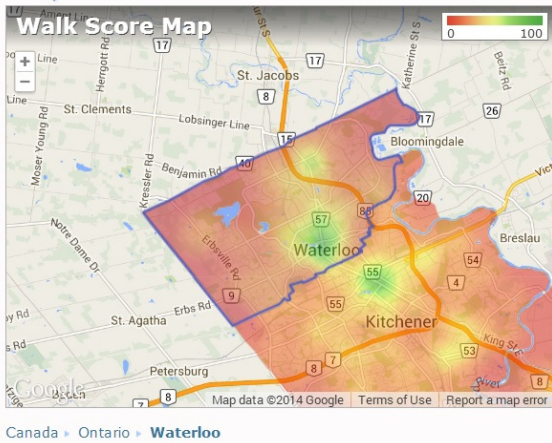
**Figure 19: Doon South Area, Kitchener**



**Figure 20: Walk Score Waterloo**

### Living in Waterloo

**Walk Score 44** Waterloo is a Car-Dependent city  
Most errands require a car.

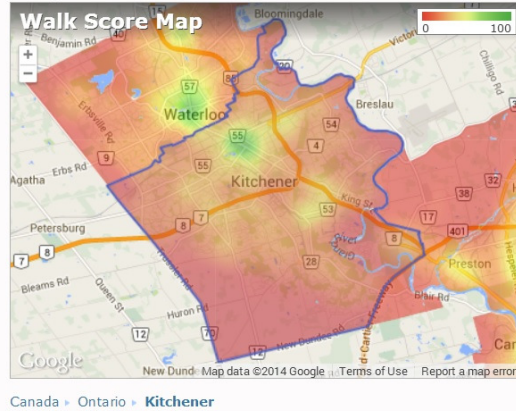


Source: Walk Score, 2014b

**Figure 21: Walk Score Kitchener**

### Living in Kitchener

**Walk Score 47** Kitchener is a Car-Dependent city  
Most errands require a car.



Source: Walk Score, 2014a

In 2006, over 90% of adults aged 55 and older in the Region of Waterloo traveled by automobile to and from work, and only 10% used other means of transportation, such as public transportation, taxi, walking or cycling. On a typical day, nearly 77% of older adults used private vehicles, and only 5% used other modes of transportation (Region of Waterloo, 2010a, p. 8). Based on the findings and validation through Walk Score, it is evident that the mixed-use land policies are not being implemented fully in these two municipalities.

#### 4.4 URBAN DESIGN ISSUES AROUND TRANSPORTATION

This section explores issues related to urban form that impede seniors' efforts to use public transport systems. As noted, about 61% of residents from Kitchener and 55%

resident from Waterloo said that the Cities' urban design issues around transportation are age friendly. However, most of the participants did not use public transport.

Responses from participants who rely on their cars, were based on their observations.

Only five participants including two members from focus groups, three from Kitchener and two from Waterloo, were using public transport systems.

**Table 11: Urban Design Issues around Transportation – City of Kitchener**

	<b>Issue</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
	<b>Urban Design Issues Around Transportation</b>	<b>61%</b>	<b>23%</b>	<b>16%</b>
19	Traffic signals at pedestrian crossings	55%	45%	0%
20	Adequate time at signals for pedestrians	90%	10%	0%
21	Push-to-walk buttons at traffic signals	90%	10%	0%
22	Long streets with midblock crosswalks	60%	10%	33%
23	Crosswalks well marked	90%	10%	0%
24	Bus stops located within a 10-minute walk	70%	30%	0%
25	Bus stops properly maintained	80%	20%	0%
26	Shade and shelter at bus stops	45%	55%	0%
27	Street crossings near bus stops safe?	65%	15%	20%
28	Well marked transit stops	40%	40%	20%
29	Adequate room for walking aid/wheelchair	50%	0%	50%
30	Information for those with limited sight	20%	30%	50%
31	Bus stops well lit	35%	25%	40%

**Table 12: Urban Design Issues around Transportation – City of Waterloo**

	<b>Issue</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
	<b>Urban Design Issues Around Transportation</b>	<b>55%</b>	<b>29%</b>	<b>16%</b>
19	Traffic signals at pedestrian crossings	56%	44%	0%
20	Adequate time at signals for pedestrians	56%	33%	11%
21	Push-to-walk buttons at traffic signals	67%	22%	11%
22	Long streets with midblock crosswalks	33%	22%	44%
23	Crosswalks well marked	78%	0%	22%
24	Bus stops located within a 10-minute walk	67%	11%	22%
25	Bus stops properly maintained	67%	33%	0%
26	Shade and shelter at bus stops	28%	72%	0%
27	Street crossings near bus stops safe?	44%	33%	22%
28	Well marked transit stops	72%	28%	0%
29	Adequate room for walking aid/wheelchair	61%	6%	33%
30	Information for those with limited sight	39%	39%	22%
31	Bus stops well lit	44%	33%	22%

Furthermore, researcher directed question – what kind of urban design issues do seniors face that limit them using GRT services – to GRT (Grand River Transit, Region of Waterloo) official<sup>29</sup> and the response matched with what was heard from seniors. For example, seniors indicated a lack of shelter and the GRT participant noted that long transfer waits can be a challenge in poor weather; not all the bus stops have pads; a

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<sup>29</sup> One GRT official was contacted through email. The question asked was - what kind of urban design issues do seniors face that limit them using GRT services. The official is coded as GRT1.

lack of snow clearing on sidewalks make bus access very tough; and some sidewalks serving bus stops are cracked and uneven. The Official, GRT1, also noted limited ability to provide benches and shelters. Newer subdivisions with curvilinear road patterns sometimes result in long walks for seniors to and from the bus and it is not practical for GRT to provide regular service nearby.

#### **4.5 SWOT ANALYSIS AND SUMMARY**

The results in Chapter 4 outline that both Cities are comparable, with some differences. The City of Kitchener and City of Waterloo show similar strengths and weaknesses. The positive aspects noted by seniors of both the Cities are availability of sidewalks, well-lit streets, and visible curb cuts. They also however, noted that the Cities have, un-walkable plazas, and lack of resting places and daily amenities at walkable distances. SWOT analysis provided below is the overall summary of the results found in this chapter.

**Figure 22: SWOT Analysis of the Findings**

<b>Strengths</b>	<b>Weakness</b>
<ol style="list-style-type: none"> <li>1. Sidewalks available throughout the neighbourhood</li> <li>2. Well lit streets</li> <li>3. Visible curb cuts</li> <li>4. Well lit public areas</li> <li>5. Bus stops located within 10 minutes</li> </ol>	<ol style="list-style-type: none"> <li>1. Non-pedestrian traffic on sidewalks</li> <li>2. Lack of resting places on the sidewalks, trails and bus stops</li> <li>3. Lack of maintenance</li> <li>4. Lacks of signs for clear directions for pedestrians</li> <li>5. Information for those with limited sight</li> </ol>
<b>Opportunities</b>	<b>Threats</b>
<ol style="list-style-type: none"> <li>1. Focus on Improvement</li> <li>2. Reference to guiding principles</li> <li>3. Mixed land-use policies</li> <li>4. Age-friendly urban form = active seniors = active involvement in the community</li> </ol>	<ol style="list-style-type: none"> <li>1. Continuing construction of shopping plazas</li> <li>2. Insufficient legal authorities to planners</li> <li>3. Limited financial resources</li> </ol>

The strengths of the Cities’ urban form is that seniors from both Cities agree that they have sidewalks throughout their neighbourhoods. Likewise, most of them also mentioned that the streets and public areas, such as parks in their neighbourhoods are well-lit, and curb-cuts on the sidewalks are visible. About 70% of participants from both the Cities indicated bus stops are located ten minutes walking distance apart. Participants however, also note challenges such as non-pedestrian traffic on sidewalks; lack of signs for clear directions for pedestrians; and lack of resting places by sidewalks, trails and at bus stops.



The analysis of current Urban Design Manuals found that neither of these guidelines refers to the guiding principles such as Universal Design Principles, and analysis of the current state of age-friendly policies for further improvement. Guidelines for implementing mixed land-use policies, however, were evident. These can be considered as opportunities because references to Universal Design Principles and Design of Public Spaces Standards (Accessibility Standards for the Built Environment) AODA are evident in new official plans<sup>30</sup> and new Provincial Policy Statement 2014. The policies and guidelines on mixed-uses, proportion and scale of the built environment were evident in old official plans and current design manual. But there is limited evidence to show that these guidelines are being implemented. The need here therefore is to realise the potential or the opportunities that would come with it. These policies and guidelines are beneficial to seniors, because an age-friendly urban form means active seniors and their active involvement in the community and social life.

Based on the findings on the built environment, interviews with planners, focus groups and seniors, the issues of continuing construction of un-walkable shopping plazas, limited municipal financial resources, and insufficient legal authority for planners constitute challenges to create age friendly communities. The examples are new plazas, new developments and lower walk score of the Cities. The images of these plazas from Google Earth Maps clearly indicate a large amount of parking space available, which

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30 The Official Plan of the City of Kitchener is under review. The Final Proposed Draft is available for review on the City of Kitchener's website – [www.Kitchener.ca](http://www.Kitchener.ca) (City of Kitchener, 2014).

are not more than 25% full on any regular day. The Boardwalk and Sunrise Center are newer plazas, but also do not conform to mixed land-use and walkability standards.

These weaknesses are results of management and functional gaps. Figure 23 clearly indicates that management gaps along with functional gaps create operational islands [gaps]. Examples of these operational islands are the poor sidewalk maintenance, lack of resting places or lack of way-finding information for seniors. These are noted by individuals and focus group members. Furthermore, planners and focus group members identified lack of funding and political will. Focus group members noted that the Cities did not play an adequate role in determining the layout of shopping plazas or roundabouts, and it is affecting the seniors. Planners generally noted that most of the developments are done by developer community and “having policy or guideline is one thing and getting developer to build it into the design is another” MP1. Planners also noted that without sufficient legal authority, they cannot realise that policy. Planner, members of focus groups and seniors (RK5 and RK14) agreed that for certain issues relating to the built environment and urban form, there is some degree of political influence that negatively impacts mixed-use development. During conversation with planners at advisory meetings (where researcher volunteered), I came to know that sometime the site-plans and permits of these plazas or developments were approved more than ten years ago, when requirements were different. Insufficient legal support for making developers re-approves the plans and permits before construction limits planners’ ability to suggest changes that conform to current policies. In addition, insufficient operational funds restricting municipalities’ ability to provide facilities and

services such as clearing sidewalks and providing better way-finding strategies for citizens and visitors.

**Figure 23: Management and Functional Gaps**

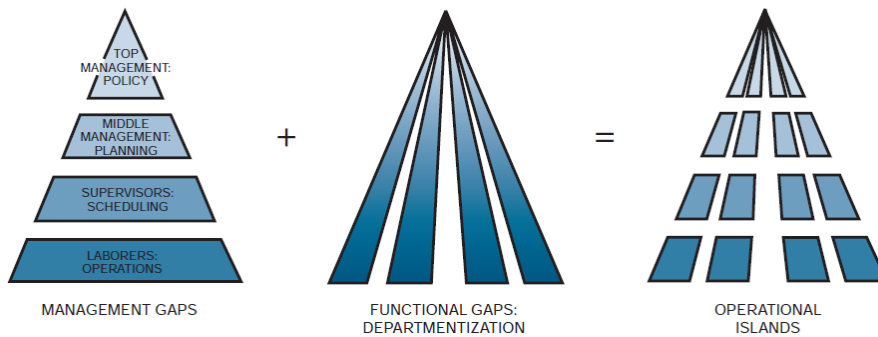


FIGURE 1-1. Why are systems necessary?

Source: Kerzner (2013, p. 5)

Looking at the SWOT analysis, implementation of policies is the need of the hour. This however, involves the joint efforts of various resources and stakeholders working towards the same goal of making an accessible and inclusive urban form. As indicated in Chapter 1, both the Cities come under the umbrella of the Region of Waterloo and GRT operates public transport in the Region. These organizations are aiming to achieve the same goal, which is creating inclusive and accessible urban form. A simple solution operational gap such as lack of resting places can be dealt by providing resting places at the bus stops (which are 10 minutes walking distance apart). GRT indicated their limited ability to provide these. Some roads are the responsibility of the Region and some are maintained by the Cities. Both the municipalities, the Region and GRT should consider working together to eliminate such gaps. Similarly, to create a built environment that is age-friendly, municipalities should consider involvement of

urban designers of developer community. Their involvement at the guidelines development stage will be helpful to eliminate or reduce issues of these plazas and new homogeneous-use developments.

Another issue echoed by both planners and focus groups is lack of funding. This may also mean lack of resources to implement policies/guidelines concerning seniors. “Lack of operational dollars” (MP2) results in deficiencies in the urban form features such as resting places and issues with way finding. These features, though small for abled bodies, play an important part in age- friendly communities. The reason cited by planners and Blais (2010) is continuous downloading of responsibility on the municipalities. Funding issues require an additional approach to implement guidelines and policies.

# CHAPTER 5 - CONCLUSION AND RECOMMENDATIONS

## 5.1 CONCLUSIONS

The seniors' population is increasing and the general population is aging. Various levels of physical functioning and personal activity in everyday life depend on demands placed on them by the physical environment, such as the urban form and built environment (Lawton & Nahemow, 1973). A universally accessible built environment plays a significant facilitating factor in seniors' desire to participate in society and age actively. On the other side, built environment can also be constraining for seniors or people with disabilities. Therefore, the physical or built environment of a city can be viewed as a social support system for seniors or people with disabilities.

This study assessed on the adequacy of the urban design manuals of the Cities of Kitchener and Waterloo in meeting the needs of local seniors. The guidelines in these design manuals were compared with the Universal Design Principles, Design of Public Spaces Standards by AODA, and Assessment Checklist derived from the literature review to observe if there are policy gaps present in these manuals. In addition, two planners (one each from Kitchener and Waterloo), two focus groups and 19 seniors from both Cities were interviewed to compare and contrast the current urban form with the guidelines and policies in presents in the current Urban Design Manuals.

The design guidelines are based on the high level policies in place at the Provincial, Regional, and the Municipal levels of government. To comprehend how the Urban Design Manuals work, it was important to understand how local and provincial

policies influence these documents. The current UDMs guided the content analysis for this study. The guidelines in the City of Kitchener's Urban Design Manual are based on the Official Plan implemented in 2006. Similarly, the City of Waterloo's Urban Design Manual is based on official Plan implemented in 2007. In 2012, the City of Waterloo introduced an updated Official Plan, and likewise, the City of Kitchener has a final draft of its Official Plan available on its website<sup>31</sup>. These updated Official Plans have incorporated the key items of the checklist itemized in Chapter 2 such as reference to guiding principles and analysis of current state of age-friendly (or all age groups) policies, for further improvement. New Official Plans of both the Cities place an emphasis on Universal Design Principles for creating inclusive urban forms. The current UDMs of both Cities are under review and will incorporate new policies laid out in their new Official Plans and the AODA Act's Part IV.1, Design of Public Spaces Standards (Accessibility Standards for The Built Environment). According to the Ministry of Economic Development, Trade and Employment (2005)'s website, starting from January 2015, new construction and major renovation projects will come under this ACT (2005). These policies provide guidelines to the UDMs. Provincial Policy Statement 2014 witnessed a push to develop more age-friendly communities. Similarly, the Growth Plan for the Greater Golden Horseshoe provide specific directions for future growth and direct municipalities to create complete communities that meet the needs of all ages with varied abilities and disabilities (Government of Ontario, 2006).

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31 The Official Plan of the City of Kitchener is under review. The Final Proposed Draft is available for review on the City of Kitchener's website – [www.Kitchener.ca](http://www.Kitchener.ca) (City of Kitchener, 2014).

Urban Design Manual analysis along with related high level Provincial and Regional and Municipal guiding policies and findings of interviews with planners, seniors and Focus groups indicated that the problems seem to arise more with the implementation of the guidelines rather than the guidelines themselves, which seem to be fairly comprehensive in addressing the needs of seniors.

Both Waterloo and Kitchener have sidewalks and shopping plazas, which can allow seniors to be active. But then the question arises why do seniors still think these are not age friendly? Issues like maintenance of sidewalks in winters, uneven surfaces or non-pedestrian traffic, lack of benches, lack of way-finding information or un-walkable shopping plazas due to vehicular traffic influence seniors' decisions on whether to go out or not. These types of issues require operational recommendations but these must work within the current policy framework. The policies to deal with these challenges are available, but in fragmented ways. To answer the research question, 'Do the urban design guidelines of Kitchener and Waterloo address the needs of an aging population?' it can be suggested that the urban design guidelines of both Cities meet the needs of seniors from a theoretical or policy framework. However, seniors from both Cities feel that the urban form is of an average category and requires significant improvements.

In conclusion, looking at the cumulative results derived from the analysis of Urban Design Manuals, interviews with planners, focus groups and seniors (the ultimate user group), I observed that the overall picture is not only about what is written in the policy books, but also about implementing those policies and guidelines; about knowing the strengths and weaknesses of the current urban form; about the implications of not

being able to meet the needs of seniors and people with a disability; and about knowing the opportunities that these Cities have and working on them.

Likewise, other municipalities and regions working to make their Cities age-friendly need to have a closer look at what they have together and work towards a common goal of making their Cities, neighbourhoods or communities inclusive and accessible for all. Below are my recommendations to creating more age-friendly cities.

## **5.2 RECOMMENDATIONS**

Cities should be planned for all members of the population – young, old, mothers with little children and people with varied temporary or permanent disabilities. Well-known British gerontologist Bernard Isaacs said “Design for the young and you exclude the old; design for the old and you include the young” (Canada Mortgage and Housing Corporation, 2014, p. 4). The recommendations provided here will work well to create an urban-form that is accessible to all.

### **RECOMMENDATION # 1**

#### Reference of Universal Design Principles throughout the Urban Design Manuals.

The significance of Universal Design Principles has been highlighted in the literature review. These principles can facilitate urban planners to design urban form including built environment and open spaces universally accessible. Hence, strong references with examples to these principles will deliver a strong message to Urban Design Manual users to create a universal accessible urban form. For example, the



design guidelines for intersection of sidewalk, bike lane, and road should refer to Principle 5 — Tolerance for Error<sup>32</sup>. These design guidelines, where pedestrians interact with bike lanes or roads, should eliminate or diminishes hazards “and the adverse consequences of accidental or unintended actions” (Story et al., 1998). Mentioning Principle 3<sup>33</sup> — Simple and Intuitive Use and Principle 4<sup>34</sup> — Perceptible Information with design guidelines for straightforward street networks with simple flow patterns, standard signage and well-marked crossings will facilitate easy way-finding for every user. Similarly referring to Principle 1 — Equitable Use<sup>35</sup> for public buildings, outdoor spaces, and community amenities such as sidewalks, trails, parks will facilitate universally accessible urban forms.

## **RECOMMENDATION # 2**

### Educating Planners

Educating Planners — Most of the planners young are able-bodied persons. In order to understand the needs of people with varied disability, they should gain practical experience by going out with people who are using some kind of walking aid or who are visually impaired. These people are part of our society and planners should not ignore their desire to be independent. In addition, planners and urban designers should be

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<sup>32</sup> The design minimizes hazards and the adverse consequences of accidental or unintended actions.

<sup>33</sup> Use of the design is easy to understand, regardless of the user’s experience, knowledge, language skills, or current concentration level.

<sup>34</sup> The design communicates necessary information effectively to the user, regardless of ambient conditions or the user’s sensory abilities.

<sup>35</sup> The design is useful and marketable to people with diverse abilities

given training on the P-E model, which states that the varied level dependencies on physical environment depends on the level of health and/or the age of the person.

A built environment, which is accessible to seniors and people with disabilities, is accessible to all. A beautiful city is not how it looks from a car window but it is beautiful if it is accessible to everyone regardless of their age or abilities.

### **RECOMMENDATION # 3**

Greater collaboration between Region of Waterloo and the Cities of Waterloo and Kitchener.

The Successful implementation of policies depends on collaboration between the Region of Waterloo and the Cities of Waterloo and Kitchener<sup>36</sup>. These organizations share a common goal of an inclusive and accessible urban form, but are working in isolation from each other. Removing operational gaps toward realisation of goals and objectives demand collaboration between these organizations.

### **RECOMMENDATION # 4**

The Region of Waterloo should initiate a study to assess the net benefits of an urban form that encourages active ageing.

The Region of Waterloo along with Cities of Waterloo and Kitchener should undertake a study to assess the net benefits of an urban form that encourages active

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<sup>36</sup> A very recent article 'Regional economic development relies on trust between municipalities' in Kitchener Post also noted the same point (J. Jackson, 2014).

ageing. This will bolster their case for additional funding from other levels of government (i.e., provincial and federal government) that will stand to gain as health care costs associated with an ageing population are reduced.

## **RECOMMENDATION # 5**

The Cities of Waterloo and Kitchener should prepare biannual reports on the progress towards implementation of their respective Urban Design Guidelines.

After implementation of policies, it is vital to investigate the impacts (and to what extent) these policies have on the targeted cohort. The reports would touch on which policy/guideline worked well; which policy/guideline had only minor effects; what changes can improve the policy/guideline; or what policies/guidelines can be eliminated from the Urban Design Manuals and Official Plans. Some of the sample questions that such a report on implementation would touch on include: what is the change in health behaviours of seniors such as improved physical activity levels, decrease in age-related health issues, decrease in slip and fall issues on city streets and sidewalks; what is the impact on the general population of the implementation of these policies; what is the relationship of these impacts to land-use policies, accessible and inclusive open spaces and parks; and increased walkability due to elimination of non-pedestrian traffic on sidewalks, even surfaces of sidewalks and improved way-finding. This is a general list of questions to measure the impact of policies. This list can be improved with the involvement of officials who communicate with seniors and maintain the data related to these issues, and planners involved in development of these policies.

Such reporting requirement would provide accountability for funding allocated to implementation of policies in urban design manuals. This would be especially critical in a situation where provincial and federal government consider providing additional funding to municipalities.

## **RECOMMENDATION # 6**

The Region of Waterloo, along with Cities of Waterloo and Kitchener, should put in place comprehensive guidelines for the implementation of policies

When examining the Analysis of Urban Design Manuals and SWOT analysis of the interview together, it is clear that municipalities need a better process to implement their policies. Municipalities along with the Region should consider creating Comprehensive Guidelines for Implementation of Policies and follow them. Below are the sub-sections of the proposed Comprehensive Guidelines for Implementation of the Policies:

### **a) Consult with Key Stakeholders**

The pertinent stakeholders should include planners, designers and engineers of municipalities of both the cities; the Region of Waterloo and its planners; transportation planners and engineers of GRT; developers; Public Health officials; provincial government representatives and seniors and people with disabilities. Since most development in these cities is undertaken by developers, it is important that we need to involve them in the beginning of the implementation process.

Furthermore, involvement of Public health officials is significant at both initial and final stages of the implementation process. These officials can provide a logical

perspective for the policies. In addition, they can develop an analysis for establishing the benefits of healthy urban design and bring health and accessibility to the land-use policy dialogues.

**b) Identify Scope or Deliverables**

This section defines the scope of the policies. Goals and objectives derived from policies are given a tangible format and are referred to as scope or deliverables. Strengths and weaknesses described in the section above provide an inventory of what the Cities have and what needs to be done. The weaknesses address the tangible operational and service issues.

**c) Review process to measure the success of the guidelines**

For a review process and to measure the success of these guidelines, there is a need to review the Scope or Deliverables to see whether the guidelines have been met. The finished work can be compared with previously set parameters for time-frame and quality associated to see whether expectations have been met or not.

In the current situation, the review process can look for the gaps between different departments of the region or municipalities and suggest strategic and focused recommendations for further improvement of collaboration.

**d) Review Lessons Learned from Implementation Process**

It is important to document the success or failure of any venture for the enhancement of future undertakings and to avoid repeating mistakes<sup>37</sup>.

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<sup>37</sup> Lessons learned is the analysis of the whole implementation process, and thus it provides recommendations for best practices for future undertakings and further enrichment of the implementation guideline (Kerzner, 2013; Project Management Institute, 2008).

Some of the few sample questions that can be addressed at the end of the implementation process are: was the implementation of the policies organised and focused throughout; what steps of the implementation were executed smoothly and what steps created challenges; are there suggestions for future improvement; and what were the challenges and risks identified during the implementation and what were the steps taken to mitigate those risks.

## **RECOMMENDATIONS FOR FURTHER RESEARCH**

The analysis, findings and recommendations introduced in this thesis provide a natural lead for future research. For example, collaboration between the Region and the Cities in creating universally accessible communities has been introduced in this thesis. Further research is needed to quantify the health benefits for the Region of Waterloo of age friendly urban form including the built environment. Similar studies at the provincial and federal level in Canada are also recommended as these levels of government have responsibilities for higher levels of health care.

The literature has emphasised that implementation of Universal Design Principles in planning and urban design guidelines for a more inclusive and accessible community. This will be of great significance for any city's developments. The Current Official Plan of Waterloo and the Final Draft of proposed Official Plan of Kitchener have made clear reference to the Universal Design Principles. However, this has not been reflected in the Urban Design Manuals. Planners from both cities indicated financial constraints limiting them to implement these principles. Further investigation is needed

to initiate a comparative benefit cost analysis of initial implementation cost of Universal Design Principles, versus the cost to retrofit existing building and long term benefit (or loss). Similar research at the regional and provincial governments are also suggested as these levels of governments demand persistently from municipalities to create universally accessible communities.

In addition, Recommendation# 6, which recommends the creation of 'Comprehensive Guidelines for Implementation of Policies', has been introduced at a very basic level. The purpose of this recommendation is to take a small and simple step, such as, taking shovel to the ground. Considerably more work will need to be done to examine benefits and the influences of collaboration between the Region and the Municipalities. Along with this, it would be worthwhile to study the influence of the Region's role in urban design related decisions. Institutions and future planners can provide or facilitate useful research background for potential undertakings by the regional and municipal governments. These studies could help provide an impetus to plan and build age friendly communities.

## PERSONAL REFLECTIONS

While presenting my reflections on the experience of writing this thesis, I can say that with certainty that I truly enjoyed and appreciated this whole process. I am always eager to seek and gain more knowledge in and out of the school. When I joined Master's program in the University of Waterloo, I had this notion that the planning programs are about city planning, about drawings, maps, working with density, floor area ratios and similar zoning regulations. But once in the program, I realised that it was different from what I initially thought. This program is about the planning of the Cities in a holistic manner, and is influenced by economics, politics, demographics and environment.

As a person, I love to volunteer and do something, which can help people to live better and gain experience from their difficulties. Therefore, at the start of the program, I started to volunteer with organisations that work with seniors. This experience provided me with an opportunity to regularly stay in contact with seniors and planners. I started using public transit to observe general issues faced by seniors with varied abilities. During this process I developed friendship with several seniors. I was able to ask them frequently about their experiences with the current urban form and changes they would like to see in the Cities. With this information, I started to closely observe people using some kind of walking aid such as wheelchair, walkers and walking cane. Frequent informal conversations with them along with the literature review guided me to identify the base of my research, which eventually formed the key checklist. I was able to



develop a simple research framework in the beginning to study these key elements in depth. My timely involvement with the organizations I volunteered with went well for this study.

This study focused on the concerns experienced by seniors about the urban form. Personally, I also had parallel concerns. I am always anxious for safety of my children when they bike in the bike lanes on the side of major roads or in new shopping plazas. Similarly, I volunteer with Family and Children services for the Region of Waterloo. One of the 'Kidsability' buildings has a washroom, which is accessible from inside but entry to the washroom is not accessible. There are a number of built environment examples that I observed and experiences on a daily basis. These issues can make a person independent or dependent. The safety, however, can be achieved with proper design of buildings or cities.

My work over the last few years focussed on preparing drawings and quotes with limited opportunity for extensive writing. Therefore, one of the personal challenges I was faced with involved writing of this thesis. However, strong support and timely motivation by my advisor and committee advisor helped me improve the thesis immensely. The whole process has definitely improved my research and writing skills and will be an asset to me in the future.

## REFERENCES

- Abrey, H. (2014, January 30). Temperatures cause sidewalk headaches. *Your Online Newspaper for Kitchener, Ontario*. Retrieved January 30, 2014 from <http://www.kitchenerpost.ca/news/temperatures-cause-sidewalk-headaches/>
- Aliaga, M., & Gunderson, B. (2000). *Interactive Statistics*. Upper Saddle River, N.J: Pearson.
- Altman, I. (1995). Ecological Aspects of Interpersonal Functioning. In A. H. Esser (Ed.), *Behavior and Environment* (pp. 291–306). Springer US. Retrieved February 28, 2013 from [http://link.springer.com/chapter/10.1007/978-1-4684-1893-4\\_22](http://link.springer.com/chapter/10.1007/978-1-4684-1893-4_22)
- Altman, I., Lawton, M. P., & Wohlwill, J. F. (Eds.). (1984). *Elderly People and the Environment* (1st ed.). Springer.
- Anderson, W. P. (2012). *Economic Geography*. London ; New York : Routledge.
- Andrews, G. J., & Phillips, D. R. (2004). *Ageing and Place*. Routledge.
- Araki, K., Bartolome, M., & Minakami, D. (1996). *Creating More Livable Communities - A Handbook of Land Use and Transportation Design Strategies*. The Leeward Oahu Transportation Management Association (LOTMA). Retrieved January 18, 2014 from <http://www.lotma.org/livcomm.pdf>
- Atkinson, P. A., Delamont, S., Coffey, A., Lofland, J., & Lofland, L. H. (2007). *Handbook of Ethnography*. London; Thousand Oaks, Calif.: SAGE Publications Ltd.

- Backseat Stylers. (2013, May 24). The Backseat Stylers. *Toronto Premium Outlets Set to Open Its Doors on August 1, 2013*. Retrieved May 10, 2014 from <http://backseatstylers.com/fashionnews/toronto-premium-outlets-set-to-open-its-doors-on-august-1-2013/>
- Balfour, J. L., & Kaplan, G. A. (2002). Neighborhood Environment and Loss of Physical Function in Older Adults: Evidence from the Alameda County Study. *American Journal of Epidemiology*, 155(6), 507–515. doi:10.1093/aje/155.6.507
- Ball, M. S. (2012). *Livable Communities for Aging Populations: Urban Design for Longevity*. Wiley.
- Barbour, R. S. (2007). *Doing focus groups*. Los Angeles: SAGE.
- Baxter, P., & Jack, S. (2008). *Qualitative Case Study Methodology: Study Design and Implementation for Novice Researchers* (pp. 544–559). *The Qualitative Report*. Retrieved February 05, 2013 from <http://www.nova.edu/ssss/QR/QR13-4/baxter.pdf>
- Bayer, A.-H., & Harper, L. (2000, May). Fixing to Stay: A National Survey on Housing and Home Modification Issues - AARP. *AARP*. Retrieved June 22, 2012, from <http://www.aarp.org/home-garden/housing/info-2000/aresearch-import-783.html>
- Berg, B. L. (Bruce L. (2012). *Qualitative research methods for the social sciences* (Eighth edition.). Boston: Pearson.
- Bernard, H. R. (2012). *Social Research Methods: Qualitative and Quantitative Approaches*. SAGE.

- Bhuyan, A., Jorgensen, A., & Sharma, S. (2010). *Taking the Pulse of Policy: The Policy Implementation Assessment Tool*. Washington, DC: Futures Group, Health Policy Initiative, Task Order 1. Retrieved March 12, 2014 from [http://futuresgroup.com/files/publications/Taking\\_the\\_Pulse\\_of\\_Policy.pdf](http://futuresgroup.com/files/publications/Taking_the_Pulse_of_Policy.pdf)
- Blais, P. (2010). *Perverse cities : hidden subsidies, wonky policy, and urban sprawl*. Vancouver: UBC Press.
- Bolívar, J., Daponte, A., Rodríguez, M., & Sánchez, J. J. (2010). The Influence of Individual, Social and Physical Environment Factors on Physical Activity in the Adult Population in Andalusia, Spain. *International Journal of Environmental Research and Public Health*, 7(1), 60–77. doi:10.3390/ijerph7010060
- Booth, M. L., Owen, N., Bauman, A., Clavisi, O., & Leslie, E. (2000). Social–Cognitive and Perceived Environment Influences Associated with Physical Activity in Older Australians. *Preventive Medicine*, 31(1), 15–22. doi:10.1006/pmed.2000.0661
- Canada Mortgage and Housing Corporation. (2014). Creating Housing and Communities for all Ages: the Principles of Universal Design. *CMHC*. Retrieved April 29, 2014, from [http://www.cmhc-schl.gc.ca/en/inpr/bude/hoolca/hoolca\\_vol\\_004/hoolca\\_vol\\_004\\_002.cfm](http://www.cmhc-schl.gc.ca/en/inpr/bude/hoolca/hoolca_vol_004/hoolca_vol_004_002.cfm)
- Canadian Institute for Health Information. (2011). *Health Care in Canada 2011: A Focus on Seniors and Aging*. Ottawa: Canadian Institute for Health Information (CIHI). Retrieved February 28, 2013 from [https://secure.cihi.ca/free\\_products/HCIC\\_2011\\_seniors\\_report\\_en.pdf](https://secure.cihi.ca/free_products/HCIC_2011_seniors_report_en.pdf)

Canadian Institute for Health Information (CIHI). (2010). National Health Expenditure Trends, 1975 to 2010. Retrieved February 28, 2013, from [http://www.cihi.ca/CIHI-external/portal/internet/en/Document/spending+and+health+workforce/spending/RELEASE\\_28OCT10](http://www.cihi.ca/CIHI-external/portal/internet/en/Document/spending+and+health+workforce/spending/RELEASE_28OCT10)

Carr, L. J., Dunsiger, S. I., & Marcus, B. H. (2010). Walk score™ as a global estimate of neighborhood walkability. *American Journal of Preventive Medicine*, 39(5), 460–463. doi:10.1016/j.amepre.2010.07.007

CDC, N. C. for E. (2013). CDC - Healthy Places - Healthy Places Terminology. Retrieved July 7, 2013, from <http://www.cdc.gov/healthyplaces/terminology.htm>

Cisneros, H., Dyer-Chamberlain, M., & Hickie, J. (2012). *Independent for life : homes and neighborhoods for an aging America* (1st ed.). Austin: University of Texas Press.

City of Kitchener. (2006, June). Official Plan, Section 6, pp. 6-1 to 6-4. Retrieved January 13, 2013 from [http://app.kitchener.ca/municipal\\_plan/Docs/PublishedCurrentText/PART%20%20-%20GENERAL%20POLICIES%20PLAN//Section%206%20-%20Urban%20Design.pdf](http://app.kitchener.ca/municipal_plan/Docs/PublishedCurrentText/PART%20%20-%20GENERAL%20POLICIES%20PLAN//Section%206%20-%20Urban%20Design.pdf)

City of Kitchener. (2012). *City of Kitchener Urban Design Manual*. Retrieved January 13, 2013 from <http://www.kitchener.ca/en/businessinkitchener/UrbanDesignGuidelines.asp>

City of Kitchener. (2014, February 21). Final Draft of City of Kitchener: Official Plan, A Complete & Healthy Kitchener. Retrieved January 10, 2014 from [http://www.kitchener.ca/en/insidecityhall/Official\\_Plan\\_Review.asp](http://www.kitchener.ca/en/insidecityhall/Official_Plan_Review.asp)

City of Waterloo. (2009). *City of Waterloo Urban Design Manual*. City of Waterloo. Retrieved January 13, 2013 from <http://www.waterloo.ca/en/government/urbandesignguidelines.asp>

City of Waterloo. (2012a). Official Plan, Chapter 3, Section 3.11, pp. 37-45. Retrieved January 13, 2013 from [http://www.waterloo.ca/en/contentresources/resources/government/OP\\_region\\_approved.pdf](http://www.waterloo.ca/en/contentresources/resources/government/OP_region_approved.pdf)

City of Waterloo. (2012b). The City of Waterloo - An age-friendly city. *The City of Waterloo*. Retrieved April 26, 2014, from <http://www.waterloo.ca/en/living/agefriendlycity.asp>

Clarke, P., Ailshire, J. A., Bader, M., Morenoff, J. D., & House, J. S. (2008). Mobility Disability and the Urban Built Environment. *American Journal of Epidemiology*, 168(5), 506–513. doi:10.1093/aje/kwn185

Clarke, P., & Gallagher, N. A. (2013). Optimizing Mobility in Later Life: The Role of the Urban Built Environment for Older Adults Aging in Place. *Journal of Urban Health: Bulletin of the New York Academy of Medicine*. doi:10.1007/s11524-013-9800-4

- Coleman, R. (2007). *Design for inclusivity : a practical guide to accessible, innovative and user-centred design*. Aldershot: Gower ; Burlington, VT.
- Creswell, J. W. (2009). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches* (3rd ed.). Sage Publications.
- Cuba, L., & Hummon, D. M. (1993). A Place to Call Home: Identification with Dwelling, Community, and Region. *The Sociological Quarterly*, 34(1), 111–131.  
doi:10.2307/4121561
- Cunningham, G. O., & Michael, Y. L. (2004). Concepts Guiding the Study of the Impact of the Built Environment on Physical Activity for Older Adults: A Review of the Literature. *American Journal of Health Promotion : AJHP*, 18(6), 435–443.
- Deraspe, R. (2011). *Canada's Aging Population and Public Policy: 3. The Effects on Health Care*. Parliament of Canada. Retrieved March 06, 2013 from <http://www.parl.gc.ca/Content/LOP/ResearchPublications/2011-122-e.htm#note>
- Dittmar, H., & Ohland, G. (2003). *The New Transit Town: Best Practices In Transit-Oriented Development*. Island Press.
- Downe-Wamboldt, B. (1992). Content analysis: Method, applications, and issues. *Health Care for Women International*, 13(3), 313–321.  
doi:10.1080/07399339209516006
- Drever, E. (1995). *Using semi-structured interviews in small-scale research : a teacher's guide*. Edinburgh: SCORE.

- Eason, K. D. (1995). User-centred design: for users or by users? *Ergonomics*, *38*(8), 1667–1673. doi:10.1080/00140139508925217
- Eckert, J. K., & Ittman-Murray, M. (1984). Alternative Modes of Living for the Elderly. In I. Altman, M. P. (Mortimer P. Lawton, & J. F. Wohlwill (Eds.), *Elderly people and the environment* (pp. 47–60). New York: Plenum Press.
- EcoPlan International. (2011). Active Transportation in Canada: A Resource and Planning Guide. Transport Canada. Retrieved March 06, 2013 from <http://www.tc.gc.ca/media/documents/programs/atge.pdf>
- Elo, S., & Kyngäs, H. (2008). The Qualitative Content Analysis Process. *Journal of Advanced Nursing*, *62*(1), 107–115. doi:10.1111/j.1365-2648.2007.04569.x
- Emler, C. A., & Mocerri, J. T. (2012). The Importance of Social Connectedness in Building Age-Friendly Communities. *Journal of Aging Research*, *2012*, 1–9. doi:10.1155/2012/173247
- Engel, R. J., & Schutt, R. K. (2012). *The Practice of Research in Social Work*. SAGE.
- Feddersen, E. (2009). *Living for the elderly : a design manual*. Basel: Birkhäuser.
- Fergus, T. A., Valentiner, D. P., Kim, H.-S., & Stephenson, K. (2009). The Social Thoughts and Beliefs Scale: Psychometric Properties and its Relation with Interpersonal Functioning in a Non-Clinical Sample. *Cognitive Therapy and Research*, *33*(4), 425–431. doi:10.1007/s10608-008-9214-x
- Fern, E. F. (2001). *Advanced Focus Group Research*. SAGE.



Filion, P. (2007). *The urban growth centres strategy in the greater Golden Horseshoe : lessons from downtowns, nodes, and corridors*. Toronto, Ontario: Neptis Foundation.

Findlay, R. A. (2003). Interventions to reduce social isolation amongst older people: where is the evidence? *Ageing & Society*, 23, 647–658.  
doi:10.1017/S0144686X03001296

Frank, L. D., Engelke, P. O., & Schmid, T. L. (2003). *Health and community design : the impact of the built environment on physical activity*. Washington, DC ; London: Island Press.

Frank, L., Engelke, P., & Schmid, T. (2003). *Health and Community Design: The Impact Of The Built Environment On Physical Activity*. Island Press.

Frumkin, H. (2004). *Urban sprawl and public health : designing, planning, and building for healthy communities*. Washington, DC: Island Press.

Geography Division, S. C. (2012, October 24). GeoSearch 2011 - Statistics Canada. Retrieved April 22, 2014, from <http://geodepot.statcan.gc.ca/GeoSearch2011-GeoRecherche2011/GeoSearch2011-GeoRecherche2011.jsp?searchLocalityName=7134824.59714286%3A889385.23428571%3AWaterloo%2C+RM+%5BCD%5D%2C+Ont.%3A3530%3Acd%3ACD%3AWaterloo%2C+RM&searchTheme=Locality&cmdSearchEntered=Zoom+to+location&boundaryType=csd&searchPass=3&MinX=7126338.1087755095&MinY=877867.594285714&MaxX=7155396.402653061&MaxY=895555.251428571&>

LastImage=http%3A%2F%2Fgeodepot.statcan.gc.ca%2FDiss%2FOutput%2FGeoSearch2011\_f6geoimspaz25192192062251.gif&lang=E&FormTool=&sZoomLevel=3&boundaryType=csd&boundaryType2=&boundaryDefault=N

Gobo, G. (2004). 26 Sampling, Representativeness And Generalizability. In *Qualitative Research Practice* (pp. 405–426). 1 Oliver's Yard, 55 City Road, London England EC1Y 1SP United Kingdom: SAGE Publications Ltd. Retrieved April 29, 2014 from <http://srmo.sagepub.com/view/qualitative-research-practice/d34.xml>

Google Maps. (2014). *Google Maps*. Retrieved March 3, 2014, from <https://www.google.ca/maps/place/Sunrise+Shopping+Centre/@43.415394,-80.516631,1040m/data=!3m2!1e3!4b1!4m2!3m1!1s0x882bf5bd9d84a539:0xb923a7ecd259ad60>

Government of Canada, S. C. (2012, February 8). Census subdivision of Kitchener, CY (Ontario) - Census Subdivisions - Focus on Geography Series - Census 2011. Retrieved April 27, 2014, from <http://www12.statcan.gc.ca/census-recensement/2011/as-sa/fogs-spg/Facts-csd-eng.cfm?LANG=Eng&GK=CSD&GC=3530013>

Government of Canada, S. C. (2013, November 25). The Daily — Canada's population estimates: Age and sex, 2013. Retrieved May 16, 2014, from <http://www.statcan.gc.ca/daily-quotidien/131125/dq131125a-eng.htm>

- Government of Ontario. (2006). Places to Grow - Growth Plan for the Greater Golden Horseshoe, 2006. Retrieved March 2, 2014, from [https://www.placestogrow.ca/index.php?option=com\\_content&task=view&id=9&Itemid=14](https://www.placestogrow.ca/index.php?option=com_content&task=view&id=9&Itemid=14)
- Gray, J. A. (2012). Built environment instruments for walkability, bikeability, and recreation: Disability and universal design relevant? *Disability and Health Journal, 5*(2), 87–101.
- Hall, P., & Imrie, R. (2001). *Inclusive Design: Designing and Developing Accessible Environments* (1st ed.). Taylor & Francis.
- Handy, S. L., Boarnet, M. G., Ewing, R., & Killingsworth, R. E. (2002). How the built environment affects physical activity: Views from urban planning. *American Journal of Preventive Medicine, 23*(2, Supplement 1), 64–73. doi:10.1016/S0749-3797(02)00475-0
- Hardon, A., Hodgkin, C., & Fresle, D. (2004). How to Investigate the Use of Medicines by Consumers. World Health Organization and University of Amsterdam. Retrieved January 30, 2013 from <http://apps.who.int/medicinedocs/pdf/s6169e/s6169e.pdf>
- Hodge, G. (2008). *The Geography of Aging: Preparing Communities for the Surge in Seniors*. McGill-Queen's University Press.
- Hodge, G., & Gordon, D. (2007). *Planning Canadian Communities* (5th ed.). Nelson College Indigenous.

- Hodge, G., & Gordon, D. L. A. (2008). *Planning Canadian communities : an introduction to the principles, practice and participants* (5th ed.). Toronto: Thomson/Nelson.
- Holt-Lunstad, J., Smith, T. B., & Layton, J. B. (2010). Social Relationships and Mortality Risk: A Meta-analytic Review. *PLoS Med*, 7(7), e1000316.  
doi:10.1371/journal.pmed.1000316
- Howell, S. C. (1980). *Designing for Aging: Patterns of Use*. The MIT Press.
- Hunter, R. H., Potts, S., Beyerle, R., Lee, C., Duncan, R., Vandenberg, A., ... Bryant, L. L. (2013). *Pathways to Better Community Wayfinding*. CDC Healthy Aging Research Network (CDC-HAN). Retrieved May 1, 2014 from <http://www.prc-han.org/docs/pathways.pdf>
- Institute of Gerontology. (2014). What is Gerontology? Retrieved March 3, 2014, from <https://www.publichealth.uga.edu/geron/what-is>
- Jackson, J. (2014, April 26). Regional economic development relies on trust between municipalities. *Your Online Newspaper for Kitchener, Ontario*. Retrieved April 26, 2014 from <http://www.kitchenerpost.ca/news/regional-economic-development-relies-on-trust-between-municipalities/>
- Jackson, R. J. (2003). The Impact of the Built Environment on Health: An Emerging Field. *American Journal of Public Health*, 93(9), 1382–1384.  
doi:10.2105/AJPH.93.9.1382
- Jersild, A. T., & Meigs, M. F. (1939). Direct Observation as a Research Method. *Review of Educational Research*, Vol. 9(5), 472–482.

- Johnson, L. C. (2013). *Focus Group Research*, Plan 625.
- Kaplan, M. (1997). The Benefits of Intergenerational Community Service Projects. *Journal of Gerontological Social Work*, 28(3), 211–228.  
doi:10.1300/J083v28n03\_06
- Keates, S., Clarkson, J., Langdon, P., & Robinson, P. (Eds.). (2004). *Designing a More Inclusive World* (1st Edition.). Springer.
- Kelly, J. R. (Ed.). (1993). *Activity and Aging: Staying Involved in Later Life*. Sage Pubns.
- Kerr, J., Rosenberg, D., & Frank, L. (2012). The Role of the Built Environment in Healthy Aging Community Design, Physical Activity, and Health Among Older Adults. *Journal of Planning Literature*, 27(1), 43–60.  
doi:10.1177/0885412211415283
- Kerzner, H. (2013). *Project management a systems approach to planning, scheduling, and controlling*. Hoboken, N.J.: Wiley.
- King, D. (2008). Neighborhood and individual factors in activity in older adults: results from the neighborhood and senior health study. *Journal of Aging and Physical Activity*, 16(2), 144–170.
- Krippendorff, K. (2004). *Content Analysis: An Introduction to Its Methodology*. SAGE.
- Krippendorff, K. (2012). *Content Analysis: An Introduction to Its Methodology*. SAGE.
- Krueger, R. A. (2009). *Focus Groups: A Practical Guide for Applied Research*. SAGE.
- Lawton, M. P. (1978). *Community Planning for an Aging Society*. McGraw Hill Text.

- Lawton, M. P., Greenbaum, M., & Liebowitz, B. (1980). The Lifespan of Housing Environments for the Aging. *The Gerontologist*, 20(1), 56–64.  
doi:10.1093/geront/20.1.56
- Lawton, M. P., & Nahemow, L. (1973). Ecology and the aging process. In C. Eisdorfer & M. P. Lawton (Eds.), *The psychology of adult development and aging*. (pp. 619–674). Washington, DC, US: American Psychological Association. Retrieved from <http://psycnet.apa.org/books/10044/020>
- Leedy, P. D., & Ormrod, J. E. (2001). *Practical research : planning and design* (7th ed.). Upper Saddle River, NJ: Merrill Prentice Hall.
- Lehning, A., Chun, Y., & Scharlach, Y. (2007). *Structural barriers to developing “aging-friendly” communities* (No. Public Policy & Aging Report, 17, 15-20). Retrieved March 03, 2013 from [http://cssr.berkeley.edu/research\\_units/casas/documents/PPARArticle.pdf](http://cssr.berkeley.edu/research_units/casas/documents/PPARArticle.pdf)
- Levine, D. (2003). *Universal Design New York*. University at Buffalo: Center for Inclusive Design and Environmental Access.
- Lewin, K., & Cartwright, D. (1951). *Field theory in social science : selected theoretical papers*. New York: Harper. Retrieved February 27, 2013 from <http://www.jstor.org/discover/10.2307/40982341?uid=3739464&uid=2&uid=3737720&uid=4&sid=21104036277147>
- Li, F., Fisher, K. J., Brownson, R. C., & Bosworth, M. (2005). Multilevel Modelling of Built Environment Characteristics Related to Neighbourhood Walking Activity in

- Older Adults. *Journal of Epidemiology and Community Health*, 59(7), 558–564.  
doi:10.1136/jech.2004.028399
- Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic Inquiry* (1st ed.). SAGE Publications, Inc.
- Lowy, L. (1989). Independence and Dependence in Aging A New Balance. *Journal of Gerontological Social Work*, 13(3-4), 133–146. doi:10.1300/J083V13N03\_10
- Lynott, J., Taylor, A., Twaddell, H., Haase, J., Ulmer, J., Nelson, K., ... Stolof, E. (2009). *Planning Complete Streets for an Aging America*. AARP Public Policy Institute. Retrieved October 06, 2012 from <http://assets.aarp.org/rgcenter/ppi/liv-com/2009-12-streets.pdf>
- Mackenzie, N., & Knipe, S. (2006). Research dilemmas: Paradigms, methods and methodology. *Issues In Educational Research*, 16(2). Retrieved June 17, 2014 from <http://www.iier.org.au/iier16/mackenzie.html>
- Mason, J. (2004). Semistructured Interview. In *The Sage Encyclopedia Of Social Science Research Methods*.
- Mathieson, K. M., Kronenfeld, J. J., & Keith, V. M. (2002). Maintaining Functional Independence in Elderly Adults The Roles of Health Status and Financial Resources in Predicting Home Modifications and Use of Mobility Equipment. *The Gerontologist*, 42(1), 24–31. doi:10.1093/geront/42.1.24
- McCallion, P. (Ed.). (2007). *Housing for the Elderly: Policy and Practice Issues* (1st ed.). Routledge.

- McClure, W. R., & Bartuska, T. J. (Eds.). (2007). *The Built Environment: A Collaborative Inquiry Into Design and Planning* (2nd ed.). Wiley.
- McNeill, L. H., Wyrwich, K. W., Brownson, R. C., Clark, E. M., & Kreuter, M. W. (2006). Individual, social environmental, and physical environmental influences on physical activity among black and white adults: a structural equation analysis. *Annals of Behavioral Medicine: A Publication of the Society of Behavioral Medicine*, 31(1), 36–44. doi:10.1207/s15324796abm3101\_7
- Mercado, R., Páez, A., & Newbold, K. B. (2010). Transport policy and the provision of mobility options in an aging society: a case study of Ontario, Canada. *Journal of Transport Geography*, 18(5), 649–661. doi:10.1016/j.jtrangeo.2010.03.017
- Michael, Y. L., Green, M. K., & Farquhar, S. A. (2006). Neighborhood design and active aging. *Health & Place*, 12(4), 734–740. doi:10.1016/j.healthplace.2005.08.002
- Miles, M. B., & Huberman, A. M. (1994). *Qualitative Data Analysis: An Expanded Sourcebook*. SAGE.
- Miller, W. L., & Crabtree, B. F. (1999). *Doing Qualitative Research*. SAGE.
- Minichiello, V., Browne, J., & Kendig, H. (2000). Perceptions and consequences of ageism: views of older people. *Ageing & Society*, 20(03), 253–278.
- Ministry of Economic Development, Trade and Employment. Accessibility for Ontarians with Disabilities Act, 2005 (2005). Retrieved March 02, 2014 from [http://www.e-laws.gov.on.ca/html/source/regs/english/2012/elaws\\_src\\_regs\\_r12413\\_e.htm](http://www.e-laws.gov.on.ca/html/source/regs/english/2012/elaws_src_regs_r12413_e.htm)



Ministry Of Infrastructure. Places to Grow Act 2005, Bill 136 (2005). Retrieved October 29, 2012 from [https://www.placestogrow.ca/index.php?option=com\\_content&task=view&id=4&Itemid=9](https://www.placestogrow.ca/index.php?option=com_content&task=view&id=4&Itemid=9)

Ministry of Municipal Affairs and Housing (2005). Provincial Policy Statement, Pub. L. No. Provincial Policy Statement was issued under Section 3 of the Planning Act. Retrieved March 01, 2014 from <http://www.mah.gov.on.ca/Asset1421.aspx>

Ministry of Municipal Affairs and Housing. (2011). Planning for Barrier-Free Municipalities: A Handbook & Self Assessment Tool. Retrieved March 4, 2014, from <http://www.mah.gov.on.ca/Page1290.aspx#what>

Ministry of Municipal Affairs and Housing. (2014). *Provincial Policy Statement 2014* (Policy Statement No. Order in Council No. 107/2014) (p. 50). Toronto, ON M5G 2E5: Provincial Planning Policy Branch of Ministry of Municipal Affairs and Housing. Retrieved April 27, 2014 from <http://www.mah.gov.on.ca/AssetFactory.aspx?did=10463>

Muijs, D. (2011). *Doing quantitative research in education with SPSS* (2nd ed.). Los Angeles: Sage Publications.

Nasar, J. L., & Evans-Cowley, J. (2007). *Universal design and visitability : from accessibility to zoning*. Columbus, Ohio,: The John Glenn School of Public Affairs?

- National Council on Ageing and Older People. (2005). *An Age Friendly Society A Position Statement* (No. 88). Retrieved February 28, 2013 from [http://www.ncaop.ie/newsevents/88\\_AFS\\_Statement.pdf](http://www.ncaop.ie/newsevents/88_AFS_Statement.pdf)
- Neuendorf, K. A. (2002). *The content analysis guidebook*. Thousand Oaks: Sage Publications.
- Newman, S., & Hatton-Yeo, A. (2008). *Intergenerational Learning and the Contributions of Older People*. Ageing Horizons - Oxford Institute of Ageing. Retrieved October 6, 2012 from [http://dev.ageing.ox.ac.uk/system/files/ageing\\_horizons\\_8\\_newmanetal\\_II.pdf](http://dev.ageing.ox.ac.uk/system/files/ageing_horizons_8_newmanetal_II.pdf)
- North Carolina State University. (1997). *The Principles of Universal Design*. Retrieved May 1, 2014 from [http://www.ncsu.edu/ncsu/design/cud/about\\_ud/udprinciplestext.htm](http://www.ncsu.edu/ncsu/design/cud/about_ud/udprinciplestext.htm)
- Ontario Ministry of Finance. (2011). *The Ontario Population Projections Update, 2010–2036. Ontario and Its 49 Census Divisions*. Retrieved September 26, 2012 from <http://www.fin.gov.on.ca>
- Ontario, G. of. (2012). Publications: About the Accessibility for Ontarians with Disabilities Act, 2005 (AODA) | Ministry of Community and Social Services. Retrieved March 23, 2014, from <http://www.mcsc.gov.on.ca/en/mcsc/publications/accessibility/aoda2005.aspx>
- Ontario, G. of. (2013, February 14). Places to Grow - Places to Grow Initiative. Retrieved May 6, 2014, from

[https://www.placestogrow.ca/index.php?option=com\\_content&task=view&id=1&Itemid=8](https://www.placestogrow.ca/index.php?option=com_content&task=view&id=1&Itemid=8)

Patton, M. Q. (2001). *Qualitative Research & Evaluation Methods*. SAGE.

Paul, C., Ribeiro, O., & Teixeira, L. (2012). Active Ageing: An Empirical Approach to the WHO Model. *Current Gerontology and Geriatrics Research, 2012*.

doi:10.1155/2012/382972

Pauly, B. M. (2010). Direct Observation as Evidence. In A. J. Mills, G. Durepos, & E. Wiebe (Eds.), *Encyclopedia of Case Study Research*. 2455 Teller Road, Thousand Oaks California 91320 United States: SAGE Publications, Inc. Retrieved June 17, 2014 from <http://srmo.sagepub.com/view/encyc-of-case-study-research/n114.xml>

Perenboom, R. J. M., Herten, L. M. V., Boshuizen, H. C., & Bos, G. A. M. V. D. (2004). Trends in Life Expectancy in Wellbeing. *Social Indicators Research, 65*(2), 227–244.

Phillipson, C. (2011). Developing Age-Friendly Communities: New Approaches to Growing Old in Urban Environments. In R. A. Settersten & J. L. Angel (Eds.), *Handbook of Sociology of Aging* (pp. 279–293). Springer New York. Retrieved July 14, 2013 from [http://link.springer.com/chapter/10.1007/978-1-4419-7374-0\\_18](http://link.springer.com/chapter/10.1007/978-1-4419-7374-0_18)

Photos for Toronto Premium Outlets | Yelp. (n.d.). Retrieved May 11, 2014, from [http://www.yelp.com/biz\\_photos/toronto-premium-outlets-halton-hills?select=9XNXnshvlg9z5Vc51Ec4BQ](http://www.yelp.com/biz_photos/toronto-premium-outlets-halton-hills?select=9XNXnshvlg9z5Vc51Ec4BQ)

Prescott, M. (2013, January). Waterloo should create a city for all citizens. Retrieved January 2, 2014, from <http://www.therecord.com/opinion-story/2620955-waterloo-should-create-a-city-for-all-citizens/>

Public Health Agency of Canada. (2009, July 30). Age-Friendly Communities - Aging and Seniors - Public Health Agency of Canada. Retrieved June 9, 2013, from <http://www.phac-aspc.gc.ca/seniors-aines/afc-cao-eng.php#sec1>

Public Health Agency of Canada. (2010, October 28). Chapter 4: Setting Conditions for Healthy Aging - The Chief Public Health Officer's Report on The State of Public Health in Canada 2010 - Public Health Agency of Canada. Retrieved November 4, 2013, from <http://www.phac-aspc.gc.ca/cphorsphc-respcacsp/2010/fr-rc/cphorsphc-respcacsp-07-eng.php>

Region of Waterloo. (2009). *Regional Official Plan*. Region of Waterloo. Retrieved March 01, 2014 from <http://www.regionofwaterloo.ca/en/regionalGovernment/PreviousROP.asp>

Region of Waterloo. (2010a). *Regional Municipality of Waterloo Community Services Committee Agenda*. Retrieved September 26, 2012 from <http://www.regionofwaterloo.ca>

Region of Waterloo. (2010b). Regional Official Plan. *Regional Official Plan*. Retrieved April 20, 2012, from

<http://www.regionofwaterloo.ca/en/regionalgovernment/regionalofficialplan.asp>

Region of Waterloo. (2012a). Learn the Turn! ... Roundabout Essentials 2012.

*Roundabouts*. Retrieved March 7, 2014, from

<http://www.regionofwaterloo.ca/en/gettingaround/roundabouts.asp>

Region of Waterloo. (2012b). *Population Estimates, Waterloo Region and Ontario, 2011*. Retrieved from

[http://chd.region.waterloo.on.ca/en/researchResourcesPublications/resources/PopulationEstimates\\_QS.pdf](http://chd.region.waterloo.on.ca/en/researchResourcesPublications/resources/PopulationEstimates_QS.pdf)

Region of Waterloo. (2012c). *Population Projections, Waterloo Region and Ontario, 2016, 2026 & 2036*. Retrieved April 24, 2013 from

[http://chd.region.waterloo.on.ca/en/researchResourcesPublications/resources/PopulationProjections\\_QS.pdf](http://chd.region.waterloo.on.ca/en/researchResourcesPublications/resources/PopulationProjections_QS.pdf)

Region of Waterloo. (2013, March). 2012 year-End Population and Household Bulletin.

Region of Waterloo. Retrieved May 14, 2014 from

[http://www.regionofwaterloo.ca/en/doingBusiness/resources/2013-v2-2012\\_YEAR-END\\_POPULATION\\_AND\\_HOUSEHOLD\\_BULLETIN.pdf](http://www.regionofwaterloo.ca/en/doingBusiness/resources/2013-v2-2012_YEAR-END_POPULATION_AND_HOUSEHOLD_BULLETIN.pdf)

Region of Waterloo Public Health. (2010). *Older Adults Health Status Report, 2010*.

Waterloo, ON. Retrieved February 28, 2012 from

<http://chd.region.waterloo.on.ca/en/researchResourcesPublications/resources/OlderAdults.pdf>

- Rejeski, W. J., & Mihalko, S. L. (2001). Physical Activity and Quality of Life in Older Adults. *The Journals of Gerontology Series A: Biological Sciences and Medical Sciences*, 56(Supplement 2), 23–35. doi:10.1093/gerona/56.suppl\_2.23
- Remax. (n.d.). Our Area: Explore Waterloo Region. Retrieved May 8, 2014, from <http://www.remaxsolidgold.biz/links>
- Renne, J. L. (2009). From transit-adjacent to transit-oriented development. *Local Environment*, 14(1), 1–15. doi:10.1080/13549830802522376
- Rodrigue, J.-P., Comtois, C., & Slack, B. (2009). *The Geography of Transport Systems* (2nd Revised edition.). London ; New York: Routledge.
- Rosenbloom, S. (1988). The Mobility Needs of the Elderly. *Transportation Research Board Special Report*, (218). Retrieved June 27, 2012 from <http://trid.trb.org/view.aspx?id=302098>
- Rosso, A. L., Auchincloss, A. H., & Michael, Y. L. (2011). The Urban Built Environment and Mobility in Older Adults: A Comprehensive Review. *Journal of Aging Research*, 2011, 1–10. doi:10.4061/2011/816106
- Rowe, J. W., & Kahn, R. L. (1997). Successful Aging. *The Gerontologist*, 37(4), 433–440. doi:10.1093/geront/37.4.433

- Rowles, G. (1994). Evolving images of place in aging and “aging in place”. In D. Shenk & W. A. Achenbaum (Eds.), *Changing Perceptions of Aging and the Aged*. New York: Springer Publishing.
- Rubey, D. R., & Hofstra University. National Center for Suburban Studies. (2009). *Redefining suburban studies : searching for new paradigms*. Hempstead, NY: The National Center for Suburban Studies at Hofstra University.
- Sallis, J. F. (2009). Neighborhood built environment and income: Examining multiple health outcomes. *Social Science & Medicine*, 68(7), 1285–1293.
- Satariano. (2006). *Epidemiology of aging : an ecological approach*. Sudbury, Mass: Jones and Bartlett Publishers.
- Schutt, R. K. (2011). *Investigating the Social World: The Process and Practice of Research* (7th ed.). Sage Publications.
- Service Canada. (2013, July 3). Old Age Security pension. Retrieved November 4, 2013, from <http://www.servicecanada.gc.ca/eng/services/pensions/oas/pension/index.shtml>
- Seskin, S. (2012). *Complete Streets policy analysis 2011*. National Complete Streets Coalition. Retrieved October 07, 2012 from <http://www.smartgrowthamerica.org/documents/cs/cs-policyanalysis.pdf>
- Sfarrer. (2011, July 11). Can We Prevent Aging? *National Institute on Aging*. Text. Retrieved March 3, 2014, from <http://www.nia.nih.gov/health/publication/can-we-prevent-aging>

Social Development Canada. (2006a). Canadians in Context - Households and Families / Indicators of Well-being in Canada. Retrieved October 16, 2012, from <http://www4.hrsdc.gc.ca/.3ndic.1t.4r@-eng.jsp?iid=37>

Social Development Canada. (2006b). Canadians in Context - People with Disabilities / Indicators of Well-being in Canada. Retrieved September 29, 2012, from [http://www.hrsdc.gc.ca/eng/disability\\_issues/reports/disability\\_profile/2011/disability\\_profile.pdf](http://www.hrsdc.gc.ca/eng/disability_issues/reports/disability_profile/2011/disability_profile.pdf)

Atkinson, P. A., Delamont, S., Coffey, A., Lofland, J., & Lofland, L. H. (2007). *Handbook of Ethnography*. London; Thousand Oaks, Calif.: SAGE Publications Ltd.

Berg, B. L. (Bruce L. (2012). *Qualitative research methods for the social sciences* (Eighth edition.). Boston: Pearson.

Jersild, A. T., & Meigs, M. F. (1939). Direct Observation as a Research Method. *Review of Educational Research*, Vol. 9(5), 472–482.

Mackenzie, N., & Knipe, S. (2006). Research dilemmas: Paradigms, methods and methodology. *Issues In Educational Research*, 16(2). Retrieved June 17, 2014 from <http://www.iier.org.au/iier16/mackenzie.html>

Patton, M. Q. (2001). *Qualitative Research & Evaluation Methods*. SAGE.

Pauly, B. M. (2010). Direct Observation as Evidence. In A. J. Mills, G. Durepos, & E. Wiebe (Eds.), *Encyclopedia of Case Study Research*. 2455 Teller Road, Thousand Oaks California 91320 United States: SAGE Publications,



Inc. Retrieved June 17, 2014 from <http://srmo.sagepub.com/view/encyc-of-case-study-research/n114.xml>

Somekh, B., & Lewin, C. (2004). *Research Methods in the Social Sciences*. London ; Thousand Oaks, Calif: Sage Publications.

Special Senate Committee on Aging. (2009). *Canada's Aging Population: Seizing the Opportunity*. Retrieved February 28, 2013 from <http://www.parl.gc.ca/Content/SEN/Committee/402/agei/rep/AgingFinalReport-e.pdf>

Sportsworld Crossing Plaza, Kitchener. (2014). Retrieved March 3, 2014, from <http://www.sportsworldcrossing.com/stores>

Srinivasan, S., O'Fallon, L. R., & Dearry, A. (2003). Creating Healthy Communities, Healthy Homes, Healthy People: Initiating a Research Agenda on the Built Environment and Public Health. *American Journal of Public Health, 93*(9), 1446–1450. doi:10.2105/AJPH.93.9.1446

Stake, R. E. (1995). *The Art of Case Study Research*. Thousand Oaks: Sage Publications.

Statistics Canada. (2005, April 26). Profile of Census Divisions and Subdivisions, 1996 Census (Archived Content). Retrieved May 7, 2014, from <http://www12.statcan.ca/english/census96/data/profiles/Rp-eng.cfm?TABID=1&LANG=E&APATH=3&DETAIL=0&DIM=0&FL=A&FREE=0&GC=0&GK=0&GRP=1&PID=35782&PRID=0&PTYPE=3&S=0&SHOWALL=0&SUB=0&Temporal=1996&THEME=34&VID=0&VNAMEE=&VNAMEF=>

Statistics Canada. (2007a). 2001 Community Profiles. Retrieved April 27, 2014, from [http://www12.statcan.ca/english/Profil01/CP01/Search/SearchForm\\_Results.cfm?Lang=E](http://www12.statcan.ca/english/Profil01/CP01/Search/SearchForm_Results.cfm?Lang=E)

Statistics Canada. (2007b). *Census: Portrait of the Canadian Population in 2006, by Age and Sex, 2006*. Retrieved September 26, 2012 from <http://www12.statcan.gc.ca/english/census06/analysis/agesex/pdf/97-551-XIE2006001.pdf>

Statistics Canada. (2007c). *Participation and Activity Limitation Survey 2006: Technical and Methodological Report* (No. 89-628-XWE2007001). Retrieved November 04, 2013 from <http://www.statcan.gc.ca/pub/89-628-x/89-628-x2007001-eng.htm#4>

Statistics Canada. (2007d, March 13). Statistics Canada: 2006 Community Profiles. Retrieved April 26, 2014, from <http://www12.statcan.ca/census-recensement/2006/dp-pd/prof/92-591/details/page.cfm?Lang=E&Geo1=CSD&Code1=3530013&Geo2=CSD&Code2=3530016&Data=Count&SearchText=Waterloo&SearchType=Begins&SearchPR=35&B1=Population&Custom=>

Statistics Canada. (2010a). *Population Projections for Canada, Provinces and Territories 2009 to 2036*. Retrieved September 26, 2012 from [www.statcan.gc.ca/pub/91-520-x/91-520-x2010001-eng.pdf](http://www.statcan.gc.ca/pub/91-520-x/91-520-x2010001-eng.pdf)

Statistics Canada. (2010b, May 17). Generations in Canada. Retrieved May 11, 2014, from [http://www5.statcan.gc.ca/access\\_acces/alternative\\_alternatif.action?t=98-](http://www5.statcan.gc.ca/access_acces/alternative_alternatif.action?t=98-)

311-XWE2011003&k=425&l=eng&loc=http://www12.statcan.gc.ca/census-recensement/2011/as-sa/98-311-x/98-311-x2011003\_2-eng.pdf

Statistics Canada. (2012). *Caring Canadians, Involved Canadians: Tables Report, 2010*. Retrieved September 26, 2012 from <http://www.statcan.gc.ca/pub/89-649-x/89-649-x2011001-eng.pdf>

Statistics Canada. (2014). Statistics by subject: Population and demography - Population aging. Retrieved April 29, 2014, from <http://www5.statcan.gc.ca/subject-sujet/subtheme-soustheme.action?pid=3867&id=990&lang=eng&more=0>

Stewart, D. W. (2007). *Focus groups : theory and practice* (2nd ed.). Thousand Oaks: SAGE Publications.

Story, M. F., Mueller, J. L., & Mace, R. L. (1998). *The Universal Design File: Designing for People of All Ages and Abilities*. NC State University, The Center for Universal Design. Retrieved September 26, 2012 from <http://www.certec.lth.se/fileadmin/certec/Kirre/102-154-1-PB.pdf>

Sugiyama, T., & Ward Thompson, C. (2008). Associations between characteristics of neighbourhood open space and older people's walking. *Urban Forestry & Urban Greening*, 7(1), 41–51. doi:10.1016/j.ufug.2007.12.002

The Boardwalk. (2008). Vision | The Boardwalk. Retrieved February 21, 2014 from <http://www.the-boardwalk.ca/vision/>

The Boardwalk. (n.d.). Retrieved March 3, 2014, from <http://www.the-boardwalk.ca/>

The Canadian Press. (2012, April 25). Toronto Area To Get Canada's First "Upscale" Outlet Centre. *The Huffington Post*. Retrieved May 11, 2014, from [http://www.huffingtonpost.ca/2012/04/10/toronto-outlet-mall-halton-hills\\_n\\_1414869.html](http://www.huffingtonpost.ca/2012/04/10/toronto-outlet-mall-halton-hills_n_1414869.html)

Townshend, I., & Walker, R. C. (2010). Life Course and Lifestyle Changes: Urban Change Through the Lens of Demography. In P. Fillion & T. Bunting (Eds.), *Canadian Cities in Transition: New Directions in the Twenty-first Century*. Toronto: Oxford University Press.

Wahl, H.-W. (2003). *Annual Review of Gerontology and Geriatrics, Volume 23, 2003: Aging in Context: Socio-Physical Environments*. Springer Publishing Company.

Wahl, H.-W., Iwarsson, S., & Oswald, F. (2012). Aging Well and the Environment: Toward an Integrative Model and Research Agenda for the Future. *The Gerontologist*. doi:10.1093/geront/gnr154

Walk Score. (2014a). Kitchener neighborhoods on. *Walk Score*. Retrieved March 18, 2014, from <http://www.walkscore.com/CA-ON/Kitchener>

Walk Score. (2014b). Waterloo neighborhoods on. *Walk Score*. Retrieved March 18, 2014, from <http://www.walkscore.com/CA-ON/Waterloo>

Waller, S., Langdon, P., & Clarkson, J. (2010). Designing a More Inclusive World. *Journal of Integrated Care*, 18(4), 19–25.  
doi:<http://dx.doi.org.proxy.lib.uwaterloo.ca/10.5042/jic.2010.0375>

- Walt, G., & Gilson, L. (1994). Reforming the health sector in developing countries: the central role of policy analysis. *Health Policy and Planning*, 9(4), 353–370.  
doi:10.1093/heapol/9.4.353
- Warden, M. (2001). Public transport values of time. Institute for Transport Studies, university of Leeds. Retrieved June 29, 2012 from  
[http://eprints.whiterose.ac.uk/2062/1/ITS37\\_WP564\\_uploadable.pdf](http://eprints.whiterose.ac.uk/2062/1/ITS37_WP564_uploadable.pdf)
- Weiss, R. S., & Bass, S. A. (Eds.). (2001). *Challenges of the Third Age: Meaning and Purpose in Later Life*. Oxford University Press.
- WHO. (2007). *Global Age-friendly Cities: A Guide* (1st ed.). Who Publications.
- WHO Global Report on Falls Prevention in Older Age*. (2008). World Health Organization.
- WHO, & ICF. (2002). *Towards a Common Language for Functioning, Disability and Health* (No. WHO/EIP/GPE/CAS/01.3). Retrieved March 06, 2014 from  
<http://www.who.int/classifications/icf/training/icfbeginnersguide.pdf>
- Yin, R. K. (2003). *Case Study Research: Design and Methods, 3rd Edition* (3rd ed.). SAGE Publications, Inc.
- Yin, R. K. (2009). *Case Study Research: Design and Methods*. SAGE.

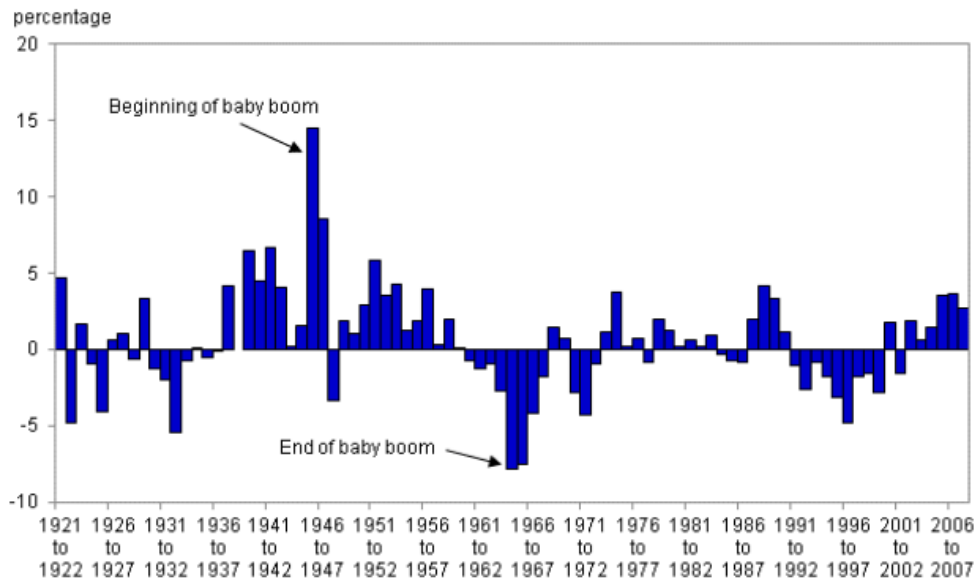
# APPENDICES

## APPENDIX A: FIGURES

Figure 24: Canada's Baby Boom Generation

### Percentage growth in the annual number of births, Canada, 1921 to 2008

► Description



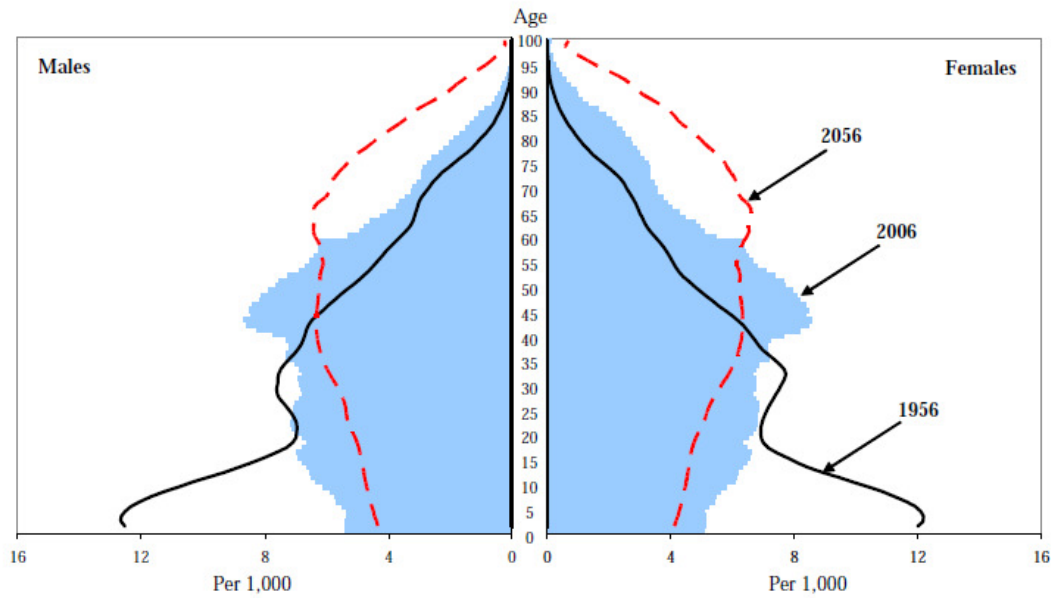
Source: Statistics Canada, Health Statistics Division, Vital Statistics.

Date modified: 2013-01-08

Source: Statistics Canada (2010b)

## Figure 25 Canadian Population Pyramid

Changes in the age structure of the Canadian population by sex, 1956, 2006 and 2056

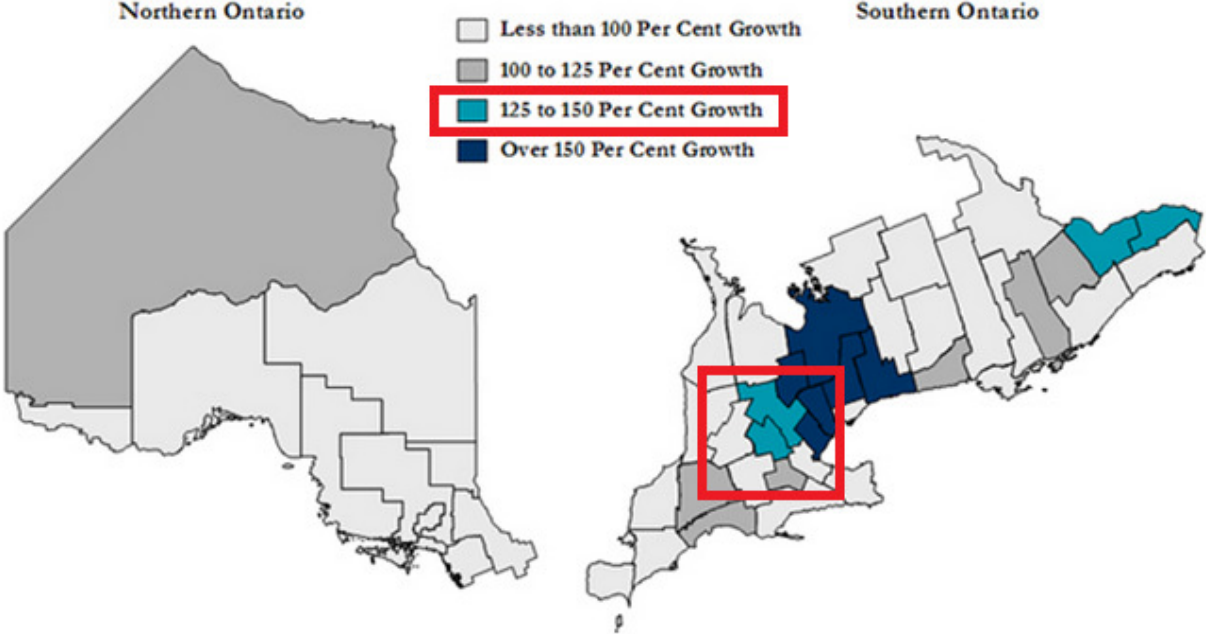


Sources: Statistics Canada, 2005, *Population Projections for Canada, Provinces and Territories, 2005-2031*, Statistics Canada Catalogue number 91-520-XIE, scenario 3, and Demography Division, annual population estimates, 1956 and 2006.

Source: Statistics Canada, 2010.

Figure 26: Growth in Numbers of Senior by Census division, 2011-2036

Chart 11  
Growth in numbers of seniors by census division, 2011-2036



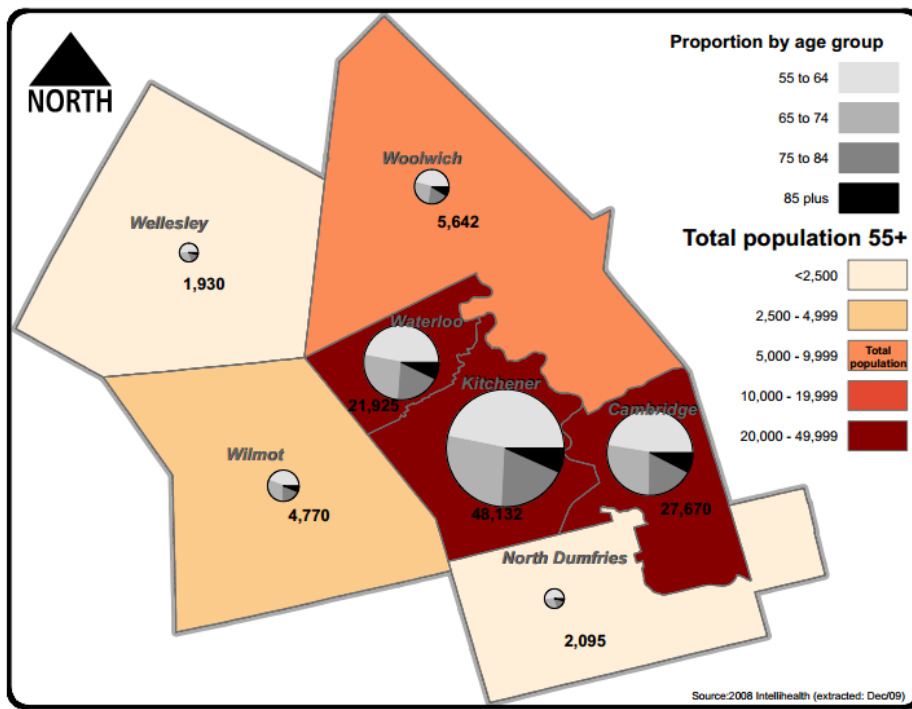
Source: Ontario Ministry of Finance projections.

Source: Ontario Ministry of Finance, 2011, p. 16



Figure 27: Distribution of Adults 55 years and Older in the Region of Waterloo

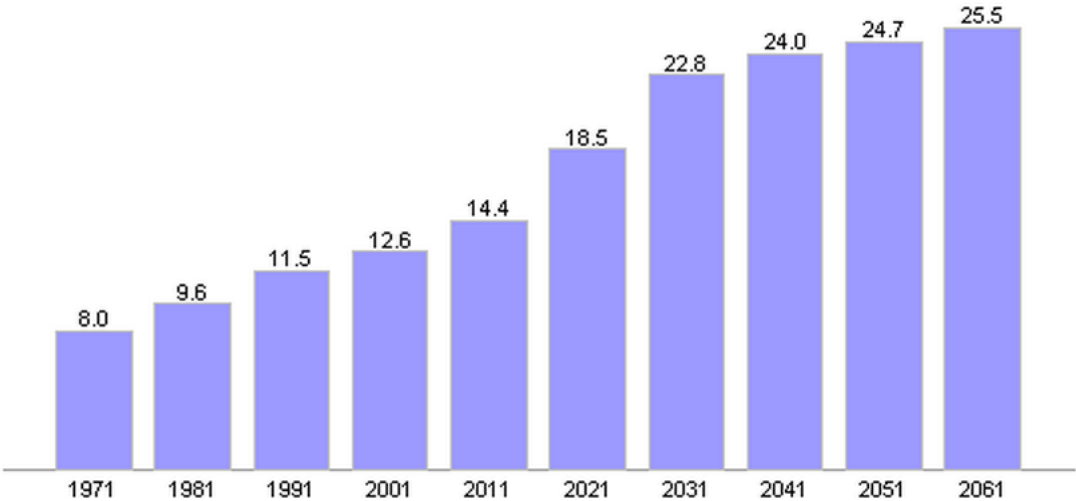
**FIGURE 1.2. Distribution of Adults 55 Years and Older, by Age Group and Place of Residence, Waterloo Region, 2008**



Source: Region of Waterloo Public Health's Older Health Status Report, 2010

**Figure 28: Population 65 years and over, Canada, Historical (1979-2011) and projected (2012-2061)**

**Population 65 years and over, Canada, Historical (1971-2011) and Projected (2012-2061)  
(percent)**

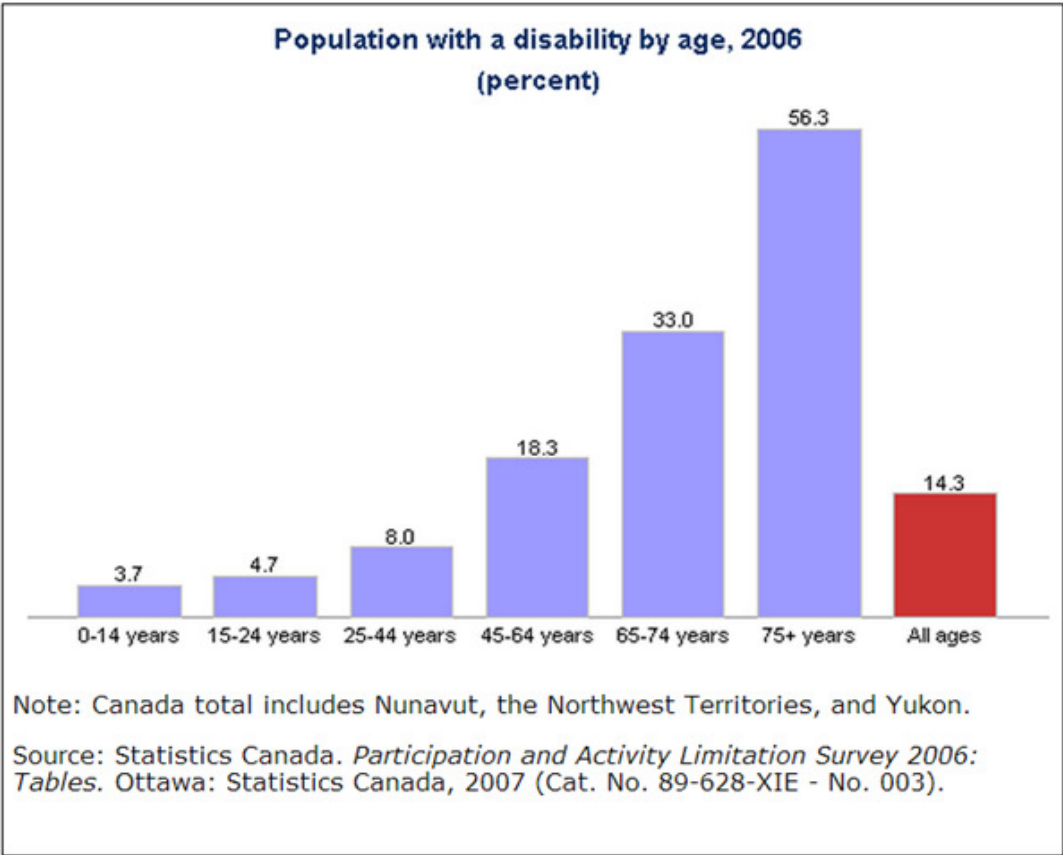


Note: Population projections use a medium-growth scenario (M1) based on interprovincial migration trends from 1981 to 2008. For further information see: Statistics Canada. *Population Projections for Canada, Provinces and Territories (2009-2036)*. (Cat. No. 91-520 XIE).

Source: HRSDC calculations based on Statistics Canada. *Estimates of population, by age group and sex for July 1, Canada, provinces and territories, annual* (CANSIM Table 051-0001); and Statistics Canada. *Projected population, by projection scenario, sex and age group as of July 1, Canada, provinces and territories, annual* (CANSIM table 052-0005). Ottawa: Statistics Canada, 2011.

Source: Population Projections for Canada, Provinces and Territories 2009 to 2036, Statistics Canada, 2010

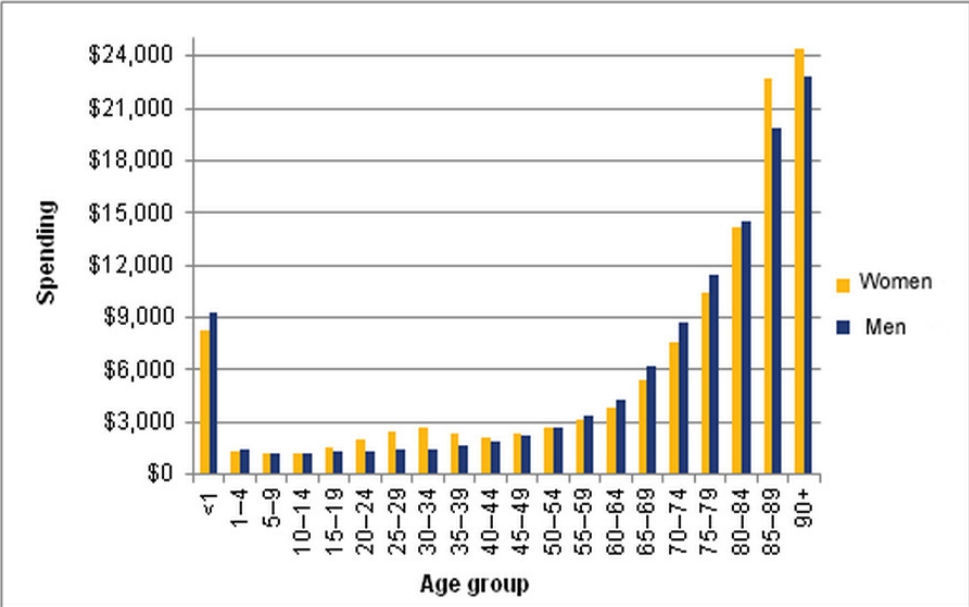
**Figure 29: Population with a Disability by Age, 2006**



Source: Statistics Canada: Participation and Activity Limitation Survey 2006 (Government of Canada, 2006)

Figure 30: Public Health Care Spending per Person per Age Group, 2008

Public Health Care Spending per Person per Age Group, 2008



Source: Figure prepared by the author using data from Canadian Institute for Health Information, *National Health Expenditure Trends, 1975 to 2010, 1975 to 2010* (2.2 MB, 172 pages), October 2010.

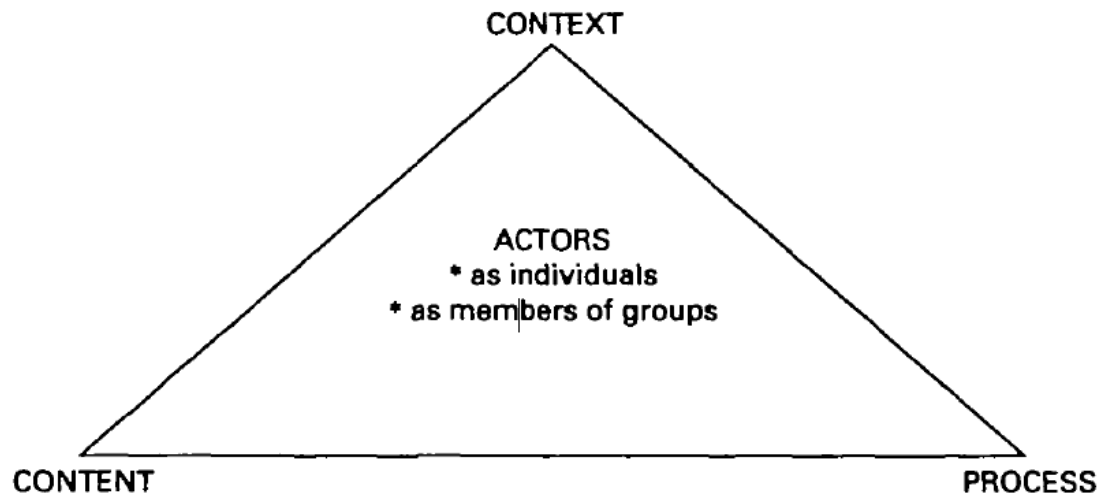
Source: Canada's Aging Population and Public Policy: 3. The Effects on Health Care, Parliament of Canada (Deraspe, 2011)

Figure 31: Impact of Good Wayfinding

Impact of Good Wayfinding	
<i>Individual Impact</i>	<ul style="list-style-type: none"> <li>■ Enhances access to goods and services</li> <li>■ Makes it easier to walk, cycle and use public transportation</li> <li>■ Reduces risk of getting lost or injured</li> <li>■ Creates opportunities for community engagement</li> </ul>
<i>Community Impact</i>	<ul style="list-style-type: none"> <li>■ Fosters economic/commercial vitality</li> <li>■ Facilitates ease of walking, cycling and use of public transportation</li> <li>■ Helps prevent vehicle/pedestrian/bicycle crashes and near misses</li> <li>■ Benefits air quality through reduced dependence on automobile use and efficient traffic flow</li> <li>■ Benefits livable, identifiable neighborhoods</li> <li>■ Supports equitable use for all people</li> </ul>

Source: Hunter et al., 2013, p. 5

**Figure 32 Model for Health Policy Analysis**



**Figure 1.** A model for health policy analysis

Source: Walt and Gilson (1994, p. 2)

## APPENDIX B: TABLES

**Table 13: City of Kitchener's Population Trend 1996-2011**

<b>Age-Group</b>	<b>1996</b>	<b>2001</b>	<b>2006</b>	<b>2011</b>
0-4	13,210	12,060	12,265	13,710
5-14	24,640	26,265	25,655	24,945
15-19	11,810	12,915	13,695	14,025
20-24	12,920	13,655	14,955	15,950
25-44	60,975	62,450	63,420	65,355
45-54	21,515	25,855	30,135	33,300
55-64	13,610	15,820	20,540	24,990
65-74	11,735	11,830	12,280	14,380
75-84	6,050	7,320	8,940	8,975
85+	1,930	2,225	2,785	3,525
<b>Total Population</b>	<b>178,395</b>	<b>190,395</b>	<b>204,670</b>	<b>219,155</b>
<b>% Increase of Total Population</b>		<b>6.73%</b>	<b>7.50%</b>	<b>7.08%</b>
<b>population 65 years and over</b>	<b>19,715</b>	<b>21,375</b>	<b>24,005</b>	<b>26,880</b>
<b>% Increase of population 65 years and over</b>		<b>8.42%</b>	<b>12.30%</b>	<b>11.98%</b>

Sources: Geography Division, 2012; Government of Canada, 2007; Region of Waterloo, 2013; Statistics Canada, 2005, 2007

**Table 14: City of Waterloo's Population Trend 1996-2011**

<b>Age-Group</b>	<b>1996</b>	<b>2001</b>	<b>2006</b>	<b>2011</b>
0-4	5,155	5,125	5575	4985
5-14	10,930	11,865	12230	11795
15-19	5,080	5,965	7210	7225
20-24	6,785	7,295	9560	9465
25-44	26,225	27,505	28740	26470
45-54	9,715	12,145	13915	15335
55-64	5,925	7,090	9380	11100
65-74	5,000	5,250	5495	6440
75-84	2,460	3,435	4025	4230
85+	665	870	1355	1750
<b>Total Population</b>	<b>77,940</b>	<b>86,545</b>	<b>97,485</b>	<b>98,795</b>
<b>% Increase of Total Population</b>		<b>11.04</b>	<b>12.64</b>	<b>1.34</b>
<b>Population 65 years and over</b>	<b>8,125</b>	<b>9,555</b>	<b>10,875</b>	<b>12,420</b>
<b>% Increase of population 65 years and over</b>		<b>17.60</b>	<b>13.81</b>	<b>14.21</b>

Sources: Geography Division, 2012; Government of Canada, 2007; Region of Waterloo, 2013; Statistics Canada, 2005, 2007



**Table 15: Expected Percentage Population Increase, Waterloo Region, 2011-2036**

Population, by age and sex , Waterloo Region, 2011				Expected population, by age and sex, Waterloo Region, 2036			
Age Group	Females	Males	Total	Age Group	Females	Males	Total
65 to 69	10248	9426	19674	65 to 69	18801	18623	37424
70 to 74	7607	7045	14652	70 to 74	19343	18623	37966
75 to 79	6413	5100	11513	75 to 79	16636	15672	32308
80 to 84	5446	3703	9149	80 to 84	12886	11060	23946
85 to 89	3820	2143	5963	85 to 89	8775	6777	15552
90+	2396	854	3250	90+	6235	4102	10337
Total Population			64201	Total Population			157533
Expected percentage population increase for age group 65 years or older from 2011-2036					145.40%		

Source: Region of Waterloo, 2012b, 2012c

## **APPENDIX C: QUESTIONNAIRES**

### **QUESTIONNAIRE FOR PLANNERS:**

#### **Reference to guiding principles**

1. In your opinion, what are the important factors of an age friendly urban form?
2. In your opinion, on what principles and laws should age-friendly urban design policies be based?
3. Based on your answer to the previous question, why do you think these principles are/are not important?

#### **Focus on improvement and Analysis of current state of age-friendly (or all-age-friendly) policies:**

1. Do you think that the current urban-design policies have improved conditions for seniors?
2. Have these policies encouraged them to be independent?
3. Are the proposed urban design policies for the City of \_\_\_\_\_ designed to improve the safety and confidence level of seniors in these city-wide ?
4. What steps is the City of \_\_\_\_\_ taking to make its communities age-friendly in terms of the urban form?
5. What barriers prevent the application of urban design policies?
6. How do you review those urban design polices that focus on accommodating an increasing seniors population?
7. In your opinion, does the review process produce the best possible outcome for an ageing population?

#### **Walkability, Signage, and Built Environment:**

1. Are communities in the City of \_\_\_\_\_ walkable? That is, are walking distances to transit stops, open spaces such as parks,, reasonable?
2. Do communities in the City of \_\_\_\_\_ have shopping areas that are walkable and provide for daily needs such as milk, bread?
3. Do you think that signage in the City of \_\_\_\_\_ is easily visible, readable and helpful for way finding in and around areas?
4. Are open spaces in the community accessible with well-connected streets and road network?
5. In your opinion, does the urban-form in the City of \_\_\_\_\_ promote safety on streets (e.g. eyes on the street)?
6. What features in the City of \_\_\_\_\_'s urban-form make seniors feel safe, welcome, and are age friendly?
7. Approximately, how many streets/sidewalks have a slope/grade less than 5-6%?

8. Do sidewalks provide ramps and steps with handrails and non-slip surface where slope is more than 5-6% (AMCTO, 2010)?
9. How often do you receive concerns from seniors about safety issues on the city street? (These issues may influence seniors' confidence to be independent).
10. Based on your answer to the previous question, what changes would you suggest to see in the City of \_\_\_\_\_'s urban-form that could make it more age friendly?
11. Do you have any additional comments that you would like to share?

## QUESTIONNAIRE FOR SENIORS

Questionnaire for Seniors is adopted from AARP Public Policy Institute's (2005) 'Liveable Communities: An Evaluation Guide'.

All the questions below concerns the urban form of the City of \_\_\_\_\_.

### **Walkability, Signage, Lighting and Built Environment**

1. Are there sidewalks throughout your community?

YES

NO

Could you suggest the location with no sidewalks?

2. Are the sidewalks well maintained? (Surfaces should be flat with only minor cracks and minimal separation between slabs.)

YES

NO

What kind of problems have you observed?

Could you suggest the location of problem sidewalks?

3. Are curb-cuts visible? Would it be difficult for people with visual impairments to detect them or those with wheelchairs or walkers to negotiate them?

YES

NO

What kind of problems have you observed?

4. Are curb-cuts textured to alert persons with visual impairments that they are about to enter the street?

YES

NO

5. Are the sidewalks wide enough for at least two people to walk together? (A minimum width of 4 feet is needed for two people to walk together.)

YES

NO

Could you suggest the location of substandard sidewalks?

6. Do bicyclists, skateboarders, roller skaters, and other non-pedestrian users make walking difficult?

YES

NO

Could you suggest the location of sidewalks with such issues?.

### **Pedestrian Amenities**

7. Are the sidewalks in your community shaded by trees?

YES NO

Could you suggest the location where there are no shade trees.

8. Are there resting places (e.g., benches, low walls) for pedestrians along the sidewalks?

YES NO

Could you suggest the location where resting places are located, especially in areas of the community with many older residents?

9. Are resting places shaded adequately from the sun?

YES NO

Could you suggest the location the location of seating places that are not shaded?

10. Do the community's signs provide clear directions for pedestrians?

YES NO

Could you suggest the location where you think signs are needed or should be improved?

11. Do the streets in your neighborhood have adequate street lighting?

YES NO

12. Are public areas well lighted?

YES NO

Could you suggest the location with lighting problems?

13. Are private areas (e.g., yards near public sidewalks) well lighted?

YES NO

Could you suggest which areas, if any, are not well lighted?

14. Are there areas with overgrown vegetation and limited lighting along the sidewalks where someone could hide or where pedestrians would feel unsafe?

YES NO

Could you suggest these locations?

15. Are there locations in your neighborhood where a pedestrian would be isolated and out of the earshot of other residents? Would anyone hear if a person called out for help?

YES NO

Could you suggest these location and comments?

16. Are there locations in your neighborhood that are not properly maintained?

YES NO

If so, Could you suggest these routes?

17. Do the parks in your community offer walkways and benches in an atmosphere that is safe and inviting?

YES NO

18. Do public parks provide trails and picnic facilities that are accessible to older people and people with disabilities?

YES NO

### **Traffic Signals**

19. Are traffic signals located at pedestrian crossings?

YES NO

Could you suggest the location where you think additional traffic signals are needed?

20. Do the traffic signals provide adequate time for pedestrians to cross the street without feeling rushed?

YES NO

Could you suggest the location the location of signals that do not provide adequate time for crossing?

21. Do signals have push-to-walk buttons to help stop traffic on a busy street?

YES NO

Could you suggest location of signals without push-to-walk buttons the location.

22. Do any long streets with no intersections have midblock crosswalks?

YES NO

Could you suggest location the location?

23. Are crosswalks well marked? (For example signage for pedestrians and vehicles, traffic lights and/or audible signals)

YES NO

Could you please specify locations of crosswalks that are not well marked?

### **Urban Design issues around Transportation**

24. Are bus stops located within a 10-minute walk of residences particularly in the sections of town with older residents?

YES NO

Could you suggest sections of the community that are NOT within a 10-minute walk?

25. Are the sidewalks that serve bus stops properly maintained?

YES NO

26. Are street crossings safe?

YES NO

Could you please specify areas that need attention? Any comments – what are your expectations?

27. Are the transit stops well marked?

YES NO

28. Do most of the transit stops offer shade, seats, and shelter from the weather?

YES NO

29. Is there adequate room for a wheelchair?

YES NO

30. Are routes and schedules served by each stop clearly posted?

YES NO

31. Is information also available for those with limited sight?

YES NO

**Open ended Questions:**

In your opinion, how friendly is the urban form for the ageing population in the city of \_\_\_\_\_?

What changes you would like to see in the city of \_\_\_\_\_'s urban-form that could make it more age friendly?

Do you have any additional comment that you would like to share?

Thanks very much for taking the time to complete this survey. Also, how to contact you if necessary.

- Date of Interview
- Place
- Time
- Respondent's name

## QUESTIONNAIRE FOR FOCUS GROUPS

- Urban form is the physical layout of buildings, roads, streets, transportation networks, and open spaces (Rodrigue et al, 2009).
- An Age-Friendly urban-form is the one that:

### General Questions

In this section, the questions are more broad and general.

1. Do you feel there are advantages of having age-friendly urban form?
2. What are those advantages?
3. What do you like about the City of Kitchener's urban form?

### Focused questions

In this section, questions are more specific and they focus on the challenges or barriers that you have observed in the city of Kitchener's urban form?

### Roads

- a. What kind of concerns do you have when you are using the road?
- b. Street light
- c. Road width
- d. Speed limits
- e. Condition of roads
- f. Other road concerns
- g. What changes you would suggest for increased safety on the City of Kitchener's roads?

### Sidewalks

- a. Sidewalk width
- b. Condition of sidewalks –cracks, snow removal in winters or vegetation along the sidewalks
- c. Sidewalk amenities such as seating area (benches or low stone or concrete wall)
- d. Bike lanes –
  - i. close to fast moving vehicular traffic (confidence and safety concerns for cyclists)
  - ii. if cyclists use sidewalk – then it is a safety concern for pedestrians especially vulnerable ones
- e. Other sidewalk concerns
- f. What changes you would like to see based on the barriers that we identified in this section?



### **Shopping plazas:**

1. Are Kitchener plazas walkable?
2. Are they senior friendly? Some of the research participants commented that “to go from one store to another [not the next door shop], I use the car”. (They may be walkable in theory but these are built around parking lots.)
3. If you need to go from one store to another in Sunrise Plaza, The Boardwalk at Ira Needles or similar plaza, how will you go? Walk or Drive
  - a. In case it is raining/snowing
  - b. In good weather?
4. What do you like about these shopping plazas?
5. What features you do not like about these plazas?
6. Are there changes you would like to see based on the difficulties that we identified in the shopping plaza section?

### **Open spaces (parks) and trails**

- a. Do seniors use Kitchener’s parks and trails?
- b. What are the characteristics that you like in the City of Kitchener’s open spaces and trails?
- c. What are the barriers that you face when you use open spaces and trails in Kitchener?
- d. What changes you would like to see based on the barriers that we identified in this section?

### **Last Section – Summarizing and prioritizing**

- a. What is the priority of changes that you have identified collectively?
- b. Is there anything else you would like to share or comment?
  - Thank you so much for your participation. Also, how to contact you if necessary, as well as updating you about overall research findings.
  - Date of focus group
  - Place
  - Time