The Effect of Social and Built Environment Factors on Aging in Place (AIP):
A Critical Synthesis

by
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Abstract

This capstone project presents a critical synthesis of recent literature (2000-2013) related to aging in place in the urban environment. Definitions across multiple disciplines including geography, gerontology, sociology, and psychology are reviewed and inform the development of a proposed holistic definition of optimal aging in place. The literature is then reviewed and synthesised for social and built environment barriers and facilitators to aging in place, along with two key theoretical models and the World Health Organizations Age Friendly Cities framework leading to a conceptual framework for optimal aging in place. It is proposed that this theoretically grounded framework of optimal aging in place will help guide future work in the area of aging in place in the urban neighbourhood. It was found that the intersectionality of multiple factors affects each individual differently depending on their current level of competence leading to a unique combination of factors involved in optimal aging in place.

Keywords: Aging in place; social environment; built environment; urban neighbourhood; community
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1. INTRODUCTION AND PURPOSE

1.1. Introduction

1.1.1. Who is aging in place? Why is aging in place an important concept in today’s world?

Aging in place is a concept that has increasingly become part of the gerontological lexicon in the last 30 years due to the growing number of older adults’ in populations all over the world, especially in the economically developed countries. The World Health Organization (WHO, 2002) predicts that by 2050, for the first time in history, the world’s population will have more people 60 years and older than those under 15 years. Between the years 2000 and 2050 the population 60 years and older will more than double from 11 percent to more than 22 percent. The situation in Canada is similar where the population 65 years and older is expected to double between 2011 and 2033. Those 65 years and older will comprise 14.4 percent, or 5 million of the total population and by 2033 this number will rise to 22.6 percent or 10 million (Leonard, 2011). This trend is also consistent in the United States where between 2011 and 2060 the 65 plus population is also expected to more than double. In 2011 the US older adult (65 years and older) population consisted of 41.4 million individuals and in 2060 this number is projected to rise to 92 million (AoA, 2013).

Aging in place has been defined as “the ability to live in ones’ own home and community safely, independently, and comfortably, regardless of age, income, or ability level.” (CDC, 2010). This concept is increasing in salience to older adults’, community planners, and government agencies (Smith, 2009; Buffel, 2012) due to increased longevity (life expectancy) and people wanting to live as long as possible in their current residences and communities. In Canada, for those 65 years in 2009, life expectancy is an additional 20.2 years (85.2 years); in the US this is an additional 19.2 years or 84.2 years (AoA, 2013). “Increases in life expectancy, population aging, and an increase in
relatively healthy older adults’ means society must find new ways of accommodating older adults’ in communities that recognize and enhance independence and autonomy” (Wiles, 2005, p. 102). This statement illustrates both the opportunity and challenge that AIP presents for today’s communities.

By 2030, two-thirds of the world’s population will live in cities, and at least one-quarter of this urban population will be 60 years and older (Buffel, 2012; Phillips, Siu, Yeh, Cheng, 2005). The majority of older adults’ wish to remain in their own homes and neighbourhoods as they age (Ministry of Health, 2004, American Association of Retired Persons, 2011). In another survey by the American Association of Retired Persons (2011), on planning for age friendly communities, it was found that 93 percent of older adults’ in the United States prefer to age in place. Additionally, 90 percent of those 65 plus surveyed preferred to stay in their own homes as long as possible and 80 percent believed that their current residence is where they will remain. This remains true even for those who face declining health and increased physical limitations (Smith, 2009). These statements raise a serious question for the concept of AIP. Do older persons desire to AIP or are they desirous of neighbourhoods with age friendly features? The answer to this question will greatly impact future policy directions aimed at supporting older persons late life housing choices. This growing trend combined with a steadily increasing older adult population in North America and other developed countries, points to the need to better understand older adult preferences for AIP and to examine how best to support their needs within the community environment.

The neighbourhood area close to the home becomes an important factor in the health and well-being of older adults’, especially the frail and mobility impaired older adult as their locus of interaction and movement becomes conscripted (Dobson & Gilron, 2009; Glass & Balfour, 2003). The neighbourhood area includes urban design elements, and environmental and social factors such as appropriate and accessible housing, walkability and transportation services, neighbourhood services and amenities (Richard, Gauvin, Gosselin, Laforest, 2008), social support systems, opportunities for meaningful participation, and the development of social capital which is a needed element in aging in place (Baum & Palmer, 2002).
In spite of the salience of these factors in aging and well-being of older adults’, the social and neighbourhood urban design and built environment factors have been less researched and underreported (Mahmood et al., 2012) in comparison to aging in place within the immediate home environment. There is a need for in-depth studies including synthesis of current research to provide a clear and realistic picture of the concept of aging in place. This capstone project addresses this gap through a critical literature review and synthesis of both empirical and gray literature in the area of aging in place, age friendly cities and aging and urban design of neighbourhoods. This review includes articles and chapters that address issues of exclusion and inclusion of older adults’ in the community and their access and barriers to health and social services within the neighbourhood environments. A review synthesis method has been chosen because it clearly illustrates the plethora of inputs required to achieve the long-term goal of optimal aging in place and does not limit the diverse needs and heterogeneous nature of older adult populations. The “multidirectionality of an individuals’ relationship with their environment” is an essential element of AIP” (Smith, 2009, p. 12).

**Older adults’ desire to AIP**

Older adults’ reasons for aging in place are as diverse as the heterogeneous population of older adults’. Smith (2009) categorized these reasons into the two broad categories of physical necessity and spatial restriction. Physical necessity includes reasons of cost and convenience where the cost of moving and/or having no outstanding mortgage on the current residence, outweighs the desire to change locations. Familiarity with the current environment can become a physical necessity for older adults’ with decreasing mobility, and has been well documented as having a strong protective factor on the well-being of older adults’ (Rowles, 1993; Scharf, Phillipson, Kingston & Smith, 2001). The second category, spatial restriction, is a consequence of reduced mobility limits. Here, an older person will maximize their immediate environment through environmental restructuring (Smith, 2009). In the immediate home environment this may mean moving all activities to the main floor of the house. In the community environment, a decrease in action range could result in switching doctors or banks for one that is closer to the home, or relying more on friends and neighbours to assist with these tasks. In more adverse conditions, decreases in action range in a community that is not designed for AIP, could result in increased isolation.
A recent study conducted by Wiles et al. (2011) examined older adults’ perceptions of AIP. It was found that among those interviewed, familiarity, attachment to the community, and social connectedness was most often cited as reasons for AIP. This sentiment was echoed by the AARP survey in 2010. Among those 45 years and older it was found that proximity to family and friends, being near services (doctor, grocery store), walkability of the neighbourhood, and access to social opportunities were cited as main reasons for remaining in the community of choice. It was also found that more than three-quarters of those surveyed prefer to remain in their own homes and they strongly agreed with the statement “what I would really like to do is stay in my own community as long as possible” (AARP, 2010, p. 13).

**Demographics of people who want to AIP**

The older adult population is growing at a rate never seen before due to a rise in population among those who are in their 80’s and increases in people’s life expectancies (Geboy, Moore & Smith, 2013). It is said that the baby boomer cohort will live longer, but will experience a dramatic increase in chronic conditions, and by 2030 one in six elderly will have more than one chronic condition (Mitchell, 2007). The chronic conditions that are most prevalent among the boomer population are hypertension, diabetes (this has more than doubled among men 45 years and older in the last 22 years), and arthritis (Wister, 2005), all of which greatly impact an older persons mobility. These chronic conditions, along with accompanying mobility and safety challenges, result in people who are discovering that their home and neighbourhood environments are challenging in layout and design and lack in appropriate services that would foster aging in place.

The combination of these demographic conditions and health trends of older adults’ point to a need to find alternatives for housing as well as other community support for the aging population to age independently and safely in their neighbourhoods of choice.

Life expectancy trends for Canada and the US as cited above indicate that people, who were 65 years in 2009, will live to be approximately 84 years old. Geboy, et al. (2012) state that “by 2050 the world’s population will have more people 60 years of age or older than those younger than 15 years of age for the first time in human history”
This is of concern because as age increases, so does the risk of increasing frailty and disability (Burton, Mitchell & Stride, 2011). Yet Geboy et al. (2012) find that the increase in longevity is leading to the ‘longevity divide’ of extended healthy living and delayed aging. This dichotomy indicates that there is an increased need to look at how and home neighbourhoods can be supportive of the aging residents. As of 2006, the average life expectancy in British Columbia has been increasing for both women and men. In 2006 women who were 65 years old were expected to live an additional 21.7 (to 86.7 years) years, and for men, an additional 18.7 years (to 83.7 years) (Wister, Sixsmith, Adams & Sinden, 2009). This trend is expected to continue, leading to an increase in the population of adults’ 80 years and older. Increased life expectancy is not the only consideration. Those aged 70 years and older who are in poor health can expect to live another ten years, but only two of those years will be without impairments that would make aging in place more difficult.

As of 2004, A Profile of Seniors in British Columbia found that of the population 65-74, 18 percent have at least one chronic condition (Ministry of Health Services, 2004). This increases with age. For women 65-74 years, 39 percent have between three and six chronic conditions, and for women 75 years and older, slightly more than half (52 percent) have more than six chronic conditions. The numbers are similar for men, where 44 percent of men 75-84 years old have between three and six chronic conditions. This trend is expected to continue for the baby boom population who are said to see an extend life expectancy, with a continued increase in chronic conditions. This trend raises additional considerations for aging in place.

Costs and benefits of AIP

The benefits of aging in place, or remaining in the home of choice, have been well documented in the research (Kahana, Lovegreen, Kahana, & Kahana, 2003; Phillipson & Scharf, 2012; Rowles, 1978; Rowles, 1993). In general, the majority of older adults’ desire to AIP and most seem to experience increased well-being if they can (Rowles & Ravdal, 2002). Benefits include the maintenance of social networks and social capital, increased quality of life, cost savings to health systems and individuals, as well as potentially, decreased stress. A strong social support system and well establish social capital has been shown to be positively associated with positive health outcomes.
including decreased mortality, decreased levels of disability, increased positive self-reported health and sense of security, and increased health related behaviours (Mohnen, 2011; Peace, Holland, Keller, 2005).

Aging in place has been shown to have a positive impact on older adults’ well-being. Although the relationship between place and healthy aging has been well established, it “is difficult to explain, let alone quantify” (Wiles et al., 2009, p. 665). There is great diversity in reasons for exploring the relationship between older adults’ and their environment, yet agreement among researchers is found in the desire to better understand the relationship between older adults’ and their immediate environment with the purpose of improving well-being and quality of life (Wiles et al., 2009).

However, all aspects of aging in place are not positive. Some researchers have highlighted that aging in place is not for all groups of people across different ethnicities, races and socio-economic statuses. Smith (2009) cautions that AIP should not be considered the optimal solution for all older adults’ and that the blanket notion that it is, is hazardous. Menec (2011) echoes this concern and recognizes that the community environment may no longer be the ideal place to age in place for all older adults’. Reasons cited include increased traffic congestion, decreases in local services, and increased urban sprawl that has resulted in a more challenging physical environment. This, in combination with the decreasing mobility of many older adults’, results in an increased need to address the community environment from a policy and urban planning perspective.

Aging in place is often promoted as the gold standard and may not be the panacea it is promoted to be. Older adults’ who are at risk of isolation, those with severe cognitive decline, and those with low levels of social capital may not reap the benefits of aging in place.

Considering the global impact of demographic change, and the heterogeneous nature of this population, are there social and built environment factors that can best support aging in place? It is the goal of this review to answer this question in addition to summarizing the definitions on aging in place, and to examine how the World Health
Organizations’ (WHO) Age-Friendly Cities framework leads to effective aging in place for older adults’.

1.2. Justification for conducting a critical literature review on aging in place in the urban environment

A critical review of the literature on aging in place is necessary to identify theoretical and substantive gaps, and propose research that will build upon previous research in the area of AIP within the context of the urban neighbourhood. Today, in developed countries, there are more older people living in urban areas than rural. Among older adults’ living in urban centres, one out five is acutely distressed by their environments (Smith, 2009). According to Phillip, Sui, Yeh, & Cheng (2005) in 1990 approximately 73 percent of the population 65 years and older was living in urban environments. As of 2008 the population living in urban environments in Canada and the US had reached 81 percent and 79 percent respectively (Smith, 2009). This increase combined with an increasing life expectancy necessitates careful consideration of how best to facilitate healthy aging in the urban environment.

The concept of aging in place is used across disciplines and there is a growing body of academic research and conceptual papers on AIP. A synthesis and critical evaluation of the literature will provide insight into the barriers and facilitators of accessing services and resources that promote and sustain optimal AIP. It is rare to find both social and built environment factors reviewed together when assessing AIP and more common to find support for the emotive aspects of AIP (Smith, 2009). A growing number of government bodies are implementing AIP policies, but this is being done on a piecemeal basis. There is need for agreement on social and built environment factors that will guide policy and programs to sustainable AIP. Policy makers and researchers are attempting to create communities that “facilitate the widely recognized preference by a majority of older adults’ to remain in their homes and communities as long as possible” (Vasunilashorn et al., 2011, p. 1). It is hoped that this body of work will contribute to policies developed in creating a barrier free environment.
In considering environmental influences in older people living in urban areas, the neighbourhood has been identified as a central ecological unit in terms of both its physical and social characteristics. In fact, the “neighbourhood has been shown to be a major contributor to the quality of life for older people and according to some, rivals the home in importance” (Kahana, Lovegreen, Kahana & Kahana, 2003, p. 439).

The need to better understand the concept of aging in place has never been stronger. Increasing numbers of older adults’, the rise in those living with comorbid chronic conditions, and an economy that requires economic solutions to aging all point to needing a better understanding of what facilitates aging in place. Buffel (2012) states “The twin forces of population aging and urbanization, both now identified as among the most significant social trends affecting life in the twenty-first century” (p. 598).

1.2.1. Purpose of the review

The purpose of this review is to examine the built and social environment factors that best facilitate aging in place in the urban environment. Specifically, this review will:

• Critique definitions of aging in place across different disciplines, and identify, adapt or formulate a holistic definition of AIP.

• Critically review and synthesize the current literature on the social and built environmental barriers and facilitators of aging in place.

• Articulate what types of social and built environment services and amenities as well as access to these services, within the neighbourhood context, best support aging in place.

• Develop a conceptual model of the built and social environment factors that lead to optimal aging in place in the urban environment.

Research questions

1. How is the concept of Aging in Place (AIP) used/defined across different disciplines? What are some of the overlapping and unique aspects in definitions across different disciplines?

2. What social and built environment neighbourhood factors facilitate or deter aging in place (AIP)?
   a. What are the key factors involved in optimal aging in place?
3. How do the social and built environments intersect with individual factors to support optimal aging in place (AIP)?

4. How are different groups (SES, gender, ethnicity, etc.) of older adults’ affected by AIP strategies in the neighbourhood?
   a. What type of older adults’ are overlooked or left out of the discussion on AIP?

1.2.2. **Key concepts and relevant definitions**

**Active aging**

The World Health Organization (WHO) defines active aging as “a lifelong process shaped by several factors that, alone and acting together, favour health, participation and security in older adult life” (World Health Organization, 2007, p.6). The World Health Organization Age friendly cities guide (2007) defines active aging as “the process of optimizing opportunities for health, participation and security in order to enhance quality of life as people age” (AFC guide, 2007, p.10). Health, continued participation and security are all essential elements of aging in place.

**Age friendly community (AFC)**

The Public Health Agency of Canada (2012) defines an age-friendly community as one where “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.

**Community**

The Centre for disease control (CDC) defines community as “a specific group of people, often living in a defined geographic area, who share a common culture, values, and norms and who are arranged in a social structure according to relationships and has developed over a period of time. The term “community” encompasses worksites, schools, and health care sites” (CDC, 2010, Health Places Terminology). Alternatively, Gilleard (2007) explains that the term community is still problematic because it is both thought of as a social space and a collective consciousness of social relationships. The community consists of networks that support and protect the well-being of older adults’. According to Buffel (2012) community consists of personal networks (network cohesion)
and a predefined locality (neighbourhood cohesion). The definition of community used here is one of a geographic sense encompassing the predefined locality or space, and the provider of services and infrastructure.

**Neighbourhood**

According to Peace, Holland and Kellher (2006) neighbourhoods are “geographical areas with personal and social meaning related to the physicality of the environment” (p. 70) and they represent an opportunity to engage with the ‘other’ and those outside the immediate home environment. Gardner (2011) adds to this definition by defining the neighbourhood environment as a subjectively and physically bordered space, as being an important physical and social place of aging, and the space where people live.

**Built environment**

The built environment includes outdoor spaces and the natural environment such as parks and green spaces, as well as the accessibility and location of buildings (Menec, 2011). Additionally, the Centre for Disease Control (2010) includes “buildings, roads, utilities, homes, fixtures, parks and all other man-made entities that form the physical characteristics of a community” (Centre for Disease Control, 2010, Healthy places terminology). For the purpose of this capstone project, the terms built and physical environment are used interchangeably.

**Social environment**

The social environment is often included as part of the determinants of health and is implicit in the WHO Age-Friendly domains (Menec, 2011). It includes social support systems (friends, family, and neighbours) and the social networks such as groups and organizations that an older adult may be a part of. The social environment includes opportunities for participation, meaningful contributions, and the accessibility of these opportunities. It is the “engagement of people to places...how space and places are used, organized and structured” (Bond, Peace, Dittmann-Kohli & Westerhof, 2007, p.209).
Successful aging

Rowe and Kahn (1998) have defined successful aging as avoidance of disease and disability, involvement in society, and high cognitive and physical function. The intersection of these factors results in successful aging. Although many older adults’ may not avoid disease and disability entirely, or have high cognitive and physical functioning, adaptations to the urban environment can assist in continued involvement in society, maintenance of autonomy, and desired independence. It is proposed that these are the key factors in successful aging in the urban environment. The concept of active aging (as described above) and proposed by the WHO, may be closer to the attainment of successful aging in place. This definition includes those with varying degrees of disability still attaining the degree of participation they desire. McCracken and Phillips (2005) include successful psychological adjustment to aging as well as maximizing desired outcomes and minimizing undesired ones as losses as part of the process of successful aging.

1.2.3. Outline of the capstone project

This paper will attempt to increase understanding of the social and built environment factors that facilitate optimal aging in place. Key definitions are reviewed and synthesised, aspects of the social and built environment are analyzed for their effectiveness in facilitating aging in place, and a conceptual framework is developed to illustrate how these factors influence optimal aging in place in the urban neighbourhood. This chapter has introduced the reader to aging in place in the urban environment and presented justification for conducting the proposed review. Chapter 2 outlines the methods used to conduct a critical literature review. Chapter 3 offers a detailed discussion of the review findings and identifies gaps in the literature reviewed. The final chapter summarizes and synthesis these findings, presents a conceptual framework, and suggests future research directions.
2. RESEARCH METHODS

2.1. Definition of a critical review

This review will utilize the Canadian Institute of Health Research (2010) and Mays, Pope, and Popay’s (2005) guidelines for conducting a review for the purpose of knowledge synthesis. The Canadian Institute of Health (CIHR) defines a knowledge synthesis as “the contextualization and integration of research findings of individual research studies within the larger body of knowledge on the topic” (Fink, 2010, p. 2)."

The body of research and knowledge in the area of AIP is large and diverse. A critical review and synthesis of the varied academic, trade and gray literature will help in better understanding the implications of aging in place for current as well as future older adults’. This method of inquiry allows for the inclusion of research and non-research evidence, empirical and non-empirical work. A review for the purpose of synthesis is conducted to provide new insights and potentially lead to new theoretical work. Mays, Pope, and Popay’s (2005) differentiate a review and synthesis stating that a review is the process of bringing together a body of evidence; whereas synthesis is the process of extracting evidence from the individual sources.

This review and synthesis project is conducted for the purpose of knowledge support with the intent of summarizing and critically reviewing the evidence to identify theoretical and substantive gaps in the literature (Fink, 2010) and with the goal of promoting a greater understanding of AIP in the urban environment. Questions usually asked in this type of projects include: 1) How is this a problem? 2) How and why has this come about? 3) What will work to address these problems?
2.2. Knowledge synthesis steps

This critical synthesis closely followed the steps for knowledge synthesis as broadly outlined by Mays, Pope, and Popay (2005). These included: defining the purpose and aim of the research, specifying the review questions, developing a search strategy, selecting studies and other types of material for inclusion, mapping the evidence (summary of findings tables), analyzing, and preparing a structured report of the findings. When identifying studies for review, a broad approach called ‘lumping’ was employed. This involved identifying “the common generalizable features addressing the research question and that minor differences in in study subjects, context, and design are not important” (Fink, 2010, p. 12). This method was used to allow for a broad range of sources and perspectives to be included in the synthesis.

Searches of key databases were conducted for empirical (research based) and non-empirical (non-research based) articles. Databases searched included AgeLine, Google scholar, CINAHL, PsycINFO, Academic Search Primer. Additionally, a library search was conducted of books and gray literature published on this topic area.

The eligibility criterion included a) mention of concepts relevant to AIP and b) the article/books or chapters or other literature that are published between 2000-2013. Materials from scholarly and non-scholarly sources, book chapters, white papers, and grey literature are searched, as well as reference lists from primary sources identified at the beginning of the review. However, a few seminal AIP articles and chapters were included from earlier years (publications dates before 2000) if they had been prominently cited in the current literature.

Aging in place was operationalized to include those terms that were most closely related to social and built environment factors. The literature was coded for those that directly mention aging in place and the built environment or aging in place the social environment. Other sources were considered indirect when these terms were mentioned in passing. Key words and terms used for searching and coding the data include: ag(e)ing in place, age friendly cities / communities / neighbourhoods, cities, community, neighbourhood, successful aging, optimal aging, participation, access to services / amenities / resources for AIP, social and built environment, urban
environment, inclusion and exclusion of older adults’ in urban communities and neighbourhoods. Specific searches were conducted material related to the theoretical models utilized in this project. These included Bronfenbrenners’ ecological theory, person-environment fit, Maslow, and World health organization.

For ease of data analysis and future replication, article/book chapters and other literature are grouped according to their empirical and non-empirical status and entered into a summary of findings table, sorted according to empirical and non-empirical works. The following are examples of the two types of summary of findings tables used for review management and analysis of the literature. Empirical literature sources include those that are based on evidence that can be analyzed through either qualitative or quantitative means. Non-empirical materials include all other sources such as books, white papers, and grey literature.

**Table 1.1. Summary of findings table example: Empirical sources**

<table>
<thead>
<tr>
<th>Study</th>
<th>Study reference in APA style</th>
</tr>
</thead>
<tbody>
<tr>
<td>Search terms</td>
<td>All search terms identifies in the title, abstract, and article are listed here</td>
</tr>
<tr>
<td>Focus of study</td>
<td>Describes the main focus of this study.</td>
</tr>
<tr>
<td>Methods</td>
<td>The study sample, and the research was conducted is listed her. (Interviews, case study, questionnaire, etc.)</td>
</tr>
<tr>
<td>Major findings relevant to AIP</td>
<td>Points that are particularly relevant to this capstone project; information within this article that is useful for this review or the specific research questions it addresses within the review.</td>
</tr>
<tr>
<td>Summary</td>
<td>A summary of the study findings and the relevance to this capstone is identified here</td>
</tr>
<tr>
<td>Limitations</td>
<td>Any limitations related to the exploration of AIP in the neighborhood environment is identified here</td>
</tr>
</tbody>
</table>
Table 1.2. Summary of findings table example – non-empirical sources

<table>
<thead>
<tr>
<th>Citation</th>
<th>Study reference in APA style</th>
</tr>
</thead>
<tbody>
<tr>
<td>Search terms</td>
<td>All search terms identifies in the title, abstract, and article are listed here</td>
</tr>
<tr>
<td>Focus of study</td>
<td>Describes the main focus of this study</td>
</tr>
<tr>
<td>Points relevant to the review/focus AIP</td>
<td>Points particularly relevant to this capstone project. What within this article is useful for this review or the specific research questions it addresses within the review?</td>
</tr>
<tr>
<td>Summary</td>
<td>A summary of the study findings and the relevance to this capstone is identified here</td>
</tr>
<tr>
<td>Limitations</td>
<td>Any limitations related to the exploration of AIP in the neighborhood environment is identified here</td>
</tr>
</tbody>
</table>

In summation, the research methods described are utilized to bring consistency and rigor to the research process and this body of work. A narrative review is one form of knowledge synthesis and aims to summarize, explain, and interpret evidence leading to a thematic analysis. The thematic analysis has been identified as the one of the most common tools used for knowledge synthesis. “It seeks to identify and bring together the main, recurrent, or most important issues or themes arising from a body of literature” (Mays, Pope, & Popay, 2005, p.12). This method of narrative review allows for different types of evidence including qualitative and quantitative, research and non-research based sources to be reviewed, analyzed, and included in the final synthesis.

A knowledge synthesis conducted in the form of a narrative review leads to a body of work that has the potential to contribute to the knowledge base of AIP in the urban neighbourhood. The first phase of the literature synthesis was a review of aging in place (AIP) definitions and the development of a holistic definition of AIP. Theoretical models and frameworks that are relevant to this Capstone project are identified and summarized. Next, an examination and synthesis of the literature specifically related to the built and social environment factors relevant to AIP in the urban neighbourhood are provided. From this synthesis the pertinent concepts are mapped out in the form of a conceptual framework for AIP in the urban neighbourhood. This is presented in the following chapter. Mays, Pope, Popay (2005) state, “conceptual mapping is increasingly being used to introduce a greater degree of synthesis (as opposed to summary) of findings into narrative reviews” (p. 12). The next chapter expands upon the synthesis...
through a conceptual framework and identifies gaps in the current literature and provides suggestions for future research.
3. LITERATURE SYNTHESIS

The literature synthesis in this project is based on the review of 77 articles and sources related to different facets of aging in place (AIP) definitions, descriptions of the impact of the built and social environment on AIP, and theoretical foundations for AIP. The articles were selected based on their alignment with the initial criteria of relevance and the outlined timeframe. A summary of reviewed articles is available in Appendix 1. Of the articles reviewed 28 were empirical, 42 were non empirical.

3.1. Aging in place definitions

This section presents a compilation of a variety of definitions related to AIP. For the purpose of this review, the focus is specifically on aging in place in the urban neighbourhood and the definitions presented here reflect this. Urban neighbourhoods are considered important and meaningful spaces in the lives of older adults’ whose proximal space has decreased. For many older adults’, increases in functional limitations have resulted in difficulties navigating beyond the immediate local environment (Gardner, 2011). The concept of aging in place has been defined by various disciplines including gerontology, geography, sociology, and urban planning, to name a few. This often results in multiple and sometimes conflicting definitions of AIP. One broad definition of AIP is from the Centre for Disease Control (CDC). As identified in an earlier chapter, the CDC definition of AIP is “the ability to live in one’s home and community safely, independently, and comfortable, regardless of income, or ability level” (CDC, 2010, “Healthy places terminology”). Vasunilashorn et al. (2011) in a comprehensive review of scholarly articles on aging in place between 1980 and 2010 emphasized the importance of a better understanding of the term aging in place.

Social gerontology defines aging in place as “remaining living in the current community with some level of independence rather than in residential care” (Wiles et al.,
2011, p. 357). While this is a less complex definition, key elements such as the interaction between the ever changing person and environment, safety, familiarity, and social capital are conspicuously absent. Another sociological definition is from Gillear and (2007) who operationalized AIP as number of years respondents lived at current address. Gillear and (2007) proposed that the number of years at the current address was correlated with increased place attachment.

It is also possible that the concept of lifetime neighbourhoods can inform a complete definition of AIP. From a UK policy perspective, Andrews (2008) describes lifetime neighbourhoods as being safe and inviting but also accessible and supportive regardless of age or disability. Although a simple definition, safety is highlighted and has been shown to be a key concern for many older adults’ living in urban areas (Buffel et al., 2012; Rowles & Ravdal, 2002; Wiles et al., 2011).

A complete definition of AIP must reflect the neighbourhood as a meaningful space, supportive of the changing functionality of older adults’ (Phillips, Sui, Yen, & Cheng, 2005). The dynamic and ever changing interaction between person and environment needs to be reflected in the definition. Rowles (1978), a renowned human geographer, explains this as geographical experience where there is an “expression of constantly evolving person/geographical life-space system in dynamic equilibrium” (p. 196).

From the perspective of universal design, Williams (2004) defined aging in place as “living in ones’ own dwelling safely, independently, and comfortably, regardless of age, income, or ability level” (para. 4). This definition brings to light aspects of the heterogeneous older adult population, and the need for familiarity, and choice for a diverse group of older adults’. A key component of aging in place is being able to live in an environment of choice and being able to maintain this choice even in the face of declining competencies, especially when these declining competencies reduce or threaten an older person’s independence (Emlet & Moceri, 2012). Aging in a familiar environment has been shown to have a protective factor for older adults’ and is desirable to the majority of older adults’. This desire to remain in a familiar environment is related to the life course perspective where key places are reminders of experiences, identity,
and one’s personal biography and leads to increased familiarity with the home environment (Rowles & Ravdal, 2002).

The concept of an elder-friendly community can offer insight into other essential components of aging in place and holds environmental gerontology at its core. Environment Gerontology (EG) is “concerned with the role of neighbourhoods and the influence those neighbourhoods have on opportunities and constraints of residents” (Emlet & Moceri, 2012, p. 2). The elder friendly community is one where older adults’ can live their entire lives (familiarity) without having to relocate, regardless of health changes, and where they are able to maintain their established social capital (Emlet & Moceri, 2012). This description brings to light the interrelatedness of social and structural factors and the connection to the well-being of older adults’. The community is recognized as a locus of aging and in order for an older adult to age in place, regardless of health changes, the surrounding environment must be accessible and have the infrastructure, including social services, to accommodate changing needs. A complete AIP definition should reflect this.

Also from the perspective of EG, Smith (2009) describes optimal aging in place as when “older people, particularly as they grow more frail, are able to remain more independent by and benefit from, aging in environments which they are accustomed” (p. 10). An older adult would have physical mastery over the environment despite possible health declines, and remain in an environment that fosters social and autobiographical continuity. This definition recognizes potential health changes and the importance of a familiar environment. Smith (2009) also describes an optimal level of press as being necessary components of AIP.

Related to the EG perspective is that of public health. Gardner (2011) explains that AIP refers to why older adults’ want to remain in their homes and how best to support them. This is differentiated from places of aging that refer to the identification and understanding of the important contexts of aging.

An alternative method of examining AIP definitions is to review them from earliest conceptualization, to the present usage of the term. Pynoos (1993) described aging in place as remaining in ones’ home as long as possible with home modifications made to
compensate for physical limitations and/or disabilities (Ball et al., 2004). Many of these earlier definitions “conveyed an image that a normative pattern for the elderly was abandonment of their homes and movement into "supportive" settings where they could obtain types of assistance that were not available in their homes” (Rowles, 1993, p. 63) and consisted of “two-prongs: aging in place in the home and in other structured settings in the community” (Vasunilashorn et al., 2011, p. 3). Housing for the elderly has transitioned from institutionalization and purpose built housing in the early 1970’s to a maximization of choice in the late 1970’s to early 1980’s that recognized different life stages required different types of housing, to the late 1980’s when the term ‘aging in place’ was coined and gained popularity (Haldemann & Wister, 1994).

The emphasis pre-1980 was clearly biased towards a dichotomy between keeping older adults’ safe and independent at home as long as possible through the introduction of home modification programs and support services versus movement into structured, formal institutional living arrangements.

In the early 1990’s Lawton, from the field of Environmental Psychology, offered an alternative viewpoint on the concept of AIP. Lawton (1990) identified that aging in place is an accommodation between an aging individual and his or her environment over time, with the physical location of the individual being the only constant. Further, aging in place is “a transaction between an aging individual and his or her residential environment that is characterized by changes in both person and environment over time, with the physical location of the person being the only constant” (Lawton, 1990, p. 288).

Although this dichotomy is less prevalent today, policies, grants, and programs to support older adults’ in remaining at home are ubiquitous. There is a slow movement away from the previous dichotomy of AIP and an expansion and softening of definitions to include alternative living environments such as naturally occurring retirement communities, (NORC), villages, cohousing and independent living facilities. This has blurred the previous dichotomy and has resulted in definitions such as that from Smith (2009) who states optimal aging in place as when “older people, particularly as they grow more frail, are able to remain more independent by and benefit from, aging in environments which they are accustomed” (p. 10). This definition is more reflective of the current cohort of older adults’ who are willing to relocate to age in environments with
age friendly amenities, are closer to family members, and enable them to maintain a desirable degree of independence. Today, partly as a result of globalization and changing needs and lifestyles, the older adult population may be aging in place(s) rather than remaining ‘in place’.

As has been shown, there are a variety of definitions on AIP and the focus and scope of these definitions vary depending on the discipline and research focus of the writer of that definition. Common to these definitions is that older adults’ are situated in environments with which they have a degree of familiarity and attachment and are related to their independence and security. The role that social and built environmental factors play in this AIP process is not always explicit though they seem to play a pivotal role in this process. In the next section a holistic definition is presented in an attempt to address this issue.

3.1.1. Identification-adaptation or formulation of a holistic definition of AIP

Many definitions of aging in place currently used are incomplete. For example the Canadian Housing and Mortgage Corporation (CMHC) describes aging in place as “the ability to live in ones’ current home and familiar community for as long as possible, even if there are health changes” (CMHC, 2008, p. 1). This definition does not acknowledge the social or built environment, or the intersection of the individual with these environments. Similarly problematic are definitions that describe aging in place as “remaining living in the current community with some level of independence rather than in residential care” (Wiles et al., 2011, p. 357) or aging in place as the number of years spent in the current living location (Gilleard, 2007). Each of these definitions is incomplete and lacks a holistic perspective on AIP.

A review of existing definitions of aging in place was done to identify the common themes across disciplines. This review revealed that that no single definition of AIP addressed the multi facets of AIP in neighbourhood environments, and took into consideration physical environment as well as the social, economic and policy issues. In neighbourhood environments often these factors jointly affect AIP (e.g., socio-economic or socio-spatial factors) and cannot be examined as distinct factors. One of the more
A holistic definition of AIP/AIP policy is provided by Menec et al. (2011) state that “An aging in place policy ideally addresses all age-friendly domains, the interaction between age-friendly domains and individual characteristics (age, income, and function), as well as other levels of influence such as the political environment in which the individual is embedded” (p. 487). Others have also shown that the key to generating a holistic conceptualization of AIP is taking into consideration the intersectionality of the physical environment, the personal factors as well as neighbourhood social factors. Buffel et al. (2012) argue that three dimensions of the neighbourhood must come together to develop a complete conceptualization of neighbourhood. These are the physical / material environment, the social / cultural environment, and the psychological environment.

A definition of AIP is outlined as part of the age friendly community (AFC) framework of the World Health Organization (WHO) (Williams, 2004). One strength of the AFC framework is that it does recognize the multiple domains of the neighbourhood environment including the social and built environments, but its weakness is that the framework is prescriptive and falls short in describing the AIP situation of an older person currently living in existing neighbourhoods. Though it acknowledges the multifaceted factors at play to promote meaningful AIP, it does not explicitly state the intersectionality of these concepts. These factors do not operate in a vacuum often their influence on AIP cannot be separated out to show which factor facilitates AIP more and/or which may be problematic for AIP.

The most comprehensive definition of AIP in Canada is the one provided by the Public Health Agency of Canada. This definition states that “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” (Public Health Agency of Canada, 2012, What is an). The WHO framework AFC due to its prescriptive nature does not allow for the changing dynamic of individual, societal, and economic factors. Therefore, a holistic definition of AIP needs not only recognize the exchange between person and environment, but also incorporate the notion of change of over time in the life of an older adult.
The definition provided by Lee (2008), although long and cumbersome, does cover the proposed key elements, and moves towards the generation of a holistic definition.

Aging in place (AIP) is a contemporary social phenomenon that encompasses the independence and inalienable right of individuals aging in their self-determined environment while maintaining access to appropriate levels of care and/or community services. A shared responsibility between aging individuals and AIP providers involves empowerment and comprehensive approaches crucial to quality of life that ensure the implementation of policy, service, program, and product options fundamental to AIP. AIP actions and options are developed from coordinated efforts using interdisciplinary avenues coupled with an innovative and complex balance of parts that facilitate the diversity and evolving needs of aging adults’ and the aging industry (p. 75).

The above discussion helped to identify some common threads in existing definitions of AIP. One important aspect is the dynamic nature of the person-environment interaction varies over time (as outlined by Greenfield, 2012; Kahana et al., 2003, Phillips et al., 2005). A few other aspects that came out through other AIP definitions are older adults’ need for safety, familiarity, and security (Buffel et al., 2012, Rowles & Ravdal, 2002, Wiles et al., 2012), the presence and choice of activities/programs in the neighbourhood, opportunities for participation (Emlet & Moceri, 2005; Wiles et al., 2012), the ability to maintain social capital and importance of other social environment factors (Emlet & Moceri, 2005), and the impact of the built environment factors such as micro-level detailed urban design features, issues of visitability and inclusive design (Mahmood, Keating 2012; Phillips et al., 2005; Smith, 2009).

The policy directive outlined by Menec (2011) provides the best starting point for a holistic definition of AIP, recognizing the person - built environment interaction the individual effect of the built and the social environments, as well as individual factors of age, gender and socio-economic status.

Existing definitions reviewed above lack the recognition of the push-pull factors of the social and built environment that facilitate or deter meaningful and optimum aging in
place. These social and built environmental factors are again situated within the ever changing and evolving political and economic environment of the neighbourhood.

Additionally, length of residence should not be held as an important determining factor for optimal AIP. Buffel et al. (2012) recognize aging in place is closely tied to attachment to place that often comes with long periods of stay in the same area, however, the length of residence alone does not create this bond, other factors such as sense of belonging, autonomy, independence, sense of self, need to be in place to create this type of attachment. Some of these factors such as a sense of belonging can be independent of length of residence. One can argue that another such factor, autonomy can be attained through familiarity with the environment, but can also be achieved through a supportive built and social environment.

Therefore one can propose a holistic and workable definition for aging in place that is succinct, contains the key identified factors and recognizes the changing nature of both the environments and individual, and is not prescriptive for all individuals.

Optimal aging in place is attained when an individual is able to remain in their environment of choice, regardless of physical and cognitive changes with the responsive economic and social environmental resources available to them. The interaction between the social and built environments in these environments of choice support the changing needs of the individual and helps to maintain the autonomy, sense of continuity and independence in a safe and secure manner. The individual is empowered in these environments to be a participatory member of their neighbourhood living in a state of interdependence with others in the community

A sound definition of AIP gives a context from which to review those factors leading to optimal AIP. A review of relevant frameworks will aid in better understanding the complex and multidimensional concepts such as AIP. In this synthesis 2 ecological theories and one framework are reviewed and used to develop a conceptual framework for optimal AIP, which is to follow.
3.2. Models and theoretical frameworks relevant to AIP

3.2.1. Ecological model(s)

Bronfenbrenner ecological theory (1977)

Bronfenbrenner's ecological theory is a series of nested environments, or systems, each within the other. Each system does not operate exclusively and is bidirectional in influence. The levels of environment include the microsystem (an individuals' immediate environment such as the home), the mesosystem (the interactions in a major setting, for example the neighbourhood, the connections between the microsystems), the exosystem (an extension of the mesosystem, contains specific social structures, formal and informal, does not contain the individual directly), the macrosystem (the blueprints from which a society is structured including laws and customs), and lastly the chronosystem ("systems and markers of time, such as life transitions" (Greenfield, 2011, p. 3)). Bronfenbrenners' theory recognizes not only the importance of the physical environment, but also how the individual experiences this environment. Ecological theory offers a tool to better understand the impact of the environment on the health, well-being and human behaviour of individuals (Emlet & Moceri, 2012; Menec, 2011). Bronfenbrenners' ecological model as applied to AIP ensures that the individuals’ life experience is understood within the ever-changing context of their micro to macro environments.

Person-environment fit / competence:
Press model (Lawton & Nahemow, 1973)

The person-environment fit model addresses the environmental stimuli or press that an individual experiences and the individuals’ capacity to respond, resulting in a level of adaptation. The components of this model include a degree of individual competence (includes cognitive ability, psychological adjustment, physical health, and other individual qualities), environmental press (neutral forces in the environment interacting with an individual resulting in a degree of press), adaptive behaviour (the behavioural response as a result of the interaction between environmental factors and personal ability/competence), affective response (individual emotional response to the environment – behaviour transaction), and adaptation level (an individuals’ affective,
cognitive and perceptual experience of their environment). An individuals’ level of functioning (behavioural response) is the result of their biological, social and psychological resources and the fit between these individual resources and the surrounding environment.

Emlet & Moceri (2012) utilize this model to describe how the environment has three major functions including maintenance (consistency and predictability of the environment), stimulation (press), and support (the environments as facilitator or barrier). One can consider these three functions at the level of the community or neighbourhood. The community environment provides consistency, stimulation and can be facilitator to people’s day to day activities and must have enough flexibility to be responsive to the changing needs of its residents and be dynamic in nature, that is be able to evolve and change with the changing demographics.

Lawton (1990) explains that the person and environment are separate entities, but acknowledges, “both are part of a supraordinate system (where neither person nor environment takes precedence) in which subject and object are fluid” (p. 638). The P-E theory helps to expand on Bronfenbrenner’s ecological theory at the micro level by emphasizing the environmental effect on an individual. These surrounding environments are continually changing requiring ongoing adaptation from the individual resulting in a continual process of the older adult taking from the environment what they need, controlling what can be modified, as in the case of built and social environment adaptations, and adapting to what cannot be changed (Emlet & Moceri, 2012). An older persons subjective experience of the environment affect their direct experience of the environment. According to the docility hypothesis change in objective press levels can disproportionately affect those with lower competence levels (Lawton and Nahemow, 1973). Older adults are particularly sensitive to the person-environment interaction (Wahl, Warsson & Oswald, 2012), and for this reason it is essential to include this framework as a part of the examination of AIP in the urban neighbourhood. The person-environment interaction model brings individuals personal attributes and competencies to the forefront, adding an additional element, personal factors, to the AIP equation.

In summary, two ecological models are utilized to address: 1) how an individual is affected by the multiple layers of the environment (Bronfenbrenner’s ecological theory)
and 2) how that individual responds to and interacts with their immediate environment (P-E fit, Lawton and Nahemow, 1973). Next, the domains of the World Health Organizations age friendly cities (AFC) framework are reviewed for their relevance to AIP to provide a more macro perspective. Further, an AIP lens is applied to identify how each of these domains addresses the issue of AIP, and identify gaps in the literature that link the AFC framework and AIP. This examination will later facilitate the development of a conceptual model on AIP.

3.3. How well do the World Health Organization’s (WHO) recommendations for age-friendly cities (AFC) address the neighbourhood context of AIP?

An age friendly city encourages active aging by increasing opportunities for older adults’ and results in ‘optimal’ places to age (Smith, 2009). Lui et al. (2009) conducted a literature review (2005-2008) of age friendly communities and found that “The advance in ageing in place policies highlights the imperative for an ‘age-friendly community’” (p. 116). Both of these statements illustrate the interrelatedness of policies surrounding age friendly cities, active aging, and aging in place. This section reviews each of the eight domains of the World Health Organization’s (WHO) Age friendly cities (AFC) framework for their relevance to AIP in the urban neighbourhood.

The World Health Organizations (WHO) (AFC) framework directly supports the inclusion and active participation of older adults’ in their communities by encouraging the creation of opportunities for participation, access to essential social supports, and the removal of both physical and social barriers. All of which have been found to facilitate AIP. An age friendly community is defined as “one in which the policies, services, and structures support and enable people to actively age” (Menec et al., 2011, p. 480) whereas the WHO describes active aging as “the process of optimizing opportunities for health, participation and security to enhance quality of life as people age” (WHO, 2002, p.12). The establishment of communities designed for aging in place lead to communities that are age friendly and include spaces for active aging. According to Lui et al. (2009) there has been wide spread adoption of AIP as a policy goal in achieving AFC.
The development of the WHO AFC framework employed a bottom-up approach with thirty-three focus groups from countries around the world involved in the initial consultation process. These countries gathered information from 158 focus groups, consisting of 1485 participants, 60 years and older, who informed the development of the eight domains and the resultant AFC framework and communities checklist.

It is proposed that a community that is age friendly will be one that is suitable for AIP. Aging in place requires planning, the provision of a wide range of support services, the removal of barriers that segregate and limit older people in their lives and the development of activities that encourage and enable older adults’ to be active members of their communities, all of which are elements of the AFC framework. Yet some elements of the AFC framework have greater relevance to AIP. For example, according to Emlet and Moceri (2012), social inclusion and participation have been shown to be routes to successful aging, are key elements of the WHO AFC framework and checklist (2007), as well as being part of the larger framework on active aging.

The guidelines established by the WHO facilitate active aging and encourage opportunities for health, participation, and security with the goal of enhancing an older persons quality of life as they age in place. An AFC is adaptable in that it adapts its structures and infrastructure, to be accessible and inclusive of the varying abilities of older adults’ (Emlet & Moceri, 2012). Menec et al. (2011) emphasizes the importance of addressing the age-friendly domains stating:

An aging in place policy ideally addresses all age-friendly domains, the interaction between age-friendly domains and individual characteristics (age, income, and function), as well as other levels of influence such as the political environment in which the individual is embedded (p. 487).

Do the domains of the AFC framework address optimal aging in place? Each of the eight age-friendly domains: outdoor spaces and buildings, transportation, housing, social participation, respect and social inclusion, civic participation and employment, communication and information, and community support and housing; is reviewed for their significance in AIP within the urban neighbourhood.
When reviewing the literature in this area, it was found that some articles address more than one domain. This is useful in that it allows for a comprehensive examination of the domains impacting AIP. For example, Menec et al. (2011) utilized an ecological perspective to review the eight domains of AFC and found that it was more relevant to condense these to seven by collapsing the categories of social participation and civic participation and employment into one category of social participation. This is reflective of the relative importance of the social environment in processes of AIP. In the following section tables 3.1-3.8 outlines the relationship between the AFC framework, AIP, and empirical and non-empirical research conducted within each domain.

3.3.1. **Outdoor spaces and buildings**

Table 3.1 outlines the domain of outdoor spaces and buildings. The AFC framework highlights the need for barrier free buildings, outdoor spaces that enhance mobility, and are accessible. These environments result in an increased quality of life, accessibility, feelings of safety, and increased belonging. Traffic congestion, lack of public restrooms and places to rest, as well as pedestrian safety, are factors that have been identified as risks to the quality of daily life of older adults’ (Buffel, Phillipson, Scarf, 2012; Clarke & Nieuwenhuijsen, 2009). Empirical research in the area of outdoor environments indicates that an environment that is safe, accessible and walkable will lead to an increased ability to AIP. The removal of structural barriers is critical in increasing an older person’s sense of agency within their environment (Boudiny, 2012). Non-empirical research conducted in this area highlights the need for not only barrier free spaces but expands this to include those that enhance socialization such as the natural environments such as parks and green spaces (Menec et al., 2011). The connection between the physical environment and social environmental role in AIP has been made in the non-empirical literature (Buffel et al., 2012; Clarke & Nieuwenhuijsen, 2009; Chaudhury et al., 2012; Lui et al., 2012; Mahmood & Keating, 2012), but has not been as strong in the empirical research (McDonald, 2008; Mehta, 2007).

Buildings and transition zones that are barrier free and have opportunities for casual socialization are elements of a community designed for AIP. Empirical research in the area of outdoor spaces conducted by McDonald (2008) and Mehta (2007) found that third spaces (cafes, libraries), and transition zones (covered porches, threshold
entrances) offered opportunities for socialization and that these spaces lead to increased feelings of social connectivity, which as outlined by Menec et al. (2011) is an element of effective AIP. Other examples cited in the literature include the removal of structural barriers, and establishing communities that are walkable and easy to navigate for persons of all abilities.

**Table 3.1. WHO AFC outdoor spaces and buildings domain and AIP comparison**

<table>
<thead>
<tr>
<th>WHO Age Friendly Cities (AFC) Domain</th>
<th>WHO AFC Domain Description</th>
<th>Relationship to AIP</th>
<th>Publications addressing this domain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outdoor spaces and buildings:</td>
<td>• Cleanliness • Green spaces are sufficient, safe, accessible • Ample seating • Even pavement and well maintained streets, sufficient lighting • Sidewalks are wide enough to accommodate a wheelchair, have curb cuts • Safety with street patrols • Services are clustered, close to where people live • Public toilets are sufficient</td>
<td>• Increased feelings of safety, decreased fear of crime • Social gathering spaces, or third places (parks, shops, thresholds) • Land-use patterns designed for mobility resulting in increased walkability and reduction in structural barriers</td>
<td>• Baum &amp; Palmer (2002)* • Andrews &amp; Phillips (2005) • Mehta (2007)* • McDonald (2008)* • Clarke &amp; Nieuwenhuijsen (2009) • Burton, Mitchell, Stride, (2011) • Rosso, Auchincloss, Michael, (2011) • Boudiny (2012) • Buffel et al. (2012) • Chaudhury et al. (2011)* • Lui et al. (2012) • Mahmood &amp; Keating (2012)</td>
</tr>
</tbody>
</table>

*Note. The asterisks next to publications in tables 3.1 through 3.8 indicate that they are empirical articles based analysis of primary sources. Other publications in these tables are either reviews or substantive or theoretical reflective writings.*

3.3.2. **Transportation**

In order for older people to age in place, *transportation* must be accessible and address the diverse day-to-day needs of older adults’ (Table 3.2). The AFC description of transportation outlines the necessity of public transportation to be affordable, reliable and accessible. In addition, it is necessary to have diversity in modes of transport,
appropriate parking at key destinations, and drop-off points for those with disabilities. Transportation as outlined in the AFC framework is prescriptive in nature and does not offer suggestions or ways of implementation for communities that are currently struggling with transportation infrastructure problems. The AFC framework does suggest that transportation is a determining factor in social participation and access to community and health services, but does not go further to explore avenues of implementation. AIP research in the area of transportation is limited and is most often explored in relation to other factors or domains. Yet older adults’ highlight transportation as being essential for AIP (Wiles et al., 2011).

Rosso et al. (2011) conducted a comprehensive review of the urban built environment and older adult mobility. It was found that transportation does have a direct influence on mobility in the environment that in turn impacts quality of life. In addition, a lack of access to public or private transportation options negatively affect well-being, and can increase isolation and decrease access to needed resources (Greenfield et al., 2012; Mahmood & Keating, 2012; Rosso et al., 2011). Empirical research in this area clearly shows that one of the major barriers to aging in place outside the home environment is transportation (McDonald, 2008; Sixsmith & Sixsmith, 2008). In order for older adults’ of all abilities to maximize independence, accessible transportation is essential.
### Table 3.2  
**WHO AFC transportation domain and AIP comparison**

<table>
<thead>
<tr>
<th>WHO Age Friendly Cities (AFC) Domain</th>
<th>AFC domain description</th>
<th>Relationship to AIP</th>
<th>Publications addressing this domain</th>
</tr>
</thead>
</table>
| Transportation                        | • Transit service is public, affordable, reliable and accessible.  
  Accessible, affordable | • Increased Social connectivity  
• Transportation as a social facilitator  
• Increased health benefits  
• Personal Autonomy  
• Transportation options addressed include safe places for scooters, wheelchairs and those with walkers.  
• Lack of transportation hinders AIP | • Rowles (1978)  
• Richard et al. (2008)*  
• Sixsmith & Sixsmith (2008)*  
• Oswald (2010)*  
• Menec et al. (2011)  
• Rosso et al. (2011)  
• Wiles et al. (2011)  
• Emlet & Moceri, 2012*  
• Greenfield et al. (2012)  
• Mahmood & Keating (2012) |
| A determinate in social and civic participation, and access to community and health services. | • Routes reach needed destinations  
• Stops are covered, well-marked and lit, and transit vehicles are accessible.  
• Specialized services are available, and a volunteer run service is provided in locations with limited service.  
• Roadways are well maintained and safe.  
• Priority parking and drop-off spots are available for with disabilities. | | |

**Note.** The asterisks next to publications in tables 3.1 through 3.8 indicate that they are empirical articles based analysis of primary sources. Other publications in these tables are either reviews or substantive or theoretical reflective writings.

Transportation aids in the maintenance of social networks, links older persons to social opportunities, and is essential in maintaining independence and access to needed resources and services (Oswald et al., 2010; Richard et al., 2008). Other research into age friendly communities has shown that in order for older adults’ of all abilities to maximize independence, accessible transportation is essential. Safety, availability of stops that are easily accessed, and links between residents and essential services and destinations, were all identified components (Emlet & Moceri, 2012; Menec et al., 2011).

### 3.3.3. Housing

*Housing*, Table 3.3, is an essential component of aging in place. This project is primarily focused on the urban neighbourhood environment, but without appropriate housing, housing that is affordable and accessible; older adults’ are unable to remain at home, in their community of choice. Housing stock should fulfill the diverse needs of
community residents both in type of housing and affordability. According to one survey, older adults' felt there was not a wide enough rage of housing options in their community (Lionsview Seniors Planning Society, 2011). It is the choice of living environment that is essential. Emlet & Moceris’ (2012) study of elder friendly communities found that choice of living environment, even in the face of declining health, determined residential satisfaction. According to the AFC framework, housing is essential to well-being and safety, and needs to be near required services and resources. Greenfield et al. 2012 study of NORC’s and Village communities found that purpose built housing and communities led to greater satisfaction and effective aging in place.

**Table 3.3** WHO AFC housing domain and AIP comparison

<table>
<thead>
<tr>
<th>WHO Age Friendly Cities (AFC) Domain</th>
<th>AFC domain description</th>
<th>Relationship to AIP</th>
<th>Publications addressing this domain</th>
</tr>
</thead>
</table>
| Housing                             | • Housing stock is sufficient, affordable, well-constructed and in an appropriate location for older adults’.
  • Close to needed services and amenities
  • Home maintenance and support services are available.
  • Universal design features are in homes for older adults’, or modifications are available from a reliable and affordable service.
  • Rental housing options are clean, safe and well maintained. | • Appropriate housing options are available including single family dwelling, apartments, cohousing, NORC’s, and affordable housing options
  • Building accessibility featuring universal design principles | • Phillips et al. (2005)
  • McDonald (2008)*
  • Sixsmith & Sixsmith (2008)*
  • Emlet & Moceri (2012)*
  • Greenfield et al. (2012) |

*Note.* The asterisks next to publications in tables 3.1 through 3.8 indicate that they are empirical articles based analysis of primary sources. Other publications in these tables are either reviews or substantive or theoretical reflective writings.

### 3.3.4. **Social participation**

The AFC framework identifies social participation (Table 3.4) as essential to well-being throughout life. This domain intersects with transportation and communication in that knowledge of opportunities, as well-being able to access those opportunities, will
lead to increased social participation. In terms of the AFC framework, this domain is primarily concerned with events and activities that are available to all individuals. For an older person aging in place, social participation goes beyond attending an activity or event and includes access to social participation opportunities that are fulfilling and rewarding. Additionally, a social environment that facilitates AIP will recognize individual differences in socially inclusive environments (Lui et al., 2009). Greenfield et al. (2012) used the models of the NORC and Village communities to examine AIP and showed that a key focus of these environments was increased social participation through social building activities such as group recreational activities. These activities lead to increases in social support networks and stronger community ties (Greenfield et al. 2012). Conversely, Scharf et al. (2001) shows that social participation can be a form of exclusion for older adults’ AIP and can lead to a decreased sense of being embedded in the neighbourhood fabric. For older adults’ to feel valued in their community, as outlined by the AFC framework, there must be a sense of reciprocity in social participatory activities (Emlet & Moceri, 2012). An ecological perspective also provides a foundation to review the relationship between the environment and social connectivity and how this may or may not result in social connectivity and belonging, which are considered benefits of AIP (Clarke & Nieuwenhuijsen, 2009; Menec et al., 2011).

Table 3.4  WHO AFC social participation domain and AIP comparison

<table>
<thead>
<tr>
<th>WHO Age Friendly Cities (AFC) Domain</th>
<th>AFC domain description</th>
<th>Relationship to AIP</th>
<th>Publications addressing this domain</th>
</tr>
</thead>
</table>
| Social Participation                | • Events and activities are held in locations that are accessible and reachable by transit, and are affordable  
• Events well-advertised to older adults’ are held at appropriate times and are accessible by transit.  
• Diversity in events and activities  
• Foster community integration | • Social Connectivity  
• Opportunities for social participation, an inclusive social environment  
• Social Spaces  
• Lively Streets | • Scharf et al. (2001)*  
• Mehta (2007)*  
• Lui et al. (2009)  
• Emlet & Moceri (2012)*  
• Greenfield et al. (2012) |

Note. The asterisks next to publications in tables 3.1 through 3.8 indicate that they are empirical articles based analysis of primary sources. Other publications in these tables are either reviews or substantive or theoretical reflective writings.
3.3.5. Respect and social inclusion

Respect and social inclusion (Table 3.5) involves the inclusion of older adults’ in the planning, implementation, and delivery of essential services, implementation of community infrastructure changes, and commercial services. For older adults’ aging in place, respect and social inclusion involves being part of a community where their input is sought and valued. Respect and social inclusion are outcomes of opportunities for meaningful participation, accessible neighbourhoods, communication that reaches older adults’, and resources and services that are accessible. Lui et al. (2009) reviewed AFC research and literature between 2005-2008 and found that although there is wide spread adoption of AIP policies, it is the removal of barriers (structural and social) that decrease segregation and lead to older adults’ being more included in their neighbourhoods.

Table 3.5 WHO AFC Respect and social inclusion domain and AIP comparison

<table>
<thead>
<tr>
<th>WHO Age Friendly Cities (AFC) Domain</th>
<th>AFC domain description</th>
<th>Relationship to AIP</th>
<th>Publications addressing this domain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respect and social inclusion</td>
<td>Older people are regularly consulted by public, voluntary and commercial services on how to serve them better.</td>
<td>Older adult empowerment</td>
<td>Lui et al. (2009)</td>
</tr>
<tr>
<td></td>
<td>Services and products to suit varying needs and preferences are provided by public and commercial services.</td>
<td>Part of an inclusive social environment</td>
<td>Gardner (2011)*</td>
</tr>
<tr>
<td></td>
<td>Community-wide settings, activities and events attract all generations by accommodating age-specific needs and preferences.</td>
<td></td>
<td>Emlet &amp; Moceri (2012)*</td>
</tr>
<tr>
<td>Older person’s experience of respect in societies is conflicting. Results of societal changes including cultural, health and economic status. Impacts experience of social inclusion</td>
<td>Older people are recognized by the community for their past as well as their present contributions</td>
<td></td>
<td>Greenfield et al. (2012)</td>
</tr>
<tr>
<td></td>
<td>Older people who are less well-off have good access to public, voluntary and private services.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. The asterisks next to publications in tables 3.1 through 3.8 indicate that they are empirical articles based analysis of primary sources. Other publications in these tables are either reviews or substantive or theoretical reflective writings.
It was also found that there is a movement towards viewing older adults’ as a positive resource in communities rather than a detriment or a problem to be solved. This sentiment is echoed in one seniors’ survey conducted with over 1100 individuals 65 years and older where the majority of seniors generally felt valued and respected in their communities (Lionsview Seniors Planning, 2011). Conversely, MacDonald (2008) found that many older adults’ had experienced ageist and paternalistic treatment with regards to service delivery. This dichotomy in experience indicates a need for further research in this area.

### 3.3.6. Civic participation and employment

Table 3.6 outlines opportunities for *civic participation and employment* as identified by the AFC include older persons having opportunities to make meaningful contributions to their communities and can include paid work or volunteerism.

<table>
<thead>
<tr>
<th>WHO Age Friendly Cities (AFC) Domain</th>
<th>AFC domain description</th>
<th>Relationship to AIP</th>
<th>Publications addressing this domain</th>
</tr>
</thead>
</table>
| Civic Participation and employment Options are available for older people to make meaningful contributions to their communities through paid employment or volunteering. | • A range of flexible options for older volunteers is available, with training, recognition, guidance and compensation for personal costs.  
• A range of flexible and appropriately paid opportunities for older people to work is promoted.  
• Workplaces are adapted to meet the needs of disabled people.  
• Self-employment options for older people are promoted and supported.  
• Training in post-retirement is provided for older workers.  
• Decision-making bodies in public, private and voluntary sectors encourage and facilitate membership of older people. | • Reciprocity  
• Opportunitie s for social participation  
• Civic engagement | • McDonald (2008)*  
• Greenfield et al. (2009)  
• Emlet & Moceri (2011)* |

*Note.* The asterisks next to publications in tables 3.1 through 3.8 indicate that they are empirical articles based analysis of primary sources. Other publications in these tables are either reviews or substantive or theoretical reflective writings.
Greenfield, Scharlach, Lehning, & Davitt (2012) found that civic engagement was a key element in achieving the long-term goal of aging in place. Involving older adults’ in community decision making and civic engagement opportunities can lead to increased empowerment, increased sense of self, collective efficacy and overall, an increased sense of community. Emlet and Moceri (2011) identified civic engagement as one form of social reciprocity and meaningful engagement that are necessary factors in AIP.

3.3.7. Communication and information

*Communication and information* (Table 3.7) is sometimes referred to as information and communication technology (ICT), and involves the ability of older adults’ to obtain and understand necessary information with regards to services available, opportunities for activities, events, and daily navigation and supports (transit schedules, taxi services, health services).

According to the AFC framework this should be a basic and effective communication system that reaches individuals of all abilities. Communication and information systems include access to ICTs such as computers and Internet and signs that are readable for older persons. Research in the area of communication and information specifically related to supporting older adults’ to age in place is limited. That does exist highlights the necessity of timely and accessible information but does not link this to older adult benefits. This would involve ensuring older adults’ are aware of what services and opportunities are available and decreasing difficulties in navigating health and social systems (Sixsmith & Sixsmith, 2008). MacDonald (2008) identified difficulties with information and referral services as a key problem for AIP, yet it has been found that the use of information and communication technologies can result in increased social interaction and independence in older adults’ (Selwyn, 2003). Communication should be included in all domains as it relates to how and what services and opportunities older adults’ are aware of, and therefore have access to (Menec et al., 2011). The role of communications technology to support aging in place is diverse and can and be a preventative solution to many challenges presented by the environment and health declines of older adults’ as well as contributing to overall wellness and increasing social participation. Much of the research in this area has been aimed at the provision of telehealth and telemedicine services in the home. Although these supports
are needed for some older adults’, research in this area has not addressed the broader older adult population who require increased access to information about local resources and support services.

Table 3.7  **WHO AFC communication and information domain and AIP comparison**

<table>
<thead>
<tr>
<th>WHO Age Friendly Cities (AFC) Domain</th>
<th>AFC domain description</th>
<th>Relationship to AIP</th>
<th>Publication addressing this domain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication and Information</td>
<td>• A basic, effective communication system reaches community residents of all ages.</td>
<td>• Accessibility of information</td>
<td>• Magnusson, L., Hanson, E., Borg, M. (2004).</td>
</tr>
<tr>
<td>Older persons value staying connected with events and people and receiving timely, appropriate, and practical information. Information and communication technologies have been criticized as a tool of social exclusion</td>
<td>• Regular information and broadcasts of interest to older people are offered.</td>
<td>• Older adults' are aware of services, resources and opportunities available in their neighbourhoods and are able to easily and effectively access necessary information.</td>
<td>• Selwyn, N. (2004)*</td>
</tr>
<tr>
<td></td>
<td>• People at risk of social isolation get one-to-one information from individuals</td>
<td>• Provision of health services in the home environment.</td>
<td>• Phillips et al. (2005)</td>
</tr>
<tr>
<td></td>
<td>• Public and commercial services provide friendly, person-to-person service on request.</td>
<td></td>
<td>• Mahmood et al. (2008)</td>
</tr>
<tr>
<td></td>
<td>• Printed information including official forms, television captions and text on visual displays – has large lettering and the main ideas are shown by clear headings and bold-faced type.</td>
<td></td>
<td>• Menec et al. (2011)</td>
</tr>
<tr>
<td></td>
<td>• There is wide public access to computers and the Internet, at no or minimal charge, in public places such as government offices, community centers and libraries.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. The asterisks next to publications in tables 3.1 through 3.8 indicate that they are empirical articles based analysis of primary sources. Other publications in these tables are either reviews or substantive or theoretical reflective writings.

### 3.3.8. Community health services

**Community health services** are most often discussed when considering AFC and AIP (Table 3.8). The AFC framework considers community health services to be vital in maintaining the health and independence of older adults’ within their communities. Empirical research shows that the accessibility of local health services is crucial in being able to AIP (McDonald, 2008; Oswald, 2010). There is also the potential for key health services to have a mediating effect on AIP as found by Cutchin (2003). These services aid in the well-being of older adult residents and increase perceived quality of life.
Table 3.8  WHO AFC Community Health Services domain and AIP comparison.

<table>
<thead>
<tr>
<th>WHO Age Friendly Cities (AFC) Domain</th>
<th>AFC domain description</th>
<th>Relationship to AIP</th>
<th>Publications addressing this domain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community Health Services</td>
<td>• An adequate range of health and community support services is offered.</td>
<td>• Informal and formal community health services and supports</td>
<td>• Cutchin (2003)*</td>
</tr>
<tr>
<td>Vital to maintaining health</td>
<td>• Home care services include health and personal care and housekeeping.</td>
<td></td>
<td>• Andrews &amp; Phillips (2005)</td>
</tr>
<tr>
<td>and independence in the community</td>
<td>• Health and social services are conveniently located and accessible by all means of</td>
<td></td>
<td>• McDonald (2008)*</td>
</tr>
<tr>
<td>Availability of good quality,</td>
<td>transport.</td>
<td></td>
<td>• Oswald (2010)*</td>
</tr>
<tr>
<td>accessible care.</td>
<td>• Health and community service facilities are safely constructed and fully accessible.</td>
<td></td>
<td>• Emlet &amp; Moceri (2012)*</td>
</tr>
<tr>
<td></td>
<td>• Clear and accessible information is provided about health and social services for</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>older people.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Economic barriers impeding access to health and community support services are</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>minimized.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. The asterisks next to publications in tables 3.1 through 3.8 indicate that they are empirical articles based analysis of primary sources. Other publications in these tables are either reviews or substantive or theoretical reflective writings.

Considering that older persons aged 70 years and above, spend upwards of 80 percent of their time in or near their home, it is necessary to clearly understand what an age friendly community is and what the implications are to aging in place. The tables above clearly illustrate that there is a need for more empirical research in these areas. Supporting older adults’ in their neighbourhoods requires a range of interventions leading to links between different parts of the urban system, housing, street design, transportation, and improved accessibility of shops and services (Buffel et al., 2012).

Tables 3.1-3.8 illustrate that of the eight domains in the AFC framework, some better address AIP than others. Although this is not an exhaustive list of the research in this area, it does give a picture of the gaps in addressing AIP and illustrates where empirical and non-empirical research has been conducted. The following table presents a summary of these findings. Most research was located in the domain of outdoor services.
spaces and buildings because it was one of the key search areas. Transportation seemed to be frequently mentioned in relation to this domain. This is not a comprehensive list and only offers a flavour of the material available in each domain. This review does give an indication of the potential for future research in this area.

Table 3.9  Summary of empirical and non-empirical literature related to WHO domains

<table>
<thead>
<tr>
<th>Domain</th>
<th>Empirical Research</th>
<th>Non-Empirical Research</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outdoor spaces and buildings</td>
<td>4</td>
<td>9</td>
</tr>
<tr>
<td>Transportation</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Housing</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Social Participation</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Respect and Social Inclusion</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Civic Participation and Employment</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Communication and Information</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Community Health Services</td>
<td>4</td>
<td>2</td>
</tr>
</tbody>
</table>

Much of the AFC framework is prescriptive in nature and does not address the very complex and heterogeneous nature of the urban neighbourhood. Lastly, the AFC framework lacks vision in how to apply these domains to existing communities that may or may not have the ability to implement recommendations due to economic restraints, problems within the existing infrastructure, or may lack the political power to make necessary changes (Scharlach, 2011).

As mentioned above, this is an overview of research in this area, and there are gaps. Possible reasons for the lack of literature include: 1) a lack of research in the area, 2) the focus of this capstone project is specifically on the urban neighbourhood environment, 3) some literature in may indirectly address AIP as it relates to AFC, and therefore may have not been located using the search terms outlined for this project. For example, housing affordability has not been identified and a necessary element for AIP as this capstone project focuses on the broader elements of the neighbourhood environment.
If the Age-friendly cities framework (WHO, 2007) is to lead to Active Aging, then it should follow that an age friendly city would result in higher numbers of individuals aging in place. More research is required on the connections and long-term implications of these policies. The following sections move into greater detail on the built and social environment factors related to optimal AIP in the urban environment.

3.4. Built environment factors affecting optimal aging in place

The urban neighbourhood environment presents unique challenges to the older adult due to its complexity and continually changing nature and includes the built or physical environment such as outdoor spaces and the natural environment of parks and green spaces (Burton et al., 2011; Menec, 2011). It has been well documented that elements of the built environment directly, and indirectly, impact an individuals’ ability to remain actively engaged in their community, a key factor in optimal AIP.

The built environment has a profound impact on an older person’s ability to age in place (AIP). It refers to the physical characteristics of the home and surrounding neighbourhood, urban design elements, and both the natural and manmade environments (Baum & Palmer, 2002; Burton et al., 2011; McDonald, 2008).

Which elements of the built environment have the greatest impact on older person’s ability to age in place (AIP)? The literature reviewed for this capstone project suggests that the built environment impacts AIP in three key ways including 1) the ability of an older adult to remain actively engaged in their environment through access to opportunities for participation and engagement, 2) access to essential services and resources, and 3) physical and psychological well-being. As physiological health constraints increase, and mobility decreases, environmental barriers become more significant in the lives of older adults’ (Geboy, Moore, Smith, 2012; Rowles, 1978). Thus, the built environment of the neighbourhood impacts an older adults’ ability to negotiate the space beyond the immediate home environment and has a profound effect on their well-being and life experience.
Social geographers have made an important distinction between space and place where *place* is a physical container or location and *space* is a process of interaction between physical, social, emotional, and symbolic aspects (Rowles & Ravdal, 2002; Wiles et al., 2009). Here, emphasis is placed on the space of the neighbourhood environment where interaction between the physical built environment and the social environment impacts an older adults’ ability to attain optimal AIP. Research has shown that the environment of the neighbourhood potentially holds greater importance in the lives of older adults’ than that of the immediate home environment (Kahana, Lovegreen, Kahana, Kahana, 2003). It is within the neighbourhood space where older adults’ have opportunities to interact with others, access opportunities for socialization, and attend too many of the activities of daily living (ADL) such as grocery shopping, banking, and attending medical appointments. Therefore the built environment interacting with the social environment of the neighbourhood is both facilitator and barrier to the achievement of these goals.

The physical environment has been shown to have a significant impact on the mobility, independence, and quality of life of older adults’ (Burton, Mitchell, Stride, 2011; Rosso, Auchincloss, & Michael, 2011) and has a significant impact on those who depend on their immediate environment for support and assistance. The built environment presents additional challenges to those with decreased mobility, as is the case with many older adults’. It has historically presented challenges for older adults’ including uneven payment, high curbs, high steps on buses, a lack of places to sit and rest, timing of traffic lights that are too short, small print on bus schedules and signage, and insufficient labeling of buildings (Rowles, 1978). Many of these challenges are still prevalent in many urban neighbourhoods today (McDonald, 2008).

Rosso, Auchincloss & Michael (2011) reviewed recent literature related to how the built environment impacts older adults’ with mobility limitations. Three key domains that influence mobility within the built environment were identified. These are transportation systems, land use patterns, and urban design. These three areas of the environment affect individual well-being and result in increased isolation as well as decreased access to key resources including medical care and fresh food; potentially resulting in further health deterioration.
Built environmental barriers including transportation, land use patterns, and urban design features impact an older persons’ access to participation and engagement opportunities, services and resources, and affects their overall physical and psychological well-being and potential to effectively AIP. These three consequences of the interaction between individual and the built environment are expanded upon in the following sections.

3.4.1. Participation and engagement opportunities

Although participation and opportunities for engagement are often conceptualized as part of the social environment, it is important to consider how the built environment impacts access to these opportunities, as they are key in optimal AIP (Smith, 2009). The built environment has a direct and indirect impact on older adults’ ability to connect, interact, and participate within their communities. Baum and Palmer (2010) examined the influence of place on the participation levels and health of 40 individuals and found that urban design elements that can be facilitators of social capital include parks, cafes, neighbourhood houses and local shops (Mehta, 2007); and that these spaces were an avenue for individuals to establish and develop social capital, which in turn is supportive of aging in place (Smith, 2009). Specifically, areas that were green, had open spaces, and considerable opportunity structures had higher levels of social and civic participation (Menec, et al., 2011). Levasseur et al. (2011) found that interventions in the environment may have a greater effect on the level of social participation among older adults’ than those that target individual level factors.

Other built environment spaces such as third spaces (parks, sidewalks, local shops, threshold zones, the presence of a stoop, and shallow housing setbacks) have also been found to facilitate increased social interactions and participation, and led to a ‘feel good’ sense about a space (Baum et al., 2002; Emlet & Moceri, 2012; Mehta, 2007; Rosso, 2011). Mehta (2007) discussed the concept of third spaces – public parks, coffee shops, community organizations, and a local fruit stand, in his research on the micro urban environment elements and found that if these places are designed in an accessible manner, they become spaces that older adults’ can engage socially, ultimately becoming a path to facilitating social interactions and increasing social capital (Mehta, 2007).
Mehta (2007) conducted a study of the micro scale characteristics of mixed-use neighbourhoods and those characteristics that support ‘lively streets’. Lively streets are spaces where individuals are engaged in stationary activities, such as having coffee, standing, sitting, listening to music, are opportunities for relaxed socialization, and are often community gathering spaces. This concept is important in the lives of older adults’ in that it combines an accessible neighbourhood space with opportunities for socialization. Mehta (2007) finds that seating (a place to rest), sidewalk width (walkability) and community gathering spaces, were among nine characteristics that were found to have a significant impact on the liveliness (socialability) of streets.

An accessible built environment leads to increased social support opportunities and acts as a protective health factor in the lives of aging persons (Gardner, 2011). Mehta (2007) echoes this finding adding that physically well designed streets with ample space for pedestrian traffic, wide sidewalks, and generous seating opportunities, all contribute to a lively urban neighbourhood and result in opportunities for socialization and a positive sense of community.

Urban neighbourhood design elements such as inclusive zoning (adequate benches, washrooms, well lit sidewalks, and ramps) impact an older persons’ ability to effectively navigate their environment (McDonald, 2008) and ultimately affect access to participation opportunities. Access to services and resources

The effects of globalization and gentrification have made access to essential services and resources problematic for older persons (Phillipson, 2004; Phillipson, 2007. The globalization of local areas has resulted in increasing density, increases in traffic congestion, increased urban sprawl, and decreases in local services and shops all of which has complicated aging in place (Mahmood & Keating, 2012, Menec et al., 2011). Adding to this, traffic congestion, lack of public restrooms and places to rest, as well as pedestrian safety, are factors that have been identified as risks to the quality of daily life of older adult living in urban neighbourhoods (Buffel et al. 2012). Decreases in mobility associated with aging exponentially increase an older persons’ difficulty in accessing needed resources and services (Andrews and Phillips, 2005; Rosso, Auchincloss, Michael, 2011). Considering that the lifespace of older adults’ is increasingly limited, changes to services and resources in the local area have a greater impact on older
persons with age related mobility decline. Therefore nearness of key resources and transportation may lead to increased residential satisfaction (Kahana, et al. 2003).

Urban design features such as land-use mix patterns have a direct impact on accessing available services and the walkability of the urban neighbourhood. In addition, neighbourhood gentrification has resulted in the dissolution and dislocation of many local businesses. These effects have a greater impact on older adults’ who tend to rely on familiar services (McDonald, 2008). Conversely, in some urban neighbourhoods the land-use mix results in greater diversity of resources and services within a smaller radius creating increases in choice and availability of services.

3.4.2. Physical and psychological well-being

The built environment can impact a persons’ physical and psychological well-being and can enable or hinder an older adults’ ability to age in place. Structural barriers in the environment create difficulties for older adults’ in terms of neighbourhood walkability, ease of navigation, access to resources and services, and access to participation opportunities resulting in a push effect. Barriers include lack of curb cuts, short crossing times, increased neighbourhood traffic, and reduced lighting (Buffel et al., 2012; Chaudhury et al. 2012), all of which reduce pedestrian safety. Built environment barriers and poor infrastructure reduce older adults’ ability to safely and effectively move about in the neighbourhood, creating conditions that pose physical risk (McDonald, 2008) and increasing psychological stressors. These structural barriers can also result in increased loneliness and isolation and result in further segregating older adults’ (Buffel et al., 2012; Lui et al., 2009). Alternatively, Wister (2005) states “People play a proactive role in shaping their environments (i.e. human agency), and the environments in turn not only influence behaviour and psychological well-being through the imposition of stressors, but also house a variety of resources (including physical and social) that facilitate adaptive processes of aging” (p. 53). This highlights the importance on individual competence and personal perceptions of what is deemed as negative stress.

In conclusion, the built environment has a significant impact on an older adults’ ability to AIP. The importance of the neighbourhood environment increases as age does and has a strong influence on life satisfaction (Oswald, Jobb, Rott & Wahl, 2010).
However, a comprehensive review of aging in place requires a careful look at the social environment in addition to the built environment. As Lui et al. (2009) state “A common observation is that the built and social environments are contingent on each other and are mutually reinforcing” (p. 118).

3.5. Social environment factors affecting optimal aging in place

The social environment includes the recreational, social interaction, and cultural engagement opportunities available to older adults’, as well as an older adults’ network of family, friends and neighbours (Wiles et al. 2011). Others have included volunteerism and civic engagement and meaningful participation as part of the social environment. The social environment has been defined as the “engagement of people to places – how spaces and places are used, organized, and structured from nations to neighbourhoods to homes displaying particular traditions and events within a particular culture” (Bond, Peace, Dittmann-Kohli and Westerhof, 2007, p. 209). Carpiano (2005) identified the elements of reciprocity, trust, and connections among residents in a community as crucial elements of a positive social community.

All of these aspects contribute to a positive social environment that can potentially increase ‘place ties’ (Gilleard, Hyde, and Higgs, 2007; Wiles et al., 2011) leading to older adults’ feeling more secure, in control, and having a positive sense of self. Place ties include the experience of sense of attachment, connection, and familiarity an older adult may have with the home environment. It has been found that a positive social environment can increase ‘place ties’ (Wiles et al., 2011) and thus lead to older adults feeling more secure, in control, and having a positive sense of self. Reasons older adults’ cite for remaining ‘in place’ include maintaining privacy, self-determination, autonomy, and a sense of identity (Sixsmith & Sixsmith, 2008).

Overall, the social environment can be divided into two distinct elements. These are opportunities for participation and social networks. These are further elaborated on in the next two sections.
3.5.1. **Opportunities for participation**

Research has connected a strong social environment, consisting of opportunities for participation (physical, spiritual, and social), social interactions and relationships, and opportunities for reciprocity, to positive health outcomes (Levasseur et al., 2011; Gardner, 2011; Wiles et al., 2011). Menec et al. (2011) also found that the social environment includes the elements of participation, social networks, and engagement opportunities, adding that it is implicit in the WHO age-friendly domains and is a vital part of the determinants of health model. A strong social environment can lead to increased connectivity; improved social networks, increased participation, and includes a person’s circle of friends, family and neighbours (Baum & Palmer, 2002; Carpiano, 2005; Menec, 2011).

Also connected to positive health outcomes are civic and volunteer opportunities, meaningful participation, and reciprocity (Emlet & Moceri, 2012). McDonald’s (2008) study of the barriers and facilitators to AIP found that increased levels of civic engagement led to increased personal empowerment, an essential element for AIP. Emlet & Moceri (2012) also find that social reciprocity and meaningful interactions as a result of civic engagement and volunteer opportunities resulted in increased empowerment for older adults’.

3.5.2. **Social networks – family, friends, and neighbours**

The social networks of older adults’, consisting of relationships among family, friends and neighbours, form a foundation from which support can be drawn. The natural neighbourhood network (Gardner, 2011) is one form of a social environment and has also been described as neighbourhood social capital (McDonald, 2008) and the local social network or residual neighbourhood (Buffel, 2012). Gardner (2011) describes the natural neighbourhood network as an informal “community-based social structure founded on principals of interdependence, rather than (functional) independence, and sociality, rather than support” (p. 269). Interdependence is defined as the notion that no one individual is completely independent or dependent and that we live in “webs of mutual dependence or interdependence” (Gardner, 2011, p. 269). Sociality is seen as the playfulness that can occur in social interactions. The natural neighbourhood network
is another form of social capital, and enables older adults’ to AIP. MacDonald (2008) found that “neighbourhood social capital may mediate the risk of displacement to either an institutional setting or another distal neighbourhood” (p. 18). Within the natural neighbourhood network, some of the more important and often unconsidered, people and places in the everyday lives of older adults’ are made explicit.

Buffel et al. (2012) introduces the concept of neighbouring as an alternative social network for those who do not have access to broader social networks. This additional aspect to a strong social network includes supportive relationships with neighbours and has been shown to have a protective effect on older adult well-being. Also known as neighboring, this network can be even more important in the daily lives of older adults’ than family or close friends (Buffel, 2012).

Each of these social environments within the neighbourhood highlights the importance of a local social support system. This local neighbourhood network can be more important in the lives of older adults’ aging in place as they can provide a stronger weekly form of contact, beyond that of family members.

The social environment functions at multiple levels and can take the form of informal and formal opportunities. Menec et al. (2011) define the social environment as functioning at both the micro level (including friends and family) and the macro level (including culture and economics, etc.). It is proposed a third level of functioning exists in the social environment, the meso level that consists of the interactions in a major setting such as the neighbourhood. As with Bronfrenbrenner’s ecological framework (1977), there is fluidity and interaction between the levels, none of which exist in a vacuum. The micro level includes the individual and the immediate home environment and involves relationships with friends, family and neighbours as well as informal and formal caregivers. The meso level involves the interactions that occur in a major setting, the urban neighbourhood. The characteristics of the urban neighbourhood can either act as a facilitator or barrier to an older adults’ participation in the social environment. The exo level embraces the social structures of the neighbourhood and is an extension of the meso level. It is difficult to separate out those elements that are strictly built environment or social environment factors as many of the built environment factors contribute or detract from a good social environment. It is proposed that the built environment has an
influencing factor at each level and the result is an impact on opportunities for participation, inclusion, and the building of social capital.

Research into older adult perceptions of their neighbourhood shows how elements of the physical and social environment intersect to contribute to their mental, physical and social well-being (Gardner, 2011). Barriers to the social environment in the form of decreased walkability and land-use patterns that are difficult to navigate, can result in social exclusion, isolation, and decreased quality of life; resulting in decreased psychological well-being. A strong social environment has been shown to have a protective factor on the physical and psychological well-being of older adults’ (Phillipson, 2004; Scharf et al., 2001).

Three areas of social exclusion exist: participation and integration, spatial segregation, and institutional disengagement, all of which affect an older adult who is embedded in the community, their social networks, and feelings of safety (Scharf et al., 2001). The social environment can act as either a barrier or enabler to optimal aging in place for older adults’.

In summary it is possible that the urban neighbourhood may no longer be the ideal place to age for all types of people. This is a concern because as the aging process continues, older adults’ rely increasingly on their local environment and feel more secure in familiar surroundings (Rowles, 1978). Research into age friendly communities has shown that in order for older adults’ of all abilities to maximize independence accessible transportation, accessible built environments, and a meaningful social environment are essential. Transportation cuts across the social and built environments and is cited as necessary for effective aging in place. Safety, availability of stops, and creating links between residents and essential services and destination were all identified as needed elements (Emlet & Moceri, 2012; Menec et al., 2011). Although some models have a purely physical environment focus and other focus on the social environment, the current trend is to include elements of both with the goal of integration through policy, services, and structures (Lui et al., 2009). The following chapter addresses the research question: How do the social and built environments intersect with individual capacity to support optimal aging in place (AIP)?
4. The interaction of social and built environment factors resulting in a push pull effect on individuals aging in place (AIP)

The preceding chapters provide a review of theoretical frameworks related to aging in place, an examination of definitions of aging in place leading to the development of a holistic definition, and a review of the social and built environment factors that are facilitators and barriers to AIP. The interaction of the social, built and socio-economic environment has a push pull effect on AIP. This section offers an examination of elements that have a push pull effect on the older person aging in place. As outlined above, the built environment has an influencing factor on the social environment impacting opportunities for participation (social, spiritual, physical), inclusion, and the building of social capital.

This critical review has shown that the social and built environments should not be examined in isolation. Each environment intersects with individual factors, thus impacting individual efforts to age in place. As Rowles and Ravdal (2002) state “aging in place is a dynamic phenomenon best understood as an outcome of ongoing interaction among a complex set of interdependent factors” (p. 91). Specifically, built environment factors such as neighbourhood walkability or accessible outdoor spaces, impact an older persons ability to establish and maintain strong social relationships, as well as access opportunities for meaningful participation.

When considering the social community from the perspective of older adults’, we find there are contradictions in what older adults’ desire of their communities. This is to be expected considering the heterogeneous nature of the older adult population. Scharf et al. (2001) suggests that historically, cities have been constructed for populations of difference and heterogeneity, yet many older adults’ desire similarity in their environments because there is a sense of protection in being surrounded by those with similar beliefs and history. This is difficult to achieve, especially in todays globalized
neighbourhoods. The result is both positive and negative and has a push pull effect on older adults’ who are aging in place (AIP). Change in one environment potentially results in an imbalance in the life of an older adult who is AIP and requires compensation or support from the other environments. This requires the older person to continually re-negotiate the neighbourhood environment and find balance between personal competence and social and built environmental changes. A neighbourhood environment that is responsive to the changing needs of its residents is better suited to support AIP.

Outlined are four major themes in the current conversation on aging in place that have a push pull effect on older persons. These are (1) Juxtaposition of push pull factors related to the social and built environment (2) Community participation and social inclusion/exclusion (3) Neighbourhood and personal socio-economic status – positive and negative effects on AIP and (4) Gentrification and neighbourhood change – a challenge to AIP.

4.1. Juxtaposition of push pull factors related to the social and built environment

The process of AIP binds people to their community through length of residence, increased community connections and leads to an increased sense of belonging, attachment, and social immersion (Rowles & Ravdal, 2002). This binding effect of AIP does not exert any specific positive or negative effects on third-age well-being, but does increase feelings of attachment and belonging among older adults’ who have resided in the community for extend periods of time (Gilleard et al, 2007, Rowles & Ravdal, 2002). This in turn, can lead to an increased quality of life and become a pull to the current living environment. The third-age is considered a time of personal fulfillment, freedom from responsibilities, and increased freedom. Yet for many older adults’, this time is one of a reduction in roles that were deemed fulfilling such as work and parenting (Geboy, 2012). It is thought that the environment, through providing fulfilling opportunities and life experiences, can mediate changes in self-identification and contribute to an increased sense of belonging (Geboy, 2012) and AIP Resulting in a greater pull to remain in place.
The neighbourhood built environment is both facilitator and barrier to the experience of autonomy and security among older adults’. Services that are accessible and transportation options that allow for the maintenance of independence have a profound impact on the maintenance of personal autonomy and an older persons' ability to AIP. As a person ages, security becomes more salient than autonomy (Geboy, 2012) and can exert a push pull effect on AIP. Geboy (2012) states “push factors related to relocation include the loss of autonomy in maintaining ones' home, and pull factors include proximity to family, services, or amenities that may compensate for perceived losses.” (p. 49). Additionally, “the need for security is a main factor underlying the desire to age in place” (Geboy, 2012).

4.2. Community belonging – built and social environment factors affecting participation and social inclusion/exclusion

Urban design features of the neighbourhood or built environment have a direct impact on opportunities for participation and the sense of inclusion or exclusion experienced by older persons. Neutral third spaces or opportunity structures such as cafes, local shops transitions zones, green open spaces, parks, local shops can lead to increased opportunities for participation and have been found to be extremely important in developing social relationships that lead to an increased sense of belonging and inclusion (Baum & Palmer, 2002). According to Wahl et al. (2012) belonging is a reflection of positive connections to the environment and a sense of personal agency. It “refers to the process of becoming a change agent in one's own life by means of intentional and proactive behaviors” (p. 308).

A lack of social and participatory opportunities may result in shrinking community networks having a push effect on older persons. It is important for older adults’ to have multiple avenues to maintain these networks and as Scharf & Gieveld (2008) found, those with wider community networks reported the lowest loneliness scores and a higher level of community engagement, resulting in increased well-being.
Other factors that affect participation include proximity to opportunities and neighbourhood perception. Levassuer, Guavin, Richards, Kestens, Daniel & Payette (2011) found that perceived proximity to resources combined with lower levels of disability were associated with higher participation levels in both men and women. And as Baum & Palmer (2002) point out, a positive image of the environment leads to increased levels of neighbourhood participation.

4.3. Neighbourhood and personal socio-economic status

Emlet & Moceri’s (2011) study revealed real barriers for older adults’ of lower socio-economic status in accessing and participating informal community activities. Twenty three individuals participated in a world cafe style dialogue and described the often cumbersome and degrading experience of obtaining reduced community center membership fees, resulting in decreased participation and increased isolation.

The socio-economic status of both residents and the community affect an older persons’ ability to effectively age in place through barriers to participation, feelings of safety in the environment, and impacting feelings of belonging. The research reviewed revealed contractions in how socio-economic status impacts neighbourhood attachment. Gilleard et al. (2007) found that age plus AIP leads to an increased feeling of attachment and this is unaffected by the socio-economic status (SES) of the area. Conversely, Mapping Aging in Place in a Changing Neighbourhood (McDonald, 2008) examined the barriers and facilitators to AIP with a group of community dwelling older adults’ and found that those with a lower SES living in an area of higher SES had significantly poorer health outcomes than those of higher SES. This has been described as income polarization and is frequently found in urban environments that have been subject to gentrification. The experience of ‘misfit’ with the environment also leads to increased stress among older persons who are AIP (Greenfield, 2011).
4.4. Gentrification and neighbourhood change: A challenge to AIP

The meaning of space, or the neighbourhood community, is impacted by neighbourhood gentrification. As Rowles & Ravdal (2002) state “The meaning of place is affected by experiences of the individual, length of residence, as well as changes to the fabric of the environment such as gentrification, increased cultural diversity, or deterioration of the area” (p. 82). Gentrification includes changes to the physical, economic, social, and cultural aspects of a neighbourhood and has been described as the “invasion of previously working class neighbourhoods by middle or upper-income groups and the subsequent displacement of many of the original residents” (Burns, Lavoie, & Rose, 2011, p. 2).

Neighbourhood gentrification or change to the urban environment can greatly impact how an older adult perceives and experiences their neighbourhood and in some cases, has been found to be problematic. Neighbourhood gentrification can influence the social environment in three ways. First, older adults’ are adversely affected by the changing social fabric of cities, where the city is increasingly developed for a younger population and the physical environment may not be conducive to older adults’ in maintaining protective social relationships. Second, older adult’s social well-being is affected by changes in population composition such as increased in and out migration and third, older adults’ are impacted by changes to social political issues. These changes include those to the social and built infrastructure and increased vulnerability to crime resulting in increased fears, changing how older adults’ socialize in urban neighbourhoods (Scharf & Gieveld, 2008). These fears can greatly impact neighbourhood satisfaction (Geboy, 2012, Kahana et al. 2003) and as change to the neighbourhood increases, the amount of press experienced by an older person increases also. Is the competence level of an older person able to ‘keep up’ with the changes associated with gentrification?

These changes to the neighbourhood fabric affect an older persons’ familiarity with and their perception of their community. Oswald et. al’s (2010) empirical study with 381 older adults’ on aging in place, found that for the old-old (85 years and older) residents, perceived quality of the neighbourhood was more important than the young
old (65-85 years) in determining life satisfaction. This is significant considering the steady increase in this demographic.

Neighbourhood gentrification can introduce increased commercial diversity but in the process can displace small local businesses. McDonald (2008) found that the dissolution and dislocations of local businesses has a large impact on older adults’ who rely on the familiarity of local services (McDonald, 2008).

AIP is impacted by feelings of agency/belonging & autonomy/security, sense of community belonging, the socioeconomic status of the individual and neighbourhood, and neighbourhood gentrification. These all exert a push pull effect on older adults’ who are aging in place. Not all older persons experience this push pull effect in the same manner. The next section address the question of who is missing in the discussion on AIP and how can this be addressed.

4.5. Who is marginalized or overlooked in this discussion?

Research in the area of aging in place has greatly expanded in the last 30 years. While there has been an expanded exploration in topics pertaining to aging in place including the environment, services and technology, and health/function (Vasunilashorn et al., 2012), there is a lack of research on the impacts of aging in place on the older adult population who are experiencing increased isolation and loneliness, those who have limited or no function decline (Phillips et al., 2005), but are varying degrees of dementia, older adults’ who have become a minority in their long-term neighbourhoods due to processes of gentrification and globalization, minority populations, and the old older adult. Each of these segments of the population has unique challenges and requires specific examination.

Isolation and loneliness crosscuts age, functional ability and culture and can be a negative effect of aging in place for some individuals, many of whom are absent from the conversation on AIP. The population of older adults’ who are experiencing increased isolation due to the effects of late life (the oldest old), new immigrants, and those marginalized due to neighbourhood gentrification, has not been well researched. “In spite of the many accommodations and adjustments that elders and their families make
in order to remain in a familiar setting, there comes a point when, for many elders, aging in place is no longer a viable option” (Rowles & Ravdal, 2002, p. 92). Burns et al. (2011) finds that although there is growing body of literature related to static ‘environmental fit’ models, there has been little research aimed at understanding how older adults’ are experiencing the dynamic changes in neighbourhoods undergoing gentrification.

The uniqueness of each neighbourhood and community must be addressed (Burton, Mitchell & Stride, 2011) as there is no one size fits all in terms of the social and built environment factors that will support optimal aging in place for all older adults’. This is to be expected since neighbourhood characteristics are as diverse as the residents that reside there, and are changing at a faster rate than ever with the added influence of globalization. The findings of this project suggest that it is worth questioning assumptions about the best places to AIP. For example, increased density offers increased opportunities for socialization while also presenting challenges for older adults’ such as an increased fear of crime before and after dark and a decreased sense of safety (Burton, Mitchell, & Stride, 2011).

Older adults’ who are affected by various degrees of dementia are adversely affected by neighbourhood change, and have been under studied. There has been limited research aimed at supporting persons with dementia and their caregivers to AIP, yet today, there are more than 500,000 person with Alzheimer’s or related dementias in Canada and this number is expected to rise to 1, 100,000 in the next ten years (Alzheimer’s Society, 2010). Additionally, it is expected that the demand for long-term care will increase ten-fold. This indicates that viable housing alternatives, such as AIP in dementia friendly communities, must be explored. Dementia friendly communities are those that have a high level of awareness of the needs of persons living with dementia and have a focus on improving the inclusion, independence and quality of life for both persons with dementia and their carers (Alzheimer’s Society, 2013).

Also overlooked in the discussion on aging in place are older adults’ who are new immigrants. Operationalizing AIP as number of years at current address (Gillear, Hyde & Higgs, 2007) omits those older adults’ who are new immigrants and are expecting to age in place in their new community. If AIP leads to an increased sense of belonging as Gilleard et al. (2007) explains, then an intense examination of how to
increase feelings of belonging and connectedness among older adult new immigrant populations is necessary.

To date, there is limited literature and research related to the old-older adults’, those who are 90 years and older. If it is true that AIP is a key strategy for coping with the challenges of longevity as Burton, Mitchell, and Stride (2011) explain, then substantial research in this area is required. “The late phase of the human life span that is particularly sensitive to person-environment interactions” (Wahl et al., 2012, p. 307). This segment of the population would benefit significantly from research aimed at strategies to support the maintenance of social capital networks, means of community belonging, and avenues to meaningful participation. All of which are associated with a sense of positive well-being, increased quality of life, and optimal aging in place.

Concerted efforts must be made to reach these marginalized populations. Research aimed specifically at more isolated populations may aid in targeting these groups, data collection methods that involve older adults’ in the process such as photovoice or world cafes would increase the richness of data collection. The inclusion of new immigrants is a necessary element to better understanding aging in place for diverse groups of older adults’. An examination of the immediate and extended family ties, and how cultural norms shape the process of AIP would further enrich this research.

“The community infrastructure needs to be both consistent and predictable and at the same time dynamic in its ability to provide stimulation and support to older adults” (Emlet & Moceri, 2011, p. 7). Research has shown that there is not a direct association between AIP and well-being, but it can be said to contribute to an increase feelings of belonging (Gilleard, 2007).

4.5.1. How can these groups of older adults’ be included in the discussion of AIP?

Concerted efforts must be made to reach these marginalized populations. Research aimed specifically at more isolated populations may aid in targeting these groups, data collection methods that involve older adults’ in the process such as photovoice or world cafes would increase the richness of data collection. The inclusion of new immigrants is a necessary element to better understanding aging in place for
diverse groups of older adults'. An examination of the immediate and extended family ties, and how cultural norms shape the process of AIP.
5. A CONCEPTUAL MODEL FOR AGING IN PLACE WITHIN THE NEIGHBOURHOOD CONTEXT

The following is a proposed conceptual framework based on the critical review of the current literature on urban AIP. It is influenced by the three theories previously reviewed and informed by the preceding holistic definition of aging in place (AIP). It is recognized that AIP is neither a straight trajectory nor the only solution in living arrangements for older adults' and is a constant negotiation between the individual and their surrounding environments. The framework developed illustrates the multiple influences of the social and built environment, as well as the role of individual factors and personal competencies in optimal AIP. Related to Lawton and Nahemows’ (1978) optimization principle, stimuli from the environments can be experienced as positive up to a certain point, after which it becomes maladaptive.
Figure 5.1. Conceptual model of optimal aging in place in the urban environment

**Macros Factors**
- Community Culture
- Regional/City Planning, policy, zoning regulations
- Societal attitude toward Aging/Ageism
- Community economic status
- Healthcare policy and practices
- Regional support services
- Societal attitudes towards elders and ageism

**Neighbourhood Social Environment**
- Social Capital, Social Support
- Opportunities for participation (physical, social, spiritual)
- Social inclusion and engagement (volunteerism, civic engagement)
- Gentrification – changes to social fabric; loss of local services and resources

**Individual Factors**
- Age, Gender, Ethnicity
- SES
- Functional health status (dis/ability)
- Personal preferences
- Motivation
- Self efficacy

**Built (Physical) Neighbourhood Environment**
- Walkability; land-use patterns
- Visitation
- Transportation options
- Proximity to services
- Urban design features: third spaces, mixed land use; density
- Gentrification
  - impact on housing options
  - Increased traffic congestion, impacts to walkability

**Positive combined effect of social, built and individual factors**
- Improved physical and psychological long term health outcomes
- Increased access to supports and resources for continued autonomy and independence
- Decreased isolation, increased social support systems, participation
- Increased belonging

**Negative or problematic combined effect of social, built and individual factors**
- Decline in physical/cognitive health
- Isolation
- Increase in morbidity/mortality
- Relocation
- Detrimental/unsafe living

**Optimal Aging In Place**
- E1

**Not aging in place successfully**
- E2

**Diagram Connections**
- A1
- A2
- B1
- B2
- C
- D1
- D2
- E1
- E2
The built (physical) and social environment plays a key role in AIP. “When demands from social and physical environments overwhelm an individual’s resources—because of changes within the environment or the individual—the individual is less likely to age in place” (Greenfield, 2011, p. 2). This statement emphasizes the interconnectedness of these environments and the impact on optimal AIP. To date, there has been limited research linking these environments to the individual and their capacity to AIP. Previous work in this area has emphasized on either the physical or social environment but limited integration of these environments and their interaction with the changes associated with the aging individual (Wahl et al., 2012).

Authors in the area of AIP have noted the need for a stronger theoretical approach to examining AIP (Greenfield, 2011; Smith, 2009). This conceptual framework of AIP in the urban environment contributes to the body of work on optimal aging in place in the urban neighbourhood by combining these influencing environments into one framework. There are three well-established theories and frameworks considered in the development of this conceptual model 1) Person-environment fit (Lawton, 1973), 2) Bronfenbrenner’s ecological theory (Bronfenbrenner, 1977), and 3) the World Health Organizations’ age friendly cities (AFC) framework (WHO, 2002).

Person–environment (P-E) fit (Lawton, 1973) recognizes the press a person experiences from the built environment and to a lesser extent the social environment, and their individual capacity to respond (competence). An older person’s capacity to respond to environmental press results in adaptive or maladaptive behaviors, leading to a fit or misfit with the current living environment, where the adaptive or maladaptive behavior is considered the outward manifestation of an individuals’ level of competence. “A fundamental assumption of the ecological model of aging is that unique combinations of personal competence and environmental characteristics determine an individuals’ optimal level of functioning” (Wahl et al., 2012, p. 307). This optimal level of functioning is influenced by the “objective and subjective characteristics of the environment that may influence gains and losses associated with the aging process” (What et al., 2012, p. 308). Additional press in the form of changes in access to resources, loss of social support systems and social opportunities, and increased challenges in navigating the built environment, result in an older person needing either more supportive environments or increasingly drawing on their internal capacity and individual factors.
An individuals’ capacity, also thought of as competency or psychological resources, includes their functional ability, level of cognitive functioning, affective functioning, personality traits, strong sense of mastery, optimism, and self-esteem (Greenfield, 2011; Wahl et al., 2012). These resources may increasingly be drawn upon depending on the experience of the social and built environments and hold the potential for the individual to better manage the external environment. If the environment is not suitable for an individuals’ capacity, retrenchment or isolation, can occur (Lawton & Nahemow, 1973) resulting in a negative or problematic outcome of aging in place. In Figure 1 this is illustrated by the dashed line leading from individual factors to a negative outcome of aging in place. The ecological theory of aging (ETA) does begin to recognize personal levels of competence and the interaction with the environment and the resultant agency and/or belonging that is achieved, yet lacks illustration of supports received from the social environment. There is an increased need for greater attention to be paid to how the built environment and the individual are interrelated and the power social relationships (Smith, 2009) has on AIP.

Thus, Bronfenbrenner’s (1977) ecological theory is useful here to illustrate the role micro, meso, and macro level factors play in a person’s optimal aging in place. It helps to bring into the picture more distal factors such as community socio-economic status, as well as political factors and macro urban physical environmental factors such as codes, zoning regulations, regional planning. Acknowledgment of the macro level highlights both press and support outside the meso level of the social and built environments.

Bronfenbrenner’s ecological theory (1977) is a series of nested environments with the individual situated at the center. This model provides insight into how the individual is affected by the proximal microsystem (individuals’ immediate surroundings), mesosystem (social and built environments at the neighbourhood level within the community level), exosystem (which does not contain the individual directly, but affects them), and macrosystem (the broader systems of values, laws, policy). General ecological theory recognizes that the influence of these environments is bidirectional; meaning changes in one area effect a change or response in another (Greenfield 2011). This is a crucial contribution to this model in that the dynamic nature of the environments
with which an individual comes in contact with has a direct influence on optimal aging in place.

Lastly, the WHO AFC framework provides increased substance and a broader context, that of the city, community, or neighbourhood. The goal of the AFC checklist of social and built environment features is a more inclusive and supportive community environment where barriers are decreased and the inclusion of older adults’ in the neighbourhood social fabric is increased (Greenfield, 2011; Mahmood & Keating, 2012). This framework presents a challenge in that it is primarily prescriptive rather than offering solutions to the current challenges many older people face when aging in place. For the purpose of this model, it is mainly used to identify and elaborate on some of the important macro environment factors at the neighbourhood and city level that are required for optimal AIP and is an expansion of Bronfenbrenners' macro socio-economic and built environments. These models have significantly informed the development of this conceptual model.

The literature reviewed, combined with these theoretical models, and has guided the development of this conceptual model of urban AIP (Figure 1). Figure 1 demonstrates that in order for optimal aging in place to be achieved, a balance unique to each individual must be attained. Factors involved include the social and built environmental supports and barriers, individual elements, and the overall impact of the neighbourhood environment (infrastructure, urban design and planning). The individual (personal factors) is positioned between the social (quality/quantity of the social environment factors) and built environment (physical infrastructure and services) and can experience press from either direction (Lui et al., 2009). If this press is compatible with a person’s competence (cognitive, physical and psychological) then positive adaptation happens resulting in optimal Aging in Place. If the degree of press experienced is not compatible with the individual, and additional supports cannot be obtained from the various environments, an individual may experience negative outcomes such as increased isolation, decreased autonomy, decreases in physical and cognitive health, and result in not AIP successfully.

The built environment by itself can either facilitate or hinder older adults’ ability to age in place, but is not a direct line to optimal aging in place. Positive urban design
elements that can support access to services and resources include increased land use patterns (density), walkability, universal design features in buildings, and increased transportation options (Mehta, 2007; Menec et al., 2011; Rosso, 2011) whereas an environment with a poor transportation infrastructure will result in increased isolation (decreases in belonging) and difficulties in accomplishing the activities of daily living (ADL) such as grocery shopping and banking. The built environment has a direct and indirect impact on an older adults’ ability to engage in and access social opportunities, thus the connection between these environments as illustrated by line C in Figure 1. Aspects such as green spaces, walkability, and third spaces all can have a facilitating effect on a positive social environment (Chaudhury, Mahmood, Michael, Campo & Hay, 2012; Mehta, 2007). A neighbourhood built environment that is accessible and conducive to physical activity, such as walking, leads to increased opportunities for social participation, has been found to have a protective effect of health, and therefore lead to better health outcomes (Chaudhury et al., 2012; Gardner, 2011; Richard et al., 2011).

Along with the built environmental effect, one has to keep in mind that changes in the social environment can affect navigation of the built environment and changes in the built environment affect support from and access to the social environment (line C). The amount of press an older person experiences in the environment can push the balance in one direction, while older adult personal preferences and capacities can push the individual in another direction. This causes the ideal combination of factors involved in optimal AIP to be unique for each individual (lines D₁ and D₂). This will be further expanded on below in the model description. As Wahl et al. (2012) states “older people constantly need to react to forces of environmental press in order to remain independent” (p. 309). Therefore, optimal AIP is different for each individual, within each environment, depending on a combination of environmental, social and psychological factors. “In optimal settings, characteristics of the environment should function to accommodate losses of physical functioning” (Vasunilashorn et al., 2012, p. 1) as in the case of age related changes, also known as environmental buoying (Levasseur et al., 2011). Environmental buoying is where environmental facilitators such as resource availability (e.g. neighbourhood socio-economic status), engagement opportunities, and social supports, can support decreases in personal competencies and facilitate greater
social participation, an essential element of the social environment. Taken one step further, environmental buoying can support optimal AIP. If a balance has not been attained between the social, built, and personal factors, marginalization can occur (Smith, 2009) reducing the potential for optimal AIP.

When an older person is faced with increased press from the built environment, it is possible that a strong social environment can offset these effects allowing the older person to continue to age in place. This can be in the form of added supports from family and friends, as well as strong community connections that have been established as a result of volunteerism and social participation. Social participation consists of relationships, access to participation opportunities (volunteerism civic engagement, physical and spiritual), and opportunities for reciprocity and can result in a sense of interdependence between community members. Within the social environment, strong social relationships have been linked to physical, psychological well-being, and attachment to place, increased sense of belonging, and can act as a buffer against negative environmental and individual characteristics (Smith, 2009, Wahl et al., 2012).

This proposed AIP model (Figure 1) illustrates how the individual is situated between the social and built environment within the larger neighbourhood environment. The built and social environments, as well as the individual, are positioned within the neighbourhood. The individual is situated between the built and social environment and experiences a push pull effect from either side, represented by bidirectional arrows (B1 and B2). This expands on the ETA assumption that “unique combinations of personal competence and environmental characteristics determine an individuals’ optimal level of functioning” (Wahl et al., 2012, p. 307) by expanding environment to include impacts from a neighbourhood social and built level. An individual who is experiencing decreased mobility may experience increase push (press) from the built environment, but may have substantial support from the social environment, pull; enabling them to maintain a degree of balance and achieve their optimal level of AIP. This balancing has also been described as environmental buoying. Environmental buoying exists when the social and built environments can support individual competencies and facilitate greater social participation (Levasseur et al., 2011).
The social and built environments have an influencing effect on each other. As briefly outlined above, changes in the built environment effect change in the social environment, and changes in the social environment effect change in ability to navigate the built environment (line C). A built environment designed to facilitate aging in place will result in a stronger social environment (increased social opportunities). A strengthened social environment will better enable an individual to navigate the built environment, decreasing press experienced from either direction. Within this bidirectional press gentrification often plays a role in urban settings. It can have both positive and negative effects on the built environment. Increased traffic congestion, changes to neighbourhood services, and an increasingly diverse community can be experienced as added press. On the other hand, increased densification has a direct and indirect impact and may result in older adults’ having to walk shorter distances to access necessary services and resources that can support AIP such as quality grocery shopping. Indirectly, changes to land-use patterns and increased densification may result in have greater choices of services that are available.

The outer layer or macro layer, as described by Bronfenbrenner (1977) and expanded by the WHO AFC framework, consists of the socio-economic status of the neighbourhood, urban planning and design or government policy related to neighbourhood development, zoning regulations, and the culture of community (diversity of population, elder respect). All of these are continually in flux and feed into the neighbourhood and for these reasons are illustrated by one directional, dashed line arrows (A₁ and A₂).

For each individual the combination of supports and press experienced from each environment is dynamic and unique. When an appropriate combination of these environments is attained, an individual is able to move towards aging in place (line D₁). Imbalance between the environments leads to a negative or problematic outcome as illustrated by dashed line D₂. This imbalance can be addressed which is why this line is represented in a dashed format. Increasing supports from the different environments, as discussed earlier, may enable the individual to move back on the path towards aging in place. Optimal aging in place is attained when an individual is able to remain in their environment of choice and their unique balance is attained. This results in an individually appropriate level of autonomy, belonging, sense of continuity, independence,
and a feeling of safety and security. Two case scenarios are offered to illustrate this model.

Case scenario A:

Here an older person is currently living in an affluent neighbourhood with a good infrastructure and social services but their personal socio-economic status is too low to access many of the resources necessary to maintain their independence. Unable to sell the home they live in due to reduced home equity, and a lack of other personal resources, result in this individual being trapped in the current neighbourhood. A reduction in personal resources, decreased mobility, and increased isolation add to the press from the built environment. However, if this person has a strong social environment through neighbours, friends, and family can offset the press from the environment and lack of personal resources. A supportive social environment can decrease isolation, facilitate access to needed resources and service and assist the individual to still effectively AIP.

Case scenario B:

In this case there is the same mis-fit between the individual and the environment, but social support is not present. The individual is not able to participate in the community, has few friends or neighbours with whom they connect (minimal social capital), and is not aware of resources or services they can access. The result is increased isolation or retrenchment, negative health outcomes, and this person will not be able to AIP. These two cases show how social factors and social support can sometimes offset some of the reduced personal competence, play a key role in AIP and that built environment factors alone cannot facilitate AIP.

This conceptual model address the initial research question(s) of:

1. What social and built environment neighbourhood factors facilitate or deter aging in place (AIP)?
2. What are the key factors involved in optimal aging in place?
3. How do the social and built environments intersect with individual factors to support optimal aging in place (AIP)?
As illustrated above, optimal aging in place is the result of a balance attained between personal competencies’ and an optimal degree of press from the social and built environments.
6. FUTURE RESEARCH DIRECTIONS FOR AIP IN THE URBAN ENVIRONMENT

Burton, Mitchell and Stride (2011) in their analysis of the built environmental impact on older adults’ aging in place, find a curvilinear relationship between neighbourhood density and positive feelings about the neighbourhood environment. That is, there is a point, an optimal degree of press, when some characteristics of the neighbourhood are positive up to a point and then become problematic such as neighbourhood density. Where is this balance achieved for older adults’ in terms of the urban social and built environment factors? Is there a balance that is ideal for all older adults’? How does the impact of globalization and gentrification affect this balance? How do older persons’ desires for age friendly amenities affect their decisions about where and how we age? Is it possible that non-traditional housing options such as Naturally Occurring Retirement Communities (NORC), villages or cohousing offer this balance?

AIP literature highlights transportation as a resource or facilitator and a barrier to aging in place. Transportation is an essential element in maintaining the independence and social connectedness of older adults’ (Emlet & Moceri, 2011), and is identified as one of the domains for an age friendly community (AFC). Yet to date, there is limited research in this area. Future research aimed at how communities can develop and maintain a transportation infrastructure would largely benefit the heterogeneous older adult population, some of whom would prefer to walk and others who prefer or need to use methods of public transportation. Specific concerns that need addressing are the reliability, accessibility, and frequency of public transit options as well as increasing the walkability of communities. A goal of AIP is to decrease issues of isolation and a lack of available and appropriate transportation options only exasperates this problem.

The World Health Organizations AFC framework also identifies civic engagement and volunteerism as necessary for an age friendly community. Although research does
exist in this area, there is space for additional research with formal senior serving organizations within communities that are working towards enabling older adults' to age in place. Emlet and Moreci’s (2011) research revealed a feeling of frustration among community members (boomers and older adults’) who were trying to access meaningful volunteer opportunities. These individuals’ experienced significant difficulties in locating civic and volunteer opportunities within the community, requests for information were not attended to promptly, and opportunities that were available were not meaningful. Volunteerism has been shown to be largely beneficial to older adults’ in terms of psychological well-being, quality of life and overall well-being (Narushima, 2005) and for this reason a need exists for a better understanding of the infrastructure behind older adult community volunteerism. Other areas that are under researched when reviewing the AFC framework in relation to AIP are communication and information and respect and social inclusion. These two areas have been identified as necessary for optimal aging in place, but qualitative and quantitative data is lacking.

Future research addressing the implications of the WHO AFC on AIP is necessary. Empirical work that reviews each domain with increased rigor would significantly add to the body of work in AIP.

There is additional work to be done in defining AIP so that it may inform current policy. To date, much of the policy being created is reflective of older definitions of AIP that emphasized the dichotomy of AIP. As Rowles (1993) states “The paradox here is that this adaptation may be occurring at a time when the role of place in aging may itself be changing and assuming new forms. It is important to acknowledge these changes if we are to develop aging-in-place-based policies that are fully attuned to the life experience and needs of present and future generations of the elderly” (p. 67). Today, the influences of globalization, climate change, health care and social service needs, directly impact where an older person chooses to AIP. Current policy directions and definitions must reflect the diverse housing options available to older adults’ today. This includes naturally occurring retirement communities, villages, and cohousing as viable options for AIP. These non-traditional housing models have the potential to address many of the needs of today’s older adults’. Research aimed at better understanding the interrelationship between the social and built environments within these non-traditional
housing options will help to broaden AIP definitions and improve community service delivery models.

An additional influence on AIP, and one not often considered, is personal perceptions. The literature reviewed shows that how the environment is perceived can offset negative environmental effects (Gardner, 2011; Levasseur et al., 2011). This connection to AIP requires further development and examination. Lastly, more research is required on AIP from the perspective of the older persons living independently in the changing urban neighbourhood. A lack of individual accounts of those aspects of the neighbourhood environment that protect well-being, are much less known (Gardner, 2011).
7. CONCLUSION

The majority of people around the world want to age in place (AIP) thus; there is an increasing need to better understand how to support these older persons to age in place (AIP) successfully in their homes and neighbourhoods. In this capstone project, a critical review and synthesis of academic and gray literature was conducted to provide an overview of how and why it is important to examine aging in place in the urban environment. This review helped identify gaps in research and highlight who is included or marginalized in current conceptualizations of AIP. A review of various definitions of AIP led to the identification of key features of this concept and facilitated the development of a holistic definition of optimal AIP within the urban context. Previous definitions of AIP point to independence as being a crucial element (Cutchin, 2003; Smith, 2009; Williams, 2004) whereas this capstone project finds that interdependence among community members, plus a supportive and accessible built environment that is responsive to the changing needs and capacity of older persons, will lead to optimal AIP.

A review of the timeline of AIP definitions has shown that current definitions are more reflective of today’s cohort of older adults’, but policy today reflects the historically dichotomous definitions of AIP. As of 2007 this dichotomy was still espoused by the World Health Organization who indicated that policy makers favoured the ideal of having older adults’ remain in their home as long as possible because of the cost savings associated with avoiding institutional care. Additionally, programs such as Better at Home (United Way, 2013) are aimed at providing home support services to older adults’ in homes and communities that may not be appropriate spaces for AIP.

Non-traditional housing options could offer many of the proposed factors involved in optimal AIP and warrant further exploration. Considering that as of 2008 there is one new case of dementia every five minutes in Canada and that by 2038 this is expected to rise to one new case every two minutes, immediate and long-term solutions for housing
persons with dementia are needed. The features of dementia friendly communities should become a standard for inclusion in all environments designed for AIP.

This critical review has brought to light the intersection of social, built, and personal factors involved in optimal aging in place (AIP). The attainment of optimal aging in place is possible when these environments are responsive to the changing needs of older adult members within a community. In today's world, neighbourhoods are increasingly challenging spaces and are affected by forces such as gentrification, political and global policies (e.g., Age friendly communities), as well as local urban planning practices. For example, at the local level, built environment factors such as more pedestrian access and presence of communal areas leads to increased community cohesion, which in its turn fosters optimal AIP.

The push - pull effect of built, social, and personal factors greatly influences an individuals’ ability to AIP. Previous research has shown that length of residence and familiarity with the neighbourhood environment leads to ‘autobiographical insideness’ (Rowles & Ravdal, 2002) where the stability of remaining in place results in increased resiliency and accommodation in times of physical, social, and psychological change. This may result in a pull effect for remaining in a place. Additional pull effects are the result of familiarity and physical mastery over the environment despite possible health declines resulting in an optimal level of press thus fostering social and autobiographical continuity (Smith, 2009). Push effects result from environmental press beyond an individuals’ competence level. As Menec et al. (2011) explains, problems with urban communities including decreasing green space, decreasing affordable housing options, increases in traffic congestion, and decreases in grocery stores (corner style) resulting in a push effect on older adults’ who then no longer can, or desire to AIP.

A critique of literature on AIP through the lens of push-pull factors, gentrification, global and local policies and planning guidelines help to identify factors that are critical in the conceptualization of optimal AIP. These combined with concepts from several well-established conceptual frameworks in Environmental Gerontology and other related disciplines helped to propose a conceptual framework for optimal AIP in the urban context.
This critical review and synthesis and conceptual framework development helped to identify some key research questions and hypothesis for future empirical research in this area. Examples of these questions are as follows: What are the effects on AIP in neighbourhoods that are affected by globalization, gentrification, and increased in and out migration? How can optimal AIP be attained in these changing areas and as Burns et al. (2011) asks do older adults’ “submit to or are actively engaged in” (p. 1) these changes? How do changes to the ethno-racial diversity (Burns et al., 2011) of a neighbourhood affect an older persons perception and thus perceived ability, of being able to AIP?
References


Appendix. Summary of Findings Tables
## Appendix. Summary of Findings

### Table A1. Empirical Summary of Findings

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<th>Study</th>
<th>Search terms</th>
<th>Focus of study</th>
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<th>Major findings – relevant to AIP</th>
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<tr>
<td>Baum &amp; Palmer, 2002</td>
<td>Social environment</td>
<td>Social participation</td>
<td>Built environment</td>
<td>Residents living in areas of more deprived socioeconomic status indicated increased dissatisfaction with availability of amenities, provision of public transportation, and proximity to dwellings.</td>
<td>Neutral third spaces were deemed important in developing relationships. Aspects of the urban landscape are seen to facilitate and hinder social opportunities.</td>
<td>Residents living in areas of more deprived socioeconomic status indicated increased dissatisfaction with availability of amenities, provision of public transportation, and proximity to dwellings. Neutral third spaces were deemed important in developing relationships. Aspects of the urban landscape are seen to facilitate and hinder social opportunities. This study points to the significance of opportunity structures in the neighbourhood environment. These spaces are an avenue for individuals to establish and develop social capital, which in turn is supportive of aging in place. Specific aspects of urban design that are facilitators of social capital include parks, cafés, neighbourhood houses and local shops. Although the study is not conducted with an older adult population, a clear connection between the impact of the physical environment on social interaction is established which could be generalizable to the older adult population.</td>
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<tr>
<td>Burns, V., Lavoie, J. &amp; Rose, D., 2011</td>
<td>Aging in place</td>
<td>gentrification</td>
<td>urban</td>
<td>Gentrification triggered a process of social exclusion including strangeness and insecurity among participants.</td>
<td>Difficulty with change seemed to relate more to changes to the ethnoracial diversity of the area and negative comments related to being able to AIP were more related to this perceived increase</td>
<td>Neighbourhood gentrification affects older adults in diverse ways. The social, political, and cultural consequences may impact older adults daily lives and the long-term consequences are unknown. It is increasingly important to examine the dynamics of social exclusion among older adults who are living in neighbourhoods faced with change and gentrification.</td>
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<td>Burton, E., Mitchell, L. &amp;</td>
<td>Urban</td>
<td>Investigation of objective measures of the built environment that lead to increased quality of life and positive health outcomes.</td>
<td>Review of urban design material, literature, and existing measures, and a new tool, the NeDeCC (Neighbourhood Design Characteristics Checklist). 200 Older adults living in rural-urban environments to identify place-related well-being characteristics. In-depth interviews using a questionnaire.</td>
<td>• The NeDeCC tool does have face and construct validity; there are characteristics of the residential environment that have been overlooked in previous work; need to question assumptions about where older adults want to live.</td>
<td>• Through interviews and testing, a new tool the NeDeCC has been developed and tested to examine the connection between the built environment and health in older adults.</td>
<td>• The concept of well-being was not clearly operationalized in this study.</td>
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<td>Stride, C., 2011</td>
<td>Built environment Aging in place</td>
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<td>• There is no association established between the built environment, social environment and health.</td>
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<td>Chaudhury, H., Mahmood, A.</td>
<td>Neighbourhood</td>
<td>To examine the influence of the neighbourhood built, and social environments, as well as density on the physical activity patterns of older adults.</td>
<td>Photovoice method was used with sixty-six independent living, 65 years and older, participants. 40 interviews were conducted.</td>
<td>• Four major themes were revealed including safety and security, accessibility, comfort of movement, and peer support.</td>
<td>• Barriers and facilitators in the social and built environment play a key role in the physical activity patterns of older persons.</td>
<td>• Study is done with a non-random sample. A connection is not made to improved health promoting behaviors and potential to AIP.</td>
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<td>Catchin, M. P., 2003</td>
<td>Community services Aging in place</td>
<td>An evaluation of how adult day centers and assisted living residences mediate the goal of aging in place. The development of a theoretical model of place integration for older adults using ADC and ALR.</td>
<td>Qualitative methods were employed including participant observation, semi-structured interviews, and document analysis. Sample consisted of 116 participants: 68 older adults, 27 family members, and 21 staff.</td>
<td>• Mediating services generate mostly positive feelings for participants involved</td>
<td>• ADC and ALR do have a role in mediating AIP. These environments are positive social spaces that provide socialization and meaning in the lives of older adults.</td>
<td>Study conducted on a social aspect of the community. The physical environment is not considered in the context of barriers or facilitator to involvement in these social settings.</td>
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- Boomers  
- Social environment  
- Aging in place | To examine the importance of social connectedness and social relationships in the effort to age in place and the relevance to elder friendly communities. | Original study: 5100 surveys to OA 65 years and older. This study which conducted a world cafe style forum with 23 individuals, 40 years and older, from a community identified in the original study. | AIP includes choice of living environment even in the face of changing or declining health and independence, choice of services delivered  
- Elements needed to age in place safely include network of social support, formal services, medical services, and an appropriate structure of home and neighborhood  
- An age-friendly community adapts its structures and infrastructure to be accessible and inclusive of the varying abilities of older adults.  
- A need for reciprocity between older adults and their communities  
- Findings echo previous research indicating that civic engagement, social participation and connectivity, are essential components of an elder friendly community.  
- The creation of elder friendly communities is a step towards achieving AIP. | Social connectedness, participation and integration are all essential components of and elder friendly communities.  
- Open coding of the data revealed 3 major themes for boomers and older adults– social reciprocity, meaningful interactions, and structural needs / barriers.  
- The community infrastructure needs to be both consistent and predictable and at the same time dynamic in its ability to provide stimulation and support to older adults. | No discussion of the physical environment barriers to increasing connectedness or creating elder friendly communities.  
- Research was conducted with a small motivated sample and does not speak to those older adults who are experiencing isolation for various reasons. |
| Gardner, P., 2011. | - Social environment  
- Social networks  
- Aging in place | To contextualize aging within the neighbourhood environment and explore the public life of older adults within this space. | Friendly Visiting, community based visiting using the ‘go along’ method combining interview and participant observation  
- 6 Older adults; average age 82.5 yrs.  
- Third places such as public parks, sidewalks and local shops were important spaces for informal social interaction.  
- Threshold zones are another space where older adults have the opportunity to socialize with others.  
- AIP explores why older adults want to remain in their homes and how best to support them.  
- Places of aging identify and understand the important contexts of aging.  
- Health place characteristics include green spaces, mixed use, neighbourhood design, accessible transport, and safe streets.  
- Interdependence versus dependence, sociality versus support.  
- Natural neighbourhood networks are a complement to existing supportive networks. | The neighbourhood space is more than a backdrop to the daily lives of older adults.  
- It is an active space where the social and physical environments intersect and impact the social, cultural and physical experience of older adults.  
- Natural neighbourhood networks consisted of non-kin relationships, and are informal community based social structures based on interdependence. | Sample was very small, only 6 participants. |
- Social networks  
- Aging in place | To address the concept of communities of place to older people by examining the extent that AIP fosters a positive attachment to place.  
- How age, AIP, place, and attachment to place contribute to a sense of well-being. | Secondary data analysis of data gathered in the English Longitudinal Study of Aging (ELSA) and the Health Survey for England (HSE). Five variables were examined: age, year of move to current area of residence, SES, self-reported attachment to area and self-reported well-being.  
- Familiarity to community leads to an increased sense of satisfaction and connectedness.  
- Staying put in one area can lead to a feeling of staleness (choice is key!)  
- AIP is an ambiguous term or position and expressed rootedness as well as rigidity. Can lead to feelings of groundedness or a feeling of being trapped by area of residence  
- Age brings an increased attachment to area and increased sensitivity or vulnerability to ones social and physical environment.  
- AIP – operationalized as number of years spent at current residence.  
- Older adults (80 plus years) showed less attachment than those in their 70’s.  
- Age plus AIP leads to an increased feeling of attachment. This is unaffected by the SES of the area.  
- AIP does bind people to their community and lead to increased sense of belonging and attachment. The binding effect of AIP does not exert any specific positive or negative effects on third-age well-being.  
- The research showed that there is not a direct association with between AIP and well-being. But, it can be said to contribute to increased feelings of belonging. | The social environment, physical environment and AIP are not well defined. | |

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Study | Search terms | Focus of study | Methods/ Sample | Major findings – relevant to AIP | Summary | Limitations
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McDonald, L., 2008 | Aging in place | Conducted a review of the barriers and facilitators to AIP with a group of community dwelling older adults. | Participatory action method, including 3 community consultations, 3 focus groups, and 8 working groups. | -Participants identified 3 areas where accessibility is crucial. These are housing, the neighbourhood, and local health and social service agencies. -Accessible neighborhoods included inclusive zoning (adequate benches, washrooms, well lit sidewalks, ramps) - Necessary to empower older adults in decision making (civic engagement) and peer programming -Gentrification has problematic – dissolution and dislocations of local businesses have a greater impact on older adults who rely on familiar services. - AIP a desire of many older adults has been found to be associated with better clinical outcomes. - Residential stability is thought to be a proxy for attachment to housing and/or neighborhood. | The role of accessible and appropriate built environments was central to the project findings. Wellness programming and localized community building were seen as key elements of social environment. - The significance of the built and social infrastructure was clearly articulated by participants. | Study conducted within a specific neighborhood there is not a clear definition of the built environment, social environment or aging in place. |
Levasseur, L., Richards, L., Kestens, Y., Daniel & M., Payette, H., December, 2011 | Social participation | An examination of the moderating effect of perceived proximity to resources on social participation levels of older adults with disabilities. | Structured questionnaires were used to examine participation levels, perceived proximity to resources, and level of disability. SPSS was used to conduct data analysis. 554 Older adults, with an average of 74. | Perceived proximity to resources served as a moderator for participation in men with disabilities, but not for women. Perceived proximity to resources and lower levels of disability were found to be associated with higher participation levels in both men and women. Social participation is a modifiable dimension of successful aging and a determinant of favorable health outcomes. It is the result of interactions between personal and environmental factors. Environmental buoiring where environmental facilitators (resources availability, engagement opportunities, and social support) can support personal competencies facilitate greater social participation. Supportive neighborhood characteristics included access to food shopping, health services, and social and sporting clubs. All of which are essential for the completion of IADL activates. These findings are consistent with other research in this area. | Perceived closeness to resources and opportunities may moderate the association between disability and social support. It was found that disability is not a predetermining factor in participation levels among men or women. Although perceived proximity is found to be a moderator beyond marital status, education level, frequency of walking episodes, higher vitality and general health in participation levels among men and women. The perception of an area greatly affects well-being and participation in social activities. | Level of disability was self reported therefore difficult to generalize. The concept of disability would be more useful if it was broadened to include physical and cognitive limitations no other environment factors were considered in the study as influencing participation levels. |
Mehta, V., 2007 | Social activity | An examination of the micro-scale characteristics of the neighbourhood environment that support ‘lively streets’. | Multi-method qualitative surveys, using structured and visual surveys, analyzed qualitatively. | Aspects of lively streets that facilitate stationary social activities serve by transit, and have a variety of shops and services. Seating (commercial and private), sidewalk width and community gathering spaces were among nine characteristics that were found through multivariate analysis to have a significant impact on the liveliness of streets. There are aspects of lively streets that are reminiscent of those factors leading to aging in place and the support the creation of useful and meaningful spaces. Elements include a physically well-designed street space for pedestrian movement, generous sidewalks, ample seating and tree cover, combined with community gathering spaces. | Good urban spaces are essential for the psychological and social health of modern communities. Streets are social facilitators. Lively streets contribute to a sense of community Mixed-use spaces lead to the vibrancy, sustainability, liveliness and diversity of the community. Micro-scale characteristics are those that occur at the scale of each business and building Lively streets are those that have the presence of a number of people engaged in a variety of stationary, social, activities. Streets that offer social and leisure activities, are places to meet others and even for relaxation, have been found to benefit individuals physical health and contribute to a sense of community. | When considering the social benefits of public spaces, Mehta does not discuss the physical limitations that many individuals, including older adults, face in navigating these spaces. |
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<th>Major findings – relevant to AIP</th>
<th>Summary</th>
<th>Limitations</th>
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<tr>
<td>Oswald, Jopp, Rott, &amp; Wah, 2010</td>
<td>Neighbourhood</td>
<td>To investigate how the perceived physical and social environment of the home and the surrounding neighbourhood are resources or risk factors to life satisfaction among the young-old and old-old.</td>
<td>Individual questionnaires on socio-physical environment and life satisfaction. Comparison of young-old (65-79) and old-old (80-94). SAMPLE 381 community-dwelling older adults, 65-94 years</td>
<td>There are differences between young-old and old-old in indicators of the indoor physical environment but not in neighbourhood characteristics or social aspects of housing. Regression analysis showed that neighbourhood related factors substantially contribute to life satisfaction for both the young-old and old-old. The neighbourhood environment is twice as important in measures of life satisfaction among the old-old compared to the young-old. The neighbourhood measure was the immediate out of home environment including the objective and perceived physical and infrastructural characteristics. Characteristics included safety, good access of public transit, shops and services, medical care, clean sidewalks/streets, and cultural options.</td>
<td>There are differential aspects in the neighbourhood and social environment that impact the well being of older adults and a more thorough investigation of these environments is needed. Previous studies have neglected the role of the neighbourhood in the cause and outcome of normal aging and it is found that the neighbourhood does represent a resource for older adults against deteriorating health. Necessary elements of the neighbourhood environment include barrier free access and the necessary infrastructure, such as health clinics, to support older adults. This study uses a framework that includes the perceived physical and social environment in relation to the outcomes of independence, identity, and well-being.</td>
<td>Study measures cleanliness of sidewalks and streets, but not walkability, this is mentioned as a limitation. Although the neighbourhood is found to be of increased importance as an individual ages, there is no specific mention of which factors as considered more important.</td>
</tr>
<tr>
<td>Richard, L., Gauvin, L., Gosselin, C. &amp; Laforest, S., 2008</td>
<td>Participation</td>
<td>To assess the connection between perception of neighbourhood user friendliness and social participation.</td>
<td>Interview administered questionnaire, qualitative analysis. SAMPLE Age -58-92; mean=71.5. 73% female; majority living independently and married</td>
<td>A positive association was found between key resources for OA and proportion of services/amenities located within 5 min walking distance from residence and level of social participation. Positive predictors emerged as frequent walking episodes, higher vitality and general health scores and perceived accessibility to key resources.</td>
<td>Elements of the built environment facilitate neighbourhood user friendliness; housing and social environment, walking and transportation services, neighbourhood services and amenities. There is a correlation between the built environment, social participation and positive health outcomes.</td>
<td>Impact of the built environment on the building of social networks is not mentioned</td>
</tr>
<tr>
<td>Scharf, T. &amp; Gierveld, J., 2006</td>
<td>Social participation</td>
<td>How the neighbourhood influences social relationships (social participation, social isolation and loneliness) in late life.</td>
<td>The article utilizes highly comparable data derived from empirical studies conducted in England and the Netherlands. Explores predictors of loneliness using multiple classification analysis (MCA) The UK study consisted of 501 respondents aged 60 years and older; Netherlands 3508 respondents aged 60 years and older.</td>
<td>There are three risks for older adults living in urban neighbourhoods. Older adults are adversely affected by the changing social fabric of cities, where the city is increasingly developed for a younger population and the physical environment may not be conducive to older adults in maintaining protective social relationships. Older adult social well-being is affected by changes to population composition. Older adults are impacted by changes to social issues – changes to infrastructure; increased vulnerability to crime resulting in increased fears change how older adults socialized in urban neighbourhoods.</td>
<td>The subjective quality of the neighbourhood was significant in evaluations of loneliness. Those with wider community networks reported the lowest loneliness scores and a higher level of community engagement. This was also associated with neighbourhoods of higher socio-economic status.</td>
<td>Impact of the built environment on the building of social networks is not mentioned</td>
</tr>
<tr>
<td>Scharf, T., Phillipson, C., Kingston, P. &amp; Smith, A., 2001</td>
<td>Social environment</td>
<td>An examination of older adults in socially deprived city areas of England, and their experience of social exclusion.</td>
<td>Qualitative. Seven group discussions, tape recorded for approximately 1 hour, and transcribed.</td>
<td>The three areas of social exclusion considered: participation and integration, spatial segregation, and institutional disengagement affect an older adults embededness in the community, social networks, and safety.</td>
<td>Social exclusion is experienced by older adults in three forms: participation and integration, spatial segregation, and as a form of institutional disengagement. The themes of this article have led to the development of a questionnaire to determine how older adults experience the different dimensions of social exclusion.</td>
<td>Implications of the built environment on social exclusion are not explored.</td>
</tr>
<tr>
<td>Study</td>
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<td>Sixsmith, A. &amp; Sixsmith, J., 2008</td>
<td>Aging in place</td>
<td>Neighbourhood perception and experience of aging in place; focus is primarily</td>
<td>Qualitative, sample drawn from ENABLE Age project 2002-2004 40 participants, 80-89 years of age, 24 female, 16 male</td>
<td>AIP may become a rhetoric hiding real issues of older adults.</td>
<td>Older adults do prefer to remain in their homes but are faced with challenges of loneliness, isolation, and difficulty accessing community services.</td>
<td>Due to the analysis being of secondary data, there was an inability to discuss the future or future plans, unable to inquire why people had chose that particular location to live.</td>
</tr>
<tr>
<td>Wiles, J., Allen, R., Palmer, A., Hayman, K., Keeling, S., &amp; Kerse, N., 2009</td>
<td>Aging in place</td>
<td>Neighbourhood Social environment</td>
<td>Secondary data analysis was conducted on 83 interviews held with community dwelling older adults between 2006-2008. Sample – 63 community dwelling individuals 75 years and older.</td>
<td>AIP said to be more cost effective and preferred by older people – although evidence is equivocal.</td>
<td>Results show that the participants have a strong attachment to their homes and neighbourhood.</td>
<td>This study mainly focuses on the vulnerabilities and weaknesses of older adults. Transportation is mentioned as a barrier outside the home, but there is no exploration of other potential barriers.</td>
</tr>
<tr>
<td>Wiles J., Leibing, A., Guberman, N., Reeve, J., &amp; Allen, R., 2011</td>
<td>Aging in place</td>
<td>Neighbourhood Community</td>
<td>Questionnaire, focus groups, and qualitative interviews Sample – 121 older adults age 56-92 years, 44 men and 77 women, from two New Zealand communities described as deprived.</td>
<td>Participants describe aging in place as a sense of attachment or connection to one home and neighbourhood, a feeling of security, familiarity, a sense of identity, independence, and autonomy.</td>
<td>Participants were asked to respond to the question “What is the ideal place to grow old?”</td>
<td>Study does not describe how the term ‘aging in place’ was described to the participants</td>
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"Most obviously manifest through a strong attachment to place" (p. 666).
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<tr>
<td>Wood, L., Frank, L. &amp; Giles-Corti, B., 2010</td>
<td>Urban neighbourhood • Community • Urban design</td>
<td>To examine the relationship between 'new urbanism' design, the effect on walking and the resultant sense of community.</td>
<td>Telephone questionnaire completed with 609 participants. A sub sample of the SMARTRAQ study. Sample selected to represent variation in age, density of neighbourhood and income.</td>
<td>4 major themes were found after analysis. Sense of community (SoC) was found to be related to walking behaviors, home ownership, seeing neighbours, and presence of interesting sites. Mixed-use areas had a negative association with SoC. SoC was enhanced by leisure walking and associated with living in areas of lower mixed land use. It is thought that increased commercial density may inhibit social interaction. This can be countered if urban design principles are effectively used. New urbanism is related to street connectivity, accessible density and mixed land use, moderate to higher levels of residential density, public gathering spaces, quality parks and open spaces. Perception of walking features play as much of a role in shaping behavior as does actual characteristics.</td>
<td>SoC was only associated with leisure walking, this may have implications for older adults. Street connectivity and residential density was not predictive of SoC. An increase in retail and commercial mix may increase the number of strangers in an area and decrease feelings of SoC and extent to with residents feel at home. (Stanger Hypothesis). An increase in retail space plus a decrease in surface parking may lead to an increase in SoC. Although there is some work that indicates and increases in outsiders in a neighbourhood, increases the liveliness of the area. Length of residence was not found to predict SoC, this could be due to difference in demographics, social environment and built environment factors.</td>
<td>This study does not examine individual differences in mobility, or the effect of built environment barriers on the development of SoC.</td>
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Table A2. Non-Empirical Summary of Findings

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<tr>
<td>AARP, 2011</td>
<td>Aging in place, Neighbourhood</td>
<td>An examination of United States policies addressing older adults’ desire to age in place.</td>
<td>A complete examination of state policies in the areas of land use, transportation, and housing.</td>
<td>In order for communities to be spaces for older adults to age in place, policies that support and address how land is used and developed, how services are delivered, and how transportation is delivered and accessed need to be addressed. Doing so will not only support aging in place, but all segments of the population.</td>
<td>There is no mention of the social environment as an aspect of a community designed for aging in place.</td>
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<tr>
<td>Andrews, B., 2008</td>
<td>Neighbourhood, Community</td>
<td>The report summarizes the development of a comprehensive housing strategy to address current and future needs of older adults who wish to remain in their own neighbourhood.</td>
<td>Policy was developed through close consultation with older adults and stakeholder groups.</td>
<td>Older adults are both a force and a resource when developing community life neighbourhood strategies.</td>
<td>Main focus of article is on housing, no mention of social or built aspects of lifetime neighbourhoods.</td>
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<tr>
<td>Andrews, G., &amp; Phillips, D., 2005</td>
<td>Neighbourhood, Community, Built Environment</td>
<td>A concise review on the historical perspective of aging research in environment and space</td>
<td>A summary on historical perspectives in social geography and aging and place.</td>
<td>Older adults’ environmental experience of space is complex.</td>
<td>There is limited connection between the social and built environments of older adults.</td>
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<tr>
<td>Boudiny, K., 2012</td>
<td>Participation, World health organization, active aging</td>
<td>An examination of definitions of Active aging with special consideration of frail older adults, who have been missing from current multitude of definitions.</td>
<td>These are fostering adaptability, supporting the maintenance of emotionally close relationships, and the removal of structural barriers. Three key principles can shape the active aging framework to be inclusive of frail populations. These are power of adaptation, human factors, and primacy of agency over age-related structural barriers.</td>
<td>Engagements in life and dependency are not mutually exclusive. Active aging must be inclusive of all forms of activity including physical and social.</td>
<td>The exploration of ‘structural barriers’ does not explain physical or built environment.</td>
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<tr>
<td>Brofenbrenner, U., 1977</td>
<td>Ecological framework</td>
<td>The interaction between the changing person and the changing environment. Description of the environment as nested.</td>
<td>The environment consists of four nested settings, where a setting is described as a place with a particular set of features where individuals engage in particular activities or in a particular role.</td>
<td>A setting is a particular place with particular features where an individual engages in particular activities or roles. These features include place, time, physical features, activities and roles.</td>
<td>Active aging is not located within the living environment. (i.e. the home, urban/rural communities)</td>
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**Notes:**
- **Search terms** refer to the keywords used in the literature review.
- **Focus** describes the main topic or area of investigation.
- **Summary** provides a brief overview of the findings or conclusions drawn from the literature.
- **Points relevant to the review/ focus of capstone project** highlight key points that are relevant to the project or research.
- **Limitations** discuss any significant limitations or gaps in the reviewed literature.
<table>
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<tr>
<td>Buffel, T., Phillipson, C., &amp; Scharf, T., 2012</td>
<td>- Urban environment - neighbourhood - age friendly city - aging in place</td>
<td>- Age-friendly cities hold certain characteristics that make them appropriate places to age in place. - In addition to the helpful characteristics of an age friendly city, the urban neighbourhood presents a new set of challenges including traffic congestion and a reduction in perceived safety.</td>
<td>This report is primarily focused on housing to support aging in place, but does identify alternatives to support AIP. Older adult populations are increasing in urban and rural centers, and many are not prepared for this demographic shift. Aspects necessary to address aging in place include provision of social services, addressing social isolation, access to recreation opportunities, medical services and supporting caregivers. Older persons aged 70 years and above, spend upwards of 80 percent of their time in or near their home.</td>
<td>Although several explanations are offered as to why the neighbourhood is important to older adults, none of the barriers are explored. Although length of residence may be a predictor of attachment to place, it may not be as pertinent to today's more mobile older adults. More detailed exploration of inequalities within the social environment is necessary.</td>
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<tr>
<td>Buffel, T., De Donder, L., De Witte, N., Dury, S., Vanwing, T., &amp; Bolsenbroek, A., 2012</td>
<td>- Social environment - neighbourhood - aging in place</td>
<td>- A literature review of the role of place and locality in aging. Offers an exploration of the social environment from different theoretical perspectives including ecological theory of aging and geographical gerontology and the relationship between the social environment and older people. - The social environment is shaped by the experiences and practices of older people. It consists of structural, cultural, and interactional processes. - Interpersonal relationships beyond help and support – older people are not passive recipients of support. “Older peoples agency or the way they co-influence the social reality of which they are a part” p. 19, social cohesion and diversity, sense of security and feelings of safety, the neighbourhood is a learning space</td>
<td>The model developed recognizes interactions, and cross-level effects of the social environment (social capital) and an individual's ability to function in the neighbourhood environment, access to essential resources. Consideration of the diverse forms of social capital an individual may have and how these forms impact health outcomes is discussed.</td>
<td>There is no mention of how housing and neighbourhoods not prepared or designed for aging in place affect the social environments of older adults.</td>
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<tr>
<td>Canada Housing and Building Corporation, 2008</td>
<td>- Community - age in place - urban environment</td>
<td>- This report is primarily focused on housing to support aging in place, but does identify alternatives to support AIP. Older adult populations are increasing in urban and rural centers, and many are not prepared for this demographic shift. Aspects necessary to address aging in place include provision of social services, addressing social isolation, access to recreation opportunities, medical services and supporting caregivers.</td>
<td>Definition for aging in place: “to continue to live in their current home and familiar community for as long as possible, even if their health changes” (p. 1) In order to effectively address older adults desire to age in place, many aspects of the community will need to be improved. Communities need to be more than senior friendly, this means, for example, addressing service delivery as well as accessibility.</td>
<td>There is no mention of how housing and neighbourhoods not prepared or designed for aging in place affect the social environments of older adults.</td>
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<tr>
<td>Carpiano, R., 2005</td>
<td>- Neighbourhood - social environment</td>
<td>- How does social capital within the neighbourhood affect beneficial outcomes such as health improvements?</td>
<td>This paper develops model for social capital and neighbourhood socio-economic processes, and health in the hopes of better understanding how social capital operates within the neighbourhood and local areas.</td>
<td>There is no exploration of how access to and development of social capital is affected by the neighbourhood built environment.</td>
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| Clarke, P. & Nieuwenhuijsen, E., 2009 | Neighborhood environment • Person-environment fit • Social environment | A review of health literature related to physical environments for healthy aging using the International Classification of Functioning Disability and Health as a framework. | The review illustrates the need for supportive, barrier-free environments. | - Persons at the later stages of life are especially vulnerable to barriers in both their physical and social environments.  
- Limitations identified in the current literature are “theoretical and empirical neglect of the underlying mechanisms behind person environment relationship.” (p.14).  
- There is substantive need for better definitions of person-centered environments.  
- There is evidence for a bidirectional relationship between activities and environment  
- Social disadvantaged older persons were found to be vulnerable to environmental barriers because of a greater need to access services and resources.  
- It was also found that older adults living in areas of a greater proportion of older persons, were less susceptible to depression. | Focus is primarily on older adults with mobility and functional limitations. |
| Gelbey, L., Moore, K. & Smith, E., 2012 | Aging in place • Community | An exploration of the connection between the third age, environmental gerontology, and the necessary components of environments of choice for older adults. | Autonomy and security are essential attributes of the third age and play a key role at the community level in terms of being able to age in place.  
- The environment holds the potential to fulfill aspirations of the third age where there is balance between two goal-oriented dimensions of agency and belonging. | - Agency is related to autonomy whereas belonging is related to security.  
- These create environments conducive to AIP and are essential to the relationship between person and environment.  
- Environments of choice for older persons are their own neighbourhoods and communities, not institutional settings. | The urban neighbourhood is not explored as an environment of choice. |
| Greenfield, E. A., 2012 | Aging in place • Social environment • Ecological model | An examination of AIP initiatives through an ecological framework lens.  
- Evaluation of similarities and differences of initiatives with goal of informing policy and research. | An examination of AIP initiatives provides a comparison of the similarities and differences, allowing for a unified focus when addressing similar issues.  
- The article offers policy and practice suggestions for AIP initiatives and suggests creating partnerships between formal and informal organizations for research and policy development. | - The general ecological model of aging describes an individual functioning as the result of a dynamic interaction between the person, including their social, biological, and physical capacities, and their fit with the characteristics of the environment, both of which are ever changing. | There is limited recognition of the role of the built environment in the person-environment transaction. Initiatives reviewed and proposed focus primarily on social aspects. |
| Greenfield, E. A., Scharlach, A., Lehning, A. J., & Davitt, J. K., 2012. | Aging in place • Social environment • Participation | An examination of AIP in the community, emphasizing the NORC and village models, and how these achieve the long-term goal of AIP.  
- Three categories of activities and services aid in achieving this goal: civic engagement and empowerment, social relationships and relationship building activities, and services to enhance participation and increase access to resources. | NORC and Village models emphasis on increasing activities and access to services leading to the long-term goal of aging in place.  
- An increase in civic engagement and empowerment leads to an increase in sense of self, collective efficacy and overall increased sense of community. Increased emphasis on services to enhance participation and access to resources decreases unmet needs of community members.  
- All of these elements lead to better intermediate outcomes (increased physical health, psychological and social well-being), and therefore the attainment of the long-term goal of aging in place. | - AIP is seen as long term goal, with intermediate factors including civic engagement, access to resources, and participation  
- AIP is broadly framed as strengthening facilitators and decreasing impediments, allowing an individual to voluntarily remain in place regardless of declining health.  
- A community is defined as a geographic area whose residents are connected through some combination of shared beliefs, circumstances, priorities, relationships, or concerns.  
- Social support and increased access to resources is often attained from friends and family, here it is achieved through increased contact and community relationships.  
- The positive effect of increased social support is better quality of life and decreased mortality risk.  
- Accessing and navigation of home and community based services is challenging due to fragmentation, inefficiencies in delivery related to funding issues, and are often unresponsive to changing needs of older adults. | There is limited mention of built environment barriers in the community.  
- The article assumes that all community members will be participating in activities and desirous of interaction.  
- Perhaps these models attract a particular “type” of older adult of this is not explored. |
- Person-environment fit
- neighbourhood
- An examination of person-environment fit and congruence of neighbourhood environments. It is thought that congruence with neighbourhood press is an important predictor for residential satisfaction.
- Residential satisfaction is considered to be the most important consequence of person-environment fit with the neighbourhood for independent living older adults. The most influential aspects of neighbourhood satisfaction are aesthetics and amenities, transportation access, safety and fear of crime, and the social characteristics of the neighbourhood.
- Neighbourhood characteristics most important to residential satisfaction are thought to be accessible physical amenities, resources, safety, and stimulation versus peacefulness.
- The lifespase of older adults is increasingly limited therefore nearness of key resources and transportation may lead to increased residential satisfaction. Stimulation versus peacefulness reflects environmental demands, physical or cognitive pressures, and complexity of the built environment.
- Interaction versus solitude - the extent to which the environment promotes social interaction and the ability of individual to find peacefulness.
- There is no description of what is meant by neighbourhood or the social environment.

Lawton, M.P., 1990
- Ecological model
- neighbourhood
- Continuity between environmental proactivity and docility.
- Continuity of person and of environment is typical throughout most of people’s lives. Therefore the likelihood and preference of remaining in place is higher. Biological decline tends to move a person away from remaining in place.
- The environmental docility hypothesis suggests that the environment increases in importance as personal competence decreases. Individuals are drawn to environments that will satisfy their needs. People are generally not aware of their surrounding environments until there is a change in the individual or environment that disrupts this balance.
- Familiarity of the environment is a major need of older persons.
- One of the most sensitive areas to change is one’s social space.

- World health organization
- age friendly cities (AFC)
- aging in place
- There has been wide adoption of AIP as a policy goal in achieving AFC. Supporting older adults to live in communities makes both economic and social sense.
- AIP requires planning, provision of wide range of support services, removal of barriers, that segregate and limit older people in their lives and activities.
- There is a continuum between the physical or built environment (physical infrastructure and services) and social environment (quality of social environment).
- Although some models have a purely physical environment focus and others focus on the social environment, the current trend is to include elements of both with the goal of integrating through policy, services, and structures.
- It is nessecary to recognize individual differences when creating socially inclusive environments. The new discourse is to view older adults as a positive resource and a movement away from welfare matters to social inclusion and engagement.
- Social environment and physical space are considered separate entities, there is not consideration of the intersection of these environments.

Mahmood, A. & Keating, N., 2012
- Built environment
- aging in place, social environment
- This chapter identifies the residential context as having a micro level influence on the inclusion of older adults in the active participation of society where the neighbourhood environment can either facilitate or inhibit the process of social inclusion.
- The urban neighbourhood environment presents unique challenges to the older adult due to its complexity and continually changing nature. Influences such as increasing density and globalization result in this environment being increasingly challenging.
- The built environment is defined as a "multidimensional concept that encompasses human formed, developed, or structural areas." (p. 146).
- Urban design features of the environment can facilitate or inhibit the inclusion of older adults in the social fabric of the community. AIP represents the ability of those with varying degrees of physical and cognitive abilities to remain in their current living environment. A built and social environment that facilitates the continuity, attachment, identity, social inclusion and social support will lead to older adults maintaining their independence and dignity as well as quality of life.
- Although AIP is mentioned at the beginning of the review there is no indication of how it fits in the planning framework of age friendly communities.
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<td>Menec, V., Means, R., Keating, N. &amp; Parkhurst, G., 2011</td>
<td>Age friendly cities, WHO</td>
<td>An ecological perspective is used to examine the WHO Age-Friendly Cities framework.</td>
<td>The domains of an age-friendly community (AFC) are examined using an ecological framework. This allows for careful examination of the relationship between individuals and their environment and moves beyond reviewing each domain in isolation. The community environment has faced many changes and may no longer be the ideal place to age for the majority of older adults. Increased traffic congestion, decreases in local services, and increased urban sprawl has resulted in a more challenging physical environment. The factors of social participation and civic participation are combined into one category of social participation. Opportunities for participation are key to aging in place (belonging, generativity) and therefore do require specific examination. The social environment is defined as functioning at both the micro level (including friends and family) and the macro level (including culture and economics, etc.). Although this distinction is an important one, it lacks a complete definition.</td>
<td>Although there is not a universally accepted definition of what constitutes ‘age friendly’, the elements are common to most definitions. These include the physical and social factors, which have an impact on older adults’ lives. The physical environment – including outdoor spaces (parks, green spaces), buildings (accessibility, location), and the natural environment. The social environment is often included as part of the determinants of health and is implicit in WHO age-friendly domains and includes the elements of participation and social networks. The WHO age-friendly framework sets the stage for policies that are conducive to aging in place. “An aging in place policy ideally addresses all age-friendly domains, the interaction between age-friendly domains and individual characteristics (age, income, and function), as well as other levels of influence such as the political environment in which the individual is embedded.” (p. 487). The importance of transportation options in connecting older adults to community services and resources (including social and exercise programs as well as health services) is emphasized. Communication and information should be included in the social environment as it concerns how and what services an older adult may be aware of, and therefore have access to.</td>
<td>A greater connection between the impacts of the built environment on the social environment is needed.</td>
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<tr>
<td>Phillips, D., Siu, O., Yeh, A. &amp; Cheng, K., 2005</td>
<td>Aging in place • urban environment • community</td>
<td>The urban environment presents challenges and opportunities for aging in place. Identification of barriers in the urban environment is presented in terms of the home and broader community. The environment impacts participation levels and can be thought of as a hierarchy of spaces. These are the wider townscape, immediate local external environment (area surrounding home), and the internal home environment</td>
<td>Phillips et al. describes the barriers and challenges to aging in place for older adults related to the physical environment. The need for multiple disciplines and interests to be included in the planning process is established, yet this process of inter-sectorial collaboration and planning is still rare.</td>
<td>The urban setting can hinder or create opportunities for aging in place. As aging progress, activities inside and outside the home become progressively more challenging. Bronfrenbrenner’s ecological framework is used to describe a hierarchy of spaces. Identification of potential physical environment barriers for various age related impairments (vision, age (phobic), wheelchair users, other physical disabilities is provided. Environmental competence is the personal capability and characteristics of the environment.</td>
<td>Limited mention of the connection between the social environment and urban environment and connection to aging in place.</td>
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<td>Phillipson, C., 2004</td>
<td>Urban neighbourhood</td>
<td>A close look at place and aging and the connection to preserving an 'independent as possible' everyday life for older persons.</td>
<td>This articles focuses on the urban environment and the interaction between spatial concentrations of populations and the resulting impact on cities with demographic aging.</td>
<td>It is necessary to focus on the urban environment because cities are undergoing radical change, which contribute to economic and social decline for older persons. Aging in place in areas of deprivation, more common in urban centers, is a significant risk for older adults; especially with regards to delivery of services.</td>
<td>The urban environment experiencing globalization, as a space of opportunity is not explored.</td>
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<tr>
<td>Rowles, G. &amp; Ravdal, H., 2002</td>
<td>Aging in place</td>
<td>Older adults desire to age in place and more often than not, and do better if they can.</td>
<td>The meaning of place in old age is explored and how changes in geographical location affect meaning in the lives of older adults.</td>
<td>There has been a dramatic increase in policy related to supporting AIP in the US in the past fifteen years and the premise that &quot;aging in place as an optimal residential model for growing old&quot; (p. 89).</td>
<td>AIP can lead to increased resiliency.</td>
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<td>Rosso, A., Auchincloss, A. &amp; Michael, Y., 2011</td>
<td>Urban environment</td>
<td>An examination of subjective and objective measures of the built environmental impact on mobility.</td>
<td>Empirical support is found for an association between aspects of the built environment and mobility in older adults</td>
<td>Life space is &quot;spatial area travelled by an individual in their daily life over a specified period of time&quot; (p. 8).</td>
<td>Article does not mention the interaction between BE and SE. Mobility does have social implications such as walking being a facilitator of social relationships; this is not mentioned. Rosso mentions several aspects of older adults that decrease their ability to deal with physical and mental health, decreased social networks (loss of social support), and increased fragility. Mention of these factors without countering them with strengths, tend to medicalize and problematize aging.</td>
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**Summary**

- Rosso (2011) reviewed seventeen empirical research articles between 1990-2010 on objective measurement of the built environment.
- The build environment can enhance or create restrictions in mobility for older adults and is defined as the spaces that are human made or human altered in which individuals live out their daily lives.
- Three key domains that influence mobility within the built environment are established. These are transportation systems, land use patterns, and urban design.
- These three areas of the environment can affect individual well-being and result in increased isolation as well as decreased access to key resources including medical care and fresh food; potentially resulting in further health deterioration.
- There is an increasing need to bring aging and urban issues to the forefront of the research agenda.
- An exploration of how gender, place attachment, and aging in place are needed.
- There has been a dramatic increase in policy related to supporting AIP in the US in the past fifteen years and the premise that "aging in place as an optimal residential model for growing old" (p. 89). 
- AIP can lead to increased resiliency.
- Life space is "spatial area travelled by an individual in their daily life over a specified period of time" (p. 8).
- The built environment affects health in three domains: transportation systems (streets, networks, transit systems), land use patterns (density, mixed use design), and urban design (safety, attractiveness, site design).
- Transportation systems: aspects related increased walkability, include street connectivity, through routes, proximity to walking paths.
- Land use patterns: increased housing density is associated with greater levels of walking; increased population density is not associated with walking difficulty; mixed land use shows different results depending on study -- because mixed land use can lead to lively space thus increasing opportunities for socialization and participation.
- Older adult travel patterns -- more local and focused on immediate neighbourhood therefore neighbourhood change has a greater impact on older adults.
- Recognition that field needs a strong theoretical framework identifying association between built environment, mobility, and how changes in the built environment affect mobility.
<table>
<thead>
<tr>
<th>Citation</th>
<th>Search terms</th>
<th>Focus</th>
<th>Summary</th>
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<tbody>
<tr>
<td>Rowles, G., 1978</td>
<td>- Aging in place</td>
<td>- An exploration of older persons’ experience of geographical life space utilizing five individual case studies resulting in a theoretical perspective on place and space in older adults lives.</td>
<td>- Rowles’ explores the concept of geographical life space through interviews with five older adults on their experiences of aging in the environments of the home and surrounding area. Four themes emerge and these are developed into a framework for interpreting geographical experience. The four themes are action, orientation, feeling, and fantasy. The traditional form of geographical enquiry examined the interaction between man and land and the patterns of activity in this space. The designed or built urban environment presents many challenges for the older person. Uneven paving, high curbs, high steps onto transit, traffic crossing lights that are too short, and a lack of places to sit and rest make negotiating the environment difficult. As the aging process continues, older persons rely more on their local environment and feel more secure in familiar surroundings. It is possible to counteract the restrictions of the built environment through the development of policies aimed at a barrier-free environment. The designed or built urban environment presents many challenges for the older person. Uneven paving, high curbs, high steps onto transit, traffic crossing lights that are too short, and a lack of places to sit and rest make negotiating the environment difficult. As the aging process continues, older persons rely more on their local environment and feel more secure in familiar surroundings. It is possible to counteract the restrictions of the built environment through the development of policies aimed at a barrier-free environment. It is possible to counteract the restrictions of the built environment through the development of policies aimed at a barrier-free environment. It is possible to counteract the restrictions of the built environment through the development of policies aimed at a barrier-free environment. It is possible to counteract the restrictions of the built environment through the development of policies aimed at a barrier-free environment.</td>
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<td>Smith, A., 2009</td>
<td>- Ageing in place</td>
<td>- An in-depth look at the relationship between person and environment.</td>
<td>- This book offers an interdisciplinary review of the person and environment and the process of aging in the urban environment. Lenses include Sociology, psychology, epidemiology, and anthropology. Smith identifies optimal aging in place as ‘older people, particularly as they grow more frail, are able to remain more independent by and benefit from, aging in environments which they are accustomed.’ (p. 10) The relationship between the individual and the environment is bidirectional. Although the majority of people prefer to AIP, even in the face of health declines, aging in place is not appropriate for all individuals. Those who are house poor, are not integrated into environment – at risk of isolation, have little support either from professionals, friends, neighbours or family may not benefit from aging in place. Physical necessity my increase the desire and need to AIP. Physical insideness increases an older persons ability to negotiate the environment and imbues a sense of personal autonomy and control. Aging in urban neighbourhoods is becoming increasingly common. Concept of ‘glocalization’ is presented. The globalization of local areas.</td>
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<tr>
<td>- Vasunilasho, P., Steinman, B., Liebg, P., &amp; Pynoo, J., 2012</td>
<td>- Aging in place</td>
<td>- Researchers and policy makers recognize that many older adults wish to remain in their homes and communities as long as possible. Over the past 30 years there has been increased interest and recognition that older adults are living longer as well as experiencing an increase in chronic conditions. Yet the majority of these older adults desire to age in place, regardless of continued health decline.</td>
<td>- This article examines the literature (1980–2010) on aging in place providing insight into the prominence of environment, service based, technology and health factors associated with an older adults ability, inability, or choice to age in place. Aging in place is a concept or term that became increasingly popular in the 1990s. It was not until the time frame of 2000-2010 that the neighbourhood built environment and services, which it included, were included as aspects necessary for aging in place. A ‘two prong’ approach to the how environments for aging in place was categorized including AIP in a residence within the community, and AIP within the home. AIP is currently seen as a complex phenomenon that includes acknowledgement of income, orientation special needs. Aging in place is not the solution for all older adults and does not assure a high quality of life. It is concluded that the relevance of this topic has increased over time due to an increased interest of older persons to age in place and maintain independence.</td>
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<td>Wahl, H., Warsson, S., &amp; Oswald, F, 2012</td>
<td>Ecological theory of aging, person-environment</td>
<td>The theories of the ecology of aging and life span development are used to develop a new model of how older people interact with their environment using two concepts environment as related to agency and belonging.</td>
<td>The environment is related to agency and belonging and this relationship impacts aging well.</td>
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<td>Wiles, J., 2005</td>
<td>Aging in place</td>
<td>A review of the contributions of geographical gerontology to the concepts of space and place and the relationship to aging. Article is focused on places of care for older adults with health issues.</td>
<td>Previously space was conceptualized as a container; currently place is thought of as a process and the significance of changing physical and social contexts of aging.</td>
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<td>Williams, J., 2004, October</td>
<td>Aging in place, boomers</td>
<td>Designing homes for the boomer population who desire to AIP.</td>
<td>The boomer population, those born between 1946 and 1964, are increasingly AIP. They represent a bulge in the population, and are the fastest growing market. The building market is experiencing increased demand for products and services that will enable them to AIP.</td>
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