

**LIFE COURSE COMMUNITY:
A SENIOR-CENTRIC APPROACH TO AN INCLUSIVE
URBAN DEVELOPMENT**

by

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ABSTRACT

This thesis challenges society's current attitude towards aging by proposing a senior-centric approach to community design – a Life Course Community. This planning strategy supports people so they may age-in-place and ensure an inclusive life course by providing physical, social, and organizational environments that promote independence and a sense of belonging. This thesis explores how such communities should be designed and demonstrates their universal benefits.

The Life Course Community explores the redevelopment potential of Shannon Park, an abandoned neighborhood in North Dartmouth, Nova Scotia. Shannon Park used to be a civic hub where people from surrounding communities came for public services and social events. Redeveloping it into a community that is integrated across the spectrum of age will reaffirm it as a central gathering place for all of North Dartmouth's residents.

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CHAPTER 1: INTRODUCTION

Thesis Question

How can a senior-centric approach to community design ensure an inclusive life course?

Critical Position

Health and well-being are determined not only by our genes and personal characteristics but also by the physical and social environments in which we live our lives.

Environments play an important role in determining our physical and mental capacity across a person's life course and into older age and also how well we adjust to loss of function and other forms of adversity that we may experience at different stages of life, and in particular in later years. Both older people and the environments in which they live are diverse, dynamic and changing. In interaction with each other they hold incredible potential for enabling or constraining Healthy Aging.¹

The World Health Organization suggests that social environments are as important as physical environments in affecting the quality of life. It is important to understand the influence we as designers have through the built environments that we construct. Designers mold the spaces that enable human activity. Therefore, it is a designer's obligation to design environments that are both physically and socially inclusive, to encourage social relationships and promote healthy wellbeing. The balanced relationship between the two environments is essential for a successful life course.

The current approach to many urban community designs and its methods of senior integration is ineffective. Urban environments are often physically and socially inaccessible to many, especially elders with physical and cognitive limitations, which discourages their social interaction and participation. Furthermore, age-specific living arrangements like retirement homes often separate them from their families and communities and condemn them to lives of sedentary isolation.

¹ World Health Organization, *Age-friendly Environments*, accessed November 1, 2018, <http://www.who.int/ageing/age-friendly-environments/en/>.

This thesis explores how a senior-centric approach to community design can ensure social and physical inclusivity throughout a person's life. By taking a critical look at the functioning of urban societies, this thesis develops a framework for a 'Life Course Community'. A Life Course Community is one that is designed to be inclusive and integrated across the spectrum of age. It promotes accommodating physical and social environments for residents of all ages. This thesis argues that seniors are of the most vulnerable demographics in our communities; their lifestyles should be looked at as a benchmark for physical and social accessibility when designing an inclusive urban community. Recognizing that the needs of the elderly exemplify those of the rest of the community, this thesis aims to demonstrate the universal benefit of a senior-centric approach to community design.

CHAPTER 2: CONTEXT

Life Course

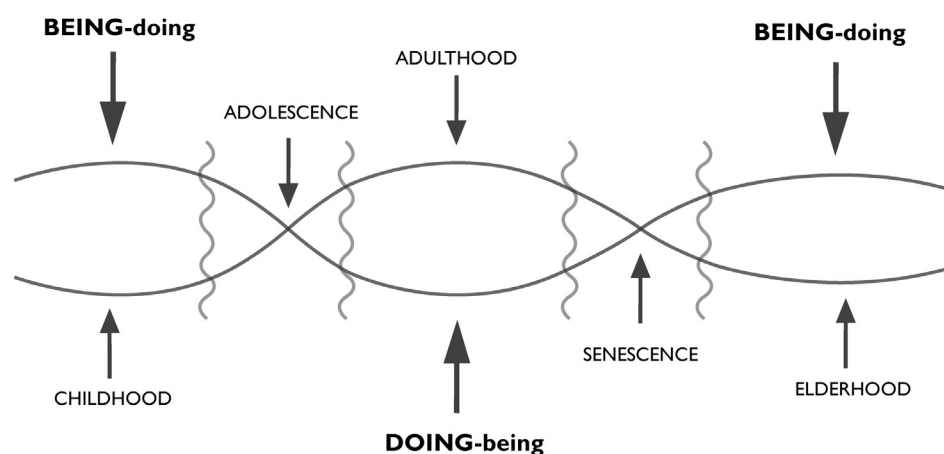


Figure 1. Human Life Course. (William Thomas, *What Are Old People For? How Elders Will Save the World*, 2004, 127).

Life course is defined as the sequence of age milestones that people experience from birth to death.² Mapping a life course can be observed through a series of experiences of *being* and *doing*. *Being* concerns itself with things that cannot be seen, it is about creating and sustaining relationships with the invisible and intangible, like the perception of oneself in relation to others. *Doing* refers to the relationship with the visible and manipulation of the material world that surrounds us.³ An individual's relationship with *being* and *doing* can be used to define five critical stages in a life course – Childhood, Adolescence, Adulthood, Senescence, and Elderhood.⁴ (See Figure 1) Childhood is all about *being*. Children are dependent on those older than them and are focused on experience and discovery. Adolescence is the time of transition between *being* to *doing*. They are attracted to tempting trappings of adult freedom, possessions, and opportunities, yet still, desire the joyfulness childish play. Adulthood is all about *doing*. They are consumed by family responsibilities and

² *Collins Dictionary*, accessed November 1, 2018, <https://www.collinsdictionary.com/submission/9975/Life+Course>.

³ William H. Thomas, *What Are Old People For? How Elders Will Save the World* (Acton: VanderWyk & Burnham, 2004), 116-119.

⁴ *Ibid.*, 127.

obligations, busy work schedules, and bill payments. Senescence is a time of transition into the final stage of human development. It is about letting go of the comfortability and familiarity of adulthood and seek a new way of *being*. Elderhood offers a richness that can only be known near the end of a long life. Elders develop a new relationship with time as they remove the pressures of *doing*. Their lives become all about *being* and reflection.⁵ Each of these stages offers experiences that are critical in an individual's development. Therefore, the amount of intermixing and exposure between each stage has a powerful impact on the success of not just the individual's life course, but to their community.

Intergenerational Relationships in a Community

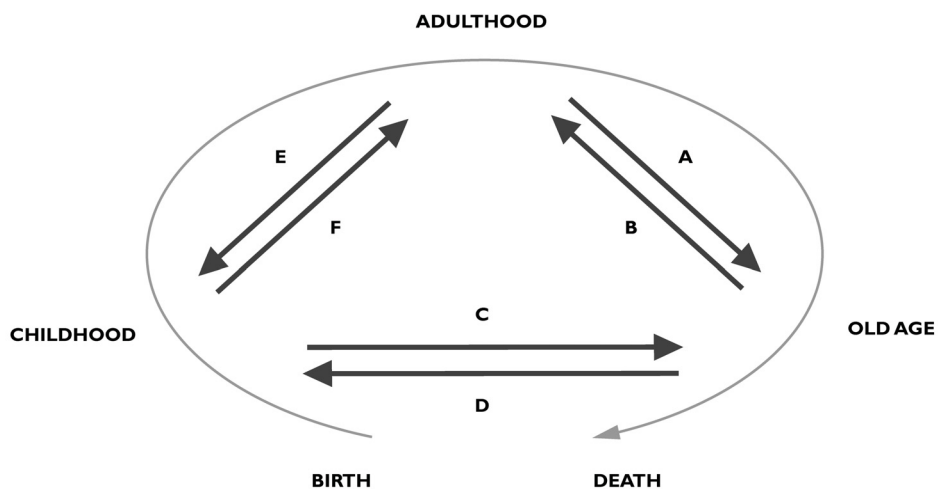


Figure 2. The Cycle of Intergenerational Social Relationships. A - Support adults provide to elders. B - Assistance elders give to adults. C - Gentling and acculturation of children by elders. D - Assistance and affection given to elders by children. E - Participation in work of adults by children. F - Food, shelter, clothing, and affection provided to children by adults. (William Thomas, *What Are Old People For? How Elders Will Save the World*, 2004, 63).

A community is defined as a group of people living in the same place who share common interests and values.⁶ This definition focuses on three elements – the inhabitants, their shared identity, and the environment in which they live. Though the definition suggests commonality, diversity

⁵ Ibid., 121-127.

⁶ *Oxford Dictionary*, accessed November 1, 2018, <https://en.oxforddictionaries.com/definition/community>.

in age and culture is important in a community. Diversity encourages an inclusive and sympathetic society, which results in an environment that fosters a sense of social connectedness and a supportive life course.

The relatively recent surge in human life expectancy has increased our ability to create complex webs of social relationships that bring unprecedented benefits to our communities. (See Figure 2) Intergenerational social structures create symbiotic relationships that allow each generation to offer unique talents and outlooks characteristics of their age, while also benefiting from those of generations older and younger than them. Among the most important and undervalued is the social role that the elders provide. In traditional cultures, the elderly are associated with knowledge and wisdom, and therefore are given the responsibility of teaching and guiding new generations. This ensures that children have a proper childhood, and adults have opportunities to provide and fulfill their potential.⁷

Industrialization and the Obsession with Adulthood

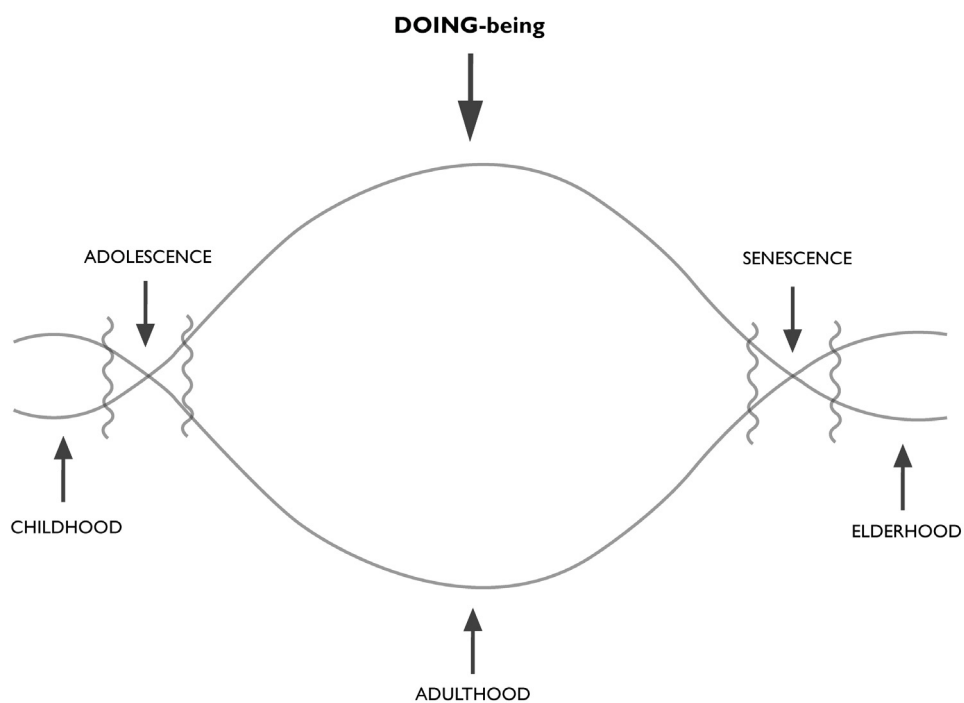


Figure 3. The Malignant Enlargement of Adulthood. (William Thomas, *What Are Old People For? How Elders Will Save the World*, 2004, 173).

⁷ Thomas, *What Are Old People For?*, 63.

Industrialization influenced the changes in social structure of many western societies. Scientific innovations and technological improvements resulted in rapid economic growth.⁸ The boom of new industries relocated many people to urban centres for employment. This concentrated the workers and factories, which further stimulated the urbanization process.⁹ Industrialization led to society's fixation with productivity and began the obsession with adulthood. There was a demand for people to reach adulthood as soon as possible, as well as to keep it for as long as possible. Adulthood has become the standard of wellbeing and is seen as the most worthy part of a person's life course, delegitimizing both youth and old age.¹⁰

Old age has been recast as a merciless descent from the apex of adulthood and must be resisted with every available means.¹¹ Industrialization has removed the ancient relationship between culture and old age in many western societies.¹² Countries such as Canada began to perceive aging as a disease and regard the elders as weak and unproductive members of their communities.¹³ Such a harmful paradigm has withdrawn seniors from mainstream society, dismissing them from their community positions and decreasing their social connections and responsibilities for younger generations.¹⁴ The destructive infatuation of adulthood and the adult obsession with *doing over being* is society's central social and cultural problem today. (See Figure 3) We have succeeded as a species precisely

8 The British Museum, *The Industrial Revolution and the Changing Face of Britain*, accessed November 1, 2018, https://www.britishmuseum.org/research/publications/online_research_catalogues/paper_money/paper_money_of_england__wales/the_industrial_revolution/the_industrial_revolution_3.aspx.

9 Modern World History, *Effects of the Industrial Revolution*, accessed November 1, 2018, <https://webs.bcp.org/sites/vcleary/modernworldhistorytextbook/industrialrevolution/ireffects.html>.

10 Thomas, *What Are Old People For?*, 171.

11 Ibid., 84.

12 Ibid., 58.

13 William McCarroll, "Seniors on the Move: Integrating our Elderly into the Heart of Community" (Master's thesis, Dalhousie University, 2016), 9.

14 World Health Organization, *Global Age-friendly Cities: A Guide* (World Health Organization, 2007), 1.

because we have been able to turn the biological necessity of aging to our collective advantage. Breaching and disregarding these natural ways of living and aging weakens the delicate fabric of human community.¹⁵

The Vulnerable in Urban Communities

The primacy of adulthood has resulted in most of the urban environment being designed for the young, active, and working demographics. People with physical or cognitive limitations, such as children and seniors, face widespread lack of accessibility to built environments, from roads and housing to public buildings and spaces, health services and transportation.¹⁶ The shortcomings of the built environment also form barriers to relevant information and communications.¹⁷ The lack of accessibility limits the social participation of the disadvantaged and vulnerable people in our communities. By excluding some of its members, whether actively or passively, a community leads to the degradation of the social, physical and economic conditions for all of its members.¹⁸

Seniors are the most vulnerable demographic in an urban community and the current conditions of urban planning are failing them. Seniors, like all others, reside and utilize the services and facilities of communities, and require mobile means to conduct their daily activities. As seniors become increasingly physically and mentally demanding, their main desire is to maintain their independence by continuing to function in their own homes, be safe in their neighborhoods, and participate in their communities.¹⁹

15 Thomas, *What are Old People For?*, 171-174.

16 Belinda Parke, "Physical Design Dimension of an Elder Friendly Hospital: A Evidence-based Practice Review Undertaken For the Vancouver Island Health Authority" (PhD diss., University of Victoria, 2007), 5-6.

17 United Nations - Disability: Department of Economics and Social Affairs, *Disability, Accessibility and Sustainable Urban Development*, accessed November 1, 2018, <https://www.un.org/development/desa/disabilities/resources/disability-accessibility-and-sustainable-urban-development.html>.

18 Martha Banda-Chalwe, Jennifer Nitz, and Desleigh de Jonge, "Impact of Inaccessible Spaces on Community Participation of People with Mobility Limitations in Zambia," *African Journal of Disability* 3, no. 1 (2014): 1.

19 Gerald Hodge, *The Geography of Aging: Preparing Communities for the Surge in Seniors* (Montreal: McGill-Queen's University Press, 2008), 4.

Accessibility to common amenities like grocery stores, health services, and community centres is pivotal to ensuring equity of participation for people.²⁰ It is important to consider the special concerns that older people may have with convenient and accessible opportunities for recreation, social exchange, and logistical support.²¹ Their needs and limitations should be accepted as the fundamental determining factor in design and considered as the basis to the human interaction within the built environment.²²

Why Focus on Seniors?

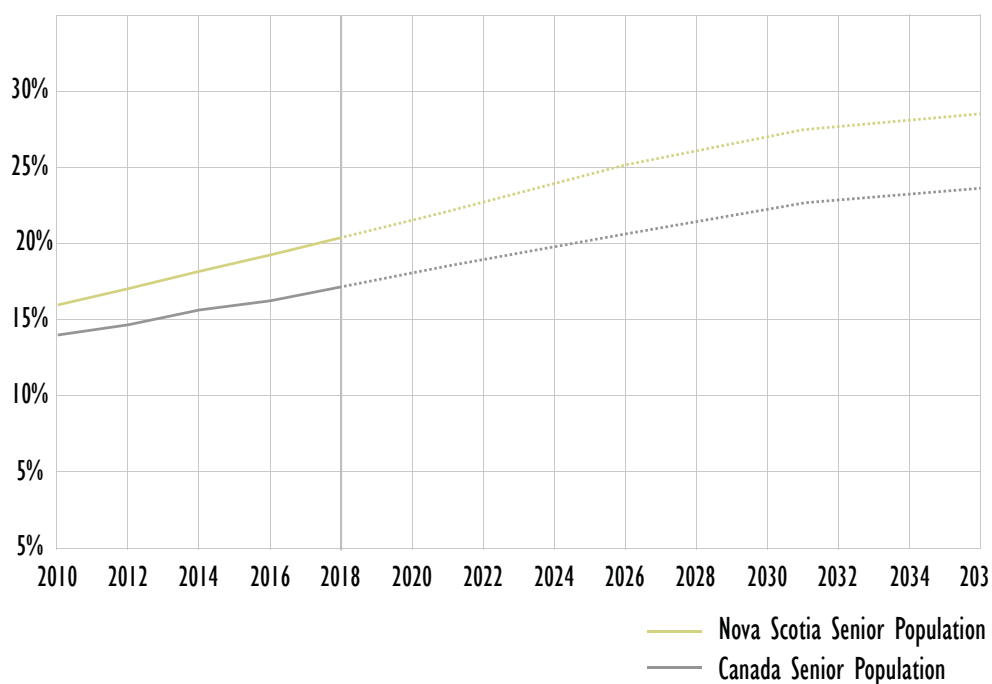


Figure 4. Estimated senior population growth from 2010-2036. (Statistics Canada, Population by age group and sex, November 2015).

Canada's population is in the middle of a demographic shift which is already affecting its social structures. While life expectancy has been on a continual rise due to the ever-improving quality of life and health care, birth

²⁰ Banda-Chalwe, "Impact of Inaccessible Spaces on Community Participation of People with Mobility Limitations in Zambia," 1.

²¹ The Centre for Human Settlements, *Human Settlement Issues: Aging Households, Long Term Care, and Environments for the Elderly* (Vancouver: The Center for Human Settlements, 1981), 32-33.

²² Oya Demirbilek, and Halime Demirkan, "Involving the Elderly in the Design Process," *Architectural Science Review* 41, no. 4 (1998): 158.

rates have been steadily dropping.²³ In 2011, the oldest members of the baby boomer generation started to reach the age of 65, further accelerating the increasing proportion of the aging population. (See Figure 4) Now, the senior population is Canada's fastest-growing demographic.²⁴

The senior population growth undoubtedly reflects a technological and medical breakthrough. However, the social support programs, healthcare, and economic systems in Canada are not prepared to face the implications of the dramatic increase of the senior population. Simply put, increases in the age of mature adults mean increases in health risks. In 2017, the Canadian Institute of Health Information reported that with seniors already accounting for about 16% of the population, they used almost 46% of all public health spending. If current age demographic trends and approaches to providing care and community support continue, this spending will grow to 62% by 2036.²⁵ The limitations caused by aging lead to retirements that are consequently slowing down the growth of the labour force. It is estimated that for every retired citizen, the number of working-age Canadians will have fallen from 5 in 2012, to 2.7 by 2030.²⁶ This generation imbalance means there will be fewer people paying taxes and available to provide care than those living off taxpayer money and requiring care.

Current Living Solutions for Seniors

Devaluing of the aging demographic in many urban communities has led to unsustainable living arrangements for seniors. The current solution for senior living, when critically evaluated, is little more than a band-aid for much greater cultural and societal problems. While providing seniors with

23 Department of Finances Canada, *Economic and Fiscal Implications of Canada's Aging Population* (Ottawa: Department of Finances, 2012), 11.

24 Canadian Medical Association, *A Policy Framework to Guide a National Seniors Strategy for Canada* (Ottawa: Canadian Medical Association, 2015), 5.

25 Canadian Institute for Health and Information, *National Health Expenditure Trends, 1957 to 2017* (Ottawa: Canadian Institute for Health Information, 2017), 27.

26 Department of Finances Canada, *Economic and Fiscal Implications of Canada's Aging Population*, 21.

adequate and even efficient healthcare and physical necessities, these dwellings fail to integrate seniors with their families and communities.

Using Rockwood's Clinical Frailty Scale (see Appendix), the following diagram (see Figure 5) shows how a senior might relocate into different communities as they lose independence because of the lack of support for their increasing needs. The diagram groups multiple living arrangements under Schwarz's (1999) three different Models of Senior Care: Home Model, Social Model, and Medical Model.²⁷

²⁷ Benyamin Schwarz and Ruth Brent, *Aging, Autonomy, and Architecture: Advances in Assisted Living* (Baltimore: Johns Hopkins University Press, 1999).

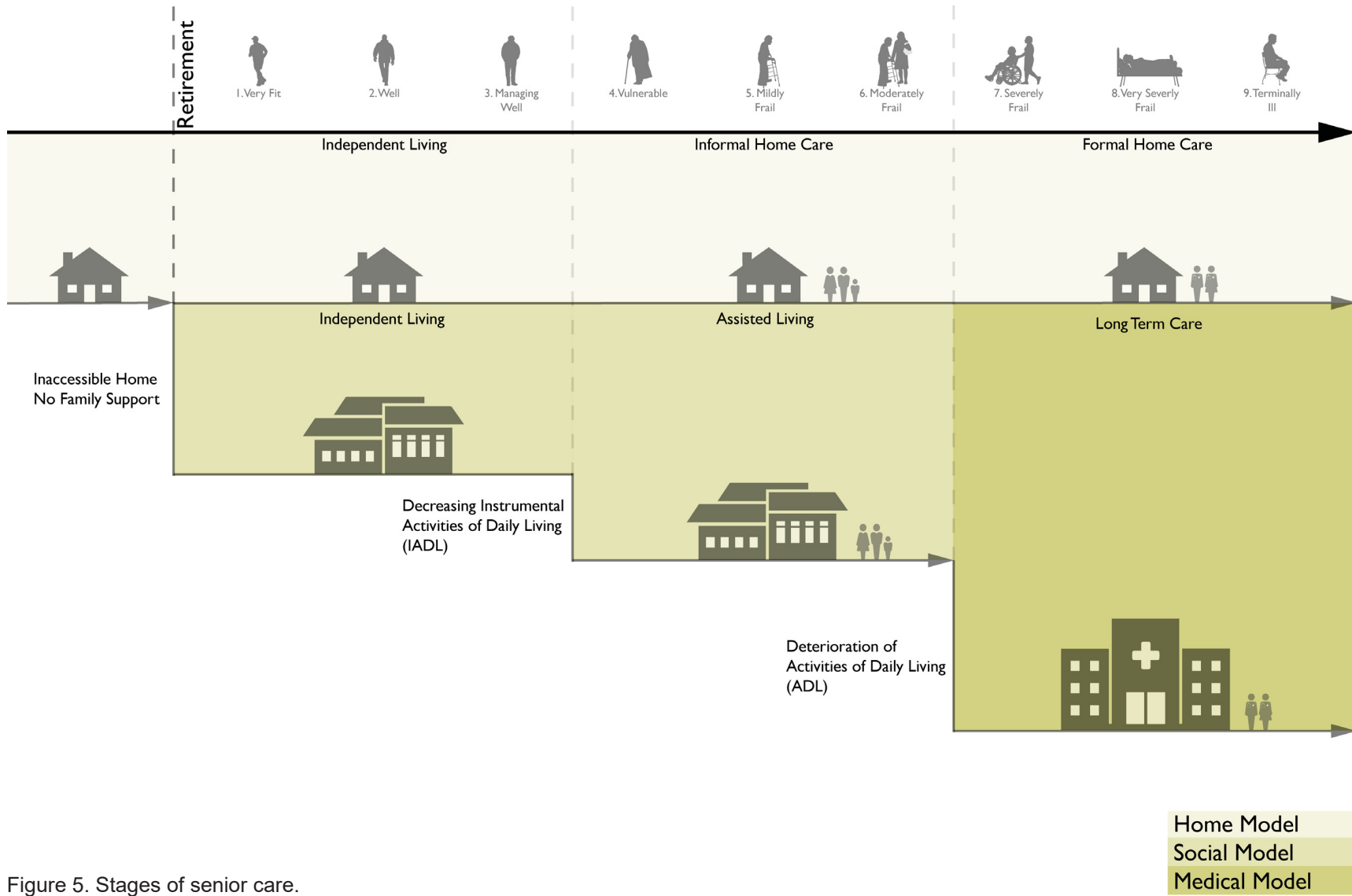


Figure 5. Stages of senior care.

Home Model

Everyone builds emotional attachments to the places they have lived – to their home, neighborhood, and community. Living in the same environment for many years culminates meaningful memories and experiences. These sentiments result from social relations built with neighbors and the sense of identity and stability that the setting imparts.²⁸ Furthermore, physical limitations and sensory loss distort older people's perception of their environment, placing a premium on the familiarity they have with their locale from knowing and routinely traversing its space.²⁹ Because of these familiarities, it is not surprising that most seniors prefer to live as long as possible in their own homes, reluctant to move and lose this identity and stability.

Seniors with declining abilities who stay in their homes may be choosing to live with risks of injuries or neglect. Without community support and informal or formal home care, living at home may precipitate the likelihood of institutionalization.³⁰ However, it is important to recognize that people have the right to live as they best see fit. For seniors living at home, this often includes living with an accepted level of risk. Society must protect the dignity of seniors by ensuring various support systems and providing different home models of care for those who choose to stay at home.³¹ Three examples that would allow seniors to age-in-place are:

Independent Living: A senior's health is the main indicator if they are able to live at home. Healthy individuals tend to stay, especially when they have a partner from whom they can gain mutual support. Additionally, many renovate their homes to meet their accessibility needs as they age, prolonging their ability to stay.

28 Hodge, *The Geography of Aging*, 123-124.

29 The Centre for Human Settlements, *Human Settlement Issues*, 33.

30 Canadian Institute for Health Information, *Health care in Canada 2011: A focus on seniors and aging* (Ottawa: Canadian Institute for Health Information, 2011), 72.

31 Canadian Medical Association, *A Policy Framework to Guide a National Seniors Strategy for Canada*, 19.

Informal Home care: Family, friends, and neighbors informally provide most home care in Canada.³² Informal care is the primary support that enables many seniors to live in their homes and communities safely. However, not all seniors have these networks of support as it can be difficult for these caregivers to balance their already busy schedules.³³

Formal Home care: Formal Home care encompasses various services from many different professionals, depending on the needs of each individual. It typically includes home health services such as nursing and physical, occupational and respiratory therapy. It also includes home support services such as assistance in Activities of Daily Living (ADL), meal services, home maintenance and repair, transportation and respite services.³⁴

Social Model

While many seniors have the opportunity to age-in-place, there are many marginalized, poor, or less socially connected seniors who are forced to move due to circumstances out of their control. Circumstances such as chronic health problems, inaccessible homes, public spaces, and community services, as well as lack of family or community support are among the most common reasons.³⁵ When moving, seniors often choose a social model of care that attempts to act as a microcosm of how a community functions. These models provide accessible housing, a sense of community and immediate access to supportive services in a noninstitutional setting.³⁶ The social model of senior care promotes mental and physical wellbeing by encouraging independence and providing opportunities for socialization and interpersonal relationship formation. Moreover, social model living

32 Ibid., 18.

33 Canadian Institute for Health Information, *Health care in Canada 2011: A Focus on Seniors and Aging*, 76.

34 Ibid., 73.

35 Stephen M. Golant, "Conceptualizing Time and Behavior in Environmental Gerontology: a Pair of Old Issues Deserving New Thought," *Gerontologist* 43, no. 5 (2003): 638.

36 Robert Mollica and Kimberly Snow, *State Assisted Living Policy, 1996* (Portland: National Academy for State Health Policy, 1996).

arrangements also provide security and access to healthcare staff for maintaining the health and wellbeing of the residents.³⁷ However, these communities and dwelling arrangements, in their attempt to create self-contained communities, often fail to provide the fulfilment of a seniors place in a complete society. Examples of a social model of care include Assisted Living Facilities and Cohousing Communities.

Assisted Living Facilities: Seen as the primary Long-term Care alternative, Assisted Living provides seniors with immediate access to professional personal and health care services in a group setting while maintaining a residential form in its social and architectural design. Assisted Living facilities attempt to meet residents' needs for assistance, scheduled or emergency while optimizing residents' physical and psychological independence.³⁸

Cohousing Communities: Cohousing is a model of a collective living that provides many benefits similar to those found in assisted living but in a noninstitutional setting. Cohousing Communities are intentional communities and are initiated by its future residents, ensuring to create a supportive environment full of like-minded individuals.³⁹

Medical Model

Seniors with more advanced health concerns, the ones with daily medical needs, generally often move in residences providing a medical model of care. Within this model, residents are often viewed as a homogeneous group - patients sharing similar losses in competency. Daily existence centers on physical needs and has little resemblance to the seniors' previous lives in their old communities.⁴⁰ Medical care facilities prevent opportunities for individual growth and the maintenance of basic faculties because of the

37 Canadian Research Network for Care in the Community, *Supportive Housing - Toronto*, last modified October 2006, 1.

38 Schwarz, *Aging, Autonomy, and Architecture*, 3.

39 Canadian Cohousing Network, *What is Cohousing?*, accessed November 1, 2018, <https://www.cohousing.ca/about-cohousing/what-is-cohousing/>.

40 Schwarz, *Aging, Autonomy, and Architecture*, 91.

extensive restriction of their activities. Residents are often unable to fully exercise their existing functional abilities.⁴¹ These factors lead to issues of loneliness, boredom, and helplessness which can contribute to premature deterioration of elders' physical and mental health.⁴² It is estimated that 5-10% of seniors living in a community will experience depression and the rate dramatically increases to 30-40% for those living in institutions.⁴³ Examples of medical models include Memory Care and Long-term Care.

Memory Care: Memory Care provides accommodations for people with significant cognitive impairments but minor physical impairments. Living spaces are designed to provide a supportive environment for the residents' cognitive needs but usually provide very little support for residents to stay physically active and healthy.⁴⁴

Long-term Care: Long-term care or nursing homes are accommodation that offers around-the-clock supervised care, provided by registered nurses and physicians. The people who live here generally have impaired cognitive capabilities and physical health. They usually have difficulty fulfilling the most basic and necessary activities of daily living.⁴⁵

Community Disconnection and Isolation

The community disconnection of seniors caused by the different models of elder care highlights the central problem with the current approach to community design. Having to relocate to a new environment can be difficult for many because it removes the sense of familiarity and belonging, especially for seniors who may have lived in one community their whole lives. Unfamiliar surroundings can create challenges to maintain physical

41 Ibid., 46.

42 Thomas, *What Are Old People For?*, 179.

43 Mood Disorders Society of Canada, *Depression in Elderly* (Guelph: Mood Disorders Society of Canada, 2015), 1.

44 Scott M. Ball, *Livable Communities for Aging Population: Urban Design for Longevity* (Hoboken: John Wiley & Sons, 2012), 181.

45 Canadian Medical Association, *A Policy Framework to Guide a National Seniors Strategy for Canada*, 22.

health, which negatively impacts a person's independence and participation in daily life.⁴⁶ The ability to remain independent and have a sense of belonging is often tied to the quality and frequency of social interaction.⁴⁷ Therefore, having low social contacts and social roles, as well as the lack of mutually rewarding relationships, lead to social isolation.⁴⁸ Isolation can be a direct contributing factor to mental health challenges such as depression, social anxiety, and loneliness.⁴⁹ Isolation-related depression often leads to other forms of physical and emotional problems that prevent one's ability to live independently.⁵⁰ Becoming marginalized with age leads to a cycle that negatively impacts one's physical, social and mental health.

Although current senior care approaches require future revision and adaptations - especially with fully integrating seniors within the greater community, these care models were designed with the best intentions that cater to seniors' needs. Therefore, it is beneficial to look at the successes and failures of each model which can be used to propose a new approach to urban community design. These models demonstrated the equal importance of the physical and social environments as primary factors that determines an individual's physical, social and mental health. The home model highlights the importance of maintaining a sense of familiarity with one's environment and social networks even if it means living with risks. The social model promotes physical health, independence, and a sense of belonging by mimicking the familiar characteristics of a community. The medical model, through its failures, highlights the importance of maintaining one's individuality and having access to inclusive social environments in preventing isolation and depression.

46 Sean Stewart, "Aging by Design" (Master's thesis, Dalhousie University, 2016), 25.

47 Ball, *Livable Communities for Aging Population*, 67.

48 The National Seniors Council, *Report on the Social Isolation of Seniors 2013-2014* (Gatineau: The National Seniors Council, 2014), 1.

49 Stewart, "Aging by Design", 26-27.

50 Ball, *Livable Communities for Aging Population*, 67.

CHAPTER 3: DESIGN APPROACH

Life Course Community

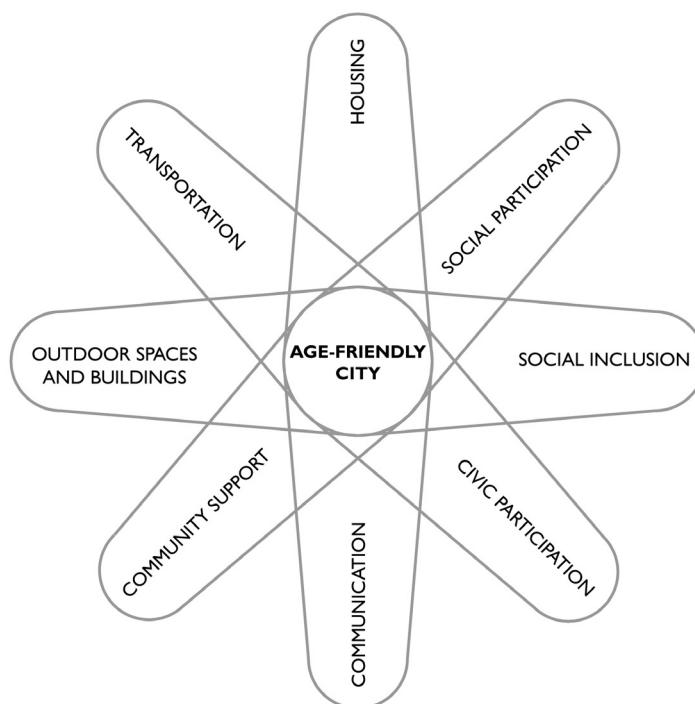


Figure 6. Eight domains of an Age-friendly community. (World Health Organization, *Global Age-friendly Cities: A Guide*, 2007).

Society's current attitude towards aging is causing a massive disconnection between the different stages of the life course, especially with elderhood. We already see the negative implications of these disconnections in our current society. Therefore, this thesis challenges the problem by designing a Life Course Community. A Life Course Community adopts the ideas of the World Health Organization's Age-Friendly Cities, which enable the residents, especially the elderly, to live in familiar residences for as long as they wish by encouraging active aging and providing support and opportunities to meet age-related needs.⁵¹ They are characterized by physical and social environments that promote inclusive experiences for community members such as providing resources to meet essential health and social needs regardless of age-related disabilities, support systems to develop and maintain interpersonal relationships and removing barriers to

⁵¹ World Health Organization, *Global Age-friendly Cities*.

enable everyone to participate in various social activities.⁵²

The World Health Organization has determined eight domains that make a city age-friendly. (See Figure 6) The interaction between these domains can provide a comprehensive understanding of an urban community's experience. *Social inclusion* is reflected in the community's accessibility to its offerings for social and civic participation. *Social and civic participation* influences social inclusion and communication. *Housing* impacts the demands for *community support services*. *Social, civic, and economic participation* are dependent on the accessibility and safety of the community's *public spaces*. *Transportation* and *communication* are essential components to the other domains' success because they ensure interaction and information exchange between individuals.⁵³ The presence and relationships between these domains ensure a supportive environment for active aging.

Life Course Communities are not only 'elderly-friendly'. There is a misconception about aging and the needs of the senior population. Though older people need more emphasis on certain aspects of living arrangements, the difference is of degree rather than kind. Design features that are necessary for the older population will be beneficial throughout an individual's life course.⁵⁴ Barrier-free environments enhance the mobility and independence of individuals with physical and cognitive limitations. Secure neighborhoods allow children, women, and seniors to feel safe participating in social activities. Families are happy in knowing that their older member has the community support and health services they need.⁵⁵ The whole community benefits from the supportive and enabling environment that life course communities provide.

52 Andrew Scharlach and Amanda Lehning, "Ageing-Friendly Communities and Social Inclusion in the United States of America," *Ageing and Society* 33, no. 1 (2013), 111.

53 World Health Organization, *Global Age-friendly Cities*, 9-10.

54 Ball, *Livable Communities for Aging Population*, 13.

55 World Health Organization, *Global Age-friendly Cities*, 6.

Life Course Community Framework

The earliest conceptual model that recognized the relationship between the individual and the environment was by Kurt Lewin in 1951, who formulated a heuristic equation:

$$B = f (P,E)$$

Where behaviour(B) is a function of both the individual(P) and the environment(E).

In 1980, M. Powell Lawton modified Lewin's equation, suggesting that it was necessary to include more than E, or the objective environment; that an individual's perception of the environment (P X E), which refers to an individual's experience of being in a setting or place, is a necessary component to understanding behavior.

$$B = f [P, E (P \times E)]$$

Many other models and principles of individual-environment relationships followed Lawton's work. The most significant was the Integrative Model of Place (IMP). This model posits that a setting is composed of a complex system of relationships among four distinct dimensions: Individual, Social Environment, Organizational Environment, and Physical Environment. One significant difference the IMP has from other models is that it is fundamentally interested in the experience of place rather than the determinants of behaviour. Lawton's equation was rewritten:⁵⁶

$$P = f (I, E_{sop} (I \times E_{sop}))$$

Where P = place experience, I = individual, E = environment, s = social, o = organizational and p = physical.

This formula can be interpreted into a diagram that highlights the different environments' influences on an individual's experience of a place. (See Figure 7) The IMP diagram allows one to determine the ideal experience of a setting. By establishing a specific place, deducing the individual that

⁵⁶ Schwarz, *Aging, Autonomy, and Architecture*, 130-139.

is potentially most vulnerable in that place, and then finally determining the beneficial attributes of each environmental factor for said individual, one can begin to conceptualize an experience that is positive for all of its inhabitants.

The IMP diagram is used to conceptualize and develop a framework for understanding how life course communities operate and how to best design one. It is argued that seniors are the most vulnerable individuals in an urban community. Furthermore, it is considered in conjunction with the World Health Organization's eight domains as the most important environmental factors of a life course community. Grouping the domains within their respective environmental factors results in the visualization of how seniors can experience a life course community. (See Figure 8) Senior lifestyles should, therefore, be fundamentally included when designing; accommodating the needs of the elderly benefits the community as a whole.

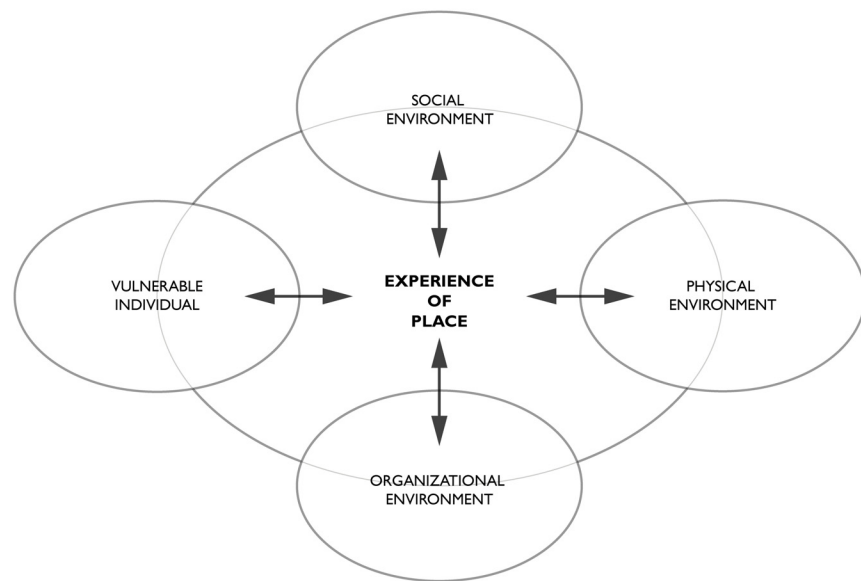


Figure 7. Integrative Model of Place Diagram.

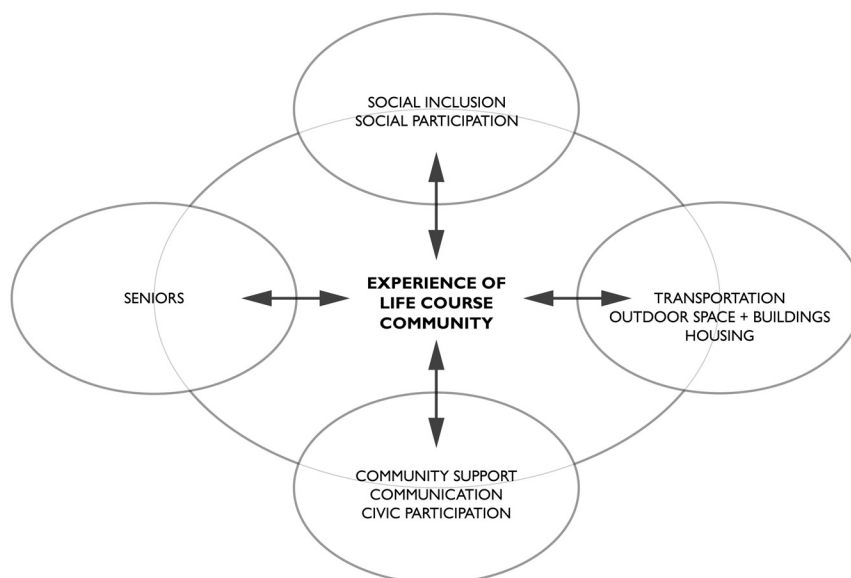


Figure 8. Integrative Model of Life Course Communities.

Social Environment

Social environments enable the social relationships within a community. A successful social environment promotes social interaction and healthy well-being. A life course community proposes that social inclusion and social participation are the most important social environments. Social inclusion refers to the attitudes and behaviour of people in the community towards seniors and each other, while social participation refers to the engagement of seniors in the community's public spaces, as well as educational and spiritual activities.⁵⁷

Social Inclusion



Figure 9a.
Social Inclusion

Social inclusion has been described as a “response to structural barriers that deny individuals and groups the ability to participate fully in the benefits of society”.⁵⁸ It is a representation of both an individual's characteristics and of the communities within which they live. According to Scharlach, there are three characteristics that impact social inclusion in relation to

⁵⁷ World Health Organization, *Global Age-friendly Cities*, 9.

⁵⁸ Scharlach, “Ageing-Friendly Communities and Social Inclusion in the United States of America”, 113.

individuals and their environments: social integration, which reflects the inhabitants' inclusion within the community's network of social bonds and societal structures; social support, which refers to the extent to which those social bonds enable community members easy access to community resources; and resource access, which reflects the notion that social relationships crucially contribute and promote the wellbeing and fulfillment of the community's members.⁵⁹

Social Participation



Figure 9b.

Social
Participation

Social participation analyses the social activities within a community. A community's success is dependent on the frequency of residents' social interactions, especially those of seniors. Social participation encourages seniors to function to the extent of their capabilities which establish a supportive environment and maintain social integration. The ability to partake in formal and informal social life depends not only on the variety of activities provided, but also on the provision of adequate access to transportation, community facilities, and on networks of awareness about events and activities.⁶⁰

Organizational Environment

The organizational environment of a community is defined by its support systems. A successful community provides opportunities for citizenship and employment. A life course community proposes that community support, communication, and civic participation are the most important systems of support to leading to a positive and effective organizational environment. Community support refers to the formal and informal organizations that support the residents' needs in order to live with ease. Communication refers to the network that allows easily accessible information exchange in the community. Civic participation refers to residents' involvement with the community's organizations.

⁵⁹ Ibid., 113.

⁶⁰ Ibid.,121.

Community Support



Figure 9c.
Community
Support

Community support is vital to ensuring an enabling community. Easily accessible organizations that offer an array of social and health support ensures effective continuum care.⁶¹ A successful community support understands and provides support to the functional limitations and needs of the aging body, ensuring they are able to participate in community activities.⁶²

Communication



Figure 9d.
Communication

Exceptional communication is key to residents staying connected and updated with events in a community. Furthermore, seniors, with their limitations, need easy access to relevant information and resources to ensure active aging.⁶³ The best way for seniors with limited mobility or physicality to communicate is to be nearby and have easy access with neighbors and public spaces.

Civic Participation



Figure 9e.
Civic
Participation

Civic participation analyses residents' involvement with the community's organizations. Civic participation is key to the success of a community's support system and is reflective of its residents' social participation. Seniors often do not wish to stop contributing to their communities after retirement because many see employment as an opportunity to maintain social integration and to share their knowledge and experience. A life course community should provide equal opportunities for older people to continue to contribute to their communities through paid employment or volunteer opportunities.⁶⁴

61 Hodge, *The Geography of Aging*, 157.

62 Parke, "Physical Design Dimension of an Elder Friendly Hospital: An Evidence-based Practice Review Undertaken For the Vancouver Island Health Authority".

63 World Health Organization, *Global Age-friendly Cities*, 60-65.

64 Ibid., 51-59.

Physical Environment

Physical environment encompasses the infrastructure that organizes a community. A life course community proposes that transportation, public outdoor spaces and buildings, and housing are the most important elements of a physical environment. Transportation deals with the residents' access to community offerings and each other. Outdoor Spaces and Buildings refer to the public spaces that allow social interaction between residents. Housing refers to the resident's private dwellings.

The investigation of the current senior living arrangements and the Age-Friendly City Framework emphasizes the importance of the physical environment and how it has the most impact on people's experience of a place. Social and organizational environments are very much dependent on the success of the physical environment. Seniors cannot be integrated in a community unless they are first integrated physically by sharing the same streets, shops, services, and common land.⁶⁵ Establishing a senior-centric approach for the three physical environments will result in successful social and organizational environments.

The IMP diagram is rewritten to highlight the importance of the physical environment. (See Figure 10) The new formula can be used to generate a new framework for designing the physical environment for a life course community. (See Figure 11)

⁶⁵ Christopher Alexander, *A Pattern Language* (New York: Oxford University Press, 1977), 217-218.

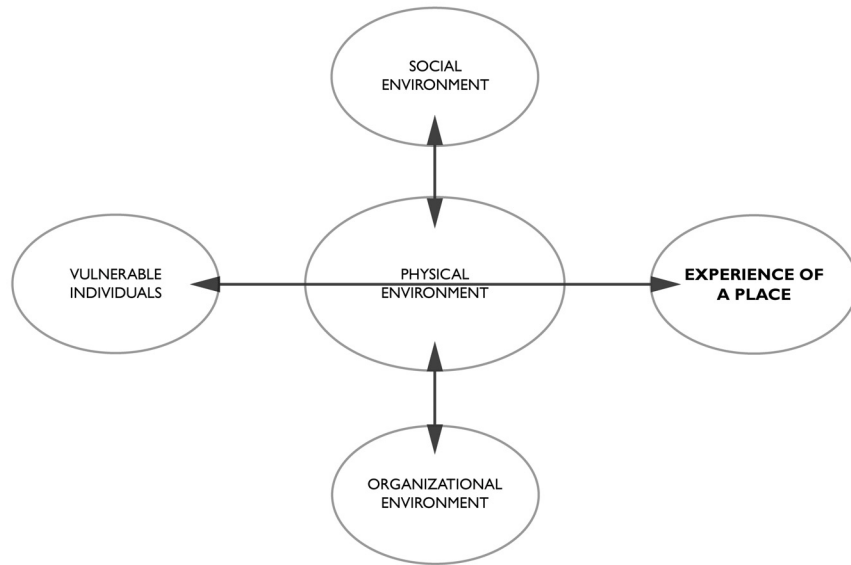


Figure 10. Importance of Physical Environment in experiencing a place.

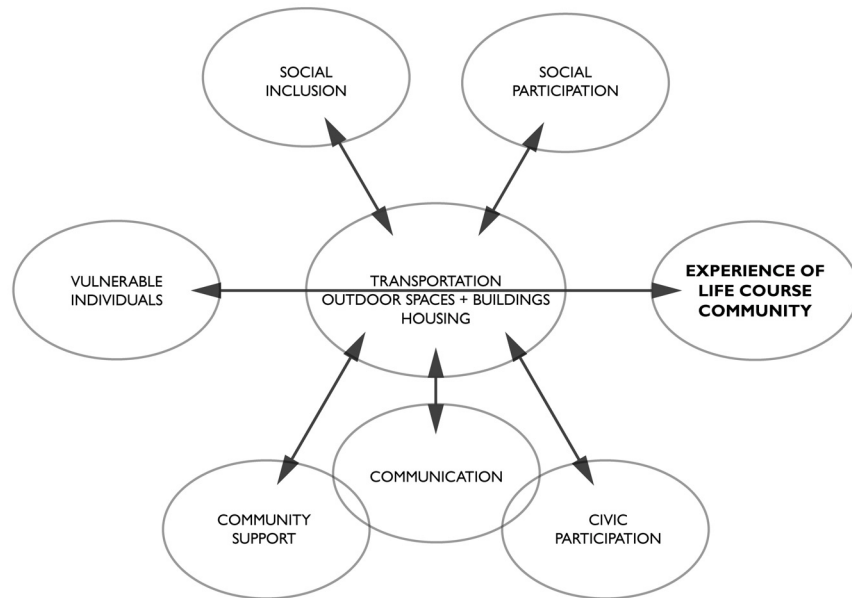


Figure 11. Importance of Physical Environment in experiencing a Life Course Community.

Transportation

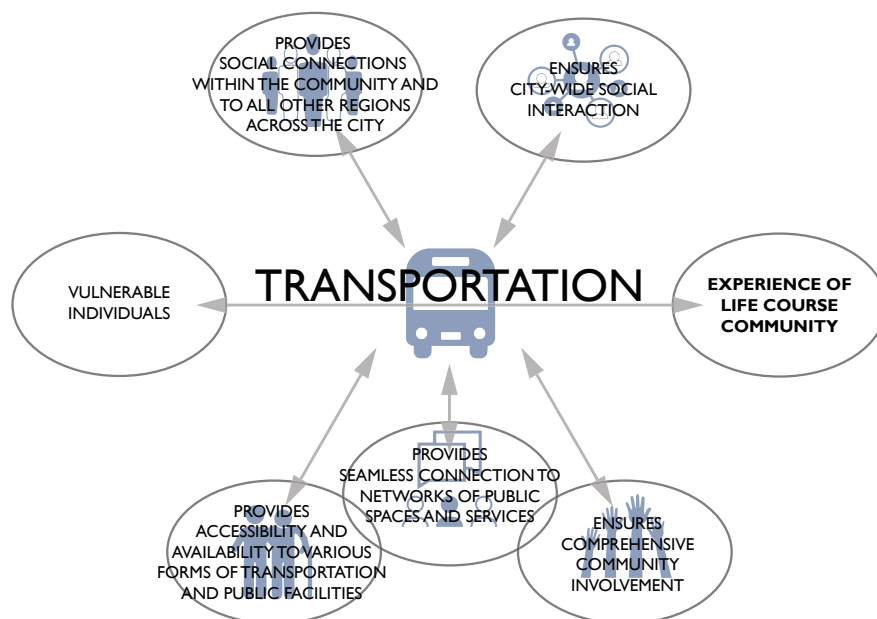


Figure 12. Importance of Transportation in experiencing a Life Course Community.



Figure 9f.
Transportation

Transportation is the network that provides a seamless connection to the many elements of a community's physical environment, as well as with the rest of the city. It allows for access to social and health services, recreation, as well as to family and friends. Well-designed networks of transportation ensure that the residents, especially those with increased limitations of personal mobility, can continue to take part in and contribute to the community.⁶⁶ The physical requirements of an aging senior can be a barrier to autonomy.⁶⁷ Transportation must be present in a variety of forms to meet the diverse needs of seniors, as well as the average citizen: road infrastructure needs to be built and maintained, public transportation in the form of buses, streetcars, mobility shuttles, and taxi services need to be available for those who don't or cannot drive, and pedestrians need proper sidewalks with adequate lighting, signage, and that are free of curbs and difficult slopes.⁶⁸

66 Hodge, *The Geography of Aging*, 97.

67 Parke, "Physical Design Dimension of an Elder Friendly Hospital: An Evidence-based Practice Review Undertaken For the Vancouver Island Health Authority".

68 Hodge, *The Geography of Aging*, 27.

Outdoor Spaces and Buildings

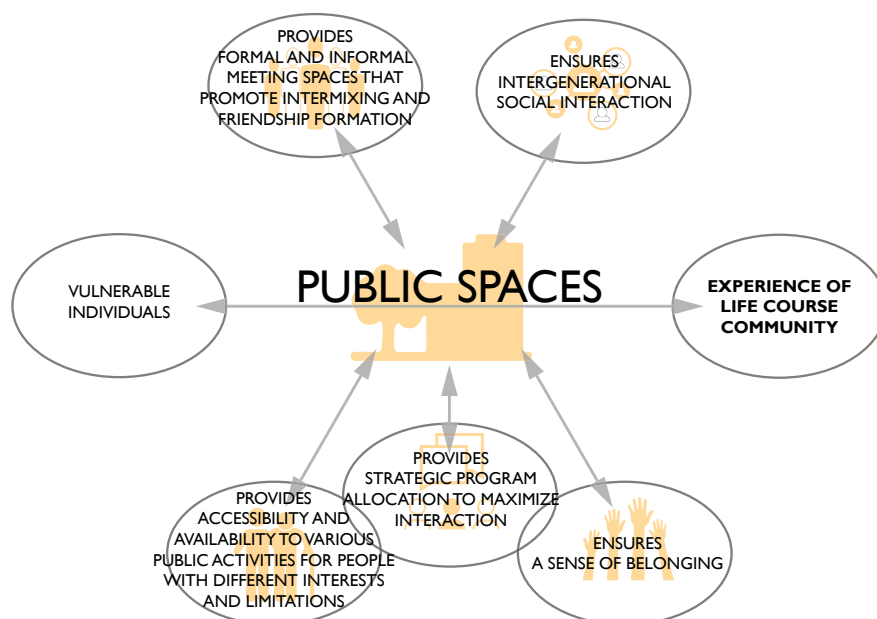


Figure 13. Importance of Public Spaces in Experiencing a Life Course Community.



Figure 9g.
Public Spaces

Public outdoor spaces and buildings are the infrastructures that support the social and civic interactions in a community. The quality and design of these spaces and buildings can strongly impact the residents' sense of belonging, independence, quality of life, as well as the possibility to age in place.⁶⁹ Public spaces should promote intergenerational interaction. In order for a community to provide successful public spaces, it should include formal and informal meeting spaces that promote intermixing and friendship formation. It should foster lively and interesting streets and sidewalks because they are the main public spaces and are the most vital organs of a community.⁷⁰ It is important to ensure that the fabric of these streets is a continuous network of activation, while also maintaining the functional identity of different areas. Parks, squares and public buildings should be part of the community's fabric to intensify and integrate the urban complexity to ensure accessibility and availability of various public activities for people with different interests and limitations.⁷¹

69 World Health Organization, *Global Age-friendly Cities*, 12-19.

70 Jane Jacobs, *The Death and Life of Great American Cities* (New York: Random House, 1961), 29.

71 Ibid., 126-129.

Housing

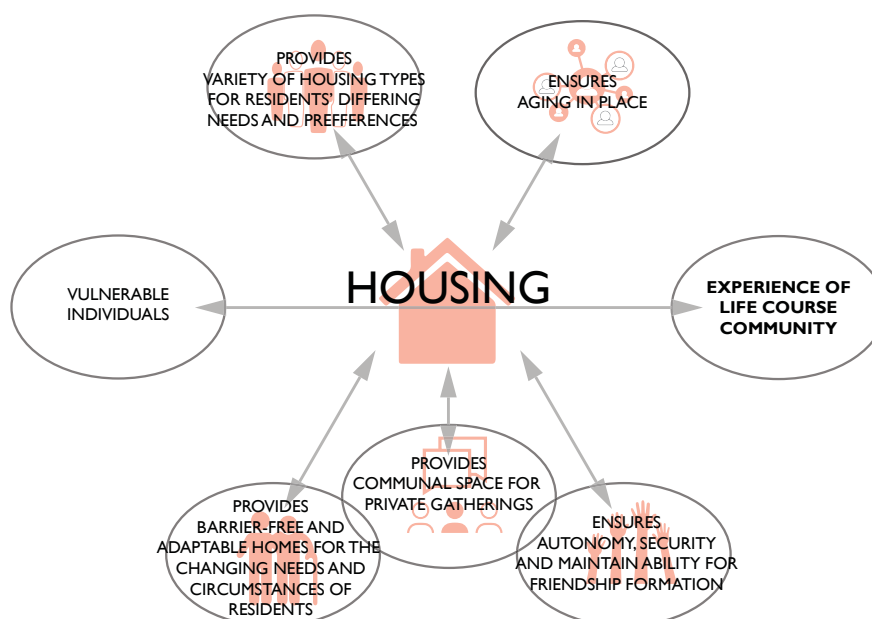


Figure 14. Importance of Housing in Experiencing a Life Course Community.



Figure 9h.
Housing

Housing has been called “the most fundamental symbol of independence for the elderly”.⁷² It serves as a basis for our daily functions, yet it is also a comforting haven from the outside world because it provides security and autonomy.⁷³ A home is not just a shelter, it is the setting for the private reflections of the individual or family that occupies it. It reflects their personalities, values, and lifestyles. It is also the key element that links residents to their immediate environment and community. Given that an individual’s housing needs and preference change as they age, a life course community should provide a variety of housing arrangements. Additionally, homes designed to be barrier-free and adaptable according to the needs of elderly people would be very accommodating of other demographics’ needs and promotes aging-in-place.⁷⁴

⁷² Hodge, *The Geography of Aging*, 96.

⁷³ Ibid.

⁷⁴ Demirbilek, “Involving the Elderly in the Design Process”, 157-163.

CHAPTER 4: CRITICAL LOOK OF PAST MOVEMENTS

Past Urban Planning Movements

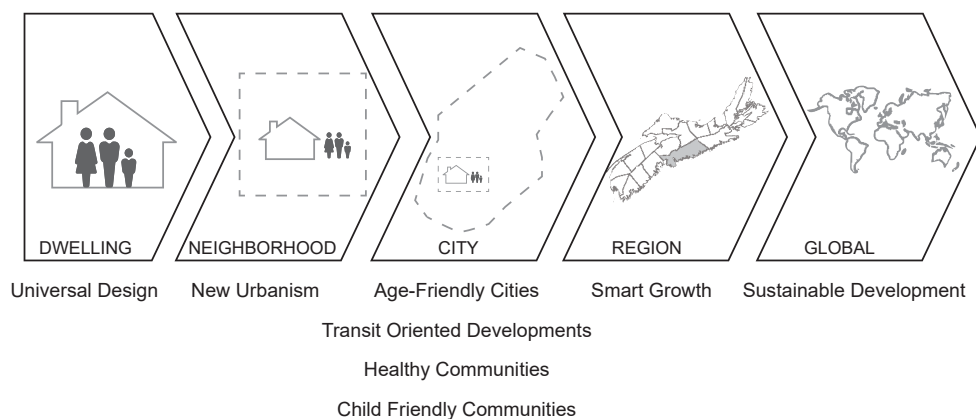


Figure 15. Past Urban Planning movements' differing scales of influence. (Miller and Annesley, *Re-Positioning Age Friendly Communities*, 2011, 33).

There have been many urban planning movements in the past that presented principles to integrate seniors and the vulnerable in our communities. Among the most prominent are Smart Growth, New Urbanism, Sustainable Communities, Healthy Communities, Accessibility Planning, Universal Design, Child Friendly Cities, WHO Safe Communities, Transit-Oriented Developments, and Age-Friendly Cities.⁷⁵ These movements all had similar goals in improving human lives through bettering the architectural and urban design, but they employed different principles. They all succeeded in achieving their own set goals and as a result, improved the lives of the vulnerable and their communities as holistic entities. However, each of the movements lacked a principle that another had. Some operated at a global scale, resulting in an inexplicit framework, while others were only applicable at the scale of an individual dwelling. Some initiatives prioritized environmental concerns while some neglected environmental considerations entirely.

Studying these movements' successes and failures is important in

⁷⁵ Glenn Miller and Allison Annesley, *Re-Positioning Age Friendly Communities: Opportunities to Take AFC Mainstream* (Toronto: Canadian Urban Institute, 2011).

understanding the problem with the current state of urban communities. Their principles will be critically revisited, and these analyses will serve as the basis on which a new approach to life course inclusive urbanism can be built.

Smart Growth



Figure 16. Success of Smart Growth in relations to the Life Course Community Framework.

The Smart Growth movement was developed in the 1980s.⁷⁶ It was a response to the suburbs - the low density, automobile-dependent development, which has dominated North America since the mid-20th century. The cities' rapid expansion has depleted and polluted the environment, threatened people's health, and disconnected many social networks.⁷⁷ The Smart Growth movement focused its principles on these problems, which resulted in development and conservation strategies that mitigate the destruction of the natural world and protect people's physical, mental, and social health. The Smart Growth Network developed ten principles to guide smart growth strategies:⁷⁸

- Mix land uses
- Take advantage of compact building design
- Create a range of housing opportunities and choices
- Create walkable neighborhoods
- Foster distinctive, attractive communities with a strong sense of place
- Preserve open space, farmland, natural beauty, and critical environmental areas
- Strengthen and direct development towards existing communities

⁷⁶ Ibid., 10.

⁷⁷ David Couroux, Noel Keough, Byron Miller and Jesse Row, *Overcoming Barriers to Sustainable Urban Development: Toward Smart Growth in Calgary* (Calgary: Pembina Institute, 2006), 2.

⁷⁸ Smart Growth Online, *What is Smart Growth?*, last modified March 16 2015, <http://www.smartgrowth.org/what-is-smart-growth/>.

- Provide a variety of transportation choices
- Make development decisions predictable, fair, and cost-effective
- Encourage community and stakeholder collaboration in development decisions

Smart Growth's approach to preventing sprawling promoted walkable and mixed-use communities that provided access to affordable housing and a variety of transportation system.⁷⁹ However, Smart Growth's underlying motivation was mitigating the depletion of the natural environment, prioritizing the environment over people. This resulted in a framework for design that focused mostly on the physical environment and overlooked the importance of the social environment.

New Urbanism



Figure 17. Success of New Urbanism in relation to the Life Course Community Framework.

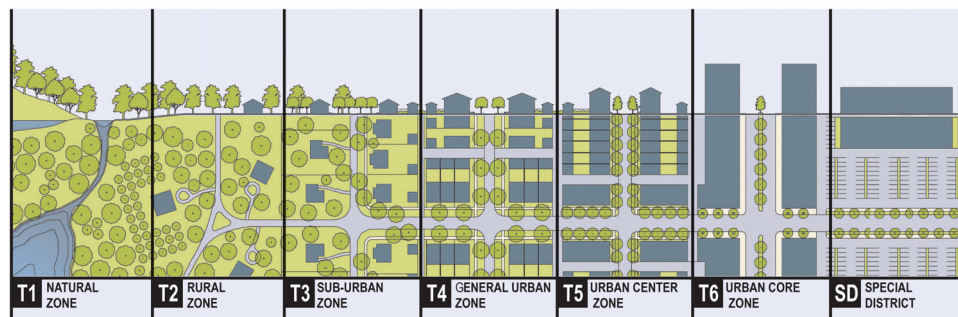


Figure 18. The Urban-to-rural Transect. (Miller and Annesley, *Re-Positioning Age Friendly Communities*, 2011).

The New Urbanism movement first emerged in the 1980s.⁸⁰ Similar to the Smart Growth movement, it was developed to provide alternatives to the low-density housing and car-oriented post-WWII suburban sprawl, which have caused segregation of classes and ethnicities.⁸¹ The New Urbanism movement tried to mimic how cities and towns from several centuries were

⁷⁹ Ibid.

⁸⁰ Miller, *Re-Positioning Age Friendly Communities*, 15.

⁸¹ E. J. McCann, "New Urbanism" in *International Encyclopedia of Human Geography*, 7, (2009): 438-443..

built. It promoted walkable streets, accessible public spaces, and ensured that private homes were interconnected with the community's recreational activities.⁸² New urbanism reintroduced the human-scale to urban design as the solution to mitigate the social and environmental deterioration caused by sprawl.⁸³ The principles of New Urbanism are quite prescriptive and deal primarily with built form and infrastructure.⁸⁴

- Sustainability
- Mixed-use & diversity
- Mixed housing
- Connectivity & smart transportation
- Quality architecture & urban design
- Walkability
- Increased density
- Quality of life

New Urbanism placed focus on discussions and developments that explored how to best preserve, design, and restore our regions, cities, and communities.⁸⁵ Although most communities did not develop directly through the New Urbanism movement, the impact it has had in recent urban planning movements is undeniable. It has been the basis for the creation and success of many of the new urban planning strategies in recent years.⁸⁶

Sustainable Communities



Figure 19. Success of Sustainable Communities in relation to the Life Course Community Framework.

82 Congress for the New Urbanism, *What is New Urbanism?*, accessed November 1, 2018, <https://www.cnu.org/resources/what-new-urbanism>.

83 E. J. McCann, "New Urbanism" in *International Encyclopedia of Human Geography*, 7, (2009): 438-443.

84 Miller, *Re-Positioning Age Friendly Communities*, 16.

85 Congress for the New Urbanism, *The Movement*, accessed November 1, 2018, <https://www.cnu.org/who-we-are/movement>.

86 Ibid.

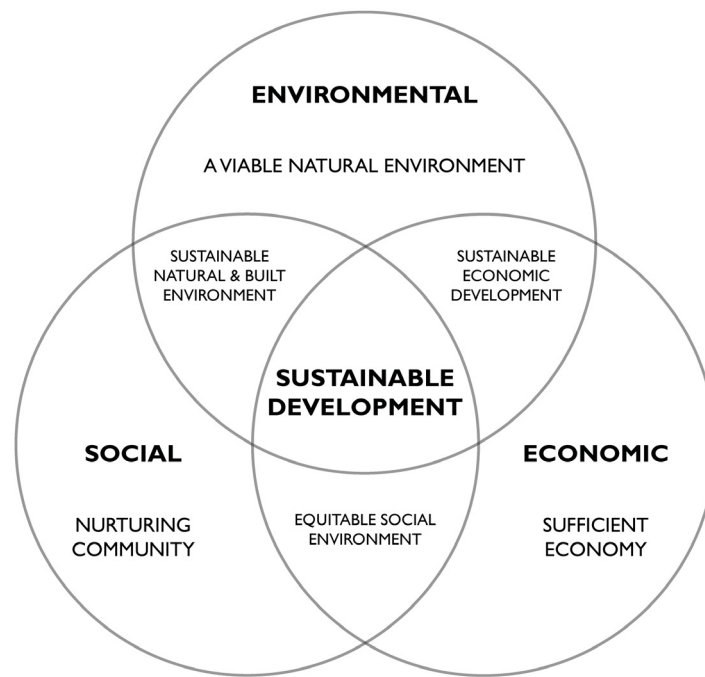


Figure 20. Path to Sustainable Development. (ConceptDraw, *Path to Sustainable Development*).

The idea of Sustainable Development as an approach to urban planning, gained traction when the Brundtland Report was introduced in 1987.⁸⁷ Sustainable Development was a new movement that addressed the competing demands for environmental protection and economic growth. In its ambition for sustainability, Sustainable Communities idealizes a development that “meets the needs of the present without compromising the ability of future generations to meet their needs”.⁸⁸

Sustainable Communities is one of the United Nation’s 17 Sustainable Development goals. Its aim is to manage the rapid urbanization that many cities around the world are facing, from ensuring adequate housing and infrastructure to support our exponentially-growing population, to confronting the environmental impact of urban sprawl.⁸⁹

⁸⁷ Simon Dresner, *The Principles of Sustainability* (London: Routledge, 2008), 1.

⁸⁸ Ibid.

⁸⁹ United Nations, *Sustainable Development Goals*, accessed November 1, 2018, <https://sustainabledevelopment.un.org/?menu=1300>.

While the UN has not published a definitive list of key principles, its aim is closely reflected in the Province of Quebec's Sustainable Development Act. The Province of Quebec's Sustainable Development Act listed sixteen goals:^{90,91}

- Protect health and improve quality of life
- Social equity (intra- and inter-generational equity)
- Environmental protection
- Economic efficiency
- Involvement and commitment of citizens and key stakeholders
- Access to knowledge
- Protection of cultural heritage
- Prevention of a known risk
- Precaution where there is a risk of serious or irreversible harm
- Biodiversity preservation
- Respect for ecosystem support capacity
- Responsible production and consumption
- Polluter/user pay
- Inter-governmental partnership and cooperation

Sustainable Development is a movement on a global scale. Because of this, its framework is not individually comprehensive enough to apply at a smaller intervention. Furthermore, although it was mostly supported, its specific definition was not agreed upon. Environmentalists argue that 'sustainable development' is a contradictory term that is used to hide the continuing destruction of the natural world, while economists claim that sustainable development is potentially hindering economic growth for the sake of unwarranted concern about the depletion of natural resources.⁹² However, because of the way it spotlighted the issue, it succeeded in presenting the importance of sustainability to the world and continues to influence many urban planning movements today.

⁹⁰ Catherine McLean, "Comprehensive Age-Friendly Community Planning Framework," (Master's thesis, University of Waterloo, 2017), 24.

⁹¹ Environment Quebec, *Quebec's Sustainable Development Plan: Consultation Document* (Quebec City: Bibliotheque National du Quebec, 2004), 21-23.

⁹² Dresner, *The Principles of Sustainability*, 2.

Healthy Communities



Figure 21. Success of Healthy Communities in relation to the Life Course Community Framework.

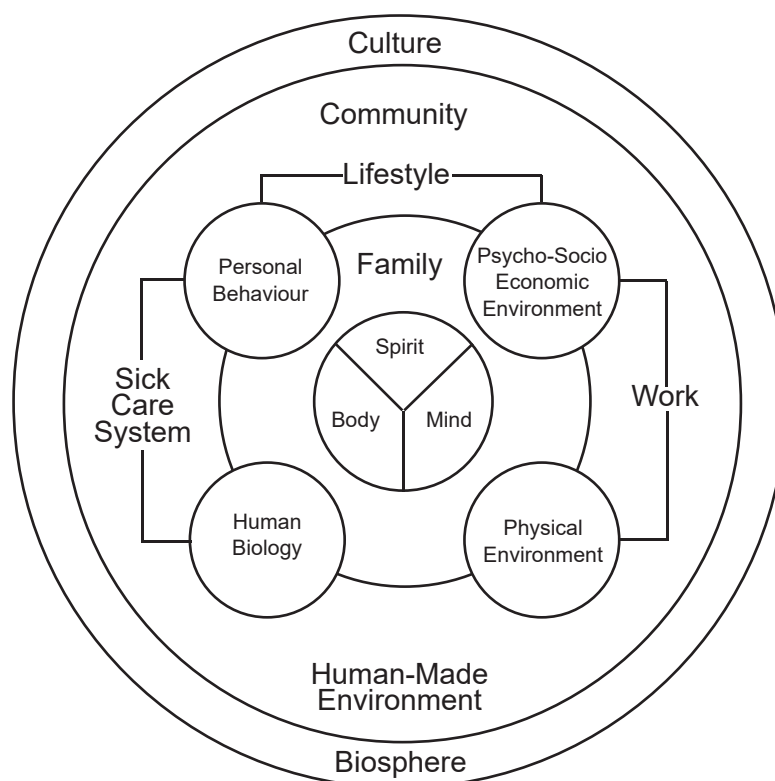


Figure 22. The Mandala of Health. (Healthy Cities, WHO Healthy Cities Project, 1985, 20).

The Healthy Communities movement is based on the Healthy Cities Project, which was initiated by the World Health Organization in 1985.⁹³ Healthy Communities are based on the following key principles: the capacity for individual health is strongly associated with the environment's health, and that the equal access to community resources results in improved health of the general population.⁹⁴ The Healthy Communities movement takes a holistic approach to accomplishing its platform. It is qualitative

⁹³ Healthy Cities, *WHO Healthy Cities Project: Promoting Health in the Urban Context* (Copenhagen: World Health Organization, 1985), 21.

⁹⁴ Miller, *Re-Positioning Age Friendly Communities*, 13.

and is centered on ethics, identity, and place.⁹⁵ Parameters of a Healthy Community includes:⁹⁶

- Clean and safe physical environment
- Peace, equity and social justice
- Adequate access to food, water, shelter, income, safety, work and recreation for all
- Adequate access to health care services
- Opportunities for learning and skill development
- Strong, mutually supportive relationships and networks.
- Workplaces that are supportive of individual and family well-being
- Wide participation of residents in decision-making
- Strong local cultural and spiritual heritage
- Diverse and vital economy
- Protection of the natural environment
- Responsible use of resources to ensure long term sustainability

Translating holistic integrated principles into operating practices is challenging because it is difficult to measure. Similar to the Sustainable Development movement, the lack of an objective framework leads to concerns of many stakeholders with competing agendas being involved in decision making.⁹⁷ However, this movement was nonetheless progressive because it began to recognize the importance of the social environment in affecting individual health.

Accessibility Planning and Universal Design



Figure 23. Success of Universal Design in relation to the Life Course Community Framework.

⁹⁵ Ibid, 14.

⁹⁶ Healthy Cities, *WHO Healthy Cities Project*, 33.

⁹⁷ Miller, *Re-Positioning Age Friendly Communities*, 15.

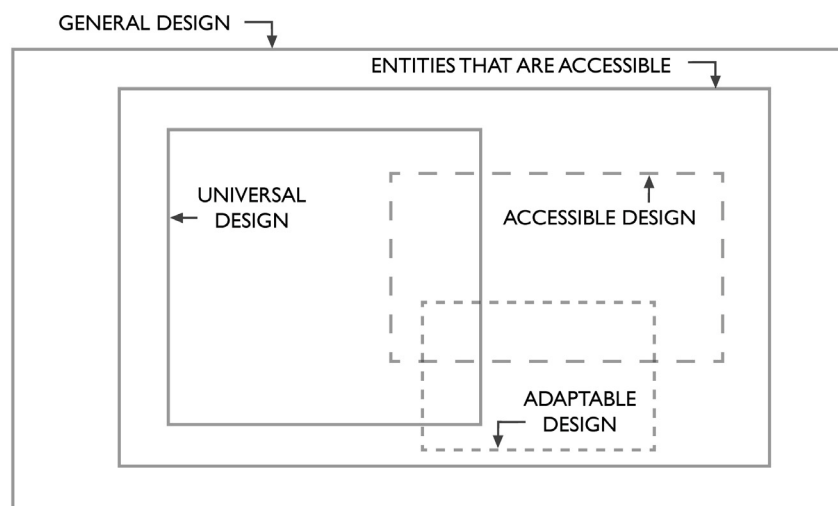


Figure 24. Venn Diagram Illustration of the overlap and interaction of different types of design for persons with disabilities (McAdams and Kostovich, *A Framework and Representation for Universal Product Design*, 2011).

Accessibility has been an integral principle to good design for a long time. It gained more traction in 1990 when the Americans with Disabilities Act was passed.⁹⁸ The ADA is a civil rights law that “prohibits discrimination against people with disabilities in several aspects of daily life, including employment, transportation, public accommodations, communications, and access to state and local government buildings, programs, and services”.⁹⁹ Unfortunately, accessible design has turned into interventions that are designed to only satisfy the minimum criteria of court-enforced regulations, resulting in designed environments that are not equally accessible to people with differing limitations and disabilities.¹⁰⁰ Another problem with accessible design is that it is often an afterthought, providing poorly integrated features for disabled users. These are often glaringly noticeable, creating stigmatization and increasing isolation for those with disabilities.¹⁰¹

98 National Network, *What is the Americans with Disabilities Act (ADA)?*, accessed November 1, 2018, <https://adata.org/learn-about-ada>.

99 U.S. Department of Labour, *Americans with Disabilities Act*, accessed November 1, 2018, <https://www.dol.gov/general/topic/disability/ada>.

100 Danise Levine, *Universal Design New York 2* (Buffalo: Center for Inclusive Design and Environmental Access, 2003), 18.

101 McLean, “Comprehensive Age-Friendly Community Planning Framework,” 38.

Ronald Mace first coined the term ‘Universal Design’, which challenged the label ‘special needs’. Universal Design aims to create spaces and designs that are accessible, supportive, adaptive, and safety-oriented.¹⁰² Universal design is an approach to the “design and development of products and environments to be usable by all people, to the greatest extent possible, without adaptation or specialized design”.¹⁰³ Designing universally means considering the users’ different needs and wants, therefore, universal design does not correspond to one particular group but rather seeks to provide equal opportunities to all, to the greatest extent possible by removing barriers addressing everyone’s differing needs.¹⁰⁴ Universal Design principles include:¹⁰⁵

- Equitable use (The design is useful to people with diverse abilities)
- Flexibility in use (The design accommodates a wide range of individual preferences and abilities)
- Simple and intuitive use (Use of the design is easy to understand, regardless of the user’s experience, knowledge, language skills, or current concentration level)
- Perceptible information (The design communicates necessary information effectively to the user, regardless of ambient conditions or the user’s sensory abilities)
- Tolerance for error (The design minimizes hazards and the adverse consequences of accidental or unintended actions)
- Low physical effort (The design can be used efficiently and comfortably with a minimum of fatigue)
- Size and space for approach and use (Appropriate size and space is provided for approach, reach, manipulation, and use regardless of user’s body size, posture or mobility)

Universal Design recognizes the importance of the physical environment in supporting social inclusivity. Acknowledging and designing for the wide range of users, especially those who are most vulnerable, is key to an inclusive society. Universal Design succeeds in promoting rigorous

¹⁰²Ibid., 35.

¹⁰³The Center for Universal Design, *The Principles of Universal Design* (Raleigh: NC State University, 1997).

¹⁰⁴Inger Marie Lid, “Universal Design and Disability: An Interdisciplinary Perspective” *Disability and Rehabilitation* 36, no. 16 (2014): 1345.

¹⁰⁵The Center for Universal Design, *The Principles of Universal Design*.

accessibility standards and design guidelines for new buildings and public spaces. However, the challenge with Universal Design is that it is limited to small individual unit scales.¹⁰⁶

Child Friendly Cities



Figure 25. Success of Child Friendly Cities in relation to the Life Course Community Framework.

Child-Friendly Cities first gained momentum in 1989 with the success of the United Nations Convention of the Rights of the Child. Recognizing that the children are the future, it was important to include them in the conversation. By 1996 the United Nations Habitat Agenda declared that the wellbeing of children is a critical indicator of a healthy society.¹⁰⁷ A Child-Friendly City is a city, town, or community “committed to improving the lives of children within their jurisdiction by realizing their rights as articulated in the UN Convention on the Rights of the Child”.¹⁰⁸ Specific areas addressed through Child-Friendly Cities principles are:¹⁰⁹

- Physical environments that respond to the particular needs and concerns of children
- Information, communication and social mobilization to promote the concept of CFCs and raise awareness of children’s requirements with regard to the physical environment
- Methods to involve children in assessing and improving their own neighborhoods and give them a voice in local decision making processes
- Plans of Action with and without the participation of children that aim at improving children’s physical environments
- Training packages/methodologies for different target groups focused on making improvements of children’s physical

¹⁰⁶McLean, “Comprehensive Age-Friendly Community Planning Framework”, 39.

¹⁰⁷Willem van Vliet, *Creating Livable Cities for All Ages: International Strategies and Initiatives* (Nanjing: UN-Habitat, 2008), 10-12.

¹⁰⁸UNICEF, *What is a Child-Friendly City?*, accessed November 1, 2018, <https://childfriendlycities.org/what-is-a-child-friendly-city/>.

¹⁰⁹van Vliet, *Creating Livable Cities for All Ages*, 13-14.

environments

- Laws, rules, regulations and planning norms that take children's needs and views into account
- Municipal level institutions focused on children's rights
- Monitoring systems to assess the quality of the environment for children
- Planning and impact indicators to evaluate impacts of municipal or community actions on children

The Child-Friendly Cities movement has helped many communities by promoting safe and walkable neighborhoods, houses that are near schools, shops, and services, as well as easy access to public spaces for family-friendly activities.¹¹⁰ Its success encouraged other similar movements like the 8-80 cities, which asserts that designing spaces for an 8-year-old would make it accessible for an 80-year-old and everyone in between.¹¹¹ Many Child-Friendly Cities may be designed for the limited mobilities of children, but not for the social and logistical needs which affect the older population.¹¹²

WHO Safe Communities



Figure 26. Success of Safe Communities in relation to the Life Course Community Framework.

The WHO Safe Communities movement was introduced by the World Health Organization in 1989.¹¹³ Its goal is to reduce injury for all, especially for those vulnerable or considered at high risk, including children and seniors.¹¹⁴ Accentuating its manifesto, which states that 'all human beings have an equal right to health and safety', the Safe Communities movement

¹¹⁰ Ibid., 21.

¹¹¹ Arup, *Cities Alive: Designing for Urban Childhoods* (London: Arup, 2017), 15.

¹¹² The Centre for Human Settlements, *Human Settlement Issues*, 32-33.

¹¹³ World Health Organization, *Manifesto for Safe Communities* (Stockholm: World Health Organization, 1989), 1.

¹¹⁴ Ibid., 3.

emphasizes the notion that “safety can be achieved through integrated, collaborative efforts that are implemented in a supportive social, cultural and political environment”.¹¹⁵ Safe Communities had 4 principles:¹¹⁶

- Formulate public policy for safety
- Create supportive Environments
- Strengthen Community Action
- Broaden public services

While Safe Communities’ ideas were followed and applied to different developments, it was difficult to integrate the movement within traditional planning processes because its concepts were broad and lacked proper framework.¹¹⁷ Nevertheless, Safe Communities are important because they recognize the physical environment’s importance to ensuring safety and injury prevention for those who are vulnerable. They acknowledge that safety and accessibility are equally needed for social inclusivity. Such accessibility is especially important for the elderly who have greater physical demands.

Transit-Oriented Development



Figure 27. Success of Transit-Oriented Development in relation to the Life Course Community Framework.

Transit-Oriented Development is a concept that dates back to the late 19th century in communities with walkable, mixed-use developments that were centered on mass public transit.¹¹⁸ Unfortunately, due to rapid population and economic growth after WWII, Transit-Oriented Developments

¹¹⁵ Anneliese Spinks, Cathy Turner, Jim Nixon and Roderick McClure, “The ‘WHO Safe Communities’ Model for the Prevention of Injury in Whole Populations” *Cochrane Database of Systematic Reviews*, no. 3 (2009): 2-3.

¹¹⁶ World Health Organization, *Manifesto for Safe Communities*, 8-12.

¹¹⁷ Miller and Allison Annesley, *Re-Positioning Age Friendly Communities*, 21.

¹¹⁸ Transit Cooperative Research Program, *Transit-Oriented Development in the United States: Experiences, Challenges, and Prospects* (Washington: Transportation Research Board, 2004), 7-8.

got replaced by highways and suburbs, which negatively impacted communities. In order to restore sustainable and walkable communities, Transit-Oriented Developments have been reintroduced to many urban planning developments.¹¹⁹

There is no universally accepted definition or a specific approach to Transit-Oriented Developments because they are context-specific. However, it is generally defined as “compact, mixed-use development near transit facilities with high-quality walking environments, not necessarily at the expense of automobile access”.¹²⁰ Furthermore, Transit-Oriented Developments also promote social capital by allowing communities to support and encourage human interactions in places where they live, work and play.¹²¹ Because of its broad scope, Transit-Oriented Developments do not have a set framework, however, McLean derived the following key principles of designing Transit-Oriented Developments:¹²²

- Moderate and high density (compact) mixed-use developments (highest densities are closest to the transit stations)
- Location along transit systems/near transit stations
- Located within a short walk from transit stops or environment that encourages walking
- Provide a variety of transportation alternatives
- Foster walkability (high quality cycling and walking environments)/ pedestrian-friendly environments
- Encourage transit ridership yet does not exclude the car (reduce automobile use). Limit parking or strategically locate parking to encourage transit ridership. The environment encourages people to walk more and drive less

As we age and our ability to access different environments get harder, we increase our dependency on the local environment for supportive goods and services, recreation, entertainment, and social interactions. Transit-

¹¹⁹ McLean, “Comprehensive Age-Friendly Community Planning Framework”, 44-45.

¹²⁰ Transit Cooperative Research Program, *Transit-Oriented Development in the United States*, 11.

¹²¹ Ibid., 8.

¹²² McLean, “Comprehensive Age-Friendly Community Planning Framework”, 45-46.

Oriented Developments are key to lengthening our ability to maintain social connections because they are designed to maximizing access to public transportation, promote walking and biking as a means of transportation, and reduce automobile dependencies.¹²³ However, as the name suggests, the Transit-Oriented Development movement focuses mostly on the transit system, which limited its scope to a community scale of development.

Life Course Community

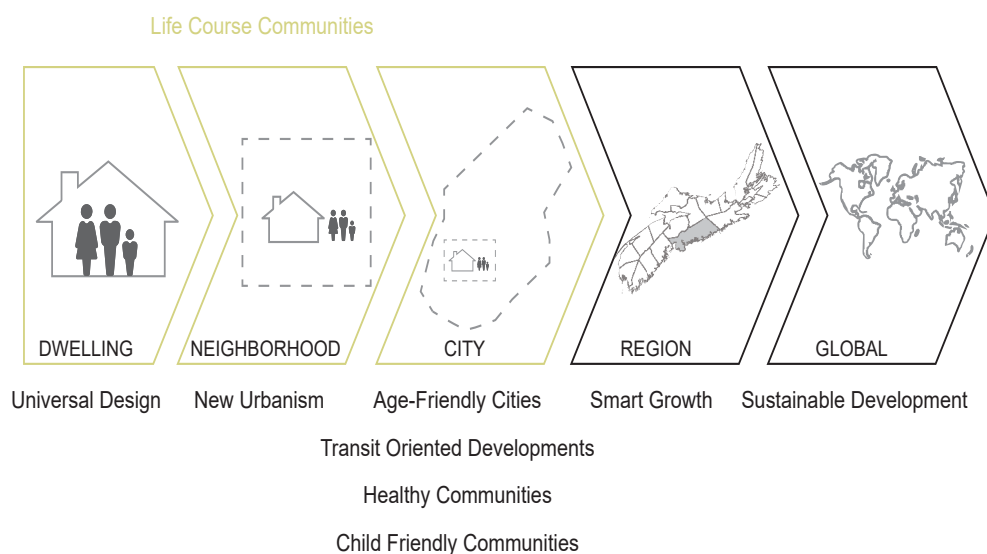


Figure 28. The Multi-scale influence of Life Course Communities.

Through adopting aspects from past urban planning movements, the senior care models and Age-friendly Cities, the Life Course Community movement intends to be an amalgamation of their principles. It is more explicit in its approach and will target multiple scales. It aims to provide the community with seamless connections with the broader city, accessibility, and availability of critical amenities and public spaces to ensure intergenerational social interaction, and finally various housing types to residents' differing needs and preferences. Life Course Communities ultimately offers a supportive place for all to live, and for all to age.

¹²³Eric Boschmann and Sylvia Brady, "Travel Behaviors, Sustainable Mobility, and Transit-oriented Developments: A Travel Counts Analysis of Older Adults in the Denver Colorado Metropolitan Area" *Journal of Transportation Geography* 33, (2013): 7.

CHAPTER 5: FINDING A TEST SITE

Seniors in Canada

Canada is one of the most urbanized countries in the world with 81.35% of Canadians living in urban areas in 2017.¹²⁴ However, the population distribution varies by region. Provinces like British Columbia and Ontario have larger cities that are expanding and densifying more rapidly than other Canadian regions. Similarly, the urbanization of seniors varies by each province. Large cities attract younger people which lowers their level of population aging. Conversely, smaller places tend to lose young people to the city, resulting in high concentrations of seniors.¹²⁵ As a direct result of this shift in national settlement patterns, the Atlantic Provinces have the highest median age in the country with Nova Scotia having the second-highest percentage of seniors. (See Figure 29) As of 2017, Nova Scotia's 65+ population was 19.8%, compared to the National Average of 16.87%. 33.4% of those seniors live in the Halifax Regional Municipality, Nova Scotia's densest urban centre.¹²⁶

124 Statistics Canada, *Living Arrangements of Seniors* (Ottawa: Minister of Industry, 2011).

125 Hodge, *The Geography of Aging*, 70.

126 Statistics Canada, *Population Projections for Canada, Provinces and Territories: 2009 to 2036* (Ottawa: Minister of Industry, 2010).

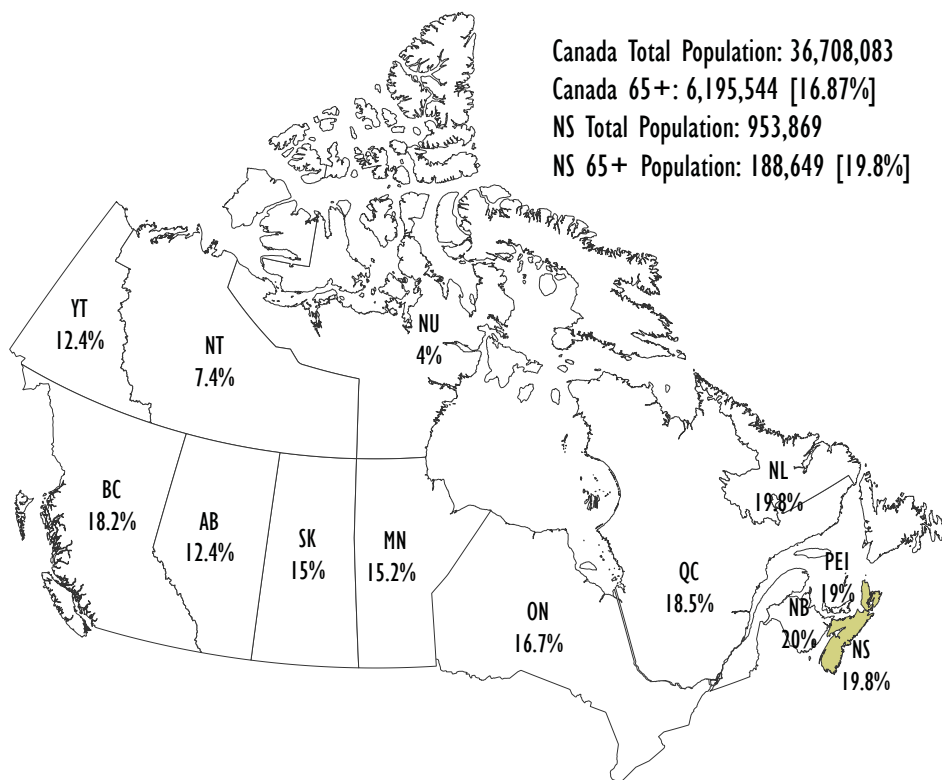


Figure 29. Senior population percentage of Canada's Provinces. (Statistics Canada National Census, June 2017).

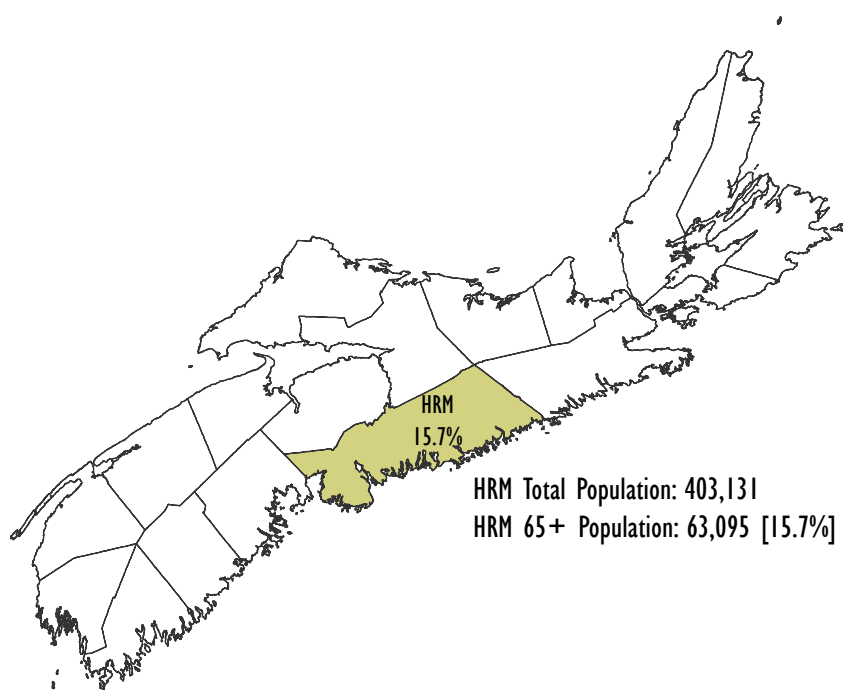


Figure 30. Senior population percentage of Halifax Regional Municipality. (Statistics Canada National Census, June 2017).

Test Site: Shannon Park



Figure 31. Locations of Future Growth Nodes within the Regional Centre. (O2 Planning + Design, *HRM Centre Plan*, 2017, 107).

As a response to the continuing population increase in the Halifax Regional Municipality, the government published the Centre Plan, a strategy that guides the future developments in Halifax's Regional Centres – Halifax Peninsula and Dartmouth.¹²⁷ This plan identifies the Future Growth Nodes in HRM's Regional Centres as areas for population densification. (See Figure 31) These nodes are large empty or underutilized development sites located close to existing communities. They are capable of transformative change as they have the land-base to support the population growth. The

¹²⁷ O2 Planning + Design Inc., *HRM Centre Plan* (Halifax: O2 Planning + Design, 2017), 3.

Centre Plan envisions these nodes as a way to achieve higher densities through a mix of programs.¹²⁸

The node chosen where this thesis will be investigated is Shannon Park in North Dartmouth, Nova Scotia because it is the only node that is fully abandoned. Shannon Park has approximately 96.5 acres of relatively flat land suitable for development.¹²⁹ The site is bounded by the Halifax Harbour to the south, Mackay Bridge to the west and Canadian National Railway to the north. Its proximity to the Halifax Harbour provides a spectacular view of Halifax and the Bedford Basin. Shannon Park is within walking distance to multiple communities, close to major routes in and out of the city, and also to the commercial and employment center of Burnside Industrial Park and downtown Dartmouth – all of which would benefit from Shannon Park's revitalization.

At one time, Shannon Park was a lively community and social hub where residents from surrounding communities came for services and events. Shannon Park consisted of many amenities and public buildings such as two schools, an arena, a swimming pool, an outdoor sports field, and a community center.¹³⁰ Today, Shannon Park only contains an elementary school. Ever since the community was abandoned, North Dartmouth lacks a central gathering place. Redeveloping Shannon Park into a diverse neighborhood with integrated residential and commercial infrastructures, as well as networks of parks and public spaces, will reaffirm and reactivate it as a central gathering space for North Dartmouth.

128 Ibid., 117.

129 Canada Lands Company, *#PlanShannon*, accessed November 1, 2018, <https://shannonpark.ca/>.

130 Ibid.

CHAPTER 6: DESIGN

Application of Theory within Context

Successful urban developments are not designed in isolation but must be considered within their contexts. Therefore, the Life Course framework in a new plan for Shannon Park will not just be limited to bounds of the site. It must also give consideration to the surrounding communities and people of Halifax Regional Municipality that will be affected. To prevent an isolated and exclusive redevelopment of Shannon Park, interventions should positively impact everyone living in the surrounding communities like Wallace Heights, the children who go to the elementary school, their parents or those who commute for work from Bedford and Halifax to Burnside or vice versa.

Urban developments are made of intricate fabric of physical, social and organizational environments. A life course community puts focus on three elements of this fabric – transportation, public spaces, and housing, each of which requires an integrated strategy. Establishing a public transportation terminal would connect Shannon Park with the Halifax's transit network, providing a seamless connection with the rest of the city. Locating various community amenities and services in the new urban center would re-establish Shannon Park's civic presence in the North Dartmouth communities and make it a destination within the city. These amenities would include a community center that offers a variety of public programs, community garden, farmers' market, cafes and restaurants, a multi-modal trail, a boardwalk, boathouse, and outdoor parks that emphasize the site's characteristics and take advantage of the waterfront. Providing various housing types that are adaptable throughout a life course would accommodate the diverse and changing needs of Shannon Park's residents. The interconnectedness of these elements is key to a successful physical, social, and organizational environments, which will ensure Shannon Park's redevelopment into a Life Course Community.

TRANSPORTATION

ENSURES CITY-WIDE SOCIAL CONNECTIONS,
INTERACTIONS, AND INVOLVEMENT



Figure 32. Approaching Shannon Park from the ferry. One can see the Community Center, Public Transport Terminal, as well as, some detached and block residential housing typologies.

Transportation

Shannon Park's Connection to the City

Transportation in a life course community provides connections throughout the community and the whole city, ensuring city-wide interactions. Though life course communities aim to be walkable and, in this regard, self-contained, an urban community's success depends on its integration with its larger context. Many residents in a community travel daily to other neighborhoods of the city for employment, services, and recreation that may not be available within their own community.¹³¹ Therefore, public transportation must be available and accessible in a variety of forms to meet the diverse mobility needs of residents, especially seniors.

Proposing a public transportation terminal in Shannon Park that includes bus and ferry stops would be beneficial for people throughout Halifax. Shannon Park is situated along two existing bus routes of the Halifax Transit system. The proposed intervention fully integrate these existing route into the mobility strategy (see Figure 33), which provides residents with access to two central bus terminals in Dartmouth that connect directly to the wider city transit network. Furthermore, adding another source of public transport, by extending the existing ferry system to Shannon Park, it would connect Halifax, Bedford, and Burnside. This ensures that Shannon Park residents and residents of surrounding communities have seamless access and connection with the rest of the municipality without the dependency on automobiles.

¹³¹ Avi Friedman, *Planning Small and Mid-Sized Towns: Designing and Retrofitting for sustainability* (New York: Routledge, 2014), 72.

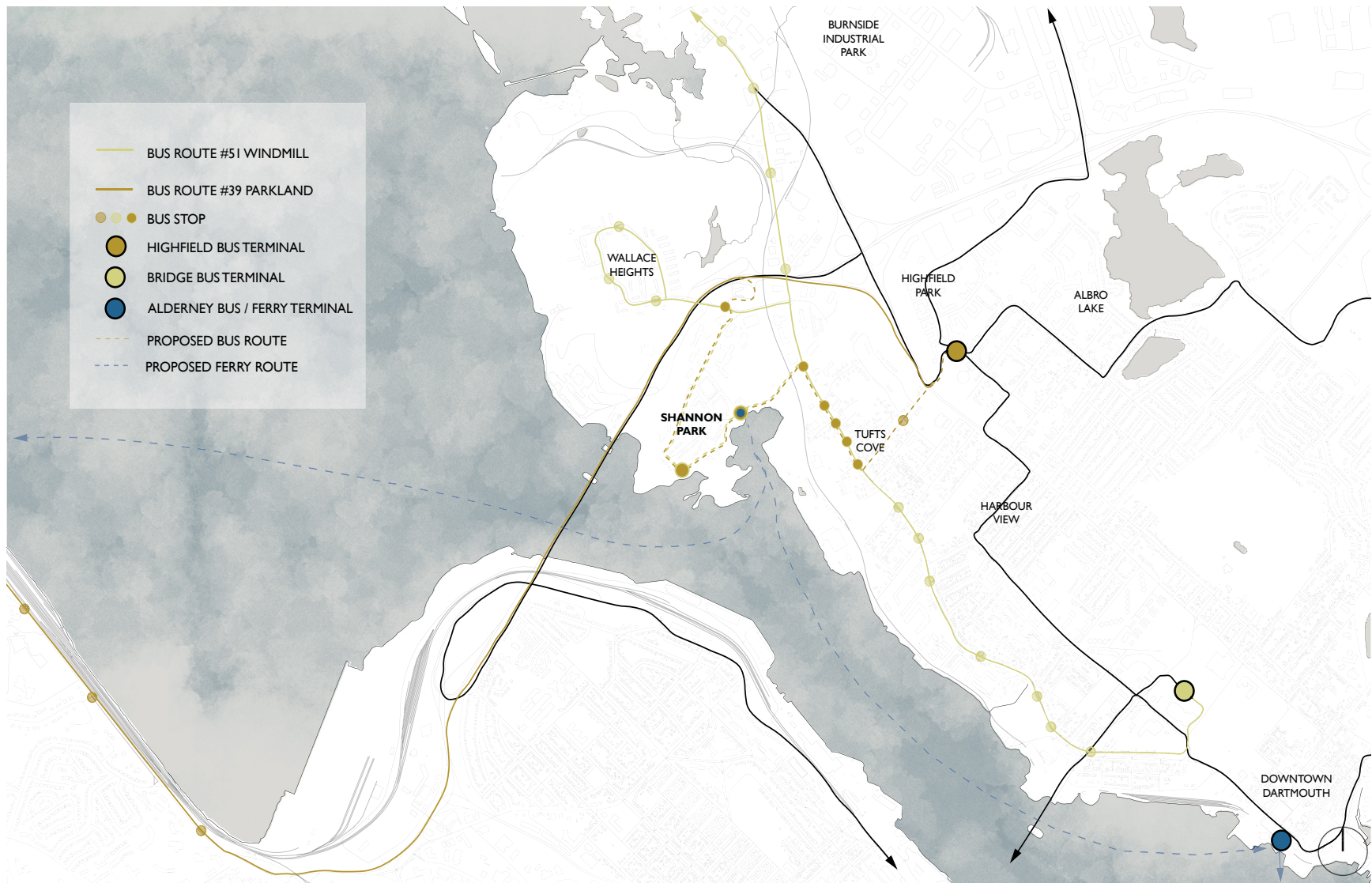


Figure 33. Proposed bus and ferry route connecting Shannon Park with the city.

Walkability

In its very essence, a community's environment is comprised of a network of infrastructures and services that provide the physical, social and personal demands of its residents. The synthesis of these networks is essential to providing physical and social integration, and a supportive life course environment for Shannon Park. There are ten facilities and services that act as crucial nodes in the synthesized network of every community: community organizations, parks, grocery store, health clinic, drug store, bank, place of worship, entertainment, shops, and restaurants.¹³² Furthermore, locals have stated their needs and wants for Shannon Park's future redevelopment. In addition to the ten critical amenities, some suggestions included a farmers' market and community garden, walking and biking trails through the surrounding forested areas, a boardwalk and boathouse to take advantage of the waterfront.¹³³ Incorporating these within Shannon Park will ensure its vibrancy as a destination, both for residents of the community and of Halifax Regional Municipality.

For Shannon Park to truly be age accommodating, it is important to ensure the interconnectedness and walkability of the critical facilities and amenities. Mapping Dartmouth in relation to Shannon Park and its surrounding communities show that most of the necessary facilities are over 25 minutes of walking distance away. (See Figure 34) These facilities are not only distant from Shannon Park, but also from each other. Furthermore, busy roads separate them and further discourage walkability and bike-ability.

Overcoming long walking distances through life course-conscious design is fundamental to the accommodation of elders. Due to restricted mobility and greater physical demands, they become increasingly dependent upon their immediate environment.¹³⁴ Studies suggest that between 50% and 70% of seniors walk to neighborhood stores and other critical facilities two

¹³²Hodge, *The Geography of Aging*, 131.

¹³³Canada Lands Company, *#PlanShannon*.

¹³⁴The Centre for Human Settlements, *Human Settlement Issues*, 16.

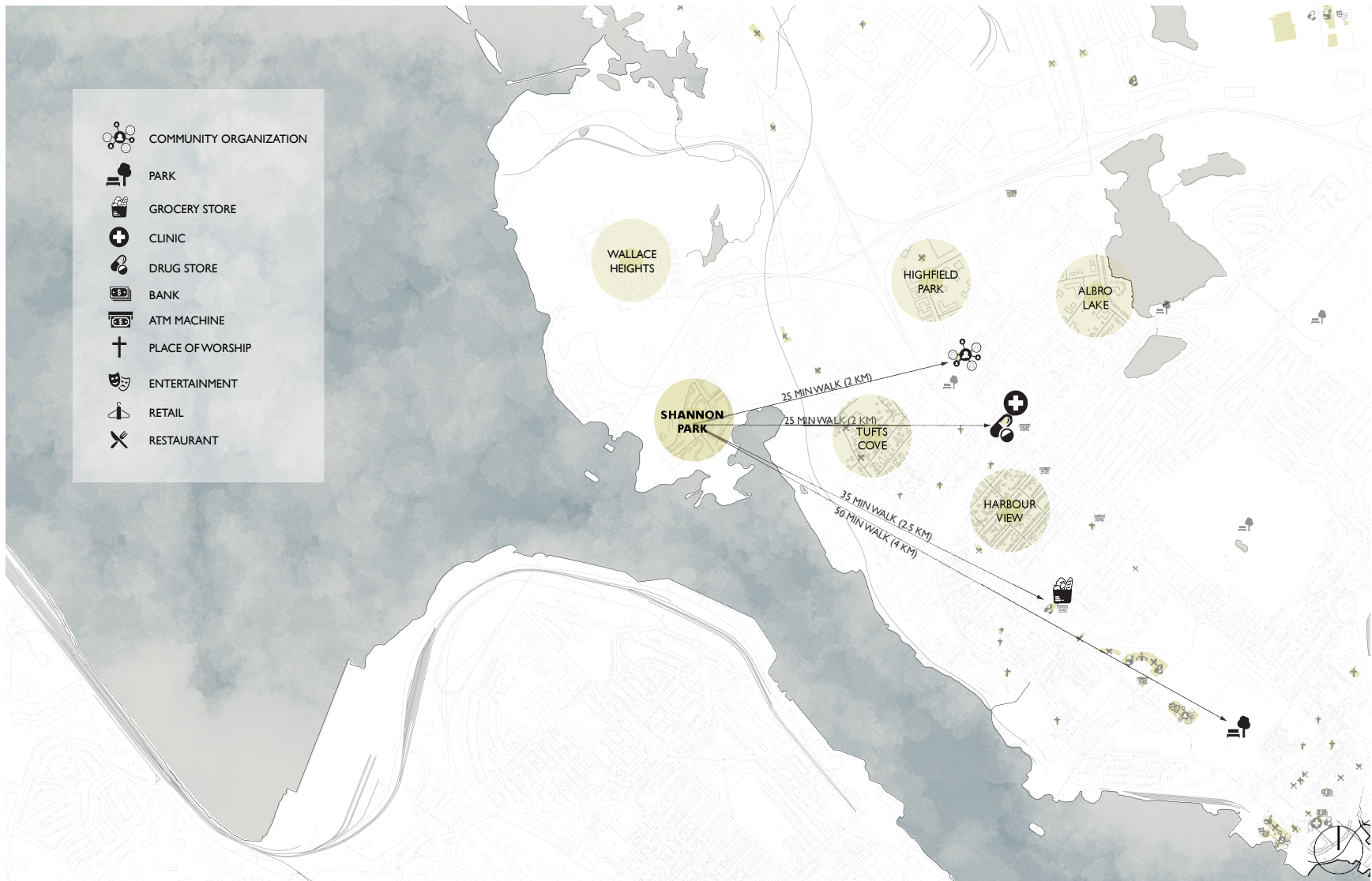


Figure 34. Distance of existing critical community facilities and amenities, in relation to Shannon Park.

or three times per week.¹³⁵ Consequently, the maximum distance that is comfortable for most seniors to walk is four to six blocks, or the equivalent of 400-600 meters, one way.¹³⁶ Using these parameters, a circle with a radius of 400 meters is drawn (see Figure 35) and placed in the middle of the site. (See Figure 36) Placing the critical amenities in the center of the circle ensures that all the residents are no more than 400 meters away from these critical amenities and are no more than 800 meters away from each other.

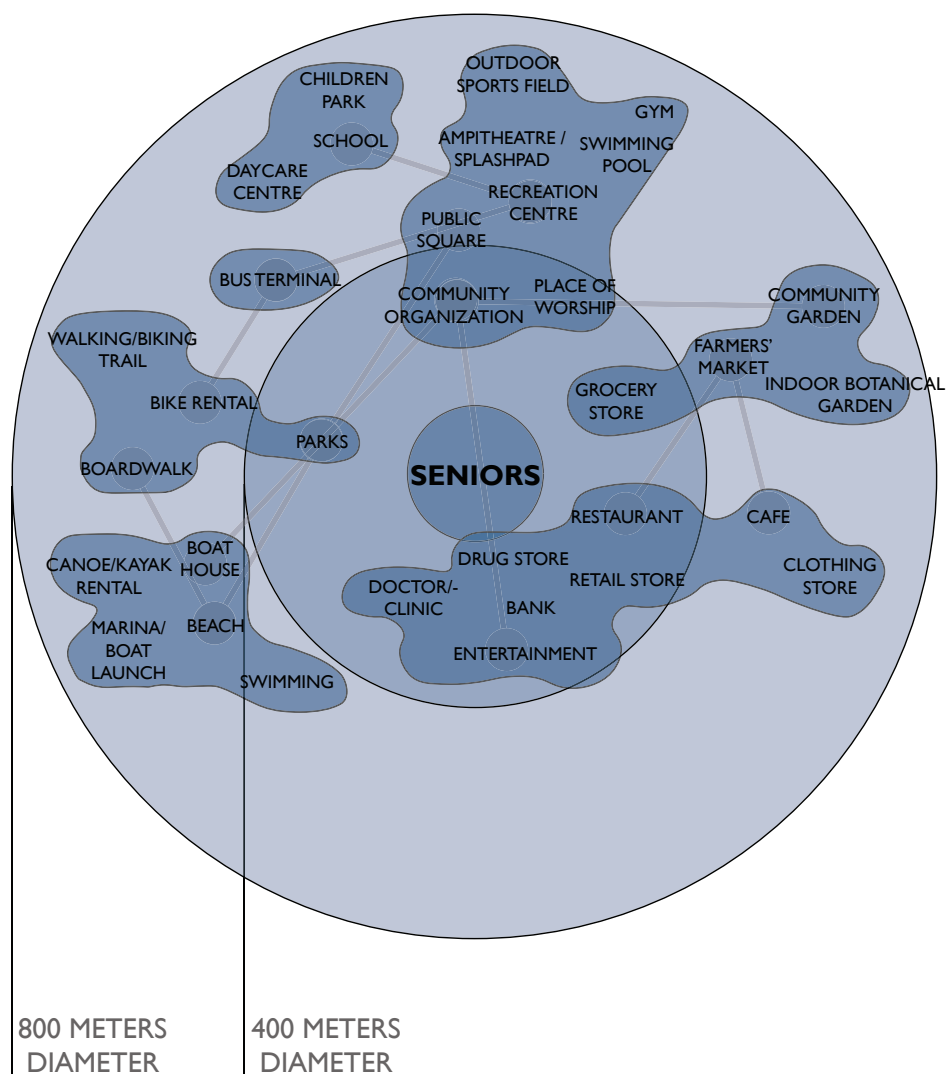


Figure 35. Walkability diagram. Showing program adjacencies of the critical amenities in Shannon Park for an efficient and accessible community.

¹³⁵Hodge, *The Geography of Aging*, 97.

¹³⁶Ibid.



Figure 36. Shannon Park site plan. A - Community Center. B - Public Square. C - Public Transport Terminal (bus and ferry). D - Community Garden. E - Outdoor Sports Field. F - Shannon Park Elementary School. G - Beach. H - Boathouse. I - Lookout.

PUBLIC SPACES

ENSURES INTERGENERATIONAL INTERACTION AND
PROMOTE A SENSE OF BELONGING

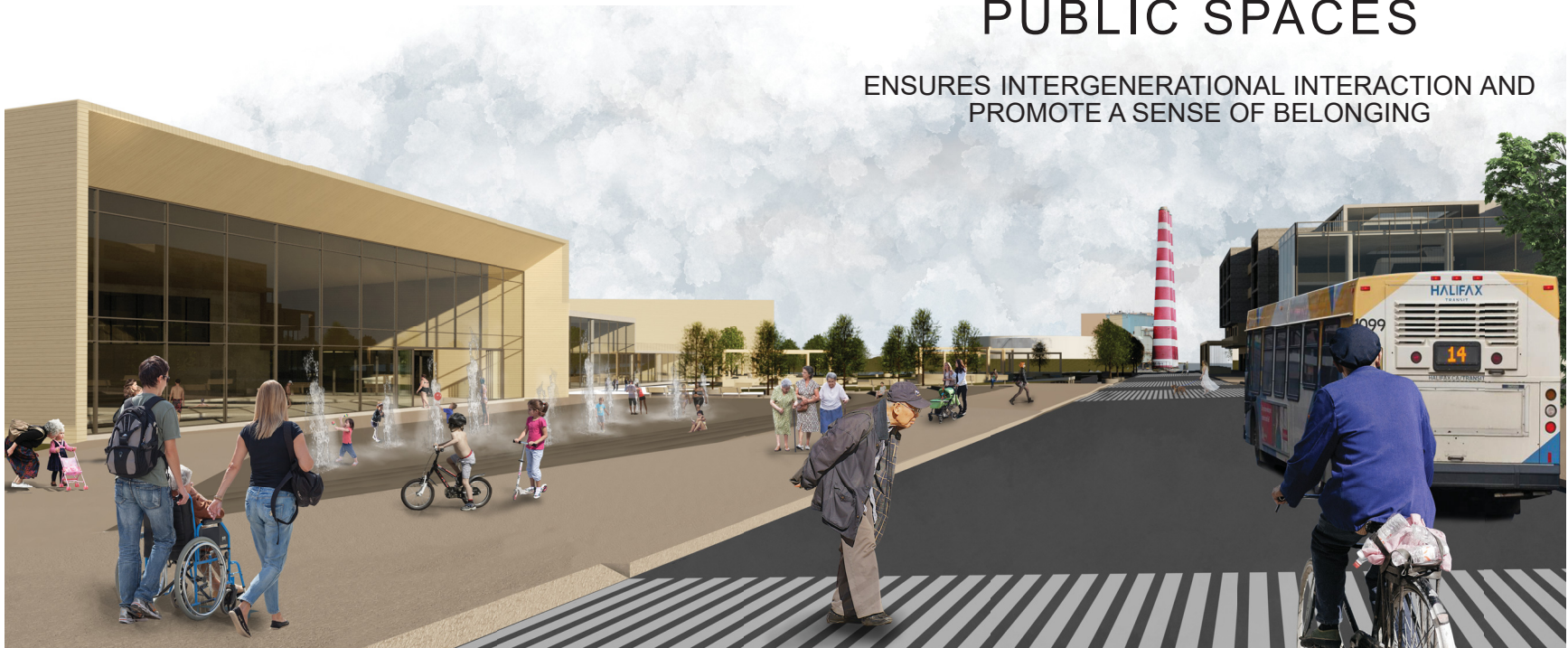


Figure 37. View of Community Center from the main street. The main street overlooks one of Shannon Park's landmarks, the Tuft's Cove Generation Station, which helps with residents' wayfinding.

Public Outdoor Spaces and Buildings

Community Nodes

The success of a community corresponds to its residents' social interactions. Therefore, public spaces in a life course community strive to promote intermixing and foster meaningful intergenerational interactions. Concurrently, the success of public spaces is dependent on its uniqueness and its ability to promote a sense of belonging to its inhabitants. The proposed redevelopment conforms and adapts to the site's unique features in order to retain its characteristics. The orientation of the community is a descent to the water informed by the existing landmarks such as the 150 meter high chimneys of the Tufts Cove Generating Station, 85 meter high transmission towers and MacKay Bridge, solar orientation, existing community edges, harbour edge, existing vegetation, coastal topography and an inclination to face the water. (See Figure 38 a and b). These site features make Shannon Park unique and are therefore celebrated and ensured to be highlights of the public spaces.

The interconnectedness of public spaces is an important element in maximizing social interactions. Carefully examining Shannon Park with the parameters of optimal walkability and community program adjacencies (see Figure 35), resulted in an organic network of public paths and nodes. (See Figure 38 c and d) This scheme resulted in a concentration of critical amenities in the center of Shannon Park. Here, the main street connects various nodes of programmed and supervised spaces where many activities and human interactions take place. The farmers' market, public transport terminal, place of worship, cafes and restaurants provide structured and intentional uses of public space, while the less regulated spaces such as the community garden, public square, and pocket-parks provide informal gathering spots. (See Figure 39) These pocket-parks are present throughout the site. They are linked by intricate systems of roads and trails that expand throughout the whole site, all of which, lead to the waterfront amenities; the boardwalk, boathouse and, beach. The seamless connection between

Shannon Park's public spaces, along with their ability to highlight the site's features ensures accessibility to all its inhabitants while promoting a sense of belonging and identity. Here, those who participate in the community's social fabric can meet, make their initial connections and extend invitations to one another.



Figure 38 a. View axis of landmarks

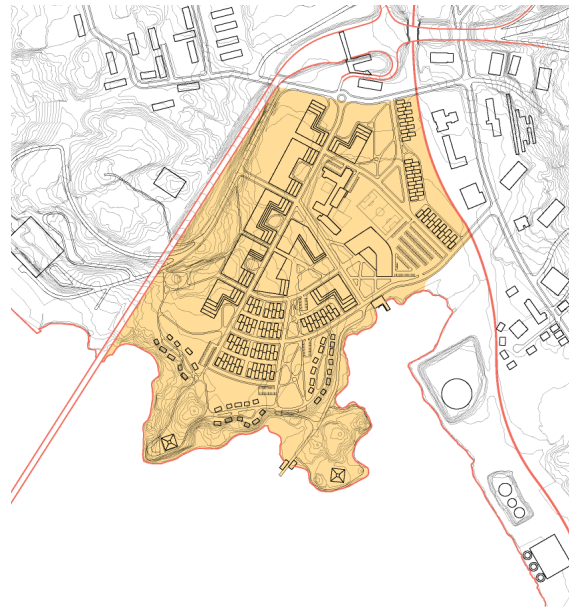


Figure 38 b. Site extent and edges

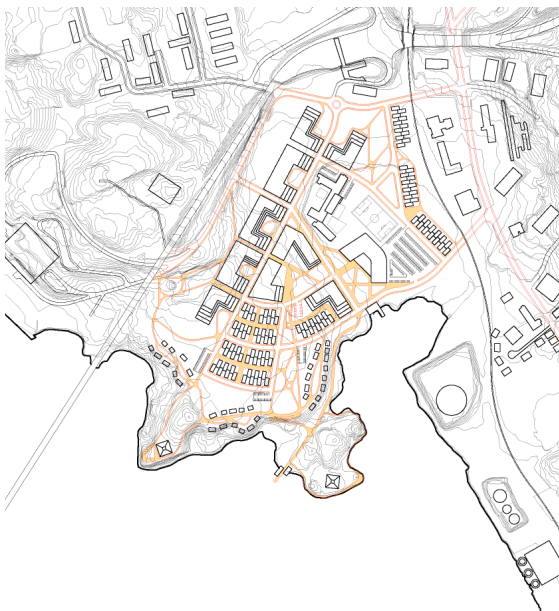


Figure 38 c. Systems of paths and trails

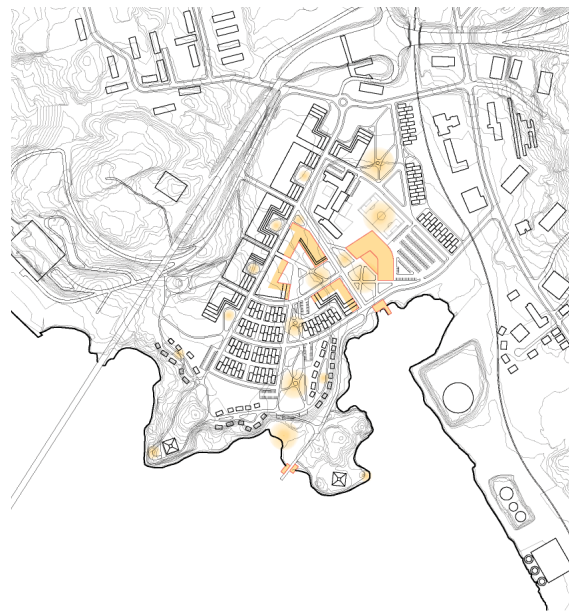


Figure 38 d. Public nodes

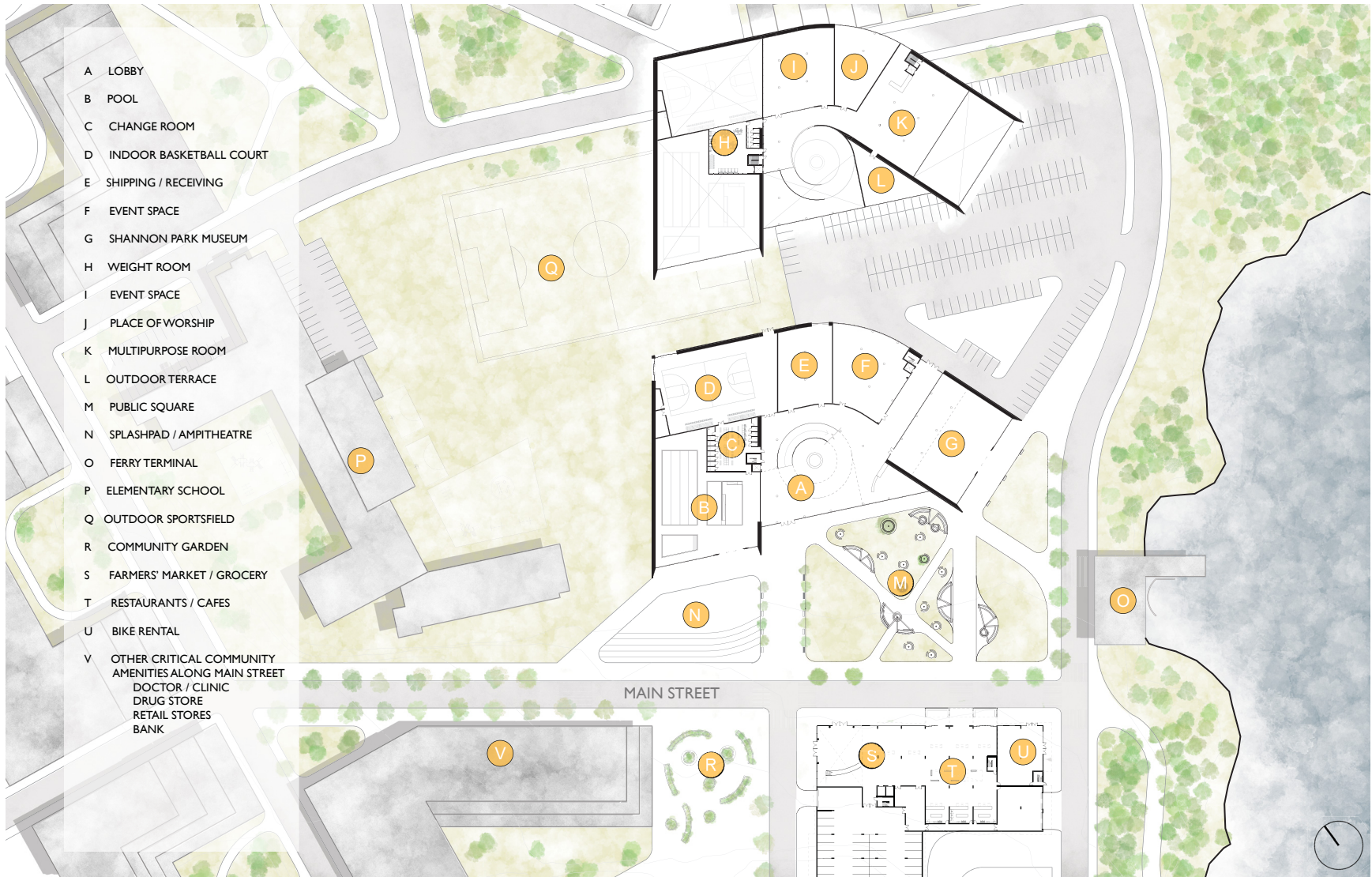


Figure 39. Public Square site plan and Community Center floor plan.

Community Center

The Community Center, the living room of Shannon Park, is designed to encourage intergenerational interaction through its connections with its surroundings as well as with its internal offerings and circulation. Along with the public transport terminal, community garden, farmers' market, and restaurants, the community center frames the public square, maximizing visual connections between inhabitants that are doing different types of activities. Furthermore, the community center shares an outdoor sports field with the school, encouraging play between children and older adults. (See Figure 39) The openness of the community center towards its surroundings evokes a welcoming environment that invites everyone inside. The community center's interior maintains the promotion of formal and informal interactions through its many visual connections and program adjacencies. The building is divided into two nodes that are connected by a circulation core. The *active and healthy living* node contains an indoor pool that extends to a splash pad and amphitheater by the main street, a basketball court that opens out to the outdoor sports field and a weight room on the second floor that overlooks both the pool and basketball court. The *community* node contains a museum that celebrates Shannon Park's history, a place of worship, event spaces and a multipurpose room, equipped with a kitchen for various public cultural events, which overlooks the museum. (See Figure 39) Visual interconnectedness and incidental interactions are also at the core of the building's circulation. The community center has one main means of circulation, a large ramp that gives access to all its amenities. (See Figure 40) The ramp is celebrated by being central to the building's public space, a place of informal and spontaneous interaction. Having one central place of circulation that is accessible to all optimizes the possibility of interaction for all inhabitants and visitors - a feat that is prevalent in all of Shannon Park's public spaces.

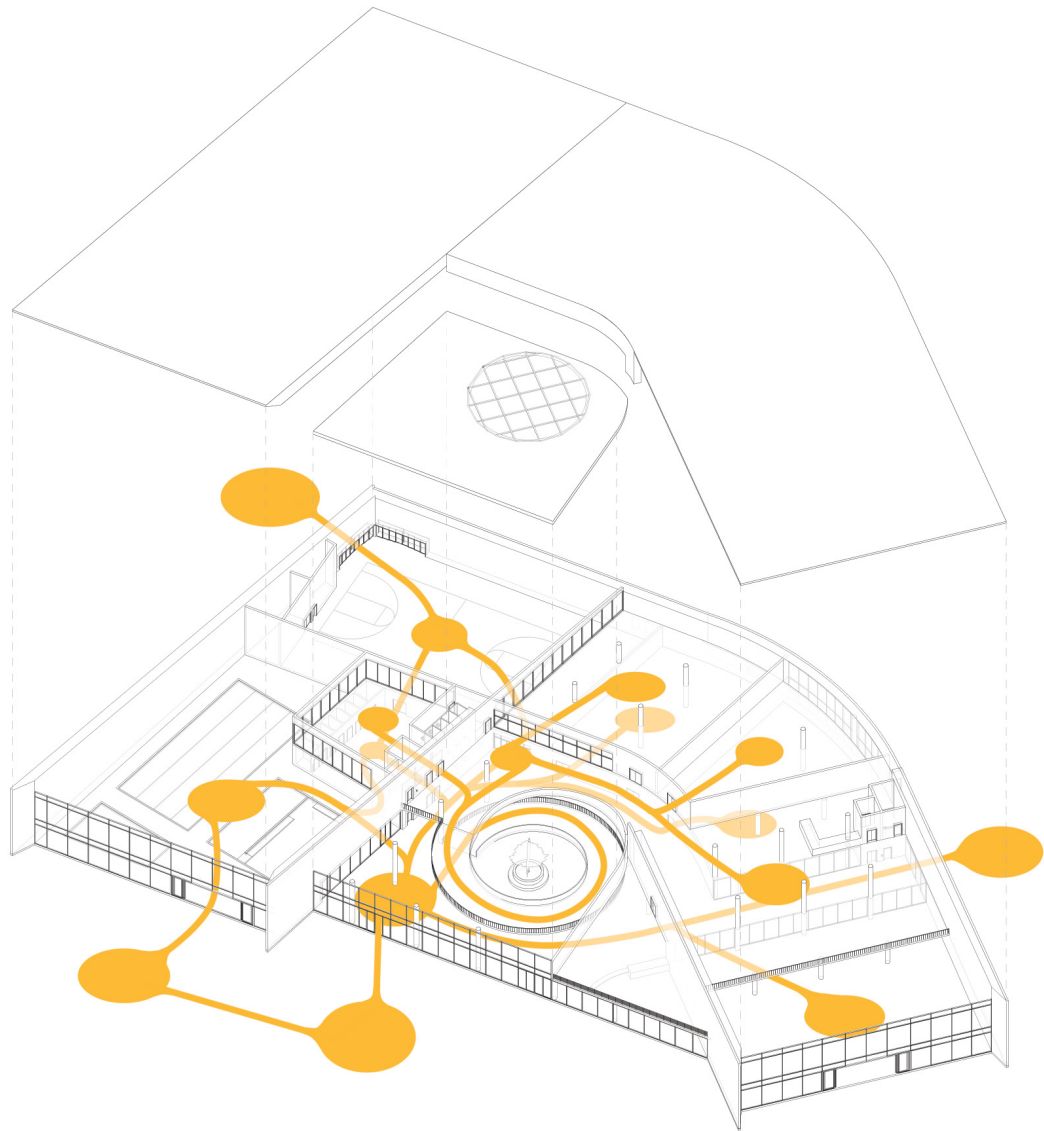


Figure 40. Centralized circulation to maximize social interaction.



Figure 41. View from a residential balcony, overlooking the Public Square and Community Center.



Figure 42. View from Community Centre lobby, looking at the ramp.



Figure 43. View from multipurpose room, overlooking the museum, ferry terminal and Halifax.

HOUSING

ENSURES AUTONOMY, SECURITY AND INTERPERSONAL
RELATIONSHIP FORMATION TO ENCOURAGE AGING IN PLACE



Figure 44. View from the waterfront trail, looking at the detached residential housing typology and one of Shannon Park's landmarks, an 85 meter high transmission tower.

Housing

Different Typologies

A diverse population has diverse needs and preferences for housing choices. There are various housing types in a life course community in order to provide residents with choices that suit their particular lifestyles. The intervention in Shannon Park offers three different typologies that are informed by the site's opportunities and limitations, all while maintaining the density needed for an urban development – block housing, row housing and detached housing. The block housing typology is designed to moderate sight and sound from the MacKay Bridge while also providing a terracing view towards the water and Halifax. Block housing provides ideal homes for both young and old members of the community who do not have either the time or the physical means or need for a private yard. This typology has multiple public and semi-public spaces incorporated within the apartment buildings, which provides ideal situations for secondary nodes for social interactions, especially for seniors in the winter season. (See Figure 45) The row housing typology maintains densification while providing a more aggregated landscape. It steps down to the water, allowing views and sunlight to the rest of the complex. Row houses provide private backyards for those who prefer them, whether young families, seniors with grandchildren or an individual who loves to garden. (See Figure 46) Detached houses take advantage of the site's access to the water, where they sit recessed in the natural fall of the topography. This allows for housing to be built along the waterfront while maintaining public access and a strong visual connection to the shore. Due to their public location on the site, detached homes are for those who value the waterfront views over private yards. (See Figure 47) By understanding the unique and differing needs of people, Shannon Park's redevelopment into a Life Course Community presents three different housing typologies. These typologies highlight the diverse circumstances of people as well as the contexts of the site, ensuring accommodation for all needs and demands while creating a sense of belonging within the site.



Figure 45. Axonometric diagram of how the hearth is used in a block housing typology.

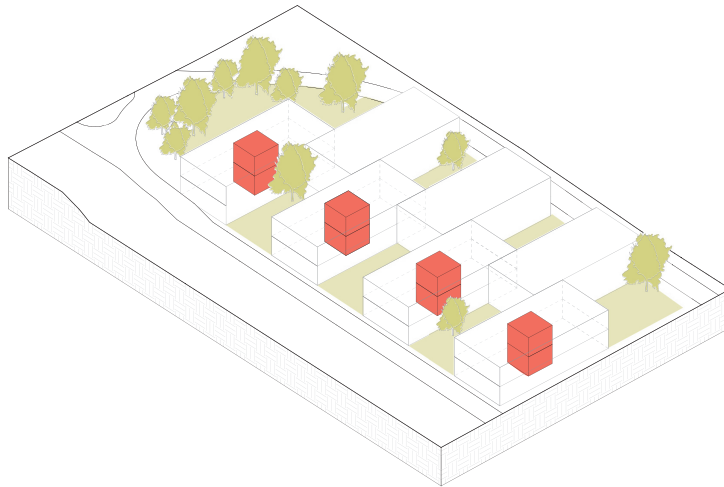


Figure 46. Axonometric diagram of how the hearth is used in a row housing typology.

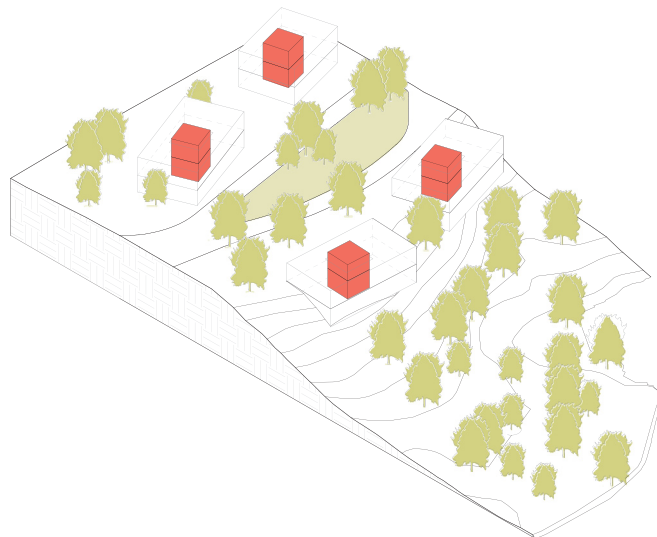


Figure 47. Axonometric diagram of how the hearth is used in a detached housing typology.

Hearth

Housing in a life course community promotes autonomy, security, and independence, to further facilitate aging-in-place. Therefore, housing should be adaptable to the changing needs and circumstances of its residents. In a home, there are two traditional elements that maintain their practical and indicative functions across generations - the bathroom and the kitchen.¹³⁷ Through their practical daily use, these two rooms become the symbols of independence and autonomy. The bathroom allows for one's daily routines of washing and bathing – the process of renewal from unclean to clean. Furthermore, the act of bathing has evolved from solely hygiene into a time for reflection, relaxation, and restoration. Consequently, the kitchen allows for one to prepare food both as a source of nourishment and as a universal practice of friendship and hospitality. The kitchen has transformed into a central communal space for families and friends to gather. Regardless of the circumstances, the bathroom and kitchen remain important elements of the home and should support normal rituals of life as seamlessly as possible.¹³⁸ The housing design in a Life Course Community highlights the importance of the kitchen and bathroom by proposing that both be fully accessible throughout a person's life course. (See Figure 48 and 49) All counter surfaces and cabinetry are accessible by someone in a wheelchair, grab bars are present in the toilet and shower areas, and generous unobstructed areas allow for easy wheelchair turns. These accessibility elements are celebrated and seamlessly integrated into the design without being unfavourable to the able-bodied. The two elements of the kitchen and washroom are incorporated to become the central hearth element for the houses, which are to remain static for the duration of their occupation. (See Figure 50) In contrast, the need for a dining room, home office, library, or extra bedrooms change as the residents' circumstances change. In order to allow for the adaptability of these rooms, the design

¹³⁷Christian Schittich, *In Detail: Housing for People of All Ages*. (Munich: Institut für Internationale Architektur-Dokumentation GmbH & Co., 2007), 161.

¹³⁸Ibid., 162.

takes advantage of the centrality of the hearth, which acts as a dividing element that provides privacy between the rooms without isolating them. In addition to some partition walls, the hearth element's walls contain sliding doors that can strategically isolate different rooms from the rest of the house while maintaining access to the bathroom and kitchen for the rest of the residents. (See Figure 50) The dynamic relationship between the hearth and the surrounding spaces parallel the unpredictability and constantly changing nature of life.

Access to natural light is another essential element of a house that impacts its inhabitant's quality of life. Each housing typology provides a different approach to this problem. In this scheme, a third hearth element is incorporated - a space that could provide a source of natural light or vertical circulation, depending on the typology's unique characteristics. In the block typology, the units are usually single aspect and therefore have only one source of natural light. In this case, the hearth element is adapted into a skylight, which allows natural light to penetrate into interior rooms that would otherwise have no access to it. (See Figure 50 a) Conversely, row and detached housing typologies can have natural light penetrating on multiple facades. In these two typologies, the third hearth element is adapted into stairs to provide vertical circulation, allowing for multi-level living and allowing for more inhabitants. (See Figure 50 b and c) The presence of natural light within the houses is key to maintaining physical and mental health, further promoting a person's ability to age-in-place.

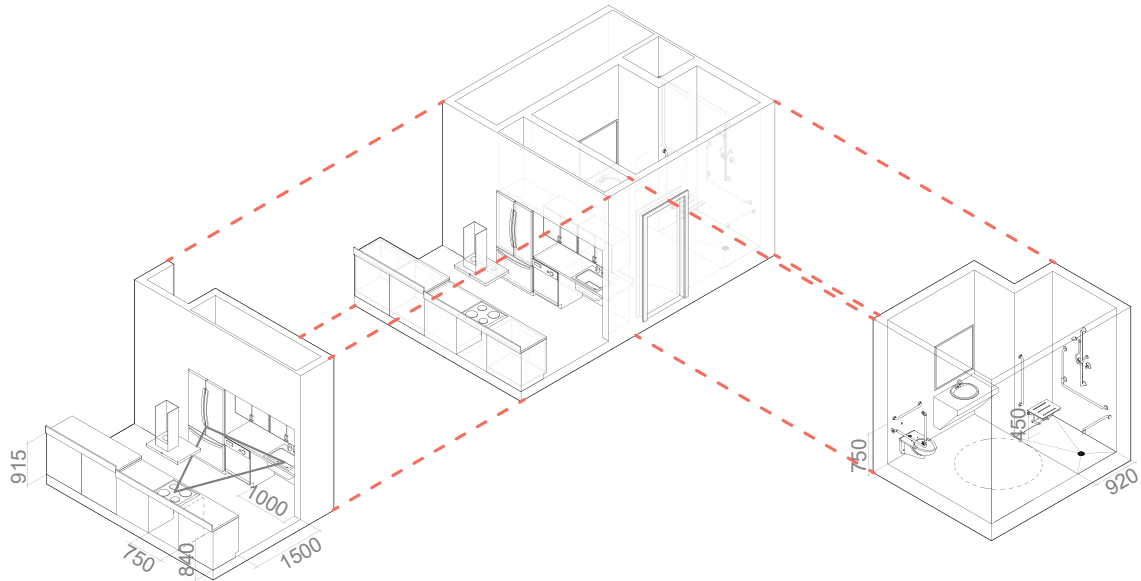


Figure 48. Axonometric view of the hearth.

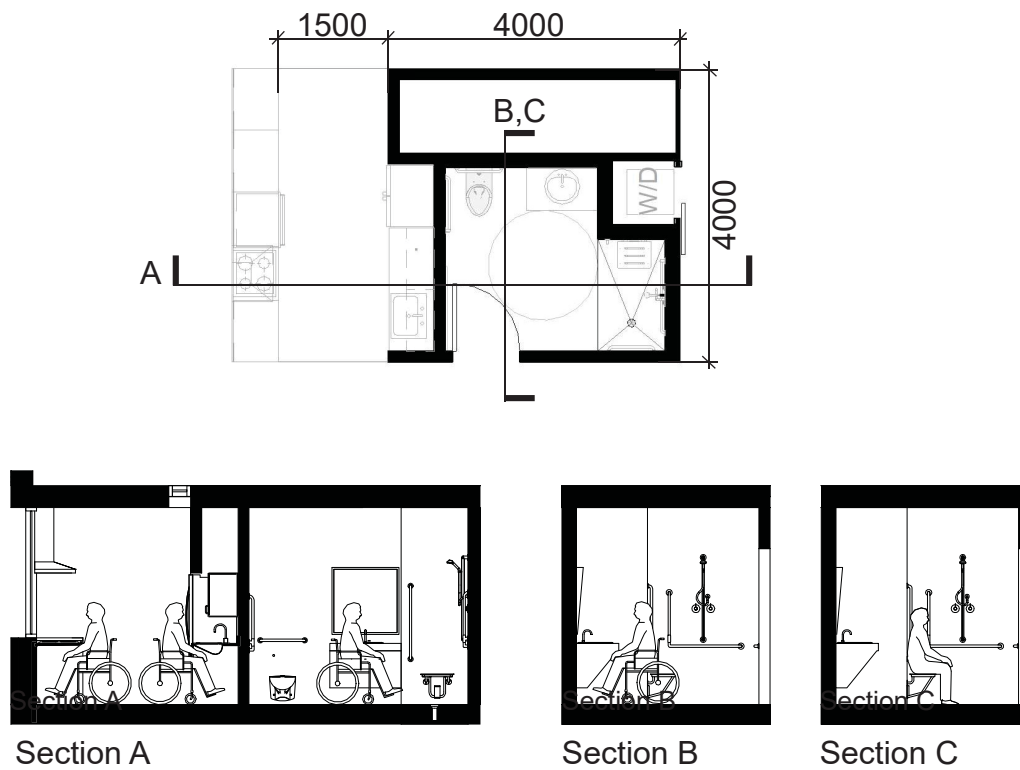


Figure 49. Plan and sectional drawings of the hearth elements - the bathroom and kitchen. It shows its accessibility throughout a person's life course.

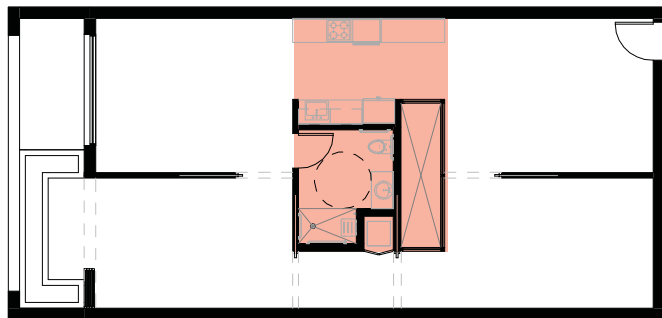


Figure 50 a. Typical floor plan of a unit in a block housing typology.



Figure 50 b. Typical level 1 floor plan of a row housing typology.

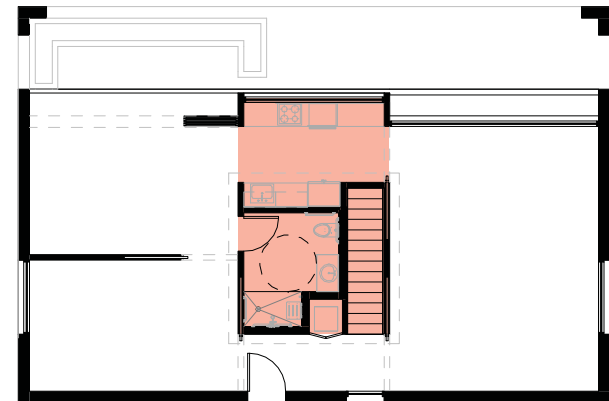


Figure 50 c. Typical level 1 floor plan of a detached housing typology.

Figure 50. Examples of how the hearth element is used in the three different housing typologies: block housing, row housing, and detached housing.

Block Housing

Block housing is an essential element in an urban development because they are key to maintaining population density. In a life course community, block housing is designed to guarantee densification while also ensuring public integration and accessibility by conveying a welcoming environment, incorporating the public spaces with private residences, and maintaining security and accessibility of the private homes. The main challenge with block housing is the delicate relationship between public and private spaces. Block housing in this scheme proposes that everything in the building except the residential units themselves are public spaces. This idea is first implied architecturally by the use of materiality in the whole development: Wood cladding is used on facades and interior spaces to signify publicness, while grey bricks indicate private space. To this end, the community center is dominated by wood finishes (see Figure 41), while the residential buildings are mostly clad with grey bricks. This makes block housing a special case with its integrated public and private spaces. To signify its private properties, the building elements where the private units are located are clad with bricks (see Figure 56), while the ground floor and the building's circulation spaces are clad with wood. (See Figure 57) Another concern with block housing is its verticality which is usually correlated with social disconnection. However, in this scheme, its vertical nature is used as a design opportunity to turn circulation corridors into informal public spaces. By introducing skylights and turning the corridors into rectangle-shaped tracks, natural light penetrates to all of the floor levels. (See Figure 57) Furthermore, this openness allows visual connections between people on multiple levels and provides options for ways to ascend the building. This creates several public atriums within each block housing building, resulting in more chances of informal encounters. The light penetration in these central atriums allows for many of the units to receive natural light from two sides. Still, to further increase natural light exposure to all the units, skylights are integrated within the hearth elements, allowing for each of the rooms be adaptable to the resident's preference. (See Figure 55)

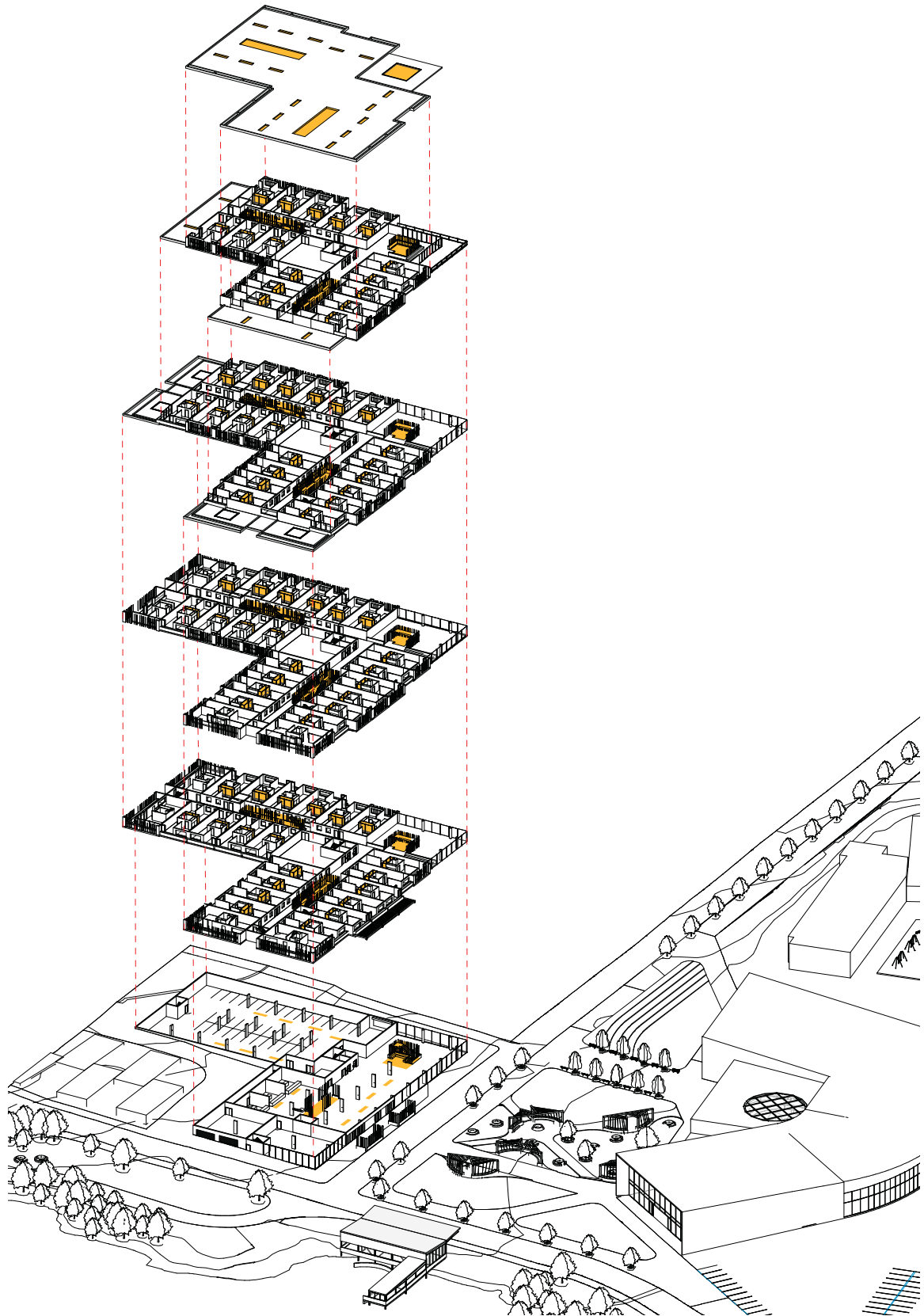


Figure 51. Exploded axonometric of a block housing typology to show the system of skylights that provide natural light to all of the units, and the public amenities on the main floor.

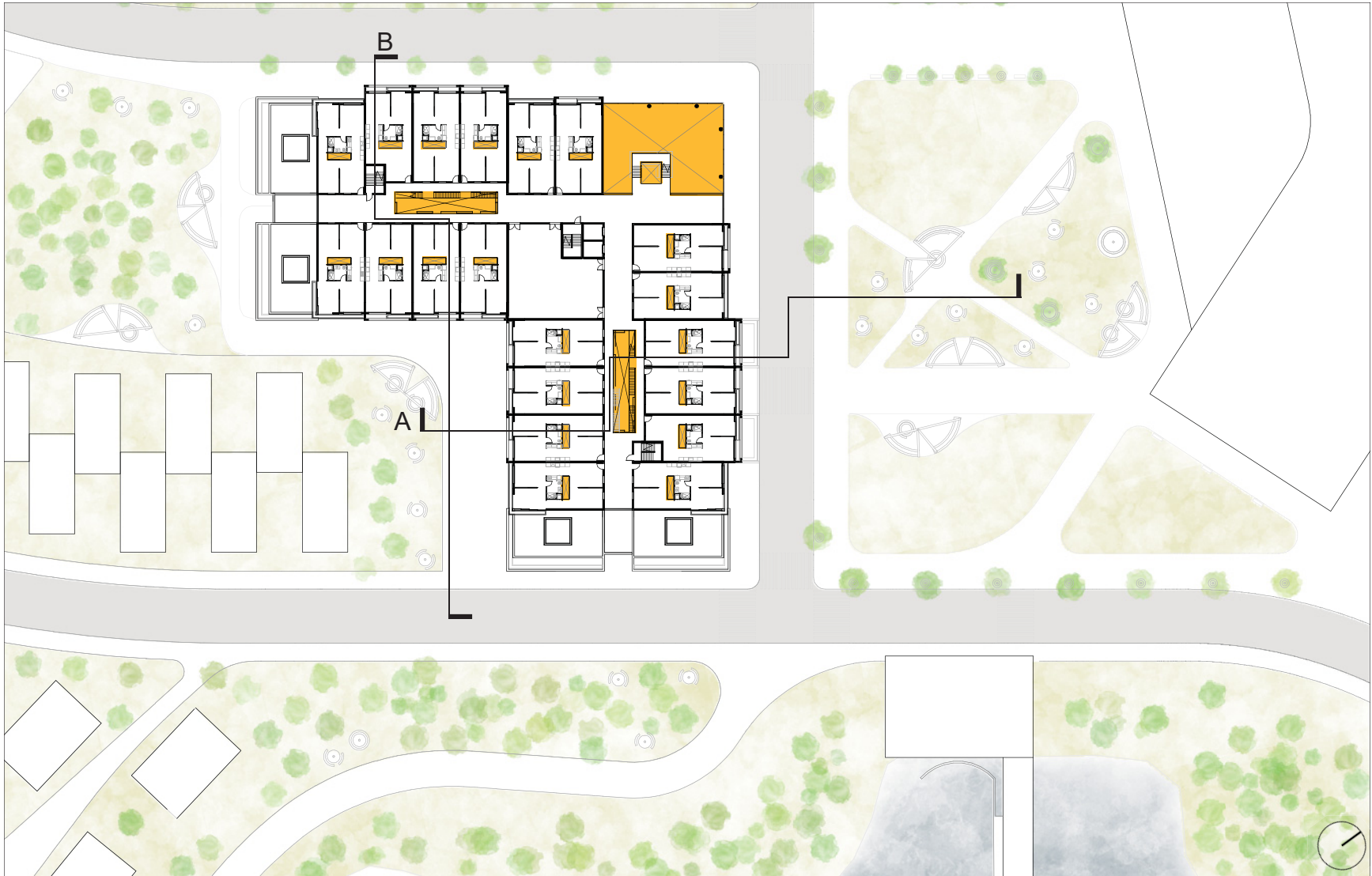


Figure 52. Block housing typology site plan, with level 4 floor plan, showing the building's relationship to its surroundings.



Figure 53. Section A - Block housing site section showing its relationship to the public square.



Figure 54. Section B - Block housing site section.

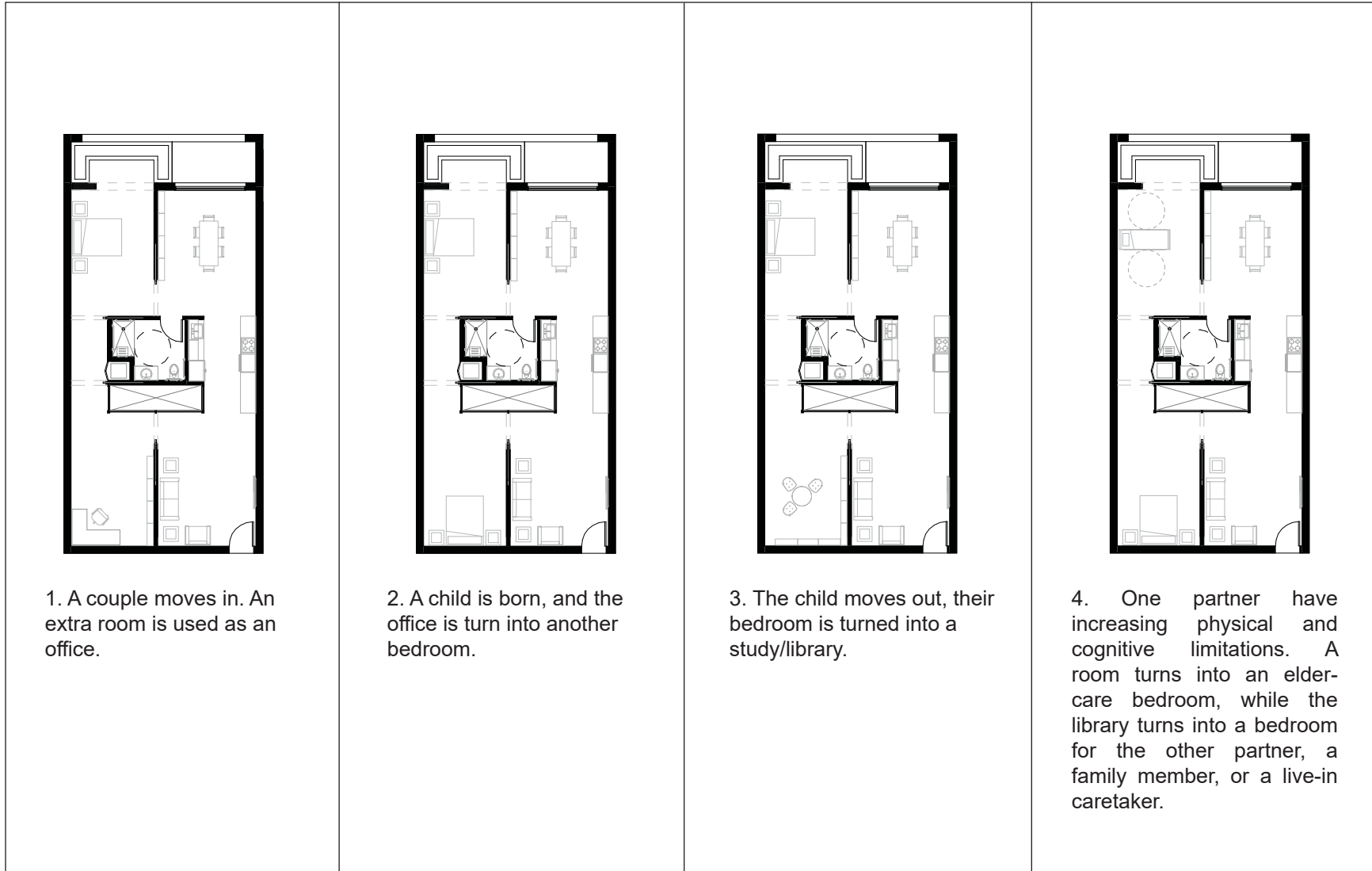


Figure 55. Diagram of how a typical unit in a block housing typology adapt throughout a person's life course.



Figure 56. View of the block housing from the Public Square.



Figure 57. View of the public corridor showing how the skylight provides light throughout the space.



Figure 58. View of how a skylight provides light to a block housing unit's living room and kitchen.

Row Housing

Privacy is a major concern for many because of a human's natural need for a sense of security and ease of mind. In a life course community, the row housing typology is designed to promote population density while providing greater privacy for its inhabitants. The row houses are centrally located within the Shannon Park proposal, situated next to the block houses which shelter them from the noise pollution from the MacKay Bridge. The height and placement of the row houses allow southern light exposure for themselves and the block houses. (See Figure 36) Their central location allows the row houses to provide greater privacy while still maintaining their public integration with the rest of Shannon Park. This is achieved by clustering them in groups of ten or less to manage blind facades and to integrate public paths and green spaces around them. The network of paths allows all residents and pedestrians to move freely throughout the neighborhood. (See Figure 59) The row houses are staggered to form pockets of private yards and front patios. (See Figure 60) Having access to a private yard allows for a sense of freedom and play, while front patios provide buffer zones between the public paths and the private homes - a critical element for privacy and security. Staggering the row houses allows for multiple facades of each unit to have access to natural light. Therefore in the row houses, the third hearth element is adapted into a staircase to create a second floor, which allows for various ways to adapt the homes throughout the residents' life course. (See Figure 61) It is important to provide a housing choice that puts added focus on the resident's privacy especially for an urban development that challenges the extents of the public realm. A home with a private yard within such an open and public development is an essential component to many residents' way of life. The row house typology is, therefore, vital to support people's differing preferences in a life course community.



Figure 59. Row housing typology site plan, showing the buildings' relationship with each other and its surrounding public spaces.

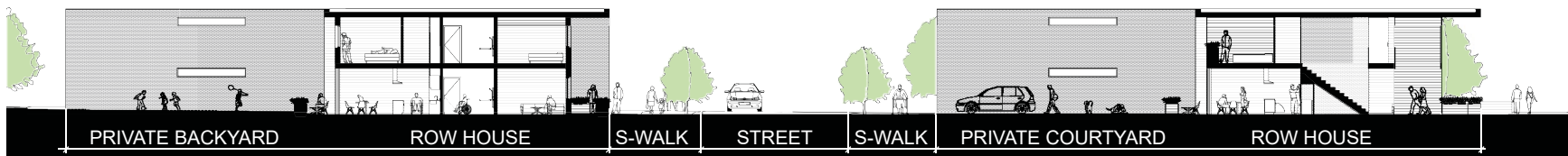


Figure 60. Row housing site section, showing the relationship between the courtyard and the house, as well as with the neighboring houses.



Figure 61. Diagram of how a typical unit in a row housing typology adapt throughout a person's life course.



Figure 62. View of the row housing typology from the alley, overlooking a public-pocket park.



Figure 63. View of the a typical row house private courtyard, showing the openness of the kitchen.



Figure 64. View from the second floor, looking at the bedroom, and the neighbour's courtyard.

Detached Housing

Taking advantage of a site's unique features is a critical component for a successful urban development. One of Shannon Park's most prominent characteristics is its access to the waterfront. This is, therefore, celebrated by strategically inserting private homes along the waterfront while maintaining its public access to waterfront trails and amenities. The detached houses are situated along the site's natural topography. They support multi-level living for various ways of inhabitation, and their shared yards are integrated with the site's various public trails and pocket parks. The detached housing design presents a unique opportunity of inhabitation that celebrates the waterfront views while maintaining the waterfront's public nature. Due to their unique placement along the site's edges, the houses emphasize a gesture towards the water, giving the residents uninterrupted views towards the water and Halifax. To take advantage of the substantial grade change down to the shore, these houses are carved into the landscape. This provides an opportunity for the houses to be multi-level. This supports an increased population density and promotes aging-in-place by allowing for an adaptable living (see Figure 67) while still minimizing the houses' footprint and presence. To highlight the waterfront's public nature, the houses are organically arranged to allow for shared yards that are interconnected with the networks of public trails and pocket-parks. Similar to the other housing typologies, the detached houses support autonomy through their barrier-free and adaptable design. Further, the detached houses' design and arrangement connect the residents with the waterfront and the public realm while minimizing the impact of site interventions.



Figure 65. Detached housing site section, showing the houses' relationship with each other, the public-pocket parks, the topography, and the ocean.

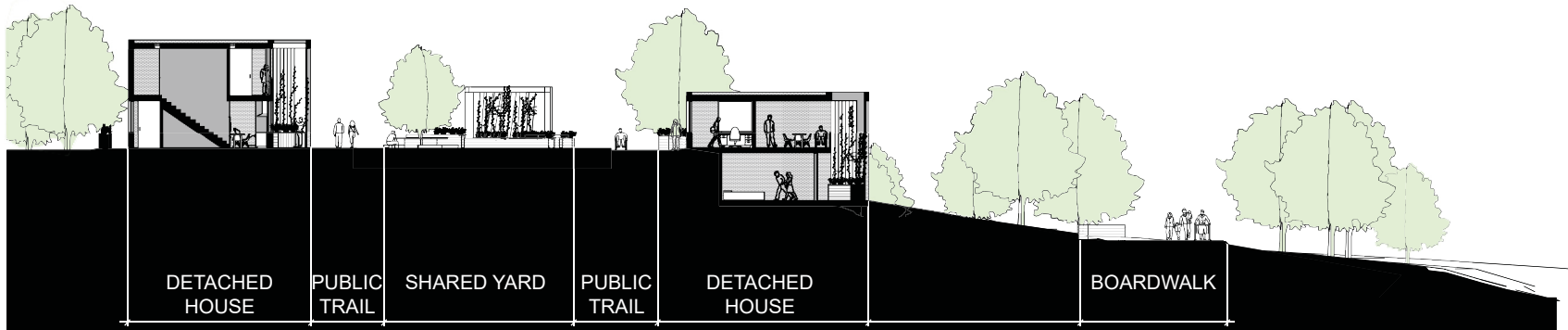


Figure 66. Detached housing site section, showing their relationship to the descending topography, emphasizing the view towards the water.

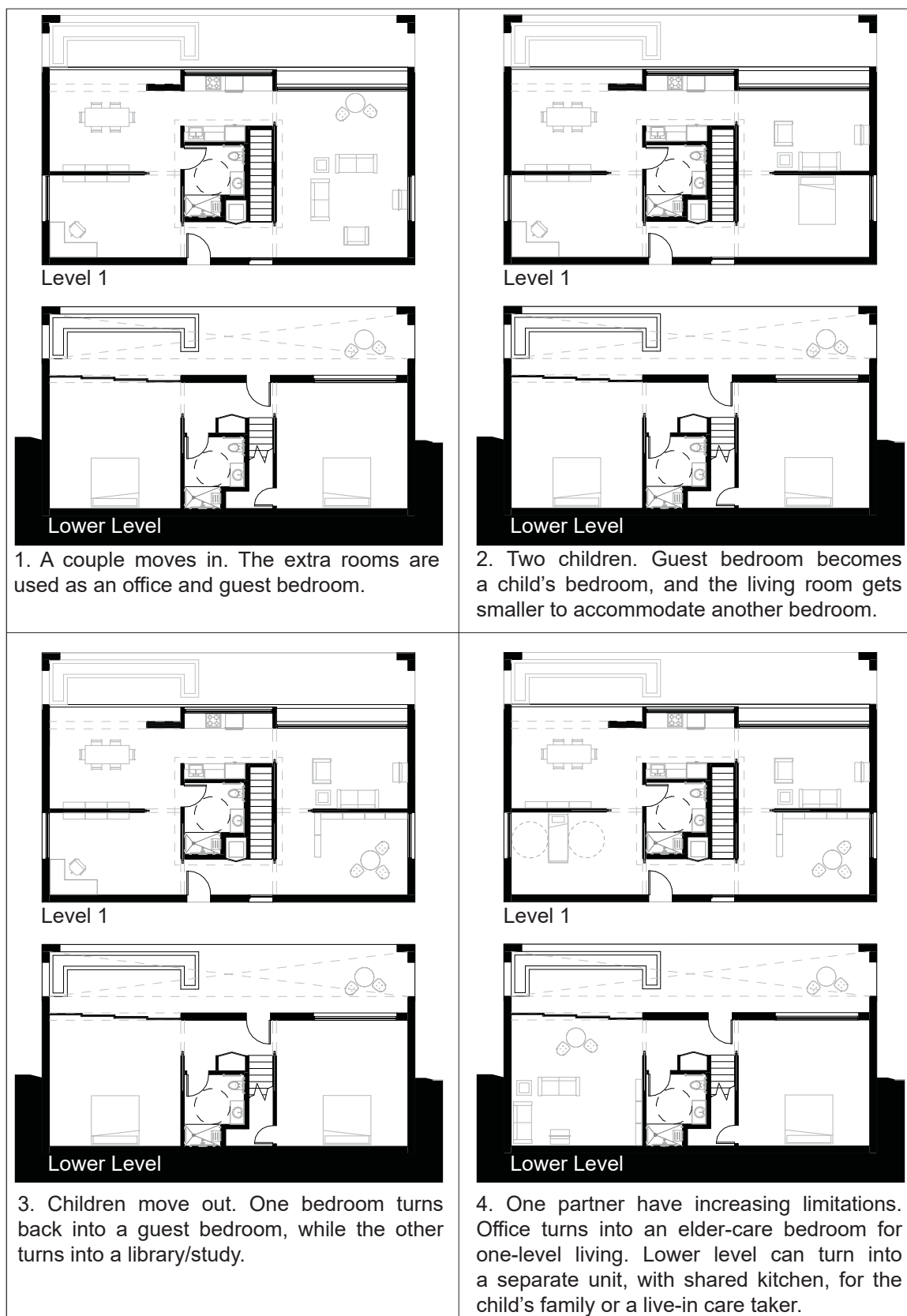


Figure 67. Diagram of how a typical unit in a detached housing typology adapt throughout a person's life course.



Figure 68. View from the waterfront trail, looking at detached houses and a transmission tower.



Figure 69. View from a public trail, looking at detached houses and their shared public yard.



Figure 70. View from a detached house's kitchen, overlooking the MacKay Bridge.

Design Analysis and Criticisms

Throughout the different scales of interventions, there was one reoccurring element – the concept of a hearth, or a centralized place that supports the principles of a Life Course Community. In the city scale, Shannon Park's development into a mixed-use community that contains various critical amenities, houses, and public spaces, established it into a destination. Moreover, Shannon Park's seamless integration with Halifax Regional Municipalities' public transportation system, developed it into a hearth of the city. (See Figure 71) In the community scale, the aggregation of critical community amenities in the centre of Shannon Park ensured equal accessibility and walkability for all the residents. The public square and the surrounding public infrastructures function as the community's hearth. (See Figure 72) In the public building scale, the community centre's attempt to promote intermixing resulted in a centralized circulation system that became the building's hearth - the main public space for informal interactions. (See Figure 73) In the dwelling scale, the placed importance on the bathroom and the kitchen amalgamated into a housing design that integrated them into a centralized hearth. (See Figure 74) The hearth became a powerful tool in Shannon Park's development into a Life Course Community. The importance of a central node in the various scales of intervention demonstrates that a senior-centric approach to urban and architectural design benefits all inhabitants by ensuring equal accessibility to all.

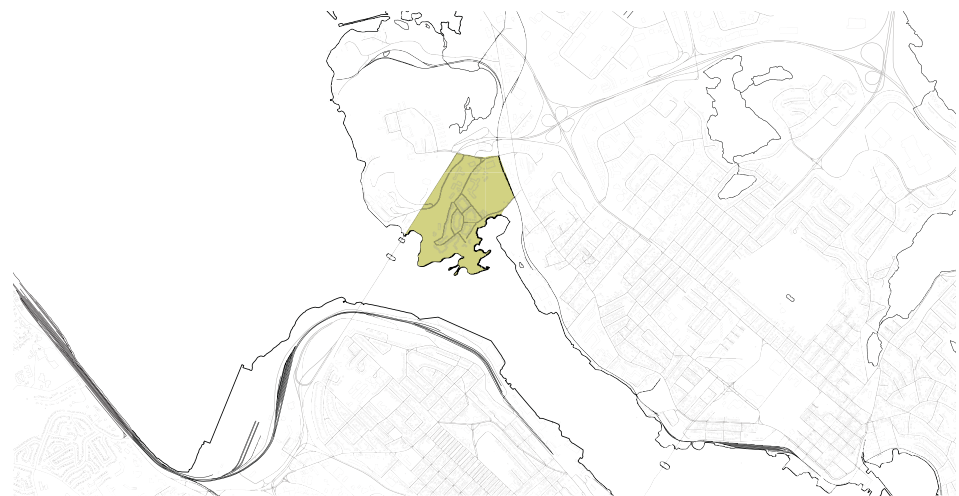


Figure 71. City scale: Shannon Park as the hearth of the city.



Figure 72. Community scale: Public Square and surrounding amenities as the community's hearth.



Figure 73. Public building scale: Circulation ramp as the Community Centre's hearth.

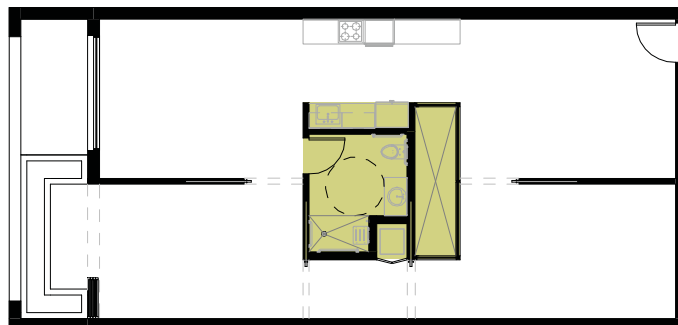


Figure 74. Dwelling scale: Bathroom and kitchen are integrated to become the houses' hearth.

Conceptually, the hearth as a central element in developing a Life Course Community is compelling. However, its translation into urban and architectural design, with the introduction of physical constraints such as the surrounding communities and site constraints, revealed the complexities and limitations when applying the theory. Because of these complex relationships, there were elements in the final design that may not have fully succeeded in achieving the ideal environment for a Life Course Community. For example, the Public Square and its integration with various critical public amenities established it to become the main node for activities and interactions in the community. According to the Life Course Community Framework, an important public space such as this would have been focused on walkability and maximizing interactions between inhabitants, suggesting that it would be undisturbed by any vehicular traffic. (See Figure 75 a) In Contrast, the framework also suggests that there should be seamless access to a public space such as this, for not just Shannon Park's residents, but also the residents of other communities in the city, hence a public transport terminal and a major street should be integrated. By celebrating the site's unique elements, like the existing landmarks being used as tools for wayfinding, the final design resulted in the Main Street cutting through the Public Square, partially disconnecting it from the farmers' market and other public amenities. (See Figure 75 b) This dilemma of choosing which was more important may have weakened the theoretical framework.

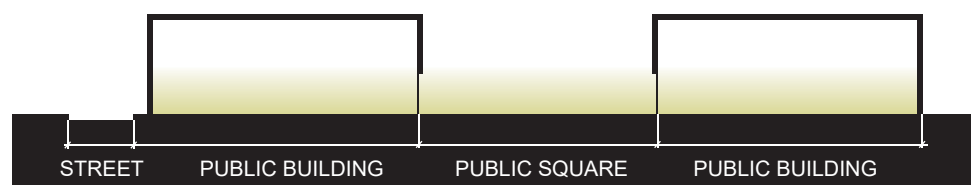


Figure 75 a. Theoretical interpretation of framework.

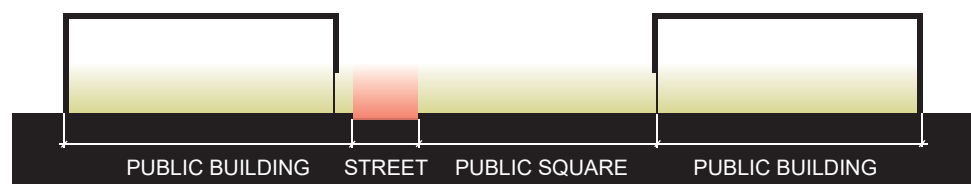


Figure 75 b. Interpretation of framework with physical parameters.

Other places in the community also confronted similar dilemmas when interpreting the Life Course Community Framework. It was difficult designing the different thresholds between indoor and outdoor, and public and private spaces due to the complexity of parameters involved. Among the most important and delicate thresholds in the project are the relationship between the private homes and the public realm. The framework suggests that a home should provide autonomy and privacy without isolating its residents from the community. Consequently, the framework also suggests that the design should embrace the site's unique features in order to promote a sense of belonging. Hence, the thresholds should support these principles. (See Figure 76 a). The house designs attempted to achieve the ideal threshold by means of semi-private patios and yards that provided privacy while maintaining a welcoming facade. Though the final designs successfully promote interaction between inhabitants, these thresholds failed to inhabit the landscape. (See Figure 76 b) The failure in integrating the site's features with the threshold design may have created a disconnection between the residents and the people in the public realm, weakening the framework's principles.



Figure 76 A. Threshold inhabiting the landscape.



Figure 76 B. Threshold failed at inhabiting the landscape.

The Life Course Community Framework suggests that the housing design should be adaptable in order to accommodate the residents' changing needs and circumstances. To achieve this, the design further explored the concept of a centralized hearth which has dominated much of the project. Integrating the bathroom and kitchen to become the houses' central hearth

element resulted in design opportunities for an adaptable floor plan. The centralized hearth element is fixed-in-place which became the houses' main design driver. Its central location allowed for four surrounding neutral rooms that can be adapted into different rooms as the residents want. However, the hearth's immovability presented some limitations. Because of it, the house adaptability is limited to floor plan changes every few years - between major life changes such as having a child or losing physical capabilities. (See Figure 77 a) An alternative way of interpreting the framework could be designing the house's floor plans to be more dynamic and modular, which allows for constant adaptability throughout the day. (See Figure 77 b)

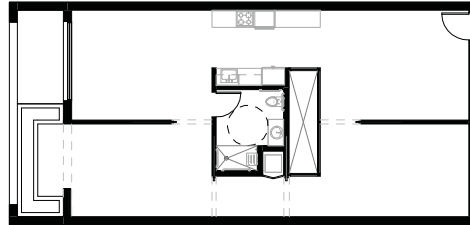


Figure 77 a. Application of theoretical framework in housing design.

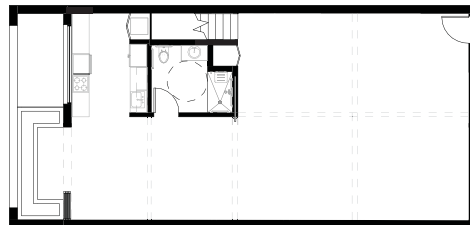


Figure 77 b. Alternative interpretation of framework with focus on daily adaptability.

The development of a Life Course Community in Shannon Park presents the complexity of integrating a theoretical framework with physical parameters. Consequently, interpreting the framework principles and determining which are most important, varies from the designers' goals and to those who live in the communities, causing differences in design approach and outcome. The successes and failures of these design elements vary through each individual's perception. Hence, instead of dismissing other approaches as wrong, they should be analyzed to better understand senior-centric approach to design.

CHAPTER 7: CONCLUSION

The Life Course Community framework is rooted in understanding that human society is composed of complex intergenerational relationships and that the current approach to community design disrupts this relationship by disconnecting and devaluing seniors from their communities. This thesis, with its redevelopment of Shannon Park into a Life Course Community, is an attempt to highlight the importance of urban and architectural design as tools to promote and celebrate social integration across all ages.

The thesis affirms the delicate relationship between the physical, social, and organizational environments in designing a physically and socially inclusive community. Consequently, the focus on transportation, public spaces, and housing emphasize the physical environment's influence on people's daily lived experience. This, in turn, impacts the social and organizational environments. Through the interdependence of these environments, the Life Course Community in Shannon Park offers a place free of barriers - a place where everyone, even seniors, can again be integrated into society and be able to share and gain knowledge, skills, and stories.

While the thesis exhibits the importance of the built environment, it understands that the built environment is only one of the many components of a community's functioning. The thesis recognizes that architecture is nothing without those that experience it. Therefore, a Life Course Community focuses on people's experience of a place as the foundation of its framework. This is the key principle followed to ensure independence, individuality, and a sense of belonging throughout an individual's life.

I believe that this approach to designing new urban developments is a step in the right direction. The Life Course Community Framework is not limited in its application in Shannon Park. Instead, it is a demonstration of the importance of reintegrating seniors back into society. I hope that through a senior-centric approach to community design, the ancient relationship between culture and old age can be restored.

APPENDIX A: CLINICAL FRAILTY SCALE

The age of 65 is used as the threshold in most gerontological studies in North America for defining older adults as a group because it is the age of retirement from regular employment and of societal entitlements such as public pensions.¹³⁹ Furthermore, it is also considered a marker for increased risk of health problems and the beginning of several social and physical transitions.¹⁴⁰ Burton further classifies the elderly in different aging cohorts: Young-Old (65-74), Middle-Old (75-84), Old-Old (85-100), Elite-Old (100+), each having their own predicted markers of limitations.¹⁴¹ However, age in numerical terms is not always a strong predictor because individual seniors vary immensely in their health experience, instead, it is more an indicator of context in which one can expect life experiences to change.¹⁴²

Realizing that seniors' physical and mental limitations vary greatly, grouping seniors using age cohorts is inadequate. Ken Rockwood proposed the "Clinical Frailty Scale", which better classify and understand the varying degrees of health among the elderly. In this study, he used the elderly's physical and mental limitations as the main determinants of one's frailty.¹⁴³

¹³⁹Hodge, *The Geography of Aging*, 8.


¹⁴⁰Ibid.


¹⁴¹Martin Burton, *Fundamentals of Nursing Care: Concepts, Connections and Skills Second Edition* (Philadelphia: F.A. Davis Company, 2015).


¹⁴²Hodge, *The Geography of Aging*, 9.


¹⁴³Ken Rockwood, *Clinical Frailty Scale, Version 1.2*. (Halifax: Geriatric Medicine Research, 2007-2009).


Clinical Frailty Scale*


 **1 Very Fit** – People who are robust, active, energetic and motivated. These people commonly exercise regularly. They are among the fittest for their age.


 **2 Well** – People who have **no active disease symptoms** but are less fit than category 1. Often, they exercise or are very **active occasionally**, e.g. seasonally.


 **3 Managing Well** – People whose **medical problems are well controlled**, but are **not regularly active** beyond routine walking.


 **4 Vulnerable** – While **not dependent** on others for daily help, often **symptoms limit activities**. A common complaint is being “slowed up”, and/or being tired during the day.

 **5 Mildly Frail** – These people often have **more evident slowing**, and need help in **high order IADLs** (finances, transportation, heavy housework, medications). Typically, mild frailty progressively impairs shopping and walking outside alone, meal preparation and housework.

 **6 Moderately Frail** – People need help with **all outside activities** and with **keeping house**. Inside, they often have problems with stairs and need **help with bathing** and might need minimal assistance (cuing, standby) with dressing.

 **7 Severely Frail** – **Completely dependent for personal care**, from whatever cause (physical or cognitive). Even so, they seem stable and not at high risk of dying (within ~ 6 months).

 **8 Very Severely Frail** – Completely dependent, approaching the end of life. Typically, they could not recover even from a minor illness.

 **9. Terminally Ill** - Approaching the end of life. This category applies to people with a **life expectancy <6 months**, who are **not otherwise evidently frail**.

Scoring frailty in people with dementia

The degree of frailty corresponds to the degree of dementia. Common **symptoms in mild dementia** include forgetting the details of a recent event, though still remembering the event itself, repeating the same question/story and social withdrawal.

In **moderate dementia**, recent memory is very impaired, even though they seemingly can remember their past life events well. They can do personal care with prompting.

In **severe dementia**, they cannot do personal care without help.

* 1. Canadian Study on Health & Aging, Revised 2008.
2. K. Rockwood et al. A global clinical measure of fitness and frailty in elderly people. CMAJ 2005;173:489-495.

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Figure 78. Clinical Frailty Scale. (Ken Rockwood, *Clinical Frailty Scale Version 1.2*, 2007-2009).

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