

SENIOR COHOUSING:
THE SOCIAL ARCHITECTURE OF COHOUSING,
COMMUNITY DESIGN
& WELL BEING

by

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ABSTRACT

SENIOR COHOUSING: THE SOCIAL ARCHITECTURE OF COHOUSING COMMUNITY DESIGN & WELL BEING

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The world is facing a situation without precedent due to the anticipated growth in and increasing longevity of elderly people. Where and how people live is and can be a determinant of health. There is substantial research on inadequate housing for older people and its adverse effects on health. However, more research is needed to determine how senior cohousing affects the long-term well-being of its residents. Further research is needed to improve strategies for senior living environments that promote social interaction and facilitate well-being. This study aims to bolster design and policy strategies by investigating how senior cohousing residents perceive how their living situation affects their well-being.

The theoretical underpinning for this study brings together the aging theories together with Rowe and Kahn's (Rowe & Kahn 1997, 2015) and Baltes' (Baltes & Baltes, 1990) theories on successful aging and well-being. These approaches expand on the Person (PE)-Environment dynamic interchange while adding Socialization (S) into the models' framework the complex blending of physiological, behavioral, and social interaction that occur at scales of the individual, built environment, and community. This research investigates how environmental design and improved social networks result in measurable improvements in quality of life (QOL), life

satisfaction (LS), and well-being (WB). The study sought to evaluate the determinants across multiple SR (self-reported) measures of health.

The survey results show that increased are statistically significant for QOL, LS, and WB. Senior cohousing residents are a select group of individuals who seek a more meaningful and socially connected life. They enjoy independence, autonomy, and a healthier, active aging process. The research shows that high-quality social interaction and sustainable and environmentally sensitive architectural design, through the concept of Socially Enriched Environments (SEE) and Nature Rich Environments (NRE), promote a positive sense of well-being and self-rated health (SRH).

Senior cohousing is a necessary consideration for policy initiatives in the United States, given current health care cost trajectories for the aged which are unsustainable. If undertaken, this typology can potentially relieve some of the associated costs of providing health care. It has the clear potential to help relieve social isolation and lack of social support. However, currently, the domestic senior cohousing cohort is a highly selective group with substantial life resources (education, income, assets, and resilience) that puts them well outside normal population distributions in the U.S. Meanwhile, senior cohousing has and is becoming a well-established typology. Meanwhile, senior cohousing has and is becoming a well-established typology in Denmark, Sweden, and, more recently, the United Kingdom. The establishment of these European communities relies on policy initiatives and organizational and financial assistance, which make it a viable option. In the U.S., the provision of policy assistance in the formation of senior cohousing communities can reduce the amount of lead time necessary to develop these communities and the high costs of initial development while potentially increasing the number of seniors who could live in them.

Keywords; *Cohousing, Senior Cohousing, Intentional Housing, Community Design, Cohousing Design, Architecture for Social Interaction, Built Environment, Active Aging, Care, Cohabitation, Family, Housing Policies, Cooperative Housing, Intentional Housing, Cohousing Personality Types, Residents, Successful Aging, Social Capital, Sustainable Communities, Intentional Communities, Environmental Sustainability*

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ABBREVIATIONS AND DEFINITIONS

ADL (activities of daily living) ADL are the basic tasks of daily living activities people usually do in daily living, including any essential daily activity performed for self-care such as preparing and eating meals, bathing, dressing, grooming, working, homemaking, and performing leisure activities. The ability or inability to perform ADL is a practical measure of functional capacity that can be measured on a hierarchical scale (Gobbens, 2018; Spector, W. D, Katz, S., Murphy, J. B., Fulton, J. P., 1987).

Agency Agency relates to an individual's capacity to engage within the context of the social structure in which they operate. The elder's life course follows a path created by the influential and interlocking social structures and networks (Crockett, 2002). Agency focuses on societal forces such as careers, educational and vocational paths, historical conditions, and policies that have a regulatory effect on the entry into and exit from social roles and statuses (Mayer, 1986). Thus, the human agency may refer to a broad spectrum of individual and group efforts and may involve larger collectives such as societies or nations. However, for our purpose, the focus is on the elder's position through later life course perspective. The agency illuminates the processes by which elders continue to define their place in society and community through their ongoing social interaction in the community and reinforced through social norms (Neugarten 1979).

Biomedical model & theories The biomedical model and theories define successful aging in terms of the optimization of life expectancy while minimizing physical and cognitive decline and disability. They focus on functional optimization and an individual's ability to maintain independence (i.e., autonomy) and performance, mobility, and functioning (Bowling & Dieppe, 2005; Martin, Kelly, Kahana, Kahana, Willcox, Willcox, Poon, 2014; Tabbarah, Crimmins, & Seeman, 2002).

Biophilic design/nature/ The theory behind biophilia is that people possess and naturally have a natural closeness for nature, which has developed since the beginning of human evolution, and we are interdependent on nature for our survival and fulfillment. The concept, when used in architectural design, attempts to increase people's relation to the natural environment through the use of nature, green space, gardens, place conditions, and environmental design. The incorporation of biophilic design has restorative effects on human well-being (Wilson, 1984).

Biopsychosocial The biopsychosocial approach emphasizes the importance of understanding human well-being within biological, psychological, and social factors that with the spectrum of natural systems ("The Biopsychosocial approach," n.d.; What is Communication, n.a, n.d).

Cohousing Domestically, cohousing is a housing development that is an Ideologically Embedded Design of housing development with both private and common spaces, where members operate and develop the community through consensus. Its current iteration is based on a Danish model of collaborative housing developed in the 1960s. The number of units typically ranges from 10-40. The future residents are often embedded in the design creation process, which often has sustainable elements and includes a physical layout that enhances community interaction.

Environmental Enriched (EE)/Spaces(EES) Environmental enrichment relates to ongoing research on the effect of the natural environment and nature rich-social settings on the brain's neuroplasticity (i.e., and grow new neurons (neurogenesis), stimulating positive physiological and cognitive changes in the brain (Hebb, 1947; van Praag, Kempermann, & Gage, 2000; Wahl, Iwarsson, & Oswald, 2012). The concept is crucial within the context of senior cohousing to promote neurocognitive health necessitating "environmentally enriched" spaces that are physically, socially, and cognitively challenging and stimulating, offering therapeutic challenges while simultaneously incorporating universal design (Burzynska, Malinin, 2017). This is contrasted with impoverished Environments (those with low complexity and stimulation, i.e., institutional settings), which are likely to produce cognitive decline (Volkers & Scherder, 2011).

Environmental Press The model of environmental press integrates the concepts of stress and adaptation for elders and their ability to age in a place where adaptive functions depend on the interaction between various external demands and an individual's functional ability to meet those demands. A situation in the environment generates a need, mainly for adaptation (Byrnes, Lichtenberg & Lysack, 2006). The theory relates to an individual's environmental fit and perceptions of autonomy, competency, and satisfaction. The environmental press may cause adaptation in the individual. "Environmental press," n. d.)
<https://psychologydictionary.org/environmental-press>.

The EP model is fundamentally depicting adaptation; (Pam M.S., "Environmental Press", April 7, 2013).

Epidemiology A branch of medical science that deals with the incidence, distribution, and control of disease in a population. The sum of the factors controlling the presence or absence of a disease or pathogen.

Functional Ability This is defined by the ability of an individual to perform self-care and basic social roles. It is scaleable and measured by the number of activities of daily living (ADL) ability to bathe, dress, eat, use the toilet, walk across a small room, or transfer from bed to chair without help) and the number of instrumental activities of daily living (IADL) an individual is capable of performing (i.e) cooking meals, shopping for groceries, making phone calls, and taking medications (Han, B. (2002).

Healthy Aging Healthy aging is a concept that relates to an individual's capabilities relating to physical and cognitive functional preservation, without the requirement of disease avoidance. The World Health Organization (WHO) defines healthy aging as developing and maintaining the functional ability; "there are five essential requirements for healthy aging: meet basic needs; learn, grow and make decisions; be mobile; build and maintain relationships, and contribute to society." A Decade of Healthy Ageing, 2019, n.a p.1) The WHO definition helps create a new strategic approach to healthy aging (Bowling & Dieppe, 2005; McLaughlin & Jette, Connell, 2012; Wong, 2018).

IADL Instrumental activities of daily living IADL are higher-level considerations than ADL, which go beyond basic functioning ADL, IADL allow an individual to live independently and include companionship and mental support, transportation and shopping, planning and preparing meals, managing the household, managing medications, communicating with others, managing finances, and taking prescribed medications. The evaluation includes: “Cleaning and maintaining the house, managing money, moving within the community, preparing meals, shopping for groceries and necessities. The IADL require more complex thinking skills, including organizational skills beyond basic ADL.” (Cahn-Weiner, Boyle, Malloy (2002); Geriatric Medicine Research Collaborative, 2019)

Nuclear Family The phrase “nuclear family” meant a married couple with children when nuclear families made up the majority of U.S. households. Today, nuclear families make up less than one-quarter of all households, while individuals living alone has become the most common type of household. The decline of nuclear families will likely have long-term effects on housing typologies and on housing demand (Thompson, 2016).

Ontogenetic development The study of an individuals lifespan conceptualized as the portion of physical, cognitive, emotional, and social development that can be attributed to life’s developmental experiences within the living environment and relationships the individuals within the environment. <https://link.springer.com/referenceworkentry/>

Person Competence Model (PCM) The PCM is related to abilities, the state or quality of being qualified to perform a task; through education, training, experience, or natural abilities. In relation to senior cohousers, it would require the application of age-differentiation to develop e comprehensive definition. In the context of this research, competence is skill-based and can be trained and learned, and is based on the individual's life course accumulatio. Competency is behavior-based and describes the individual's characteristics and personality, and requires a more holistic lens. Competencies can also be learned. However, as a result of their set of social skills and behavior-based nature, it is more difficult to assess, teach or try to measure them quantitatively (Sanghi & Seema, 2007).

Self-Determination Theory (SDT) The SDT represents the study of human motivation and personality and how people can be motivated to grow and change by three innate and universal psychological needs, for competence, connection, and autonomy” to be fulfilled (Deci, E. L., & Ryan, R. M. (2012).

Social Capital Social capital is a complex concept that includes “interpersonal relationships, a shared sense of identity, a shared understanding, shared norms, shared values, trust, cooperation, and reciprocity.” Social capital can be viewed as “networks together with. shared norms, values, and understandings that facilitate cooperation within or among groups” (OECD Insights: Human Capital/nd; Dolfisma & Dannreuther, 2003¹; Foley & Edwards,1997).

¹ Dolfisma, Wilfred, and Charlie Dannreuther. 2003. ‘Subjects and boundaries: Contesting social capital-based policies.’ *Journal of Economic Issues* 37: 405-413

Social contact design (SCD) **Social contact design (SCD)** In the sociological hierarchy, addressing complex human interactions that lead to social relations, this term references incidental social interaction between individuals through design methodologies. The application of SCD prioritizes the person to person interaction. In social networks, this becomes a node (representing an individual or cohesive cohousing group/organization) to which another node is socially connected (Stadtfeld, C., Takács, K. Vörös, A., (2020)²

Social Identity Is a person's sense of whom they are based on their group membership(s). Tajfel (1979) proposed that the groups (e.g., social class, family, football team, etc.) which people belonged to were an important source of social capital, self-identification, and self-esteem.

Social networks, Social participation, and Social Support These are complex, interrelated concepts. Social networks relate to a network of individuals connected through community and other interpersonal relationships. Social participation and integration encompass the behavioral (or participatory) and cognitive (or creating a sense of belonging) elements of social relationships. Social support relates to the network of relationships between people who live and work in a society or community that supports their effective functioning (Haslam, Cruwys, Haslam, & Jetten, 2015).

Socially Enriched Environments (Leon & Woo, 2018). Socially enriched environments help stimulate the brain by a spectrum of environmental and social surroundings. Cognitive functioning is one of the strongest predictors of an elder's ability to maintain autonomy and independence through the ADL and IADL. Designing senior cohousing to promote greater brain health suggests two necessary factors be considered. First, universal design, so the individual can age in place. The second is designing the built and landscape environments that are physically, socially, and cognitively stimulating but still emphasizing minimal environmental challenge. (Burzynska & Malinin, 2017).

Social Identity This term refers to a person's sense of who they are based on their group membership(s). Tajfel (1979) proposed that the groups (e.g. social class, family, football team etc.) which people belonged to were an important source of pride and self-esteem.

Social Support Social support refers to the various types of support individuals receive from others and can be generally classified into three categories: emotional, instrumental, and informational support. Social support in research is defined as the "verbal and nonverbal communication between recipients and providers, that reduces uncertainty about the situation, the self, the other, or their relationship and functions to enhance the perception of personal control in one's life experience." (Albrecht & Adelman (1987). Social support's key features are communication, enhanced control, and group or community social support(structural). The benefits of a strong support group as applied to senior cohousing include continuing validation, normalization of the aging experience, reduction of loneliness or isolation, an enhanced sense of belonging and self-esteem (Schaefer, Coyne, & Lazarus, 1981)

Social sustainability Social Sustainability is a process or framework that promotes wellbeing within an organization's own members while also supporting the ability to maintain a healthy community in the future.

² from Wikipedia https://en.wikipedia.org/wiki/Social_design

Socioemotional development Defined as a psychological theory that human personality is developed through a repeating series of crises and resolution

Subjective Well-Being (SWB). This term was defined by Ed Diener (1984), identifying SWB as having three principal components, life satisfaction, positive affect, and negative affect. Under that definition, an individual with high life satisfaction, high positive affect, and low negative affect has high SWB (Frey, 2012).

Successful aging Successful aging is commonly defined by the absence of disease, physical disability, and cognitive disability. This is distinct from usual aging, which is associated with age-related decline in physical and cognitive function. Successful aging emphasizes life satisfaction and personal wellbeing, usually achieved through socialization (Wong R. Y., 2018; Bowling & Dieppe, 2005).

Third and Fourth Age The Fourth Age, includes the last viable years of adulthood and begins at age 80. The time period of the Fourth Age has been elongated by the substantial increase in life expectancy over the last twenty years (Blanchard-Fields & Kalinauskas, 2009).³ The Fourth Age is more accurately characterized as a span of years of biological and functional decline. (Mahncke et al., 2006). The third Age, is defined as the interim period, post employment/retirement set at 65 to 80 years. The Third Age is marked by active engagement (social and community) and relatively good health (Smith, 2000), functional reserve capacity as considered in terms of ADL & IADL (Baltes, 1998), knowledge and expertise (Singer, Verhaeghen, Ghisletta, Lindenberger, & Baltes, 2003), and adaptive flexibility in daily living (Riediger, Freund, & Baltes, 2005).

Universal design (UD) The concept of UD in cohousing means creating a built environment which are usable by all individuals, without the need for adaptation or specialized design as the age and to ensure that they are able to age in place for the longest possible period of time. (Durrett 2009; Oswald et al., 2010; Peace, Holland, Kellaher, 2011; Peck, 2008)

³ Chapters of Life the Final Years of Adulthood by Stephen F. Barnes, Ph.D. San Diego State University (2011)

LIST OF ABBREVIATIONS

ADL	Activities of daily living
CRN	Cohousing Research Network
IADL	Instruments Activities of Daily Living
LS	Life Satisfaction
SA	Successful Aging
SC	Senior Cohousing
SES	Socioeconomic Status
SRH	Self-rated health
QOL	Quality of Life
WB	Well Being

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I wish to thank all of the faculty, staff, friends, and other Ph.D. students who have encouraged me and have ensured the project's completion. They have helped me in the design of this research, which contributes to a better understanding of the importance of socialization, interaction with the built and natural environment, and senior cohousing's impact on well-being. Their help in alerting me to various considerations in framing specific quantitative and qualitative questions was invaluable, and for that, I am very grateful. This dissertation will hopefully inspire further research into cohousing as a viable senior housing alternative. Senior cohousing has the potential to not only have a positive effect on well-being but may generate medical cost savings as a result of the mutual support (relative to the ADL and IDLS) found in cohousing. I thank my committee, again, with gratitude. All this has helped give me a deeper appreciation for their commitment to education and further developing the body of knowledge.

Harry Mandelman left this world almost four decades ago. My father was a kind and loving man, dedicated to his family and to nature. From him, I learned about animals and the earth and to take care of my health, both physical and emotional. Until his death, he praised my efforts and choices and bolstered my confidence. We were proud of each other and enjoyed our precious time together. Barbara Mandelman, my mother and friend, has also passed; she taught me how to read early on and to appreciate the vast wealth of knowledge available to us if we only look for it. This is one of the greatest gifts they could have given me, besides their love. My parents' love and discipline have served me well throughout my life; without this, it would have taken immeasurably more time to complete this dissertation. They both instilled in me the value of a highly inquisitive mind and taught me that the service we can render to our fellow human beings and animals of this planet is to make meaningful contributions, through research, to the overall good of all living beings.

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path they are forging in helping develop a better way of enjoying life in the Third and Fourth Age stages of life.

CHAPTER ONE: INTRODUCTION

1.1. The Current Status of Senior Living Environments

The increasing population of aging individuals has substantial implications for society. This increase is the result of broader social and economic changes that include increases in income, increasing education, and the empowerment of women (Hertog, 2017). Individuals are living longer and have more disposable income, and may find themselves alone in their later years. Advances in medicine and the understanding of biological aging processes are also factors that have increased elder populations. Health benefits that result from the combination of economic, social, and medical advances operate as “longevity dividends” that “elongate the number of post-retirement years” (Olansky, Perry, Miller & Butler, 2007 p.11). Nonetheless, it’s not just the “longevity dividend,” but a healthy, happy, meaningful, and productive life, where an individual maintains autonomy that has true value. This research examines the related concepts of senior cohousing communities, the social architecture of these communities, and the effects on well-being (WB), life satisfaction (LS), and quality of life (QOL) for the residents. It reviews a very broad range of aging-related theories conceptualizing and synthesizing the advantages and headwinds facing the domestic development of senior cohousing.

As the Western culture moves into the third decade of the 21st Century, many older individuals are single, have no children, or have children who live so far away that intergenerational housing is not a viable option. An increasingly large population segment no more extended fits into the traditional nuclear family, with substantial increases in single individuals. It is significant to this research that elders over the age of 75 have a much lower probability of being married than those under 75 (Holden, Kuo, 1996). The freedom from traditional family roles and

models will increase the individual's self-responsibility for staying fit, physiologically, emotionally, and intellectually.

Housing is embedded within the very framework of society, and any study of aging and housing requires an understanding of other related areas of research, including architectural design, successful aging, social interaction, and well-being. As elders look at available housing options, those that may benefit the individual's well-being are essential considerations in the decision-making process (Lies, Kang, 2017). Senior cohousing schemes address the need for a housing typology that provides elders with the mutual support and social interaction essential to well-being, alleviating the potential loneliness they may face, yet still preserving an individual's privacy and autonomy.

This dissertation investigates elders living in senior cohousing and the effect of increased social interaction on their well-being. The term "successful aging" is an integral part of this research and suggests "key ideas such as life satisfaction, longevity, freedom from disability, mastery, growth, active engagement with life, and independence" (Moody, 2005, p.59). The research was carried out based on the literature analysis and a survey jointly administered through the Cohousing Research Network.⁴ Qualtrics and with the assistance of Dr. Angela Sanguinetti.⁵ It is axiomatic that without the necessary social support many elders may experience "loneliness" affecting their well-being and quality of life. Increases in self-reported health and well-being in

⁴ The Cohousing Research Network (CRN) is the research center of the Cohousing Association of the US (Coho/US). It has taken the lead as a global resource center for developing the cohousing typology. <https://www.cohousingresearchnetwork.org/>

⁵ Dr. Sanguinetti has done pioneering work on the cohousing model and is also the Director of the Cohousing Research Network, which seeks to help advance needed research that helps authenticate the personal, societal, and environmental benefits of the cohousing model. <https://3rev.ucdavis.edu/people/angela-sanguinetti>

residents should occur because of mutual peer support, and the ability to remain productive members of their community (Achenbaum, 2001; Butler & Gleason, 1985).

This dissertation also examines whether senior cohousing can be developed into a more accepted housing typology among elder housing options. If it is to become a more accepted typology, it also needs to be available to a more diverse elder population than the homogenous population it currently serves. The current residential population is overwhelmingly white, liberal, and highly educated, with over half holding graduate degrees. These groups self-organize and act as their developers, requiring the infusion of funds along the path from conception to move-in. The units and associated costs are substantially higher than those found in gated communities or similar condominiums (Abrams, 2017). The need for additional capital infusions along the path to community development and higher initial development costs are only two of the numerous challenges faced by the self-organizing groups.

1.2. A Graying Cohort: Increased Life Expectancy and Its Implications for Health Care

Domestically, demographic projections confirm a dramatic increase in the U.S. elderly population's size over the next several decades. According to projections by the U.S. Census Bureau, by the year 2035, adults over the age of 65 will make up approximately 23% of the domestic population, estimated at 78 million (Kirst & Peck, 2010; Ortmann, Velkoff, & Hogan, 2014; Vespa, 2018). Along with the projected increases in an aging population, the demands placed on our health care systems will be severely challenged due to the increasing needs. Increases will lead the challenges to the health care systems in the prevalence of age-related disease and disability, which are harbingers of the potential increased costs and social burdens that will result from this historic demographic shift (Fried, Tinetti, Iannone (2011).

Underscoring the importance of the crisis that looms in social support programs, many of the current U.S. government's programs have fallen short in annual budgeting, leaving gaps between necessary reserves and projected future expenses. The projected annual shortfalls in funding the social security programs will increasingly have to be financed in the debt market. Without reformation or alternative options to reduce long-term care costs, an aging population's needs will create unsustainable financial strains on Social Security, Medicare, and Medicaid (Ferguson, 2013; Greenspan, 2013 p.294). These entitlement programs will face an uncertain future and an existential crisis as ballooning deficits become increasingly difficult to finance.

The Social Security program was already facing significant shortfalls before the impact of the 2019 pandemic (COVID-19) and resultant recession. The immediate effect on the trust fund is the elimination of jobs, immediately reducing the payroll tax, Social Security's main source of income. With fewer people paying into the retirement fund, the long-term funding consequences to the trust fund only become more pronounced. Current research estimates that any sustained contraction in the economy and continued unemployment above the historical average unemployment rate of 5.8% poses significant threats to the liquidity of the Social Security Trust Fund and reduce the period, without significant increases in the payroll tax, before Social Security is forced to reduce benefits.⁶ This will result in a new reality when considering the long-term financing of Social Security and Medicare (Penn Wharton, University of Pennsylvania, 2020)

It's not only the healthcare programs themselves that face increasing financial challenges. The ability of elders to pay for increasing health care costs is cause for uneasiness among elders. Elders face a range of health and social challenges that should inform policy decisions about developing not only more affordable health care services necessary to preserve their health and

⁶ <https://data.bls.gov/pdq/SurveyOutputServlet> (Calculated from 1948-2020). Note average through 2020 above long-term trend when unemployment spiked to 15% in 2020.

well-being but housing typologies that may reduce long-term care costs through peer to peer support. There are a number of potential health care financial challenges elders have to prepare for:” (1) the costs of medical care, not covered by Medicare or private insurance, (2) the actual costs of private insurance that only partially fills in the gaps left by Medicare, (3) the potential uncovered costs of long-term care whether private or institutional & (4) the uncovered costs of prescription drugs” (Knickman, Snell, 2002, p.850, Grabowski 2007).

There is a substantial economic burden imposed on society with a graying population, including increased social security payments, increasing private medical care insurance costs, and the economic burden associated with uncovered medical expenses (i.e., pharmaceutical needs and costs will become more acute, and long-term health care costs will continue to rise.⁷ Among the mounting challenges of caring for the elderly in 2030 are; ensuring society develops adequate insurance and payment systems for long-term care that reduce costs and work more efficiently than exists domestically. The healthcare system in the United States spends almost twice as much per person as any other developed nation in the world (Osborn, et al., 2017). The problem involves assuring that sufficient resources and a practical, affordable health care system are available to meet an aging population's needs.

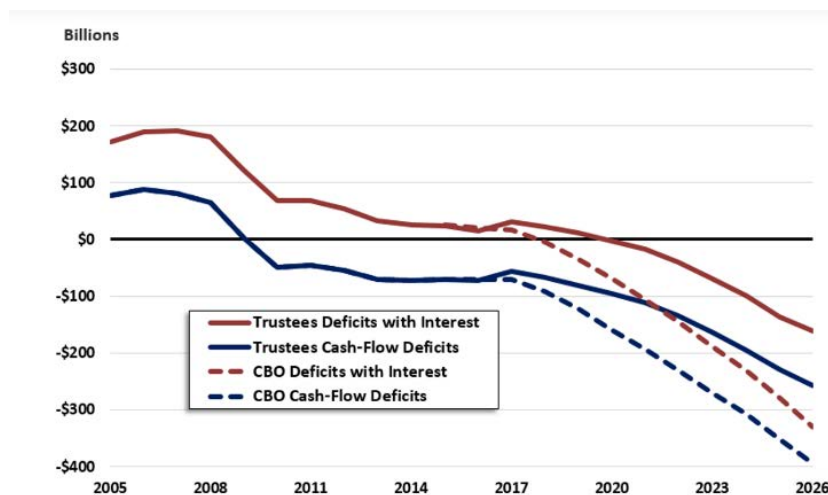
While some of today's elders have more assets and are better prepared than previous generations, more than half of the retired or near retirement population have insufficient assets or projected retirement income streams to adequately and securely finance their retirement needs. Social Security represents the primary income source for approximately 55% of today's retirees

⁷ Dieleman, Cao, Chapin, et al (2020 p.863)” From 1996 to 2016, total health care spending increased from an estimated \$1.4 trillion to an estimated \$3.1 trillion. In 2016, private insurance accounted for 48.0% (95% CI, 48.0%-48.0%) of health care spending, public insurance for 42.6% (95% CI, 42.5%-42.6%) of health care spending, and out-of-pocket payments for 9.4% (95% CI, 9.4%-9.4%) of health care spending. After adjusting for population size and aging, the annualized spending growth rate was 2.6% (95% CI, 2.6%-2.6%) for private insurance, 2.9% (95% CI, 2.9%-2.9%) for public insurance, and 1.1% (95% CI, 1.0%-1.1%) for out-of-pocket payments.”.

(Bond & Porrell, 2020). This means that if the trust fund is not fully financed within the near future, there will have to be significant upward adjustments of revenues and reductions in benefits to maintain current levels for benefits with annual Cost of Living Adjustment (COLA) increases. Currently, it is estimated that without modifications, the trust fund will be exhausted by 2035 (Office of the Chief Actuary, Social Security Administration, 2020).

The problem of long-term financing of public pension programs is not merely a domestic program issue. Many of the Post-Industrial Rich (PIR) countries face similar long-term severe fiscal problems with current projected graying populations. Most PIR health care programs are unsustainable as currently structured (Auerbach, Lee, 2006). The depletion of the trust fund combined with individuals living longer means that finding ways for elders to age in place or in a cohousing, where they benefit from peer support, becomes more critical. We need to consider options that provide for greater well-being in later life or face ever-increasing health care costs, which will significantly affect Medicare, placing further strains on economic growth and the ability to deliver quality health care. See Figure 1.1.

Figure 1.1. Social Security Deficits in the U.S.



Source: CBO, Social Security Trustees
<http://www.crfb.org/blogs/real-story-social-security-deficits>

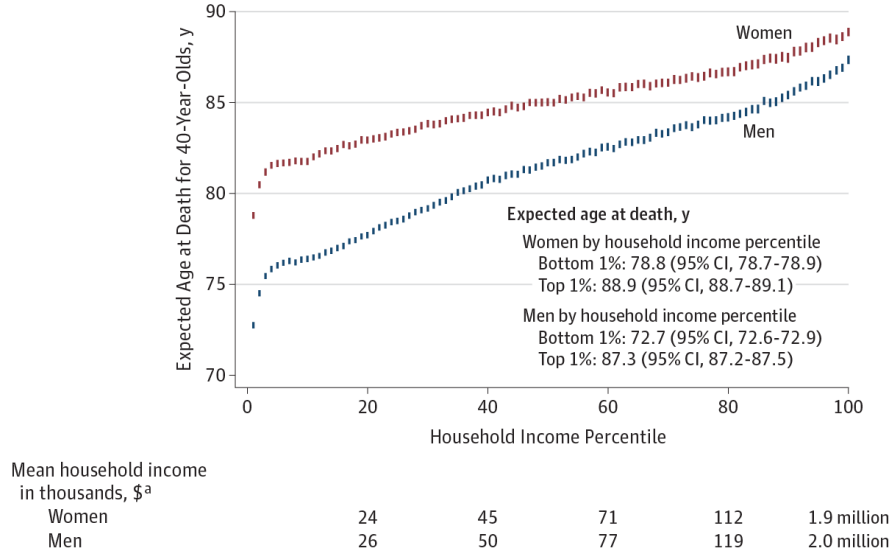
There is a substantial question of whether the potential wealth levels of future generations of retirees will be comparable to current retirees or relatively less financial security than current retirees. Most working Americans between the ages of 45 to 64 have little if any annuities or retirement funds or assets of any type beyond their entitlement to Social Security benefits (Rhee & Boivie, 2015). The burden of preparing for retirement and a secure residential environment will continue to increase of those retiring or near retirement age. Individuals with higher education levels, functional and cognitive ability, financial resources, and literacy are more likely to adjust their expectations and savings as predicted by theory (Perez-Arce, Rabinovich, & Yoong, 2019).

Older Americans have experienced substantial gains in life expectancy in recent decades, accruing primarily for upper-income quintiles. There is growing inequality in life expectancy that affects individuals' lifetime benefits from Social Security, Medicare, and other programs with lower socio-economic groups disproportionately affected. Existing research related to increasing health inequalities points out that as individuals in cohorts with a high socio-economic situation (SES) remain primarily stable, individuals with low SES declines over the individual's life span. When forecasting life expectancies using gender, SES, and education, life expectancy has shown the most significant increases, primarily among individuals with high education and high SES (Hudomiet, Hurd, & Rohwedder, 2019). Existing increases are minimal for the least wealthy individuals, suggesting that subjective survival inequalities increase, along with resultant health care costs (Hudomiet, Hurd, & Rohwedder, 2019).

In this respect, ensuring the availability of adequate, affordable, age-appropriate housing that meets seniors' physical and emotional needs will be a crucial concern (Ortman, Velkoff, & Hogan, 2014). Individuals will become more sophisticated regarding the degree of self-

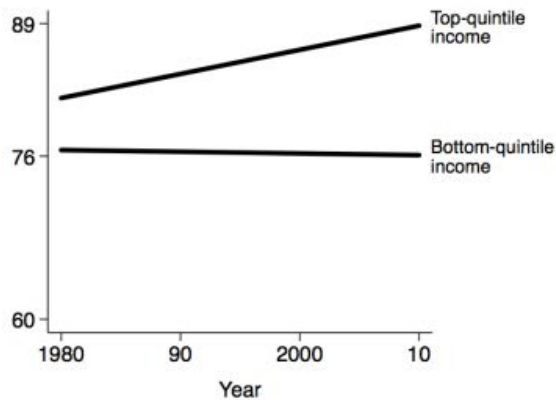
responsibility, life choices, and financial resources to make voluntary affordable housing choices. See Figures 1.2. and 1.3.

Figure 1.2. Relationship Between Income and Longevity



Source Health Inequality Project. Graphic courtesy of David Cutler
<https://news.harvard.edu/gazette/story/2016/04/for-life-expectancy-money-matters/>
<https://lanekenworthy.net/is-income-inequality-harmful/> Lane Kenworthy, The Good Society, August 2016

Figure 1.3. Income Inequality and Effects on Life Expectancy



Source Health Inequality Project. Graphic courtesy of David Cutler
<https://news.harvard.edu/gazette/story/2016/04/for-life-expectancy-money-matters/>
<https://lanekenworthy.net/is-income-inequality-harmful/> Lane Kenworthy, The Good Society, August 2016

1.3. Retirement Income and Housing Options

The amount of resources available to an individual approaching or at retirement age is of concern since they directly affect housing choices. This research considers the vital question of income, retirement, and the ability to make choices among various housing typologies. The income gap between pre and post-retirement will put retiring individuals in jeopardy as they exit the workforce and begin to rely on fixed incomes. The retirement income gap does not fully consider the cost of living increases due to inflation, loss of investments due to market downturns, loss of a spouse, or added expenses due to illness, all of which are unpredictable variables.

Whether elders have sufficient post-retirement income to afford suitable housing is an integral part of this research. As referenced, there is marked graying of individuals in Post Industrial Rich Countries (PIR)'s or adding a new acronym Wealthy, Educated, Industrialized, Rich and Democratic (WEIRD). As individuals progress through post-retirement and later life stages, they may require assistance with daily living and health care needs. The market for senior housing options includes a variety of available housing typologies. As a result of cost, some of these options may be out of the affordable income reach for lower and lower-middle-income quintile individuals (Pearson, Quinn, Loganathan, Datta, et al., 2019). The problem may be even more pronounced for women, as more economic factors, including lower pre-retirement income or loss of a spouse, may substantially affect housing affordability.

Moreover, while the COVID-19 pandemic hurt many sectors of the domestic economy, the exception is the housing market, resulting from low-interest rates and built-up demand (Swanson, 2020). The combination of low-interest rates on mortgages and budget deficits will put increasing pressure on housing prices (Elemendorf, Sheiner, 2017, Feldstein, M.S.,1986). Increasing housing

prices will make affordable housing for seniors challenging to achieve without new affordable typologies.

Those elders who desire to "age in place" in their existing homes will need to: (1) consider the individual health and functional capacity (ADL and IADL, Guo, Sapra 2020),⁸ (2) be able to meet the continuing financial obligations of homeownership or cost of moving to a reduced size residence or new location, and (3) irrespective of the choice of residence, consider the application of the appropriate or needed modifications of universal design so they can age in place. The prospect of modifying existing residences to accommodate "aging in place" is more expensive than if incorporated in the original design.

Existing research has shown that physical design, motivation, development processes, and financial considerations all influence the success or failure to form a cohousing community (Scanlon, Arrigolita, 2015). The existing domestic cohousing literature centers on design and benefits, with overly optimistic views of its potential. However, existing research is scarce in other areas, particularly those related to the challenging obstacles faced by any group attempting to form a new cohousing community, whether intergenerational or senior.

⁸ Guo, Sapra (2020). These terms stand for Activities of Daily Living (ADL) and Instrumental Activities of Daily Living (IADL). They represent typical daily life tasks that individuals need to maintain autonomy, age in place, and remain independent. An ADL refers to daily living activities (feeding, dressing, bathing, and walking). In contrast with IADL, ADL are necessary for basic functional living. In comparison, an IADL is for the instrumental activities of daily living. The IADL allows an individual to live independently in a community and improve their quality of life. (i.e., include cooking, cleaning, transportation, laundry, and managing finances).

1.4. A Graying Population, Ageist Stereotypes, and Well-being

The population's graying suggests the need for greater utilization of available resources that address adaptable housing, telemedicine, lifestyle, health, and disease-prevention interventions across the entire life course. To better understand elders' health, it is necessary to have a thorough understanding of conventional measures of disease and self-perceived and self-reported health and assessments of functional status and disability (i.e., ADL and IADL). Looking at the individual in terms of functional capacity gives us a perspective of an individual's functional status as reported from their Self- Reported Health (SRH) in this research.

Existant ageist stereotypes are so pervasive in Western European and U.S. society that they pose an existential threat to older adults' psychological well-being, physical and cognitive functioning, and survival through marginalization. A more realistic and humanistic view that would acknowledge continuing productive roles for elders is necessary. If we are to face future challenges, then upgrading the built environment to accommodate aging in place, with collaborative action from policymakers, the public and private sectors is necessary.

In aging research, an individual's functional limitation measures are quantified that indicate the relative impact of the disease, impairments, and other risk factors on function but fail to account for adaptation and resilience. The ability to perform ADL and IADL and other measures can characterize an individual and generalize about a populations' functional status and can be used as predictors of stochastic function predictions. There is a need for more research and better biometric data, a gap which this research examines to add our knowledge about this cohort (Guralnik, Ferrucci, 2003).

1.5. Research Objectives

This research aims to understand the influence of the design and social environments in senior cohousing communities on aging processes, including well-being. The effect is measured by self-rated health (SRH) biometrics and influences on the concept of successful aging by the theories reviewed in Chapter Two. Specifically, the study has two objectives and several associated research questions. This study's first objective is to understand older adults' perspectives of the influence of social and physical environments on their ability to successfully "age in place" in cohousing communities. This study's second objective is to gain an in-depth understanding of the processes in which the physical and social environments may act as barriers and facilitators in aging in place for individuals in cohousing communities.

1.6. Statement of the Research Problem

Currently, just under 10% of the world's population is aged 65 and older, but this will increase to 17% by 2050 (NIH, 2016). In the U.S., individuals aged 65 or older represent a growing population segment (Ortman, Velkoff and Hogan, 2014, U.S. Bureau of the Census; 1997, U.S. Senate Special Committee on Aging, 1991). In cross-sectional studies, older age, gender, and socioeconomic status are associated with an increased prevalence of chronic disease and disability. A necessary public health goal is to help promote strategies that help older adults maintain health, independence, and functional capacity (Kamimoto, Easton, Maurice, Huysten and Macere, 1999). While the primary challenge of public health in the 20th century was "increasing life expectancy,"

in the 21st century, it will be “improving the quality of the third and fourth age” (Habil, 2000; Kafkova, 2016).⁹

Coupled partners are working more and no longer have the time to care for or provide a support system for their biological parents. There is also a dramatic rise in people living alone. Since the millennium, there is an increasing shift from nuclear families to single-parent families and newer, more complicated family formations, which have shorter durations acting as family units (Fingeman, 2017). Franck and Ahrentzen (1989) observed that seniors in urban inner cities are particularly vulnerable, often facing unaffordable choices that can lead to isolation, loneliness, and depression. These elders' vulnerability leads to further increases in medical costs with associated adverse outcomes (Kang & Kramp, 2015).

The primary life risks of old age include illness, cognitive impairment, unemployment, accident, poverty, social isolation, and exclusion (Stuck et al., 1999). These risks cited can be measured across a spectrum of cognitive and physiological functional metrics, including: (1) health, (2) disease, (3) attitude, (4) mutual support, and (5) life satisfaction. These physiological and cognitive functions are representative of an individual's continuing ability to perform activities of daily living (ADL) and instrumental activities of daily living (IADL), which are necessary to be functionally independent (McLaughlin, Leung, Pechanga, Flicker, Hankey, & Dobson, 2012). Existing research shows that by keeping elders functionally independent and active, the elders have greater community acceptance through their ability to contribute to the community.

Senior cohousing is a partial solution to meeting a graying population's housing requirements, with varying functional capacities of individuals over 55. Several varying theoretical

⁹(Habil, 2000; Kafkova, 2016) In the theory, an individual's life is comprised of four ages, and elder age consists of two ages, the Third Age and the Fourth Age. The Fourth Age covers the lifespan from 80+ years, i.e., the oldest old). In gerontology, the period before 80 is defined as the period from retirement (65-80) and is the Third Age.

views address the aging experience related to wellbeing and life satisfaction. The differing perspectives focus on how elders can maintain the quality of their lives, perform the ADL and IADL of daily living, and maintain their functional independence (Pirhonen, Ojala, Lumme-Sandt, & Pietilä, 2016).

A spectrum of life course developed social skills and personality traits of those living in senior cohousing naturally leads to more significant social interaction and interconnectedness. The life course perspective is discussed under the multiple umbrella concepts of social inclusion and cohesion, community and environmental stewardship (Bennett, Whitty, Finkbeiner, Pittman, Bassett, Gelcich, & Allison, 2018). The seniors in cohousing enjoy some more significant level of life satisfaction through social support, irrespective of “normal” age-related changes in later adulthood, such as changes in vision, hearing ability, strength, and the onset of a disease that may occur in some of the population (Joanette, 2015).

In summary, the conceptual framework and general research problems are. Does senior cohousing provide an environment that leads to greater self-reported health and greater overall well-being? If so, then who is the constituent demographic that makes up the current domestic residents in senior cohousing? Finally, does this housing typology have implications for the older graying population, and if so, to which SES cohorts is it available? Can or should it be made available to a more diverse and inclusive cohort?

The derivative research questions directly linked to the conceptual framework and general research problem outlined are presented below.

1. Do residents of senior cohousing report that they have greater opportunities for social interaction?
2. Do the residents experience greater overall life satisfaction, well-being, place attachment, and social support?
3. Does senior cohousing as a building typology suggest an architecture supporting elders in their cluster communities, allowing them to maintain a level of autonomy and yet still connects them in symbiotic ways to community?
4. What effect does the design layout of the community have on its overall success and the social cohesiveness of the community?
5. Does greater access to the natural environment via gardens and green space (whether individual or community) positively impact the sense of SRH?
6. What is the demographic makeup of the cohousing residents studied?
7. What are the obstacles to greater acceptance of senior cohousing?

1.7. Organization of Chapters and Summary

The dissertation is divided into five chapters. Chapter One creates a narrative that provides an aging society's current conditions and outlines the research problem's general statement. It further sets the conceptual framework, research questions, and chapter organization. The second chapter of this research presents an overview of the concepts and existing research on the cohousing model. The literature review then shifts and looks at the "social architecture" as one of the features which make cohousing attractive (Jarvis, 2012). A section in Chapter Two examines

aging's dominant theories to present a coherent framework to understanding well-being, life satisfaction, and quality of life-related to the aging processes.

Chapter Three reviews the research methodology (qualitative and quantitative), design, and techniques used by the study (surveys, research analysis, etc.), hypothesis, implementation of the research data collection, and analysis strategies. Chapter Four analyzes the survey results reviewing the socioeconomic status, subjective well-being measures, quality of life, and life satisfaction through the demographic and biometric data analyzed from the fifty-six respondents from the thirteen domestic senior cohousing communities. Based on the survey findings, the Conclusion and Discussion in Chapter Five explains the dynamics between residents, design, the social environment, and general well-being of the residents and presents the conclusions and directions for further research.

Providing contemporary housing environments is essential for the well-being and quality of life of elders. Senior cohousing is a complex environment composed of multiple interacting systems, human, architectural, environmental, and psychosocial. This research looks at the collective group's attempts to create an intentional community with unpredictable results, considering the very diverse human element.

CHAPTER TWO: COHOUSING OVERVIEW, SUCCESSFUL AGING, ENGAGEMENT, SOCIALIZATION, NATURE ACCESS, AND WELL-BEING

2.1. Cohousing: Origins and Overview

The term “cohousing” has a history that stretches well back in the course of human and societal development to the first communal villages. Objectively, living in intentional communal settings is how people lived and made their homes for thousands of years. Individuals and close-knit families lived in villages depending on one another for safety, security, food, childcare, and support. In comparison, the number of people in today’s developed countries are increasingly migrating to less familial smaller household formations.

Since the 1970's households have started changing from nuclear families to new household formations and singularity, separated and more distant from relatives and neighbors than ever before. Individuals are living longer and healthier lives. The increasing longevity of individuals has substantial implications for the health, well-being, and economic security of the elderly, who previously could have counted on their biological family for support (Lewis, 1993, Lux & Sunega, 2014). Those elders living in a community that places a high value on maintaining social connections can help replace the lost familial support, which elders previously counted on before the intergenerational nuclear family's decentralization. Senior cohousing represents a practical solution to providing healthier, more humanistic housing options for elders.

As an organizational model, cohousing exhibits intentional and collaborative housing principles (such as collective member ownership of the common house and democratic control by members) but differs from cooperative type housing. In a cooperative, there is less necessity for social interaction. In contrast, in a cohousing community, the degree of social interaction is much

higher, given the existence of a common house, weekly meals, common yardwork performed by the residents, and other community activities.

Various interrelated terms are used in practice, and the literature refers to 'collective self-organized housing,' including 'collaborative housing,' 'co-operative housing' or 'resident-driven housing.' The literature review provides a useful definition of cohousing for this research. In elders' case, cohousing becomes a "self-developed and selected intentional community where elders live in their residences" within a well-defined geographic area, including owned or rented private individual or family homes, congregated in a close group around spaces and facilities that are used collectively. Moreover, throughout this dissertation, the term seniors and elders are at times supplanted by the term's residents, lest this research engages in the same type of "ageist discrimination" that it seeks to overcome. Consequently, the term communities refer to senior cohousing catering to those over the age of 55. If there is a reference to an intergenerational community, it is referenced as such.

Though Denmark is considered the birthplace of cohousing, the Swedish "collective houses" dates back to the early 20th century. These collectivist houses began with feminist motivations, to reduce women's housework to gain employment even when married and with children (Egerö, 2014 citing Vestbro, 2010). Cohousing represents a spatial solution to three problems of freeing women faced at that time, so they would be able to work outside of the house, provide them with additional child care support, and help women with meal preparation (Bender, 2019). Northern European cohousing reflects ongoing non-nuclear family demographic shifts that are very different from traditional family structures. In Northern Europe, senior cohousing helps meet the needs of an aging population that still strives to be self-reliant with planning authorities' help (Krokfors, K., 2012).

The structural framework for cohousing is based on architectural models developed in the early 1960s in Denmark. Architect Jan Gudmand-Hoyer's 1964 article titled the "Missing Link Between Utopia and the Dated One-Family House"¹⁰ is considered the modern origin of cohousing. The article was well received and responsive to the lack of suitable housing options. Gudmand-Hoyer's original publication was followed by Bodil Graae's (1967) article "Children Should Have One Hundred Parents". These two articles are considered the seminal beginnings and credited for spurring the Danish model of cohousing. and credited for having spurred the development of the Danish model of cohousing.

While the first attempt in 1964 to create a shared housing community failed, it spurred other groups to try this typology (Jarvis, 2015). The development of Sættedammen was the first successful cohousing project of this type. The Danish model of cohousing's initial purpose provided the residents with some degree of privacy and affordability while providing a common house and area to help create community. This helped create a naturally occurring community, with shared meals and social interaction (Siciliano, 2009). The founders started planning Sættedammen as an intergenerational cohousing community in 1967, and the community began operations in 1972 near Copenhagen, Denmark (McCamant & Durrett, 2011).

The first cohousing communities utilized a model, still in use today, featuring individual housing units or multiunit dwellings centered on an open landscape central area with a shared house for dinners and other activities (Silverberg, 2010). Cohousing while sharing some similarities with gated communities has distinct differences. Gated communities are equivalent to

¹⁰ Gudmand-Hoyer's J. (1968) This was an essay published "following an unsuccessful attempt to create a collective housing community. Gudmand-Høyer purchased land with friends and planned a housing development at Hareskov, outside Copenhagen, in 1964. This was short-lived (owing to local opposition), but the account of these experiences is widely cited as the inspiration for cohousing". (Sargisson, L., 2012 p.32)

gated and guarded residential areas, typically secured areas or semi secured, with a guardhouse or entrance gates, requiring a pass or electronic device to enter. Residents make decisions through internal agreements to manage their standard services, often through the originating management company responsible for the development. The typical gated community promotes a form of voluntary “self-segregation” in which “social groups choose to live in homogeneous enclaves in terms of life-style” (Parker 2006: 251). A comparison of three different housing alternatives is found in Table 2.1.

Table 2.1. Later Life Course Housing Alternatives

Cohousing	Gated communities	Assisted living
<p>Cohousing is an intentional community with a collaborative housing concept. The cohousing concept allows residents to develop meaningful relationships and social interaction. Residents of cohousing communities in the United States are homogeneous. They are mainly from the middle and upper-middle class, with a high proportion of older females (72%), and higher quintile income (average between \$100,000 and \$150,000), and proportionately Caucasian (95%).</p>	<p>Gated communities are enclosed developments with homes, security guardhouse, and gates to which public access is restricted and are thus inaccessible to outsiders.¹¹ Residents of gated communities are homogeneous. They mainly come from the middle and upper-middle class, and they “are looking for a place where they feel comfortable and secure.” Social segregation and stratification are features of gated communities.</p>	<p>Assisted living (AL) is prescribed as a social model of care, providing protective oversight and assistance with care to older adults with basic ADL and IADL. The percentage of female residents (73.6%) to male residents is approximately 3 to 1. The majority of residents living in assisted living facilities are female (76.6%), with many widowed, with 12 % married or in partnership. The median length of stay for assisted living residents is 21 months.¹²</p>
<p>Cohousing communities offer social contacts as well as instrumental and emotional support. Findings illuminate the crucial role social context plays in residents’ overall health and well-being.</p>	<p>Gated communities increase general quality of life and well-being. The biggest advantages are perceived privacy, safety, and security. Gated communities can instead be linked back to older patterns of enclosure and the creation of segregated urban spaces.¹³</p>	<p>Existing research indicates a very complex social environment that does not meet the residents needs or expectations. The resident’s perspectives reflect time and loss, barriers and a lack of adequate resources for meaningful social engagement, and strategies to develop or modify relationships.</p>

¹¹ Parker (2006)

¹² Assisted Living Federation of America

¹³ Bagaen and Ola Uduku (2010)

In the 1970s and 1980s, over 100 intergenerational cohousing projects were established in Denmark, with community sizes ranging from 5 to 106 residences and averaging between 15 and 30 units per community (Dejgaard, 1997; Vedel-Petersen, Jantzen, & Rantzen, 1988). With resident populations ranging from 50 to 400 people, intergenerational cohousing communities in Denmark and Sweden reflect urban society and solutions to social needs. They allow individuals more free time and provide solutions that address questions related to sustainability, housing shortages, job creation, raising of children, and education, and allow residents more free time (Pedersen, 2015). Danish cohousing is still considered the “gold standard for cohousing” (Jakobsen & Larsen, 2019; Jarvis, 2011).

While pioneered in Denmark, cohousing spread to Sweden and then Germany, the Netherlands, and more recently to the UK. The service approach, reflective of Scandinavian social and economic policies, is based on a social welfare philosophy. The social welfare policy advocates social and health services are integrated directly into the community, with Swedish community sizes ranging from 86 to 135 units and is second to Denmark in terms of utilization as a social housing typology (Franck & Ahrentzen, 1989). In southern Europe, cohousing is less frequent but is gaining acceptance (Baglione, 2011; Chiodelli, 2010). Another trend with positive implications for the future is the recent Dutch developing initiative (eco-villages), which combines the ideals of the ‘back to nature movement’ with features of 21st-century ‘network cities’ operating as nuclei of the world, (Tummers, 2015)¹⁴. These cohousing projects can make policy makers and planners understand the need to look at different living environments that promote

¹⁴ Boix, 2003 p.2) “It is a structure where the nodes are the cities, connected by links of different nature, through which flows of socioeconomic nature are exchanged. These flows are supported on communication and telecommunication infrastructures.”

higher social interaction and help individuals meet their daily living needs, while freeing time to enjoy life through sharing responsibilities.

Gudmand-Hoyer first began articulating his concept of intentional community living in the early 1960's. Since then, the individual community residences have decreased in size. Besides, the communal shared facilities have increased in size and serve as the primary social focus of interaction for the communities. There has been substantial research addressing the physical design of cohousing communities. The community design layout typically includes clustered units surrounding the common house, with some green space or private gardens, where the members can socialize and share meals (Durrett, 2005; Glass, 2013, 2016; Meltzer, 2005; Sanguinetti, 2011; Williams, 2005). The communal living arrangements allow residents to participate or not participate in the community as they like, fostering mutual support (Koss & Almeida, 2016; Williams, 2005).

The number of collectivist housing typologies in Northern Europe is significantly greater than in the United States, where cohousing accounts for only a negligible fraction of new housing construction (Durrett, 2009; Choi, 2004). Architects Charles Durrett and Kathryn McCamant (Baker, 2016) introduced cohousing to the United States in the mid-1980s. The Foundation for Intentional Community.¹⁵ currently lists 796 communities in the United States (primarily intergenerational), with 109 communities in California, 38 communities in Colorado, and 35 communities in North Carolina. The total number of United States cohousing residents is currently between 6,000 and 7,000, or 0.002% of the national population (Chiodelli & Baglione 2014).

¹⁵ <https://www.ic.org/>

In the United States, unlike their larger European counterparts, cohousing communities are smaller developments of 10-35 private homes supplemented by shared land and facilities that are collectively owned and managed (Koss & Almeida, 2016; Schacher, 2006). In addition to the kitchen, laundry, dining, and guest room, the common house may contain additional facilities, compensating for smaller residences (Baker, 2014). The typical cohousing neighborhood layout allows for green space between the residences, emphasizing a connection to nature, small gardens, and cars parked on the periphery, emphasizing environmental sustainability (Glass, 2009).

Scandinavian cohousing communities have a wide range of relative earning and income levels, unlike in the United States, where the upper-middle class dominates senior cohousing (Siciliano, 2009). The more inclusive income diversity in Northern Europe cohousing unit prices is reflected in the home or monthly rental amount. The unit sizes vary from one-bedroom to four-bedroom flats and townhomes. Whether domestically in the United States or Northern Europe, residents in a cohousing community receive the added value of greater social support and use of the common areas, house, and community or individual gardens (Neshoba, 2007).

The participatory process in most cohousing communities requires collaboration in community governance and participation. Whether formal or informal, community participation involves monthly dues, individual and group participation utilizing individual skill sets, and engagement in committees. The residents are responsible for governance and addressing the day to day maintenance of the community. While this is inherently time-consuming, it helps build a close-knit community (Garciano, 2011; Schacher, 2006).

2.2. Changing Demographics, Aging, Singularity and Familism

In the U.S., individuals' share has increased markedly, nearly doubling over the last 50 years. Simultaneously, there has been substantial growth in single-person households in many post-industrial rich (PIR) countries worldwide. In Northern European countries, Norway and Sweden, single-person households account for nearly half of all households. There is a strong positive correlation between national income per individual and the rise of singularity among individuals living alone in PIR countries (Otrtiz-Ospina, 2019).^{16,17} The graying population trends to singularity coupled with the process of accelerated economic and industrial development is reflective of changing social, demographical, and financial factors, a visible characteristic of a graying society in PIR countries (Anderson & Hussy, 2000; Reher, & Requena, 2018).

Domestically in the United States, the Harvard Joint Center for Housing Study (2020) research showed that in households headed by someone of age 65 or over, married or partnered couples living together comprised 37%, while single individuals 42%. For those aged 80 and over, the share of solo households increases, reaching 58%, a percentage that will continue to rise over the next 20 years. In the report “Housing America’s Older Adults 2019”, most households in the age category of 80 and older will be made up of just a single person and will be predominantly female. Those over 80 typically have more significant needs for support in the home and have fewer mutual support resources than similarly-aged couples; this will have substantial implications for policymakers, family members, and the growth of senior cohousing options (Molinsky, 2020).

¹⁶ Among the many new types of families or family formations are childless couples with two careers, one-parent families, and cohabitating couples with different biological children (McLanahan, Casper, 1995).

¹⁷ Non-family households defined as households containing a single individual or people unrelated by blood or marriage have become more prevalent (McLanahan, Casper, 1995).

It is essential to recognize that living alone should not be equated with loneliness. The various concepts and perceptions of loneliness vary considerably from country to country. The concept of self-reported loneliness has not been growing in countries where people indicate they have family and friends to provide support. In Denmark, Sweden, and Finland, highly individualistic countries, where a large percentage of the population lives alone, research shows little correlation between living alone and loneliness (Otrtiz-Ospina, 2019). The significant factors behind an individuals' decisions to live alone include higher incomes, freedom of choice, higher educational levels, economic transitions, rising female participation in labor markets, and older male morbidity (Bishop, 1986). Additional complex factors influence elders' singularity, including longevity coupled with declining fertility rates, shifting the age distribution of populations in PIR countries toward older age groups (Reher & Requena, 2018).

The residential preferences of the elderly who live alone result from their resources, preferences and their social and health conditions as they age. These conditions reflect the support they can expect to or receive based on their willingness to live alone and maintain their autonomy (Lim & Kua, (2011)).¹⁸ Individuals may continue to work, extend their professional lives, and contribute to the communities where they live. However, aging individuals become increasingly cognizant of potential and ongoing changes to their relative physiological and emotional health, which mandate consideration of alternative housing typologies (Reher, & Requena, 2018). Therefore, residential housing decisions become increasingly important, and the availability of peer support in cohousing provides a substitute for the nuclear family's changing reality.

¹⁸ The individuals may continue to work, extend their professional lives, and still contribute to their communities.

In societies where family systems remain robust, elders perceive their later years as still interwoven with traditional family structures (Silverstein, & Giarrusso, 2010). On the other hand, in societies where family systems have changed and given rise to more individualism and independent aging, individuals are no longer reliant on direct familial support. The forces driving these changes reflect increasing numbers of persons living outside of family relationships, along with increasing concentrations of single individuals living within most age groups (Korbin, 1976). Career or working women are no longer dependent on their spouse or partner for support. In particular, existing research suggests there is a strong relationship between women having children and living alone in those societies where low reproduction rates have led to more significant numbers of childless older women living alone during later life (Glaser, Tomassini, & Grundy, 2004; Reher, & Requena, 2017).

When an individual or couple is faced with some loss of personal autonomy relative to their ability to perform ADL and IADL, they are faced with choices, which include assisted living or cohousing. The burden of considering new housing alternatives happens if they lack a proper support group, whether family, friends or close-knit community. The whole issue of how mutual support is given within the group as health issues become more prominent, raises the larger question of general care for residents “with no resident left behind”. This may prove more idealistic than realistic.

In summary, demographic trends are behind the increase in single households across Europe and the United States, for both men and women. The number of single households is concentrated among the older population and in the Northern European countries, with older women representing the highest share of individuals living alone. The increase in life expectancy for PIR individuals will accelerate this trend. Current research reveals that many elders living alone

often rely on a single source of income (i.e., government funded social security/pension funds). Therefore, they are more susceptible to rising housing, medical costs, and other socio-economic risks. The most vulnerable group are older women living alone who report difficulties in meeting living expenses is exceptionally high (58%) (Study for the FEMM Committee, 2015). The older women's socio-economic vulnerability is markedly worse than that reported by other older adults and is a cohort who would benefit from senior cohousing. See Table 2.2.

The living arrangements of the elderly reflect their life resources available, individual health considerations and the support they receive from families, social support networks, pensions, government support, and the extent to which they desire to live alone. That is why housing options can differ in individualistic societies and represent PIR countries with sufficient resources (income, education, and employment opportunities for vertically upward mobility) and those from developed countries that still retain healthy centric familial households (Spain is an example). For those individuals who are post-retirement or over 60, this occurs when health realities can change quickly, which makes consideration of an elders' housing options a misleading simplification requiring introspection and a realistic assessment of the elder (Tai,2015).

Table 2.2. Comparative Trends in Singularity Across Age Spans

<p>Keilman, N. Recent trends in family and household composition in Europe. <i>Eur J Population</i> 3, 297–325 (1988). https://doi.org/10.1007/BF01796903</p>	<p>During the past few decades, the primacy of the traditional family in Europe has changed substantially with a steady migration to new living arrangements, non-blood relation living arrangements, and one-parent families with increasing numbers of single households. This shift is characterized by smaller family size.</p>
<p>Major trends affecting families in the new millennium - Western Europe and North America. Robert Cliquet. United Nations /Department of Economic and Social Affairs https://www.un.org/development/desa/family/publications/major-trends-affecting-families.html</p>	<p>Several interrelated and mutually reinforcing economic, technological, and cultural factors accelerate these changes in the existing family structure. Unmarried cohabitation is increasing, while marriage is decreasing</p>
<p>Social Sciences Population Studies European Studies of Population (2001). Transitions to Adulthood in Europe. Editors: Corijn, M., Klijzing, Erik.</p>	<p>There has been a substantial increase in non-marital cohabitation and non-marital fertility. This demographic trend will have implications for generations to come with profound societal consequences, including lower fertility and a move away from the nuclear family.</p>
<p>The Primary Individual and the Family: Changes in Living Arrangements in the United States since 1940. Frances E. Kobrin. <i>Journal of Marriage and Family</i>, Vol. 38, No. 2 (May 1976), pp. 233-239.</p>	<p>“There are three stages of living patterns between reaching maturity and death: (1) premarital independence, (2) marriage/family, and (3) post- family independence. Two of these serve to break the pattern of continuous family membership for the individual” Korbin, F.E., (1976 p.214).</p>
<p>One -parent Families in Europe: A Review. Ben Schlesinger and Rachel Aber Schlesinger. York University, Canada <i>International Journal of Sociology of the Family</i> 1994, Vol. 24.</p>	<p>In the PIR countries there are increasing trends of single parent households (Duskin, 1990).</p>
<p>Women living alone in later life: A multi-country comparative analysis. Miguel Requena, David Reher, Mojgan Padjab, Glenn Sandström. https://doi.org/10.1002/psp.2269</p>	<p>Nuclear family availability constrains the stock of proximate kin in residential choices among older women. Combined with early excess male mortality, it helps explain why higher numbers of elderly women live alone and why this trend is more frequent among women than men (Wolf & Beth, 1988).</p>

2.3. Well-being, Self-Determination, and Aging: A Review of Relevant Theories

In this section, theories related to well-being, successful aging, quality of life, and life satisfaction establish a framework for the research fieldwork component's survey questions. We begin by discussing "successful aging," a term that describes the interrelation of physiological, cultural, social, educational, and economic factors affecting seniors. Then, I discuss the different theories that address well-being and life satisfaction over an individual's life course. As this research attempts to look at whether there are beneficial effects on well-being, these theories serve as a benchmark to frame the analysis.

Age-related changes affecting well-being in later adulthood include changes in vision, hearing ability, and strength. Other factors include social interaction, economic concerns, spirituality, reflecting an individual's ability to maintain autonomy, resilience, competence, and independence (Bishop, Martin, & Poon, 2006). Robert Highest (1961) developed one of the first models defining "successful aging" (SA) as an adaptable experience. In 1987, Rowe and Kahn (1987) introduced their first model of successful aging (Rowe & Kahn 1.0), which focused on the absence of substantial impairment and physical functioning, suggesting a quantifiable approach to measuring successful aging and the beginnings of a developmental life course perspective (Carr, Weir, Azar, & Azar, 2012).

The later theory Rowe and Kahn (2.0) developed in 1997 took a more holistic view merging "physical, cognitive, and lifestyle factors with measurable indicators of disease and disability," maintaining that "the appropriate lifestyle could result in successful aging, as having three principal characteristics (a) the forestalling of disease and disability, (b) maintaining the physical and mental function, and (c) social engagement" (Rowe & Kahn, 1998, p.38).

Another model that examines the aging process is the "Selection, Optimization, and Compensation (SOC) Model" developed by Baltes and Baltes (1990). It focuses on human development's cognitive processes across an individual's life span as a framework for adaptation to aging (Li & Freund, 2005). Donnellan (2015) best summarized the SOC concept as follows:

“The key concept of SOC describes a general process of adaptation that individuals are likely to engage in throughout life and is essential for the achievement of higher levels of functioning (P.B. Baltes and Baltes, 1990). The model takes the global view that at all stages of human development, individuals manage their lives successfully, developmental regulation processes of selection, optimization, and compensation. Successful development involves the orchestration of these three processes (selection, optimization, and compensation) which in turn, regulate the maximization of gains in minimization of losses over time” (Donnellan, 2015 par 11).”

The SOC model is an “integrative” process of adaptation contributing to successful later development and successful aging, with the individual remaining responsible for developing the necessary integrative skill set to maintain highly functioning autonomy (Freund & Baltes, 1998). In cohousing, there is ongoing personal development through peer to peer learning and continual social development (Kim, Glass, Southerland, 2014). Those elders living in senior cohousing have responded by developing successful aging strategies in alternative ways through adaptation, positive attitude, and resiliency (Carr, Weir, Azar, D. & Azar, N.R., 2013).

Baltes outlines pathways of later life course development in his theories of a general life course development, which involve three principles (Baltes, 1990 p.366-380):

1. The life course development has contextually a negative correlation with age which drives the naturally occurring evolutionary selection. Thus, confronted with an overall decline in available resources and ongoing changes in personal needs and abilities, the

slection of goals which represent an optimized fit is intrinsic to positive life course functioning.

2. As a result of the decrease in biological functioning with age, there is a need to utilize culture-based resources at increasing levels.
3. The relative efficiency of adding external culture-based resources decreases over time.

The external world's efficiency and effects become marginalized as an elder continuing lifespan development unfolds as a result of normative age-related losses. The individual's lifespan architecture ongoing development becomes less complete with the aging process. The degree of relative completeness can be defined as the ratio between an individual's gains and losses functioning (Baltes, 1990 p. 366-380). However, the development occurs across a wide spectrum because of the substantial variation in individuals continuing functional capacities. Baltes and Baltes (1990) theories of successful aging consider lifelong developmental adaptation to provide a framework for measuring education and life experiences' beneficial effects. Their aging model shows that education and life experiences (in part driven by education opportunities) have a good predictive effect on an individual's ability to age successfully.

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The theory, in this respect, includes concepts initially developed by Rowe and Kahn (1998) "to address the five proximal influences (physical functioning, cognitive functioning, physical health impairment, social resources, and perceived economic status) on subjective well-being, despite the difficulty" in attempting such analysis due to individual variations, in particular resilience (Cho, Martin, & Poon, 2006 p. 132). Psychological resilience is defined as the adaptive functioning standard to face the various risks occurring over an individual's life course (Fontes, Neri, 2015). Resilience is hard to measure because of the substantial individual variation and quantifying resilience when addressing the five proximal influences on well-being.

Successful aging is a dynamic process requiring constant adaptation, and the physiological and psychological resources necessary for successful aging include ongoing adaptation, a positive outlook, and resilience. For example, Ryff (1989) argued that using past experiences and available current resources to cope with adverse developments is central to resilience. Bowling also discusses the significance of resilience, noting that it is "is critical to a positive assessment of self-worth, self-efficacy, or sense of control over life, autonomy, and independence, and effective coping and adaptive strategies in the face of changing circumstances" (Bowling, 2005, p.1549). The health benefits of education, which cannot be overstated, relate directly to an individual's resilience and continue to develop at the individual level. This research defines a "successful aging" as a modifiable concept encompassing a wide spectrum of functional and capabilities and an ever-developing concept that enhances the functioning of older adults aging in an enhanced rich social environment (Depp, Hamell, & Jested, 2014).

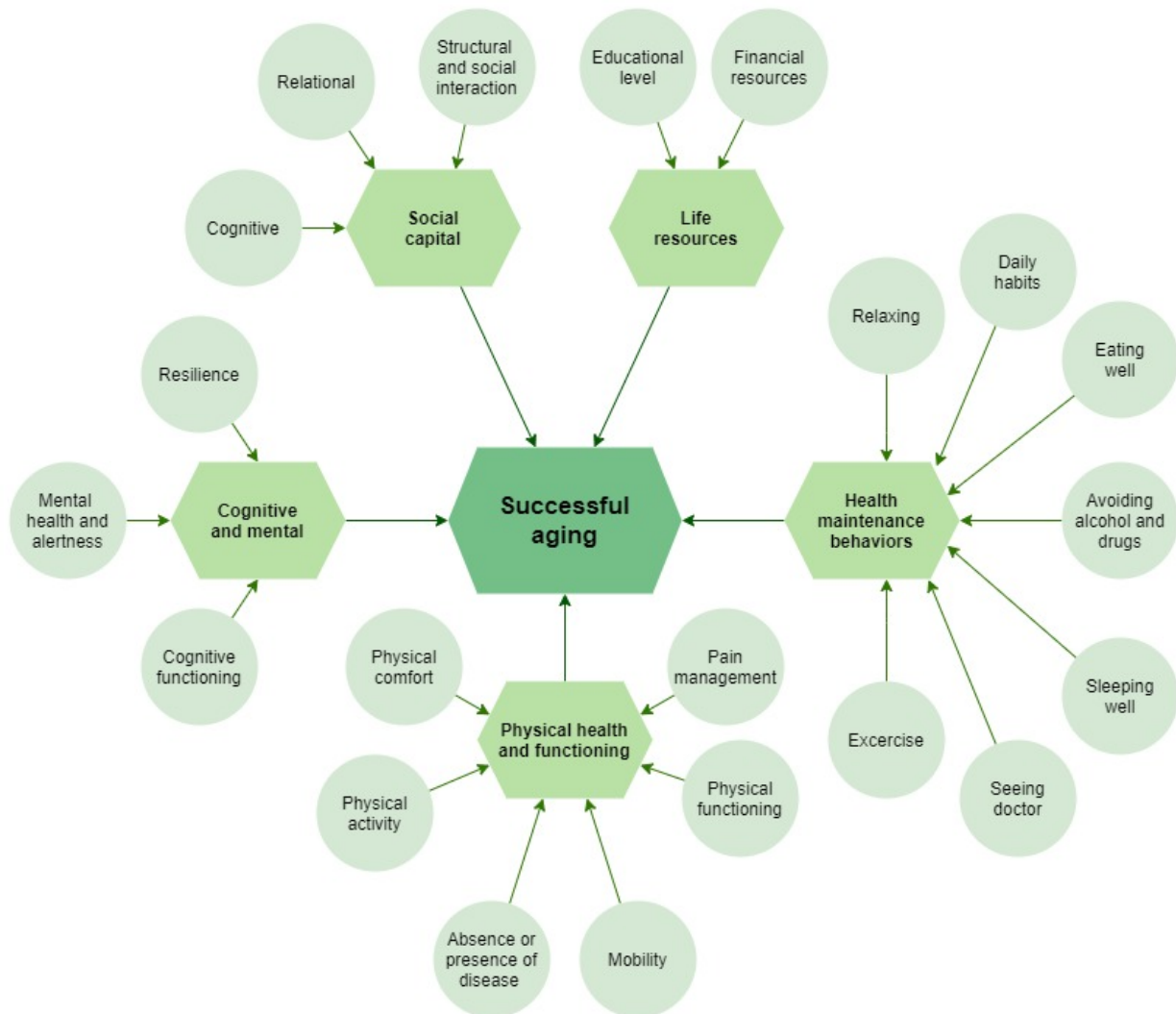
The concept of "successful aging" is more complex than the earlier models indicated. In the United States, the model has developed from the early concepts of decline and disability to one of experiencing positive outcomes in the normative aging process. The more recent models developed match more closely the WHO definition of active aging.^{19, 20} "Active aging is the process of optimizing opportunities for health, participation, and security in order to enhance the quality of life as people age" (WHO, 1994 p.12).

Concepts developed domestically relative to successful aging still relate in no small part to productive capacity and present more idealistic than realistic views of aging. This research looks at the aging process as an intervention that combines elements of both the WHO/European model and the domestic model. The analysis will take the perspective, lens, and account for effects of quantifiable SRH measure (aligning with domestic models), continuing life-long educational development, and SRH and successful aging. This research would consider the effects on an aging population if domestic policymakers were to follow the paths and recommendations as set forth by the WHO with policies that supported interventions like senior cohousing. We test whether those individuals enjoy a more positive quality of life as they age.

¹⁹Mendoza-Ruvalcaba & Arias-Merino, (2015 p.829). "I am active": effects of a program to promote active aging. *Clinical interventions in aging*, 10, 829–837. <https://doi.org/10.2147/CIA.S79511> "The World Health Organization (WHO)² considers that "active aging" is a key concept allowing people to realize their potential, living their aging as a positive experience free of disability, with continuing opportunities for health, participation, and security, especially in aging societies like ours. The theoretical WHO model of active aging involves several determinants related to health and social services, economics, and the social and physical environment, as well as personal and behavioral factors embedded in cultural and sex contexts."

²⁰Mendoza-Ruvalcaba & Arias-Merino, (2015 p.829 citing Walker, 2002). "The concept of active aging has been developed both at the political and the individual level. Politically speaking, it has been proposed as a strategy that connects key policy issues (employment, retirement, health, and citizenship) with health, and suggests that active aging involves a general lifestyle strategy to preserve both physical and mental health during the aging process".

Figure 2.1. Successful Aging²¹



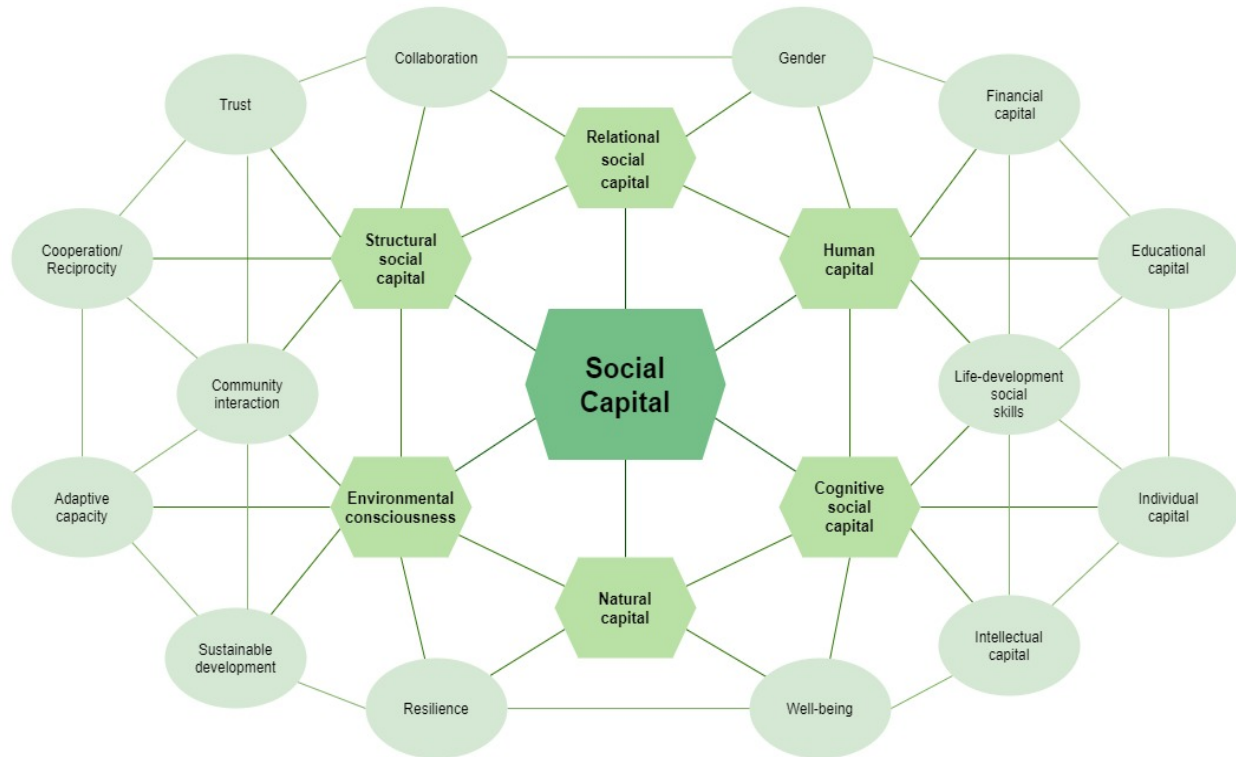
Mandelman, 2021. Adapted from Cosco, Prina, Perales, Stephan & Brayne (2013)

An individual’s intellectual, educational, and “social capital,” which consists of norms of social reciprocity, social integration, and community participation, represent potential benefits

²¹ Cosco, Prina, Perales, Stephan & Brayne, 2013 Lay perspectives of successful ageing: a systematic review and meta-ethnography

that affect an elder’s overall health profile and are predictors of health outcomes (Mohnen, Groenewegen, Volker, & Flap, 2011).

Figure 2.2. Social Capital ²²



Structural
Social structure

- Network ties and configuration
- Roles, rules, precedents, and procedures

Cognitive
Shared understandings

- Shared language, codes, and narrative
- Shared values, attitudes, and beliefs
- Shared goals, purpose, and vision

Relational
Nature & quality of relationships

- Trust and trustworthiness
- Norms and sanctions
- Obligations and expectations
- Identity and identification

²² Mandelman, 2021. Adapted from Claridge, T. (2018). Dimensions of Social Capital - structural, cognitive, and relational. Social Capital Research.

When applied to senior cohousing residents, these models underscore the values of lifestyle and education for understanding ‘resource differentials and social resources’ developed over an individual’s life course (Cho, Martin, Poon, 2015). The concepts of social capital and life course resources figure prominently in this research and have related to the hypothesis of available social capital and resources effect on an individual’s WB, QOL, and LS.

Cohousing communities generate their forms of social capital: bonding, bridging, and linking social capital. Social capital is created through social interaction, civil engagement, and intracommunity-developed self-governance systems. This article aims to discuss how cohousing communities might combine both civil engagements supportive networks within the community (Rulu, 2015).

The concept of well-being is closely related to the concept of successful aging. Well-being is multi-faceted and multidimensional and encompasses “life satisfaction, positive affect, psychological well-being, social well-being, subjective physical health, and the absence of negative” stressors such as ill-health, depression, anxiety, and stress (Bhullar, Schutte, & Malouff, 2013, p.1). Keyes (1998) determined there to be five principal dimensions of social well-being. The dimensions of social well-being refer to an individual's evaluation of the quality of their relationships in the community they live and work. Consisting of five distinct dimensions: social acceptance(their acceptance of other people), "social actualization, social contribution, social coherence, and social integration(an individuals perception of their integration into society)"²³ Ryff (1989) and Ryff and Keyes (1995) developed a theory of psychological well-being,

²³ Social acceptance means having positive feelings about others and accepting them as they are. Social actualization is being comfortable with society. Social contribution is feeling like one has something to contribute to society and that others will value it. Social coherence is having an interest in the social world and seeing it as comprehensible and predictable. Social integration is the belief that one belongs and shares common interests with other community members. (Carruthers and Hood, 2004 p. 238).

identifying six core dimensions of psychological well-being and constructing a multi-dimensional, theory-based model to measure well-being (Ryff & Keyes 1995; Seifert 2005). There are statistically significant correlations between Keyes's dimensions of social well-being and satisfaction of life.

They are listed below alongside Keyes's model and the Deatone and Stone measures of well-being for comparative purposes. The common threads are social integration, educational level, autonomy, purpose, and environmental mastery, which are necessary for an individual to meet their social well-being needs, individual life course development and have positive life satisfaction. See Table 2.3.

The Competence-Press Model developed by Lawton and Nahemow (1973) and Lawton (1999) provides another framework to consider the different effects on functional capacity, both intellectual and physical, of elders. These other potential losses, particularly cognitive, memory, mobility, agility, strength, are factors affected by residential housing design (Wahl 2001; Wahl & Gitlin, 2007). This model's importance is underscored by the theories that an individual's competence and the environmental press are conceptualized by looking at an individual's five core competencies.²⁴ The "Environmental Press" is the context "in which the person is situated and is seen as emanating from five environment domains: personal, group, supra-personal (i.e., cohort), social, and physical (natural or built environment)" (Geboy, Moore & Smith, 2012, p.2). The Competence Press theory shares some common characteristics of the well-being, selective optimization competence (SOC) of Baltes and Baltes (1990) in that it emphasizes an individual's functional capacities (i.e., the ability to perform ADL and IADL). An individual's ability to

²⁴ (Lawton,1989) The five core competencies include physical health, functional health, cognition, time usage, and social behavior.

perform those core functional capabilities are reflective of an individual's ability to adapt successfully to the aging process.

Table 2.3. Comparison of Well-being Theories

Keyes Social Wellbeing Scale (1998) Social Psychology Quarterly, 61(2), 121-140	Deaton and Stone's characteristics of subjective well-being (2014)	Ryff and Keys Six Dimensions (1995) The structure of psychological well-being revisited. <i>Journal of Personality and Social Psychology</i> , 69(4), 719–727. https://doi.org/10.1037/0022-3514.69.4.719	Ryff and Keys definitions of the six dimensions listed (1995)
The development of social acceptance: including a positive attitude toward others, acknowledging their own challenges or shortcomings.	Evaluative well-being: life satisfaction	Self-acceptance	Having a positive view of one's self and one's past life
An individual's degree of social actualization: i.e the belief that the individual has potential and can continue to evolve in a positive fashion	Hedonic well-being: feelings of happiness, sadness, anger, stress, and pain	Personal growth	A desire to have new experiences and continue to grow and develop as a person
Social contribution: an internal understanding that one's activities contribute to and are valued by society as productive.	Eudemonic well-being: a sense of purpose and meaning in life	Purpose in life	Believing that one's life has meaning and purpose
Social coherence: is an individual's ability to make logical sense of what is happening in the world, society and community they live in.		Positive relations with others	Having strong personal relationships with others
The continuing development of social integration: developing a sense of being a part of and belonging to a community		Environmental mastery	The ability to effectively manage one's life and the world around
		Autonomy	Being independent and able to make one's own life choices

Another theory relevant to this research and aging is the Broaden-and-Build Theory, based on the premise that an individual's positive emotions are an essential element of optimal cognitive functioning. The Broaden & Build Theory predicts that "positive emotions (i) broaden people's attention and thinking, (ii) suggests that positive emotions may fuel individual differences in resilience, (iii) undo linger-in negative emotional arousal, (iv) fuel psychological resilience, (v) build consequential personal resources, (vi) trigger upward spirals towards greater well-being in the future, and (vii) seed human flourishing" (Fredrickson, 2001; p.218-226). The theories previously reviewed looked at the individual from a functional competence framework. The Broaden-and-Builds Theory turns to the individuals psychological and emotional state and the importance of having positive emotions on their individual well-being, meaning an individuals ability to develop resilience in the face of adverse outcomes, including acceptance, adaptation, and utilization of external community resources available in senior cohousing.

This research now addresses the role of maintaining psychological resources in explaining an elder's affective well-being (i.e., positive and negative effects). An elder's agencies tend to focus on the self rather than others (Bakan, 1966). One of the more essential aspects of an elder's psychological resources relates to the Self-Determination Theory (SDT), which links human motivation to three innate psychological needs, and is closely related to Maslow's hierarchy of needs.²⁵ The Self-Determination Theory argues that competence, autonomy, and psychological relatedness are dispositive to shaping how we develop over the life-course and who we become (Deci & Ryan, 2008).

²⁵ Wang, Pan & Hadjri (2021) Human motivation and the architectural hierarchy of human needs basis was originally developed in 1943 by Maslow. The hierarch of human needs as applied to senior cohousing represents the foundation of social psychological architecture for the individual and community. Revisiting its implication's for elders should encompass evolutionary currst research on human motivation and cognition, Maslow viewed human motives as based in innate and universal predispositions. This research looks at the concept of motivational hierarchyand needs in terms of an elders perceptiosn of those issue which most directly impact their survival and well-being.

The figure below adjusts the structure to allow for normative physiological and psychological changes and requirements for the ongoing development over an individual's life course resources in the later stages of life. It adds to the original model by adjusting for competence, autonomy and psychological relatedness from Deci & Ryans SDT (2008) model of successful aging.

This revision examines Maslow's critical insights but adds necessary updates to the model as applied to elders. This is required to account for factors which have marked effects on longevity and successful aging. Among the factors which are statistically significant are intelligence, education and specifically health intelligence²⁶ which have a direct effect on longevity and successful aging (Palmore, 1982). Health intelligence and education effect "longevity and successful aging through greater problem-solving ability, which contributes" to an individual's ability to be responsive to changing health needs, maintenance of a healthy lifestyle and survival (Palmore, 1982 p. 513). Critically, the revision adds to Maslow's basic human motives at differing times in an individual's lifecycle, acknowledging the importance of maintaining autonomy, the ability to continue performing ADL and IADL and functional capacity across the individual's physiological and psychological to elders and in several important ways (Kenrick, Griskevicius, Neuberg, and Mark Schaller (2010). This takes place within the elder individual's focus while maintaining the primacy of self-actualization as inherent in their continuing life-course development.

²⁶ Springbuk (ND) Health Intelligence is the ability to capture, utilize, and apply an individual's intelligence, education, and knowledge to support an individual's decision-making related to their physiological and psychological health. The use of an individual's health intelligence then provides the individual with the ability to respond within their environment and context to choose the best course of action going forward.

Figure 2.3. An Elders Hierarchy of Needs/Senior Cohousing



Mandelman, 2021. As adapted from Wang, Pan & Hadjri (2021) and Maslow (1943)

Autonomy is a multidimensional concept at the core of Self-Determination Theory (SDT), includes an individual's evaluation of life satisfaction (Diner, 1984; Diener et al., 1999; Westerhof, 2001, as quoted by Westerhof & Keyes, 2009). The definition of autonomy under SDT and within the context of this research means an elder's ability to pursue their needs and personal interests that they consider essential to their well-being (Deci, Koestener, & Ryan, 1999; Deci & Ryan, 2000). Each of these needs (competence, autonomy, and psychological relatedness) is necessary to the individual's optimal development and psychological well-being. Living in senior cohousing enables individuals to develop a greater feeling of place attachment through the development of emotional ties to a place by providing feelings of comfort, familiarity, safety, and security (Oswald et al., 2010; Schumaker & Taylor, 1983; Shenk, Kuwahara & Zablotzky, 2004; Lewicka, 2009; Sugihara & Evans 2000).

To complete the literature review, we turn our attention to the psychological resources that promote social capital, personal control, and autonomy (Rook & Zettel, 2005). As cohousing continues to evolve, so does the relative importance of social capital, emphasizing its characteristic as a “collective good shared both individually and by the members of the community” (Cannuscio, Block & Kawachi, 2003). The cohousing community attributes, which include safety, security, shared group norms, mutual trustworthiness among residents, obligations, and identification, appear in a homogenous population with shared norms and background (Davenport & Daellenbach 2011 as cited by Claridge, 2018).

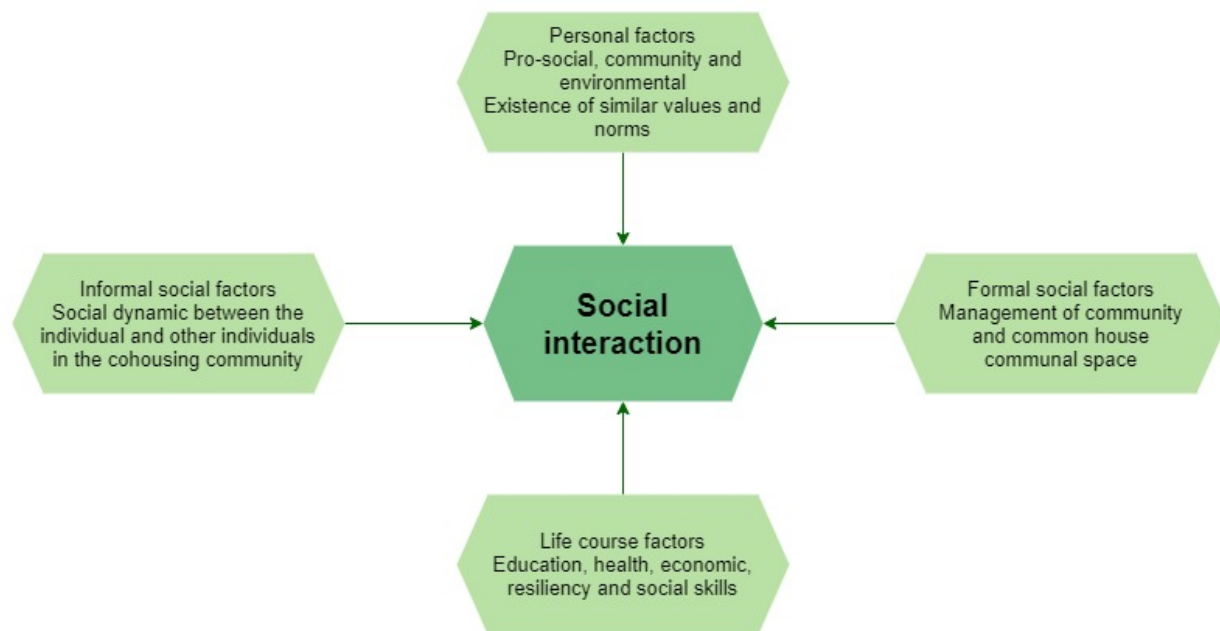
The definitions as applied to senior cohousing and these three types are listed below:

- (1) The structural social capital is reflective of the community availability of an adequate social network, that provides access to similar individuals and community resources.
- (2) Cognitive social capital relates to the subjective interpretations of shared understandings reflect the capability for resource exchange.
- (3) Relational social capital is about the nature and quality of relationships and is the affective part, representing the nature or quality of networks or relationships (Claridge, Tristan, 2018, p.1-2).

This literature review suggests strategies by which cohousers may build social capital and increase their well-being through social connectedness, giving and receiving more generous social and mutual support than their non-cohousing peers (Markle, Rodgers, Sanchez, & Ballou, 2015). Dekker and Uslaner (2001) posit that social capital relates to how individuals interact and interrelate with other community members, which is true, but insufficient for our purposes. The amount of governance required in senior cohousing communities requires a more long-term view of social capital with their collective social activities to ensure the democratic functioning of the closed community, representing a form of bridging capital. Social capital and mutual support are more multidimensional and involved in a cohousing setting and are more complex than the current

conception of social capital. The social capital in elder cohousing occurs despite substantial variations in strength, functional capacity, and resilience, highlighting how the people connect, linked by their common interests and values (Ruiu, 2015). See Figure 2.4.

Figure 2.4. The Social Interaction in a Cohousing Community



Mandelman, 2021. Adapted from Williams (2005)

It should be noted that the concept of well-being and successful aging theories are in constant development. The prevailing theories reviewed here represent the interrelatedness of three disciplines: psychology, physiology, and sociology, as they relate to successful aging and well-being.

As noted at the beginning of this section, this brief review of prominent aging theories is neither all-encompassing nor intended to be. Instead, this overview provides a frame of reference for understanding the important themes affecting later life course development, life satisfaction,

and well-being. It highlights that as individuals age, there is an increasing need for adaptation and reliance on external resources to maintain an individual's necessary levels of ADL and IADL to be able to function individually, autonomously, and independently. This helps us understand the benefits of the available social capital and resources in cohousing.

2.4. The Architectural Design of Cohousing: Common Characteristics and Environmental Considerations

The cohousing model allows residents to own their own homes, maintaining their income and private sources, yet benefiting from common facilities (Schacher, 2006). While they may be somewhat competitive in pricing with other condominiums within the local area, cohousing homes are more expensive on a per square foot basis. The higher per foot cost results from more expensive environmentally conscious building materials and the additional costs of shared land and common house. Cohousing communities can range from dense urban cohousing, urban regeneration, urban infill developments, to sustainably built small communities in rural and suburban areas (Marckmann, Gram-Hanssen, & Christensen, 2012).

Each intergenerational and senior cohousing community is unique, reflective of the group that founded it (Baker, 2014). The overall size of senior cohousing communities has considerable variation depending on whether located in the United States or Europe. European communities usually represent much larger communities but smaller size units. The community's size and constituency vary considerably depending on the economic and support resources utilized, the number of residents, location, services offered and desired, economic resources, and whether the community is an urban infill or a new development (Ruir, 2014). Intergenerational cohousing communities exhibit greater diversity in size, resident composition, legal and ownership structure,

overall design, physical features, and legal structure than senior cohousing communities, which are less diverse (Jakobsen & Larsen, 2019).

The landscaping, site plan, and the number of units in a cohousing community depends on a number of complex and interrelated factors (i.e. The number of planned units, rural, suburban or urban, new construction, or infill retrofit, acreage, group cohesiveness, size and shape of the acquired land. Intergenerational communities may have both rented and privately-owned homes, allowing for certain credits for those providing care to older residents (Rui, 2014). There is variation in the communities' approaches, both intergenerational and senior, with some communities requiring a set amount of work from each adult resident, including preparing community meals, gardening, performing maintenance work, or bookkeeping. Other communities rely more on peer pressure to encourage residents to do their part in supporting the community or use outside contractors and service providers (Sargisson, 2010).

Each household exists as a private residence and may have a garden or community gardens (Kang, Lyon & Kramp 2015). Most cohousing communities also include a wide range of laundry facilities, guest rooms, a library, a game room, an art studio, or a space for entertaining (Baker, 2014). The one constant for all cohousing communities is that they share six characteristics that distinguish them from other housing arrangements. Durrett identified these six characteristics, which are explained in Table 2.4 (Durrett, 2009; Fromm, 1991; Glass, 2009). Two additional features are needed when referencing senior cohousing communities due to their more homogenous constituency. The first is individuals with a shared source of values, political leanings, and education and goals. The second is having a minimum age requirement of 55, a common theme in senior cohousing communities. This research has added two additional features to those commonly found in Table 2.4.

Table 2.4. Common Features, Organization and Constitutive Features of Senior Cohousing Communities

Six common features²⁷	Organizational nature.²⁸	Five constitutive characteristics
Glass (2009 citing Durrett, 2009; Fromm, 1991) <i>Journal of Housing for the Elderly</i> , 23:4, 283-303		Chiodelli & Baglione (2014) Living together privately: for a cautious reading of cohousing, <i>Urban Research & Practice</i> , 7:1, 20-34, DOI: 10.1080/17535069.2013.827905
Participatory process: residents are responsible for organizing, planning, and designing the community and make all final decisions as a group.	The necessary democratic participatory process, would optimally be introduced early on in the design phase.	1) Senior cohousing communities contain both residential and communal spaces. These spaces are designed and reflect the individual and community needs and resources and is referred to as “Communitarian multi-functionality.”(Stewart, 2002).
Deliberate neighborhood design: the physical design promotes a strong sense of community.	Resident management: self-management, there is no outside developed tea/staff or supervision.	2) As part of the long development process, the cohousing communities develop governance rules of a private nature to ensure the community's successful functioning and survivability (Williams, 2008).
Non-hierarchal structure and decision making.	Decision making, most often must be reached by consensus.	3) Another characteristic of cohousing is the necessity of the resident's high degree of participation in the cohousing community's daily and management phase of life (Cooper Marcus 2000; Fromm 1991; Williams, 2008).
No shared community economy.	This model is different from communes, and there is no shared economy; each individual or family unit is responsible for its finances.	4) Residents’ self-selection: “the creation of a cohousing community is achieved through the self- selection of future residents, generally, before the physical realization of the settlement. The aim of creating a close-knit, interactive, and dialogic community drives the search for affinity among residents” (Fromm 2006, p.75, 2012; Williams, 2005).
Non-hierarchal structure: shared responsibility for community decisions by its members; there are no formal leadership roles.		5) The domestic SC communities develop based on shared values and goals among the residents, helping achieve “a strong and vibrant community and stressing values of solidarity, inclusion, social activism, and mutual support” (Sargisson, 2000; Williams, 2005),
Separate income sources: Residents have their individual incomes; the community does not generate income.		
Additional characteristics	Organizational nature	Constitutive characteristics
The resident group constitutes an independent social unit with its own board or residents’ committee (Pedersen, 2015).	Organized around a common set of values, expectations, and goals.	Domestically senior cohousing communities are smaller developments with between 15-25 units, unlike their much larger European counterparts.
The community has to have a residential minimum age or, alternatively, a rule that prohibits residents’ children from living with them (Choi,2013).		

²⁷ Glass (2009) Aging in a Community of Mutual Support: The Emergence of an Elder Intentional Cohousing Community in the United States, *Journal of Housing for the Elderly*, 23:4, 283-303, DOI: 10.1080/02763890903326970

²⁸ Beck (2018)

The design of the elders' living environment, both built and green spaces, can make a positive contribution to an elder's quality of life and well-being, or lack thereof (Cutler, Kane, Degenholtz, Miller, & Grant, 2006; Parker et al., 2004; Sugiyama & Thompson, 2007). The residence and community's design qualities should focus on sustainable environmental and universal design, additionally providing for both adequate greenspace and gardens, whether individual or communal, to accommodate changing needs as residents age in place (Parker et al., 2004, p. 960). Being able to participate in the design process empowers the residents, positively influences their investment in their community, and increases feelings of responsibility (Kang, Lyon & Kramp, 2015). Cohousing communities have a strong environmental focus and encourage residents to live more sustainably, generally using less than half the amount of land as a typical subdivision for a comparable number of houses (Baker, 2014). The average size of new homes in the United States is more than 2,300 square feet; cohousing units average about half of that amount (Durrett, 2009). Cohousing communities often place a high value on energy efficiency, with energy usage reductions approaching 50% of the average American households (Baker, 2014).

Environmental gerontology focuses on understanding, analyzing, modifying, and optimizing the relationship between the aging person, their built environment, and the opportunities for social interaction made available to them. From a multidisciplinary perspective, the designers of senior cohousing should consider the application of universal design in the early design phases (Rodríguez-Rodríguez & Sánchez-González, 2016, p. 13). The “design for aging” concept is a strategy for creating social inclusion and interaction that would meet the needs of the elderly and involve aspects of universal design that include modifications to bathrooms, kitchens, household equipment, doors, and passageways. Implementing standardized design principles at the early stage of schematic design should allow more elders to age in place and obviate the need

for expensive retrofitting of existing residences (Malik and Mikołajczak, 2019). The “design for aging” concept is an essential long-term consideration that would allow individuals to age in place (Steels, 2015).

Residences should also be easily modified to meet aging residents' changing physical capabilities (Durrett 2009; Oswald et al., 2010; Peace, Holland, Kellaher, 2011; Peck, 2008). The design features identified as necessary include "retreat space, barrier-free environment, accessible storage, and natural light" (Kang et al., 2015 p .262). In senior cohousing, the layout, site plan, and residential design should allow adaptation for varying levels of functional capacity and the physical ability of residents within their environment that is challenging but not overwhelming (Durrett, 2009; Kweon, Sullivan, & Wiley, 1998; Oswald et al., 2011). Design adaptation allows the individuals to face some challenges, such as a minimum number of stairs, which aids in maintaining strength and agility without limiting the residence to a single level. See Table 2.5.

Table 2.5. Nine Principles of Universal Design²⁹

Universal Design Principle	Description	Example
Equitable Use	Useful and marketable to people with diverse abilities	Doors that open automatically
Flexibility in Use	Accommodates a wide range of individual preferences	Automated teller machine buttons far enough apart to be pressed accurately
Simple and Intuitive Use	Easy to understand regardless of user's experience, knowledge, language skills, or current concentration level	Providing assembly instructions that can be easily understood and followed in both text and illustrations
Perceptible Information	Communicates necessary information effectively to the user regardless of ambient conditions or the user's sensory abilities	Computer software that relays information visually through text and pictures, and audibly through speakers
Tolerance for User Error	Minimizes hazards in the consequences of accidental or unintended action	Hallways that return to common areas rather than stop in dead ends
Low Physical Effort	Can be used effectively and comfortably with the minimum of effort	Bottle caps that are easy to grip and require only a small range motion to open
Size and Space	Size and space approach, provided reach, manipulation, and use regardless of the user's body side size, posture, or mobility	Wall-mounted components such as toilet paper that is visible easy to reach and for all and decide
Wayfinding (New)	People should be able to comprehend the message in under five seconds. The message should be intuitive, the layout easy to read and use established universal symbols or pictograms.	Signs that provide clear instructions and use universal symbols for clarity. Signs that allow for some degree of cognitive dissonance.
Color Contrast (New)	Color and contrast are a critical ingredient for achieving a functional sign and message that meets the 70% Light Reflectance Value (LRV).	Easy to read irrespective of visual acuity

²⁹ Adapted and modified from Story, M.F. (1998), Maximizing Usability: The principles of universal design. Assistive Technology 1998;10(1) p.4-12. Mandelman 2021 added "Wayfinding" and "Color Contrast" as the eighth and ninth principles of universal design.

2.5. The Natural Environment and Well-being

There has been a growing interest in the effects of more significant presence and access to nature and greenspace on senior well-being. Elders differ from younger individuals regarding how they react to the built environment and the green space surrounding them. An essential dimension of this research is to bring more attention to the natural environment's role and the "built environment" to understand further how design and nature impact successful aging (Wright & Wadsworth, 2014). In a review of existing literature, it was found that individuals in the 55 through 64 age categories spent the most of any age group on gardening and other related products and services (Francese, 2002; Gross & Lane, 2007). Other research has shown a correlation between biophilic design having a positive impact on well-being, stress reduction, cognitive performance, and psychological well-being. Similarly, adequate exposure to natural light and more significant daylighting has indicated improved circadian system functioning (sleep-wake cycle) (Blume, Garbaza, & Spitschan, 2019; Hartig et al., 1991; Kaplan, 19920; as cited by Butler & Cohen, 2010).

In addition to its restorative effects, having sufficient access to the natural environment promotes social interaction and higher levels of physical activity (Bedimo-Rung, Mowen, Cohen, 2005: p159–168, Tinsley H., Tinsley D., & Croskeys 2002; Ulrich & Parsons, 1992; Ulrich, 1999). Frederick Law Olmsted believed that the physical and emotional health of people in cities directly benefited from contact and exposure to nature, a prerequisite to human health. The desire to connect with the natural environment is a universal human trait, a concept that Olmstead promoted through his landscape designs (Mackerron, and Mauranto, 2013; Capaldi, Passmore, Nisbet, Zelenski, & Dopko 2015).

In 2007 Collins and Kearns identified five ways in which natural environments have positive effects on well-being:

- (1) Providing physical or psychological removal from every day.
- (2) Allowing closer contact with natural environments.
- (3) Providing space for both solitude and social activity.
- (4) Shaping collective and social identity.
- (5) Increasing ability to exercise and carry out the physical activity (Collins & Kearn, 2007).

It is vital in senior cohousing to incorporate green space, nature, and gardens in the community layout and built environment design (Kellert, 2008). Incorporating these natural elements is based on “the hypothesis that humans have an innate need for exposure to and connection with the natural world” and therefore essential to human wellbeing (Wilson, 1984, p. 104). The biophilic concept seeks to incorporate natural features and systems into the built environment to provide human beings with their much-needed exposure to nature (Kellert, 2008)

Kellert’s six biophilic design elements include (as cited by Burzynska, A. Z., & Malinin, L. H. (2017 p. 27):

- (1) Environmental features incorporating well-recognized nature characteristics, such as color, water, sunlight, views, plants, animals, and natural materials.
- (2) Shapes and forms, such as curves and botanical motifs.
- (3) Patterns and processes, such as multi-sensory variability (e.g., sights, sounds, smells, touch) and information richness.
- (4) Light and space, integrating natural lighting with spatial properties to facilitate movement and wayfinding.
- (5) Place-based relationships, including geographic, historical, ecological, and cultural connections.
- (6) Evolved human-nature relationships, including places for prospect and refuge; settings that invite curiosity, exploration, and awe; and opportunities to have control over one’s environment.

Psycho-evolutionary theory has pointed out the potential beneficial emotional and physiological effects of nature connectedness. More recent research studies have shown positive associations between visiting forests and beneficial immune responses, thus the term “forest bathing” (Li et al., 2008). Lynch et al. (2014) posit that an individual’s immune system is strengthened through more significant contact with the natural environment. Kuo’s research (2015) supports a strong correlation for enhanced immune functioning based on more significant interaction with natural environments, which provide opportunities to be more physically active, leading to better health outcomes (WHO, 2016). This would be of significance to seniors whose immune systems show weakening signs (Montecino-Rodriguez, Berent-Maoz, & Dorshkind, 2013). Existing research stresses the need to live close to and interact with the natural environment daily and is associated with favorable long-term health benefits (Rook, 2013).

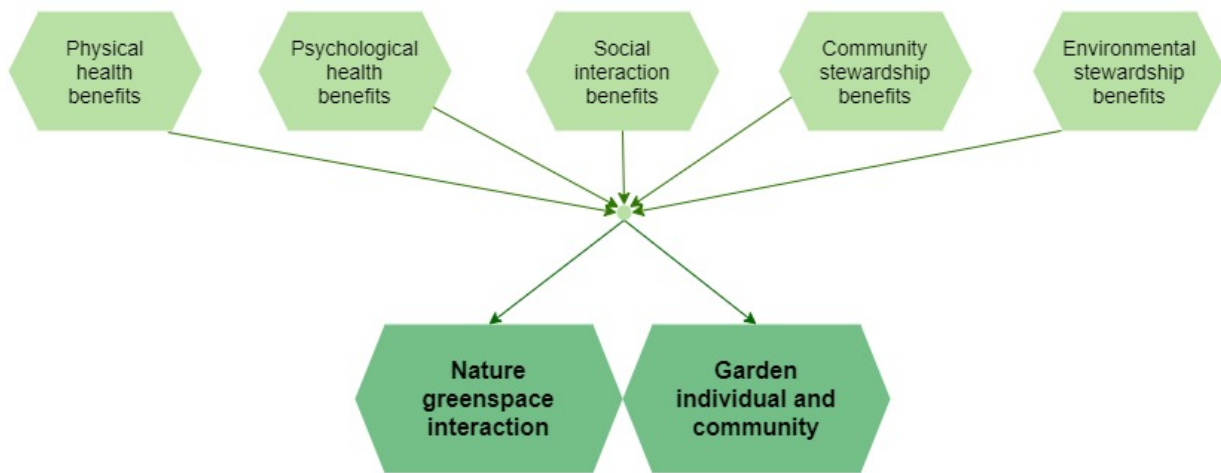
The theory of "gray and green" was introduced by Wright and Lund (2000) to represent the potential implications of nature exposure for the aging process. Loneliness and boredom are significant problems for the old and traditional housing settings that under stimulate the cognitive and physical capabilities of seniors to threaten their ability to maintain a sense of purpose, clarity, and functional capacity, unlike cohousing, which requires active participation and community involvement (Nicklett, Anderson, & Anderson, & Yen; 2016).

When providing adequate green space, senior cohousing can be an effective strategy for improving the life satisfaction and physical and mental health of seniors. Domestically, the number of senior cohousing communities provide increased opportunities for direct interaction with the natural environment by their more rural or suburban locations. It is notable that influential Scandinavian designers, including Aalto and Jacobsen, observed that nature is the best architect and promoter of design (Hynynen, 2014). Nordic designers like Sverre Fehn and Kari Nissen

Brodtkorb understood the importance of the space around buildings: “Each piece of land is different, and every project we take on fortifies our ambition to seize the spirit of a location, reinforce the qualities of the surroundings and unite function with form, which, when we succeed, results in the architecture of quality” (Johnsen, 2016; p.56-57 quoting Brodtkorb).

When designing cohousing communities, nature-based solutions that address older adults' environmental and social challenges are of primary importance, creating the interstitial space between the building and ground-scape and providing for adequate nature-based landscaping, including private gardens. Nature-based solutions would use the features and systems of nature or its "aesthetic capital" to improve individual well-being. The addition of aesthetic capital to the improved social capital in cohousing and communities adds the elder's available resources. Such nature-based design would provide ample opportunities for elders to interact with nature as well with one another. See Figure 2.5.

Figure 2.5. Importance of Biophilic Design and Interaction



Mandelman, 2021. Adapted from, Ryan, Browning, Clancey, Andrews, & Kallianparka (2014)

Gardens, both indoor and outdoor, should figure prominently in cohousing design. Stephen Kellert (2011) pioneered the biophilic design concept based on the underlying theory of biophilia of bringing the natural world's experiences into the modern built environment. The biophilia design concept builds on Wilson's (1984) hypothesis that people have a profound biological affinity with nature and other living organisms and architectural and interior design strategies to foster human well-being and environmental sustainability. Table 2.6 summarizes existing research.

Table 2.6. Effects of Nature on Well-being

Effects on well-being from interaction with the natural environment
<p>Olmsted considered that parks and nature had a “harmonizing and refining influence” on city dwellers, arguing that pastoral expanses were antidotes to the physical and mental poisons of modern life. Olmsted that the continued urbanization threatened “the nation’s material and moral well-being. Building a sustainable civilization requires much more than a new environmental ethic.” (Rome, 2017, p.2).</p>
<p>There is insufficient research concerning what level of nature, green space, and park interaction are necessary to meet individuals' needed physical activity and well-being levels. This research and hypothesis's conceptual framework raise the importance of the relationships between nature, green space and park use, and physical activity. In this research, the discussion focuses on park environmental characteristics and accessibility of nearby greenspace that would contribute to well-being, including parks, greenspace access, safety, policies, and well-being (Bedimo-Rung, Mowen & Cohen (2005).</p>
<p>In 2007, Collins and Kearns identified five ways in which natural environments have positive effects on well-being:</p> <ol style="list-style-type: none"> (1) Providing physical or psychological removal from every day (2) Allowing closer contact with natural environments (3) Providing space for both solitude and social activity (4) Shaping collective and social identity (5) Increasing ability to exercise and carry out physical activity (Collins & Kearn, 2007).
<p>Kellert’s six biophilic design elements, as cited by Burzynska, A. Z., and Malinin, L. H. (2017 p. 27)</p> <ol style="list-style-type: none"> (1) Environmental features incorporating well-recognized nature characteristics, such as color, water, sunlight, views, plants, animals, and natural materials (2) Shapes and forms, such as curves and botanical motifs (3) Patterns and processes, such as multi-sensory variability (e.g., sights, sounds, smells, touch) and information richness (4) Light and space, integrating natural lighting with spatial properties to facilitate movement and wayfinding (5) Place-based relationships, including geographic, historic, ecological and cultural connections (6) Evolved human-nature relationships, including places for prospect and refuge; settings that invite curiosity, exploration, and awe; and opportunities to have control over one’s environment

This research's conceptual framework and its hypotheses raise the importance of the relationships between nature, green space and park use, and physical activity. In this research, the discussion focuses on community gardens, individuals' gardens, and accessibility of nearby green space (parks, nature preserves) that could impact the well-being, including access, security, and safety (Bedimo-Rung, Mowen & Cohen (2005). In several studies, forest or nature bathing effects were found to lower cortisol levels to reduce stress (Antonelli, Barbieri, Donelli (2019). The effects are not limited to physiological effects; there are significant psychological effects, especially for elders. Shinrin-yoku, or "walking in forests," can be employed as a therapeutic and stress reduction method, decreasing the risk of psychosocial stress-related diseases (Morita et al., 2007).



‘New Ground’ Older Women’s Co-housing (OWCH) Front View and Gardens. Reprinted from *Older Women’s Co-Housing*, n.d. Retrieved March 8, 2021, <https://www.owch.org.uk/> Copyright n.d. by Older Women’s Co-Housing. Reprinted with permission.

The research reviewed on the importance of exposure and interaction with the natural environment highlights the potential benefits to elders. Existent senior cohousing communities are not only typically located in suburban or rural areas, but tend to incorporate gardens as a part of their overall landscape design considerations and access to greenspace. The residents given the long planning processes appear to have carefully considered the beneficial effects in planning the location (i.e. near adequate greenspace) and overall design of their communities.

Rising health care costs are a growing crisis. Many individuals from lower socioeconomic groups would undoubtedly benefit from greater exposure and access to the natural environment. Elders in lower socioeconomic groups who lack access to life resources at earlier stages would likely get the most significant net increase in well-being, life satisfaction, and quality of life from cohousing near greenspace with environmental greenspace design considerations. This research now turns its focus to the social inequities and unequal access in cohousing.

2.6. Social Inequalities and Challenges of Cohousing

This dissertation would be remiss if it did not address the myriad social inequities of senior cohousing in the United States as it exists and acknowledges those whom it excludes. These and related socio-economic research clarify that gerontological research has to address factors such as education, financial resources, health, and successful aging as being beyond personal choice in many cases. Differential life course opportunities in part configure an individual's resource development; these opportunities reflect substantial issues of social inequality (Danaher, 2003, 2006; Dillaway & Byrnes, 2009, p. 708; Calasanti & King, 2011)

The type of housing that an individual lives in is considered an essential determinant of well-being. An elder's health trajectories can be affected by housing affordability, stability, quality, aging in place, the green space, built environment, and community's social characteristics (Krieger, Higgins, 2002). In contrast, substantial evidence shows that lack of access to quality housing can harm an individual's physical and mental health (Bonney, 2007; Gibson, Petticrew, Bamba, Sowden, Wright, Whitehead, 2011). There has been an inadequate assessment of the beneficial health effects of intentional communities. This research seeks to add to existing research of environmental impact and the impact on the loneliness and well-being of SC residents by analyzing the self-reported health responses.

All too often, gerontological and thriving aging research addresses well-being, life satisfaction, and the accruing advantages and disadvantages resulting from individual choices made during the life course (Roanova, 2010). However, they do not locate these individual choices in their socioeconomic contexts. Gender, race, ethnicity, and class all matter and determine whether an individual will age successfully and enjoy a degree of well-being.

Existing theories of individual development and responsibility fail to account for the impact of an individual's life-course resources (i.e., socio-economic status, education, and environmental determinants of health). Those life course resources underscore the need for more research in the area of the "socio-biopolitics of health inequalities." The research is only beginning to understand the implications of these social inequalities as they play out over the life course and their effects on life satisfaction and well-being (Kendig, Loh, O'Loughlin, Byles, & Nazroo, 2016). These inequities figure substantially in this research, given the homogenous nature of domestic senior cohousing, which has developed into a model that makes positive contributions to successful aging but excludes a diverse population.

The spectrum of advantages and disadvantages that accrue throughout an individual's life course becomes more important in later life as those defined as "successful agers" have access to varying financial, intellectual, and educational resources. While social inequalities are present in most countries, they are less pronounced in the Northern European countries where government policies are more supportive than in the United States. It is interesting to note that Denmark, the Netherlands, and Sweden rank 1st, 5th, and 11th in terms of quality of life, while the United States is 14th (Numbeo, 2020).

If we desire to improve the importance of quality of life, then domestic government policies should change and recognize the substantial health benefits of senior cohousing, as the Northern European nations have. Senior cohousing is a positive way of addressing material health conditions in the elderly. Changes in domestic housing policies would then compensate for some socio-economic groups' lack of access to more normative life resources at earlier stages of life. This would also reduce long-term health care costs, which are growing at unsustainable rates.

In the short run, cohousing costs more in the initial stages. However, over the long term, it offers costs savings through shared facilities and lower health care costs, along with improved health potential. In the United States, one standard measure of housing affordability is that a typical household will a third or more of their net income on housing expenses (Iberia, 2012). The figure climbs to more than 40% of after-tax income (Bureau of Labor Statistics, 2014). While typically more expensive on a per square foot basis, cohousing provides some balancing economic advantages based on sharing resources, amenities, and daily tasks, including cooking, cleaning, driving, and gardening (Schachter, 2006). The average cost in a domestic senior cohousing community is typically above the nation's average for housing (Pfeffer citing McCamant, 2018; Schacher, Case, 2006).

Cohousing can offer many benefits, reducing single household costs caused by rising housing and food and utility costs through sharing. The reality is that most new cohousing communities are new construction and not retrofit. A substantial number of individuals who would benefit from senior cohousing are effectively frozen out due to cohousing's high initial cost, depriving those who might benefit from senior cohousing as a place to age well and reduce potential health care costs to individuals and society as a whole. Another significant issue is when residents try selling their property, since communities may have a right to accept or reject potential buyers, whether formally or informally, and have to pay ongoing monthly association fees for the common areas and common house (Pfeiffer, 2018).

While there are numerous benefits, cohousing can also be invasive due to the high degree of social integration in each other's daily lives, which many might find overly restrictive (Williams, 2006). While cohousing presents an attractive, viable option for elders seeking relief from living in isolation, unless they are moving into an existing (or nearly formed) community, the long lead time to plan, develop, and implement a community presents a substantial barrier to the formation of new senior communities (Labus, 2016). Cohousing requires prospective elders to engage in sober analysis before purchase and joining an existing community. The decision to join a community is not made lightly, posing numerous considerations, and not without significant challenges (Schacher, 2006).

There are challenges when a group with many perspectives tries to reach a consensus on issues, and it can be very time-consuming. Even though a few individuals may resent the investment of time required, the research indicates that overall, for those successful in the development, consensus building and social skills developed in the process are worth the investment of time and energy. The participatory process also provides greater development of

interpersonal relations, compromise skills, and personal growth (Cleveland, 2011). Community cohesiveness naturally flourishes through daily communication and interaction (Sarkissian, Cook, & Walsh, 2003).

The feasibility analysis of any senior cohousing project must consider all these aspects, and the project must prove viable before institutions help with financing. These facts can make senior cohousing unaffordable, unattractive, or just impossible, except for the most dedicated and wealthy groups (deLa Grange, 2014, Pfeffer, 2018, Schacher, 2006).

2.7. Impact of Governmental Policies on Cohousing

For the past 50 years, elders in the United States have had four main housing options: they could stay in their apartments, homes, or condominiums; live in a multi-generational family residence; relocate to a gated community; or, if ongoing assistance is needed, move into an assisted living facility (Lewis, 1993; Lux & Sunega, 2014; Ruiu, 2014). Conversely, the European Union's member countries actively consider, promote and have a much greater share of social housing than is found in the United States. The leading example is the Netherlands, "which currently has the highest share of social housing in the E.U., accounting for about 32% of the total housing supply and 75% of the rental market" (Fidler, Sabir, 2019, p.1). Moreover, the housing market in Northern European countries is much different from the U.S., where private development dominates the residential market for single-family homes, condos, and apartments. The Dutch public housing system, for instance, dominates the housing market and sets market rates to provide affordable housing stock, developing a more successful model of government support for social housing (Fidler, Sabir, 2019; Oswald et al., 2010; Turret, 2009).

The historical and structural circumstances behind differences in cohousing national adaptations rely on substantial public policy initiatives undertaken in Northern European countries

where cohousing plays an integral part of housing policy (Kohli, 1999, as cited by Fingerma, 2017). Therefore, while there are similarities in cohousing communities throughout Europe and the United States, there is a marked contrast in government policies that may support or impede cohousing.

The ‘Northern European Experience’ in cohousing, including Denmark, Sweden, the Netherlands, and Norway, is shaped by a relatively homogenous population, common historical origins, languages, and contemporary political and economic cooperation. In Europe, supportive housing policy has played a role where senior cohousing has flourished in the inter-generational model and over 55 age cohousing communities (Brenton, 2010; Egero, 2014). This literature review now addresses the Danish approach.

Cohousing is well-established in Denmark, where there is a proliferation of new communities. Gudmand-Hoyer wrote his ideas on cohousing over a half-century ago; the cohousing concept has evolved and become an intrinsic part of Northern European national housing planning policy. The increasing acceptance and development of cohousing in Northern Europe acknowledge that housing policy and people recognize its benefits. In the Netherlands, the “living group” concept is stated government policy to enhance the general welfare of the people, improve the quality of life, and reduce health care and social program expenditures. (Brenton, 2013). The living group policy encourages living in groups empowering those who take part to learn new skills, be more independent, and allows the option of intergenerational cohousing or age relative peer groups. The consumer organization Boligtrivsel I Centrum (Focus on Housing) in Denmark helped in the concept implementation of senior cohousing by developing a definitive paradigm model that could be continuously modified according to the specific needs of the groups

attempting implementation while still allowing for resident input in the initial design phases (Durrett, 2005; Pedersen, 1999).

The cohousing initiatives that have been developed both by groups of individuals and as part of broader policy initiatives in Northern Europe address the broader questions of housing affordability for the aged, loneliness, and isolation driven by economic realities, and make a positive response to addressing these challenges (Lang, Carriou, & Czischke, 2018). Senior cohousing is one way to provide otherwise unaffordable or inaccessible housing and services to elders. There are significant policy initiatives in the European Union that consider elders' welfare based on diverse social, economic, and environmental considerations. Current housing policies in Northern Europe proactively address cohousing as a means to enhance the quality of life and well-being of elders (European Union/European Green Capital, 2013).

In Northern European countries, “successive governments have championed the development of senior cohousing communities” (Brenton, 2010), showing a clear understanding of the potential benefits that can translate into health care savings (Paulson & Choi, 2013). In Germany, Goschel summarized it succinctly, stating that “collaborative housing produces a common good by reducing public expenses for health or care institutions and should thus stimulate public interest in this form of living. In this view, the provision of public assistance to collaborative housing initiatives in order to extend this lifestyle seems more reasonable than granting financial support to single projects as is the concept in social housing” (Göschel, 2010 as cited by Brenton, 2010 p.4). The facts are simple, Northern European countries have successfully developed housing programs that ensure a well-functioning, happy society with greater income distribution equality (Sanandaji, 2016).

The Northern European countries are now showing increasing patterns of convergence in terms of the progression of policy initiatives on active population aging and housing policies. (Dragana 2003; Eurostat 2008). There is an increase in policy initiatives to promote ‘active’ aging and independent living in later life consistent with WHO and UN directives and intrinsic functional capabilities (UN 2002; WHO 2002; EC 2007). This is intended in part to challenge the more conventional biomedical tradition which associates individual aging with loss of independence and the onset of incapacities. These policy initiatives represent a more contemporary view of the aging experience, where later life is viewed as one of active and productive lifestyle, independence, autonomy, leisure activity, and resourcefulness (Walker & Naegele, 2009).

The United States is facing a growing shortage of affordable housing and the ability to provide adequate health care provisions for the aged. In one government report for Congress, researchers found that senior housing stock, while growing, is unable to keep pace with the expected demand and is in peril of losing a significant number of units due to the age of existing units and the lack of affordable replacement options (The Commission on Affordable Housing and Health Facilities Needs for Seniors in the 21st Century 2002). The report found “that the number of senior households will grow by 53% from 2000 to 2020 and the number of seniors with disabilities will increase from 6.2 million to 7.9 million over the same period, with fully one-third of that cohort spending at least 50% of their income on housing” (Blake & Simic, 2005, p.3). The report addressed the lack of coordination between programs for adequate elderly housing and health care considerations, including more supportive housing models that would encourage aging in place.

If we are to care for our elders, we need some of the solutions senior cohousing promises: social equality and justice instead of ageism, and an increased sense of community and enhanced

well-being; this would benefit all society. In the United States, any transition to policies that support senior cohousing and enhanced well-being in elders is more complicated than merely copying successful Scandinavian and European models. Government policies should be more accommodating if the ideological and policy barriers that deter domestic cohousing growth are to be removed and would potentially help reduce the rising costs of medical care. One only needs to look at the relatively slow growth of senior cohousing in the United States to understand that while it is an attractive alternative, it will remain a niche market domestically unless changes and new policy trajectories are favoring affordable quality cohousing for seniors (Masi, Chen, Hawkey, & Cacioppo, 2011).

Soon, as economic forces related to medical costs for elders continue to rise, we will enter a different phase of cohousing development, stemming from long term care, cost reduction strategies, and ever-rising construction costs. The future for cohousing suggests a greater need than currently realized. Senior cohousing continues in Northern Europe as a successful social engineering source that can provide a higher quality of life for elders. In the United States, this is not the case, nor is it likely to be the case until cohousing's benefits are better understood, and government policies consider quality of life issues rather than be driven by purely financial considerations.

2.8. Literature Review Summary

The reality is that most new cohousing communities are new construction and expensive to build. Gender, race, ethnicity, and class all matter and determine whether an individual will age successfully and enjoy a degree of well-being in suitable housing. A substantial number of individuals who would benefit from senior cohousing are effectively frozen out due to cohousing's

high initial cost, depriving those who might benefit from senior cohousing as a place to age well and reduce potential health care costs to individuals and society as a whole.

The models reviewed collectively suggest that greater life satisfaction, well-being, and health are improved by increasing an individual's control over one's life (autonomy), and mutual support from both community neighbors and family members provided they are quality relationships. These models posit that an individual's resources, be they intellectual, emotional, physical, or financial, collectively serve to strengthen an individual's life satisfaction and well-being and figure prominently in life course development, and they develop greater resilience (Fredrickson, 2001).

Two things develop over the life course that impact this research. They are resources and values. Collectively, it is apparent that elders who develop their resources by maintaining autonomy, self-determination, and intellectual and financial resources over their life course would preserve the well-being and enjoy better mental and emotional health (Ryan & Deci, 2000). The aging process generates internal and external threats (cognitive or physical impairments) to older adults' autonomy and self-determination. However, close, quality relationships with an individual's peers while maintaining independent living can enhance a person's autonomy, identity, and self-determination (Williams, 2004).

As people age, their values reflect ongoing maturation, a profound appreciation of beauty, nature, and knowledge. At the same time, individual intrinsic principles and values become increasingly important, focusing on reexamination, retrospection, and reflection on life (Vaillant, 2002). According to SOC theory, older adults desiring to age successfully are forced to adapt, regulate, and manage functional losses. This adaptation occurs when they may have fewer life resources available, and they spend time focusing on necessary compensation rather than

optimization, as they were able to do in earlier life stages (Baltes et al. 2006). As individuals age, they target positive adaptations to advance functional factors, personal, emotional, spiritual values, and wisdom. Research shows that females invest and attach greater significance to personal and interpersonal growth-related values (Schwartz & Rubel (2005).

The literature review illustrates the importance of identifying living arrangements that support and enhance an older adult's sense of autonomy. The quality and quantity of an elder's personal relationships, socialization, mutual support (both formal and informal), and cultural factors all impact elders who live independently. The interacting effects of the individual's perception, their living circumstances, and individual levels of resilience all influence the objective and subjective health. Senior cohousing's social context is markedly different from that found in assisted living or gated senior communities, affecting the nature and quality of social relationships that provide the peer support necessary to elders. The literature review demonstrates that where we live and age matters for how we live and age, including questions of quality of life, well-being, and life satisfaction. Collectively, existing cohousing research begins a set of meaningful conversations.

Given the breadth of the definition of successful aging, active aging, and well-being, while taking the best parts from different theories, this research has defined a “successful/active aging strategy” as an ever-developing conciliation results in the enhanced functioning of elders in an intensified social environment (Depp, Harmell, & Jeste, 2014). Social capital is a core concept and establishes the framework for an empirical examination of the relationship between social capital as is found in senior cohousing and positive effects on well-being and successful aging. The individual variables most often cited by older adults to define successful aging were personality variables, resilience, adaptability, optimism, adaptation to disability, and combating for losses

were pronounced variables and strong predictors. These same variables are consistent with several theories of successful aging (Baltes, Baltes,1993). In other related research, better scores on self-reported resilience measures could mitigate the impact of depressive symptoms on subjective successful aging (Jeste et al., 1993).

The research demonstrates that for those SC residents, entering later life entails a broad spectrum of functional variability distinct from the more positive normative views of earlier, more functional life-course (young-old). An individual's internal view of themselves is summed as their approach to the limits of their functional capacity, mutual support, social interaction, and other social skills. Their internal view of themselves becomes increasingly essential in adapting their current capabilities as they age. The individual's resources of responsibility, accountability, and resilience for self-preservation become the nucleus of their life journey to age successfully with relative well-being" (National Research Council; 2012). If the literature review and research results are correct, then senior cohousers made conscious decisions about joining SC from their determinations and are maximizing their successful aging potentials in their communal living arrangements.

In summary, an individual's life satisfaction provides a referential framework for well-being and quality of life. The individual's life satisfaction components include autonomy, education, resilience, happiness, resource and environmental availability, and social interaction. Well-being, in essence, is the realization of an individual's human potential, wherein the individual has come to an understanding of who and what they are relative to the external world and living in harmony with it (Deci & Ryan, 2008; Ryan & Deci, 2001; Dimeric & Ensi, 2018). Ultimately, the socio-political power relations and norms that underlie ageism domestically are not and have not been challenged as they should be and have been in Northern Europe. The literature review

suggests that if we are to enable elders to age more successfully, more attention needs to be paid to universal design when considering the residential and community layouts, Accounting for the significant variations of elders' strengths and resources.

Within these limitations, the understanding of cohousing's social architecture may help define the social skills a resident will need to cope with the intense daily social interaction in cohousing, which requires higher levels of social competencies. Designers should consider housing design and design considerations relative to an individual's daily living competency instruments amid functional losses and the ability to age in place utilizing universal design (Lawton, 1983). Cohousing has the potential to change the way we treat our elders domestically while understanding there is no single solution to the developing challenges surrounding aging (De LaGrange, 2014).

CHAPTER THREE: METHODOLOGY

3.1. Introduction

This chapter presents the methodology and the study design to answer the research questions with data developed primarily from the survey. The global population is aging, and the majority of younger elderly individuals in postindustrial western countries are reaching the retirement age in relatively good health and under conditions of some income security. These improved living conditions require planning for housing that enhances self-reliance and promotes a high quality of life and independent living (UN, 1994; WHO, 1999).

In response to this mixed-method study, the survey asks respondents to rate the impact of cohousing on their well-being (WB), quality of life (QOL),³⁰ and life satisfaction (LS). The cohort studied provides an opportunity to determine how cohousing design, social activity, interaction with nature, and personal factors influence aging and well-being within an intentional community. The survey instrument further asks questions about the demographics, biometrics (self-reported), and characteristics of the individuals needed to complete this research phase.

This research addresses architecture's social function and design considerations to develop sets of thematic principles in cohousing at the intersection of architecture, sociology, psychology, and environmental design's roles about cohousing. In this research, cohousing's social architecture maintains an elder's autonomy and functional capabilities as an individual while functioning in the more extensive social network. Elders need social support, are group-oriented social beings, and

³⁰ WHOQOL (1997) The WHO(World Health Organization) defines Quality of Life(QOL) as an individual's perception of their QOL within the context of the geographic environment, society culture, and value systems in which they live. ON an individual level concept, taken concerning their goals, expectations, standards, and concerns. They are affected differently by their relative physical health, psychological well-being, resilience, beliefs, and social capital concerning their family, friends, and larger community. <https://www.who.int/healthinfo/survey/whoqol-qualityoflife/en/>

in need of social interaction. The problem is sharpened by the need to develop new architectural strategies that promote cohousing community-building while allowing for a continued focus on the individuals' well-being.³¹

Several dominant frames-of-reference are associated with this research, a psychological frame-of-reference and a person-environment frame-of-reference (Rappaport, A., 1976). The frame of reference is also a constructive process reflecting an evolving view about design and individual subject-community interaction (Franz, J.1994). This understates the implications that active participation in community governance by so many individuals, with potentially diverse views, is among the fundamental challenges in cohousing. Rapoport looked at culture and its influence on built form, and concluded that 'place' has much more to do with an interplay of social, cultural, and psychological factors than it has with the built environment (Rappaport, 1976).

3.2. Preliminary Research and Methodological Approach

An extensive literature review helped determine the research design for the study. Also, this researcher undertook some informal fieldwork in order to develop a better conceptual understanding of the issues likely presented to understand the factors in SC better. There is a disconnect between the apparent success and adaptation of cohousing in Northern Europe and the slow growth in the United States, despite the claimed benefits. The literature review in Chapter Two helped form the basis for developing the survey instrument to address and test the hypotheses.

³¹ This focus should create sufficient space for the individual's continued well-being and life satisfaction within the cohousing community.

The preliminary research helped reveal the complexities of cohousing residents and communities:

- the ‘broad aspects’ that needed to be investigated
- the background of residents
- the broader limitations of the domestic cohousing model

The literature review revealed the practical possibilities and challenges of researching cohousing communities. This underscored the need for informal fieldwork meetings with some residents at a cohousing community in Madison, Wisconsin, and attending a cohousing conference, which proved illuminating.

The requirements for the research methodology were established in three steps. First, based on the initial literature review, including prior studies of cohousing that helped to determine the factors that affect the WB, QOL and LS of residents, a list of problem methodology themes was created. Second, problems were separated from methodologies and grouped into clusters by related research results. Third, the themes, conflicts and synergies between methodologies were analyzed and finally developed into the survey document with the stated goal of:

1. Discovering groups of related problems, hindering the growth of senior cohousing.
2. Assesses and evaluate cohousing formative practices in communities and the development of the senior cohousing model in the United States.
3. Identify limiting processes to growth and innovation in senior cohousing communities.
4. Analyzing community communication channels between individuals and the effect on well-being.
5. Streamlining the responses to develop basic demographic data and biometric data to provide the groundwork for future studies.

These five requirements translated into a need to analyze senior cohousing from a broader, holistic perspective analyzing patterns of interaction, which provided the logic for the research approach as Alexander would suggest (Franz, 1994). The cohousing literature review revealed that cohousing is a complex social construction, domestically in its infancy and facing substantial but not insurmountable headwinds.

The present research utilized responses derived from survey data derived from 13 senior cohousing communities in the United States. The questionnaires obtained personal and composite household data including age, gender, ethnicity, occupation, number of residents within each dwelling, length of time at the current residence, and some primary biometric data. Select questions from the 2010-11 CRN questionnaires were added to the present questionnaire to provide a basis for further research. The participants' identity was protected through anonymous survey questionnaires, which identified communities but not individuals. The study was undertaken in conjunction with the Cohousing Research Network of the United States, beginning a single-phase research survey in 2017 to examine senior cohousing communities' effect on well-being.

3.3. Instrument and Procedures

The researcher developed semi-structured questions for the survey. The semi-structured questions were used to develop the survey covering areas such as participants' previous living arrangements, number of years lived in the community, perceptions of community practice's, activities and experience living in a cohousing community, including acceptance or challenges, demographic data, biometric data and their impact on residents' QOL. Fifty-six people took part in both the quantitative and qualitative phases of the study. The survey instrument consisted of questions drawn from major national surveys (e.g., American Communities Survey, American National Election Survey, World Values Survey, and the CRN'S 2011 Survey), previously

validated psychological measures, and some novel questions designed to collect information specifically relevant to cohousing residents (e.g., biometrics, participation in cohousing activities, length of residence, and satisfaction with the community). The survey was administered with Qualtrics, an online survey service often used in survey research. Pilot testing indicated that the survey took approximately 30 minutes to complete. Survey responses were anonymous.

3.4. Ethical Considerations, IRB Approval, Recruitment and Data Collection

The research instrument complied with all the ethical principles in research sought and received permissions and ethics approval from the University of Wisconsin-Milwaukee Institutional Research Board and permission to access participants. The survey and an email was given to the participants explaining the purpose of the research, voluntary participation, the risk, benefits, and confidentiality of the instrument's study, informing them that their identity will be anonymous. Participants provided written informed consent for the study and were allowed to participate in a raffle to appreciate their participation in the study

3.5. Data Analysis

The residents were recruited to participate in the survey after the approval of the study by the IRB. The author read through WB, QOL, and LS's general framework to identify the data patterns (Riegel & Dickson,2016). After examining the survey responses, the researcher grouped the data into matrices to answer the research questions: "forming of a seniors' cohousing, the effect of living in senior cohousing on well-being and life satisfaction," and "impact of forming and living in the seniors' cohousing on well-being, life satisfaction a quality of life."

3.6. Rigor

The process of ensuring rigor in qualitative research was implemented in the data analysis, to carefully recognize that any assumptions or biases did not influence the analysis or reporting of the findings. In addition, this researcher reviewed the survey data several times to ensure the credibility of the findings, specifically some of the qualitative responses which provide illumination to the themed inquiries.

CHAPTER FOUR: SURVEY RESULTS

4.1. Introduction

This chapter presents the survey findings. The chapter describes the 13 communities, the amount of time in the planning, and the number of existing and forming communities and those in the planning stages. The research analysis then switches from the macro community level to the individual demographics reported, noting how their demographic information appears to influence their reasons for choosing to join a senior cohousing community and the spectrum of unique resources they bring with them (i.e., education, political views, financial and social capital). Those individual resources over the life course have a positive effect on well-being and life satisfaction.

The next section looks at the survey results related to why these cohorts' members choose senior cohousing, where they lived previously, and the considerations undertaken before joining the community. The section concludes with the results from satisfaction with the community and life, the importance of mutual support, and individual health and well-being to social connectedness. The following chapter discusses the survey results and the research's conclusions. The discussion addresses the benefits of senior cohousing and the headwinds it faces to become a mainstream typology. It concludes with necessary directions for further research.

Overall, the promotion of social interaction and increased opportunities for socialization dominated the responses derived from the study. Along with the quantitative analysis, the qualitative responses highlight the increased feelings of safety and security based on the spatial clustered design. There is a general feeling of well-being among residents stemming from the unique housing typology and social connectedness as a support

mechanism. The demographics, characteristics, social, cultural, and political values of the cohort support the hypotheses in Chapter Two. The biometric data also addresses well-being, quality of life, and life satisfaction in this iconic group in their search for greater meaning in life's late stages. The data derived from this research suggest the further development of cohousing as a meaningful, intentional community typology. The results are presented alongside current aging research to add context. This research provides empirical data to understand the communities'-built design and the social architecture, which is the foundation.

4.2. The Senior Cohousing Communities

This section looks at the senior cohousing communities, addressing their size, location, and numbers. Residents of cohousing communities live in their condominiums, undertake activities together and support one another. The advantage of the communities is that they can provide social and instrumental support and potentially alleviate emotional loneliness while preserving their autonomy.

According to the directory managed by the Foundation for Intentional Community (FIC), there are approximately 767 Intentional Communities in the United States, 376 of which are cohousing communities (FIC, 2019). Most are multigenerational, resident-led development, but there are also resident-developer partnership and developer-driven models; most are new build. There are 13 existing senior cohousing communities in the United States, two in the building stage and 13 in the formation stages. The building stage means that they have located an appropriate building site that the putative members have agreed on the location. They are somewhere along the path of actual development, whether in the actual design stage or the construction stage, having passed all of the financing and regulatory requirements. The formation stage is a formative planning stage, and it is challenging because,

in this stage, the members are still organizing, learning about one another, and addressing the numerous logistical hurdles they will need to overcome if their community plans are to become a reality.

Table 4.1. List of Senior Cohousing Communities Operating, Building and Forming

Senior cohousing communities existing	Senior cohousing communities building	Senior cohousing communities forming
Acequia Jardin (Albuquerque, New Mexico) 2013	Shepherd Village (Shepherdstown, West Virginia)	Austin Senior Cohousing (Austin, Texas)
Elderberry (Rougemont, North Carolina) 2014	Village Hearth Cohousing (Durham, North Carolina)	Corvallis Senior Cohousing Project (Corvallis, Oregon)
Elder Spirit (Abingdon, Virginia) 2006		Eugene Cohousing Downtown (Eugene, Oregon)
Glacier Circle (Davis, California) 2006		Friends and Neighbors Senior Cohousing (Lakeland, Florida)
Life Song Commons (North Creek, Washington) 2012		Marin Cohousing (Novato, California)
Mountain View Cohousing (Mountain View, California) 2014		Middlesex Senior Cohousing Initiative (Belmont, Massachusetts)
Oak Creek Community (Paso Robles, California) 2004		Heartwood Commons - Tulsa (Tulsa, Oklahoma)
Phoenix Commons (Oakland, California) 2016		Pinnacle Cohousing at Loch Lyme Lodge (Lyme, New Hampshire)
Sand River Cohousing (Santa Fe, New Mexico) 2009		Raleigh Senior Cohousing (Raleigh, North Carolina)
Silver Sage Village (Boulder, Colorado) 2007		Sage Hill Place (Taylorsville, Utah)
Valverde (Taos, New Mexico) 2011		Silver Leaf (Paonia, Colorado)
Walnut Commons (Santa Cruz, California) 2014		Marys River Cohousing (Corvallis, Oregon)
Wolf Creek Lodge (Grass Valley, California) 2012		Heartwood Commons (Tulsa, Oklahoma)
		Armadillo Cohousing (Austin Texas)

An important factor is the amount of time that a cohousing project demands from the community's conception, starting from initial organizational meetings, planning, and design, to occupancy. The substantial time lag between a future community's ideological inception to its completion as an inhabitable project presents a formidable barrier to entry. Time has already begun to accelerate for prospective residents and is a substantial consideration given the vast amount of energy and capital resources required to see the project

through to fruition (Barnes, 2011). The passage of time is one of the significant thematic considerations of senior cohousing. In the case of Elder Spirit, a community located in Virginia, which has 29 units and 3.7 acres of land, the entire development process (initial get together to move in) took from 1999 to 2006 (n=7 years). Table 4.2 outlines how much time each existing and building community has taken, from conception to occupancy. The time-lapse in the individual community development from conception to move in, varied from three to seven years.

Table 4.2. List of Responding Senior Communities and Rate of Response, Conception/Original Planning to Community Completion and Move-in.

Senior cohousing communities	# of responses	Percentage of all responses	Conception/ planning	Move in
Acequia Jardin (Albuquerque, New Mexico)	5	6.94		2013
Elderberry (Rougemont, North Carolina)	8	11.11	2011	2014
Elder Spirit (Abingdon, Virginia)	7	9.72	1999	2006
Glacier Circle (Davis, California)	0	0.00	2002	2005
Life Song Commons (North Creek, Washington)	1	1.39	2010	2012
Mountain View Cohousing (Mountain View, California)	5	6.94	2006	2015
Oak Creek Community (Paso Robles, California)	9	12.50	2004	2012
Phoenix Commons (Oakland, California)	13	18.06		2016
Sand River Cohousing (Santa Fe, New Mexico)	3	4.17	2006	2009
Silver Sage Village (Boulder, Colorado)	2	2.78		2007
Valverde (Taos, New Mexico)	3	4.17	2006	2011
Walnut Commons (Santa Cruz, California)	1	1.39		2007
Wolf Creek Lodge Grass (Valley, California)	13	18.06		2012
Other	2	2.78		

It is essential to understand the progress of development of senior cohousing communities in the United States. There are currently 13 completed senior cohousing communities and a range of individual units from 4 to 30. The number of individuals in each community range from 11 to 39 in the number of residents. The residents' units' square footage (SF) covers a spectrum from 700 to 2090 SF. The common house size ranged from 1000 SF to 4000 SF, and one community did not have a common house. The amount of acreage in the completed communities ranges from 1 to 10.6 acres. The amount of green space acreage in proximity to the community ranges up to 282.74 acres within a radius of one mile. See Table 4.3 below.

On average, there were 1.3 adults in the household, and no children were living in the residences. Domestically, most senior cohousing communities are built as cluster or single-story row houses, with an average of 15 to 25 units per community and a range from 4 to 25 units per community. Most of the residents appeared satisfied with the size of their household and community. The social benefits which accrue to the elder who moves from a single-family home or condominium into a cohousing community appear greater than if they moved into a gated community or assisted-living facility. Senior cohousing and intergenerational cohousing communities are found on the West or East Coast and in the North Carolina Triangle; some are urban, suburban, and rural.

Table 4.3. List of Senior Cohousing Communities, Units, Residents' Acreage and Proximate Greenspace

Senior cohousing communities	Units	Residents	Acreage	Green space within 0.25 mile (acres)	Green space within 0.50 mile (acres)	Green space within 1 mile (acres)
Acequia Jardin (Albuquerque, New Mexico)	10	X	1.1	0.19	2.27	28
Elderberry (Rougemont, North Carolina)	14	X	10.0	198.00	584.00	2098
Elder Spirit (Abingdon, Virginia)	29	X	3.7	107.00	324.00	919
Glacier Circle (Davis California)	X	X	2.0	75.00	298.00	1227
Life Song Commons (North Creek, Washington)	15	40	10.6	2.15	7.07	17
Mountain View Cohousing (Mountain View, California)	19	X	1.1	1.83	31.68	177
Oak Creek Community (Paso Robles, California)	X	X				
Phoenix Commons (Oakland, California)	41	X				
Sand River Cohousing (Santa Fe, New Mexico)	X	X				
Silver Sage Village (Boulder, Colorado)	16	24	10.0	1.75	60.00	1005
Valverde (Taos, New Mexico)	28	X				
Walnut Commons (Santa Cruz, California)	19	25	0.3	1.48	22.00	160
PDX Commons (Portland, Oregon)	27		0.4	0.00	22.00	119
Wolf Creek Lodge Grass (Valley, California)	30	33	7.9			

Examples of site plans of senior and intergenerational cohousing communities from the U.S., Canada, and the U.K. are found below.

United States

Oakcreek Community (Stillwater) – Senior



Oakcreek Site Plan and Structure. Reprinted from *Oakcreek Community*, n.d. Retrieved March 1, 2021, <https://www.oakcreekstillwater.com/> Site plan copyright 2010 by McCamant & Durrett Architects. Structure copyright n.d. by Oakcreek Community. Reprinted with permission.

Village Hearth Cohousing – Senior



Village Hearth Site Plan and Structure. Reprinted from *Village Hearth*, n.d. Retrieved March 1, 2021, <https://www.villagehearthcohousing.com/> Site plan copyright n.d. by McCamant & Durrett Architects. Structure copyright n.d. by Village Hearth Cohousing. Reprinted with permission.

Sunnyside Village Cohousing – Intergenerational (Developing)



Sunnyside Village Site Plan and Structure. Reprinted from *Sunnyside Village Cohousing*, 2021. Retrieved March 1, 2021, <https://www.sunnysidevillagecohousing.com/> Copyright n.d. by Sunnyside Village Cohousing. Reprinted with permission.

Heartwood Cohousing – Intergenerational



Heartwood Site Plan and Structure. Reprinted from *Heartwood Cohousing*, n.d. Retrieved March 2, 2021, <https://www.heartwoodcohousing.com/> Copyright n.d. by Heartwood Cohousing. Reprinted with permission.

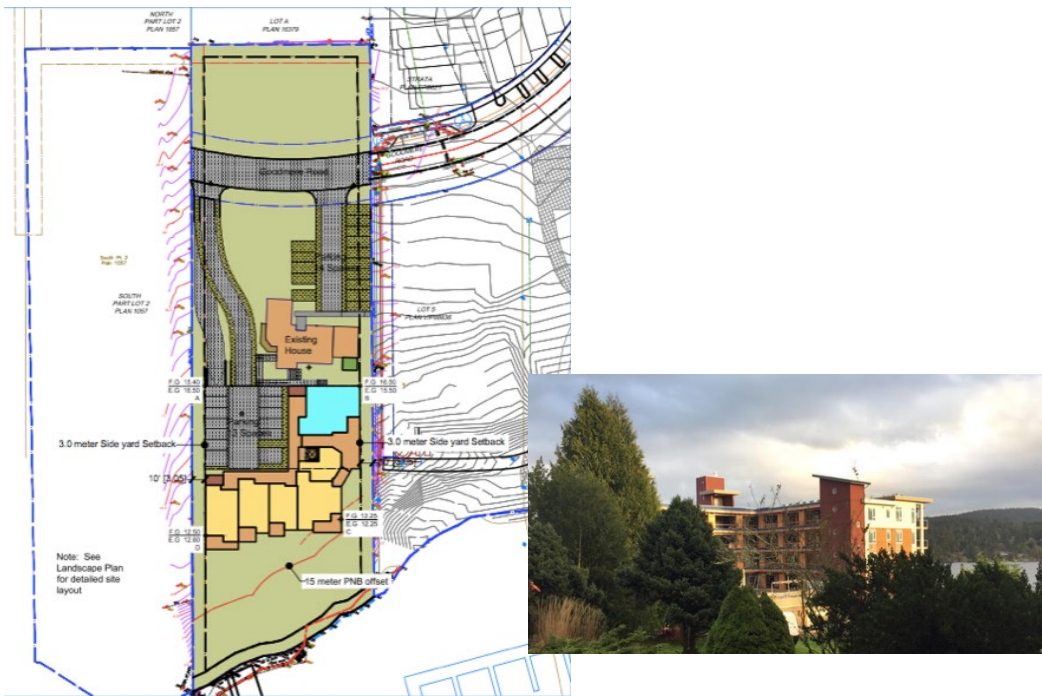
Canada

Harbourside Cohousing – Senior



Harbourside Site Plan and Structure. Reprinted from *Harbourside Cohousing*, n.d. Retrieved February 25, 2021, from <http://www.harbourside.ca/index.html> Copyright n.d. by Harbourside Cohousing. Reprinted with permission.

West Wind Harbour Cohousing – Intergenerational



West Wind Harbour Site Plan and Structure. Reprinted from *West Wind Harbour Cohousing*, n.d. Retrieved February 24, 2021, <https://www.westwindharbour.ca/> Copyright n.d. by West Wind Harbour Cohousing. Reprinted with permission.

United Kingdom

'New Ground' Older Women's Co-Housing (OWCH) – Senior



'New Ground' OWCH Site Plan and Structure. Reprinted from *Older Women's Co-Housing*, n.d. Retrieved March 8, 2021, <https://www.owch.org.uk/> Copyright n.d. by Older Women's Co-Housing. Reprinted with permission.

Halton Senior Cohousing Project – Senior (Developing)



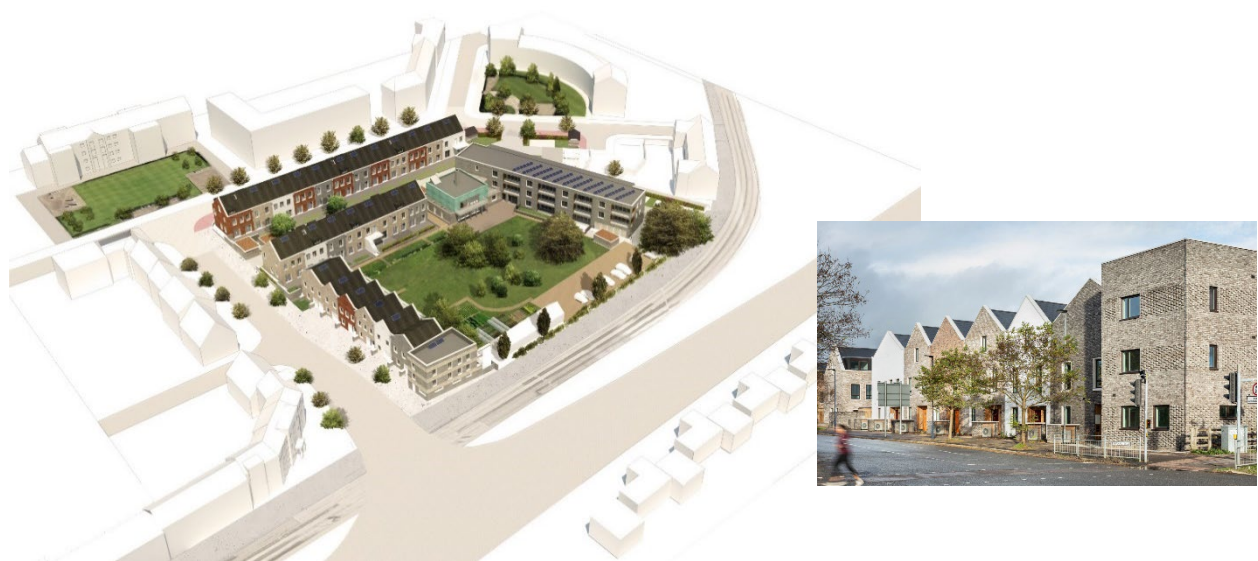
Halton Site Plan and Structure. Reprinted from *Halton Senior Cohousing Project*, n.d. Retrieved March 2, 2021, <https://haltonseniorcohousing.org.uk/> Copyright 2020 by Ecological Architecture Practice. Reprinted with permission.

Cannock Mill Cohousing – Intergenerational



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Marmalade Lane – Intergenerational



Marmalade Lane Site Plan and Structure. Reprinted from *Marmalade Lane*, n.d. Retrieved March 2, 2021, <https://marmaladelane.co.uk/#history> Copyright n.d. by Marmalade Lane. Reprinted with permission.

4.3. Individuals

The demographic, biometric, and Self-Rated Health (SRH) data are telling in identifying this exceptional cohort. This cohort is overwhelmingly feminine, well-educated, liberal, and able to make life choices that not all individuals can access. Elders pass through a series of stages in later life cycles. These stages relate to the termination of working life, the loss of a partner, and increasing challenges of performing ADL and IADL independently. There is a gradual change in preferences indicating that something happens in later life stages that affect the housing choices made and elders' preferences.

Most of the current residents in the completed communities were female (N=45), with ages ranging from 60 to 94, with a mean age of 71.2 years, with a 7.15 year spread within one (SD). For males (N=11), ages ranged from 61 to 83 years and a mean age of 71.6 years. Seven of the females were more than 80 years old and there were five males more than 80 years old. The number of females living alone was 34, and the number of males living alone was 5, with six couples. Of the people living in domestic senior cohousing communities, nine couples (16%) report marriage. This data underscores the increasing feminization of later life stages and challenges women of singularity face, especially if they lack adequate financial resources. There are 15 divorced and 14 widowed residents; four in a long term committed partnership, but not married, and one household contains three non-partnered individuals. The length of residence in senior cohousing ranged from 9 months to 11 years, with 22 of the survey respondents have lived in their communities for more than five years at survey time. See Table 4.4.

Table 4.4. Length of Residency in Senior Cohousing Community

Time in years of residence	Frequency in number of residents
0.0	1
0.5	4
1.0	13
1.5	2
2.0	7
2.5	4
3.0	3
3.5	2
4.0	7
4.5	7
5.0	2
6.5	1
7.0	1
9.0	2

The majority of residents, 95%, identified as Caucasian (n=50), three as Asian/Pacific Islander, accounting for 5.36%, and three as mixed races, representing 5.36%. The respondents are generally liberal in their political orientation and highly educated. This population, while diverse in terms of age, represents a homogeneous population, being dominated in terms of race, gender (overwhelmingly female), access to financial resources, and education at the graduate level and above, with 17 residents having a Ph.D. This is consistent with the description of domestic cohousers by Williams who noted that “homogeneity within a community encourages social interaction” (Williams, 2005 p.201). This is backed by pioneering research, now fifty years old, that shows that elders have a strong preference for living with individuals of similar race, education and socioeconomic backgrounds (Hamovitch & Peterson, 1969; Rosow, 1967).³² Members of this population

³² Subsequent research has shown a consistency over time for elder’s residential preferences where greater housing satisfaction is experienced in homogenous housing environments (Kahana, Lovegreen, Kahana & Kahana, 2003). In

resemble their Northern European counterparts in having higher educations, incomes, and asset levels (Meltzer, 2005). In Northern Europe, Morgensen (1981) opined that cohousing communities were “snug places” were more well to do, highly educated could cuddle up in “cold times” (Henrick, 2019 p.9). Domestically, women's disproportionate gender ratio to men is similar to the Northern European communities where women outnumber men (Brenton, 2001).

Moreover, the survey results are consistent with the general trend of increases in single-person households with rising age demographics. While 25% of households are single for people between the ages of 50 and 60, single households comprise 30% in the 60 to 70 age categories, 40% in the 70 to 79 age categories, and over 60% for those age 80 and above (The State of The Nation’s Housing, 2014). The researchers further projected that the aggregate number of those aged 75 and above will double to over 13.4 million by 2035, with women dominating the single household category in this age group. Due to their longer life expectancy, older women, likely due to widowhood, are more likely to live alone, while men are twice as likely to be living with a spouse or poartner (Pendry, Barret, 2002).

With the exception of married couples or those living in partnership arrangements, the majority of the individuals residing in domestic senior cohousing are single women living in condominium-type style housing. In the 13 senior cohousing communities surveyed, amongst respondents, the ratio of women to men is more than 4:1. Increasingly people across genders and age cohorts are choosing not to marry and many households across multiple age groups are becoming dominated by single individuals or cohabitating unmarried couples (King, Scott, 2005; Wolf, 1995).

gerontological research It has further been shown to correlate with the well-being of the aged (Lawton, 1980; Reschovsky, 1990; Kahana, Lovegreen, Kahana, & Kahana,2003)

4.4. Education, Employment and Political Affiliations

There is no single category other than education, which more clearly defines and differentiates the current residents from the general over 55 population. Of the 56 respondents, 17 (29.82%) hold a doctoral degree, 25 (43.8%) hold a master's degree, four have completed some graduate work (but did not obtain a graduate-level degree), four hold a bachelor's degree (7.02%), two hold an associate's degree, and five have some college but no degree. Overall, 44% of the respondents obtained a master's degree, with an additional 7% having some graduate experience, far above the national averages. According to the American Counts Staff, approximately 13.1% of the adult population have a master's, professional, or doctoral degree. The senior cohousing population of doctoral degree holders represents 30% (n=17) of the respondents surveyed, compared with 4.5% of the general population (American Counts Staff, 02/21/2019). Even among intergenerational cohousing communities, the level of education is significantly higher than in the general population. The educational level among intergenerational communities also shows a greater than average educational level, with approximately 10% of the residents having a doctorate and 40% having graduate degrees (Meltzer, 2000). See Table 4.5.

Table 4.5. Education and Employment of Individuals Living in Senior Cohousing

Variable	Number	Percentage
Education		
High school		
Associates degree	1	3
College	8	14
Grad school	25	44
PhD and higher	16	28
N=50		
Employment Q65		
Part time (1-20)	6	11
Part time (21-39)	7	13
Fulltime	6	11
Primary is caring for individual	1	2
Retired	24	44
Volunteer	11	20
N=55		

Overall, in senior cohousing households, both domestically and in Northern Europe, there is a significant correlation between income and higher educational attainment representing a form of social, economic, and class stratification. Domestically, cohousing community members financial resources are above the national average, and that the respondents' educational level and achievement unequivocally sets them significantly above national averages.

Striking differences are apparent when compared against the general population 55 years or older. Domestically the general level of post-high school educational attainment is comparable to post-industrialized countries, with the majority of the population having completed some degree of post-high school education with many attending some university or two-year college or trade school. When these survey respondents are compared with the homogenous nature of Northern European communities, the comparison produces similar cohorts living in senior cohousing (de Vise,2011).

This is also true for the elderly Danish cohousers, who show substantial differentiation from the general level of educational attainment of the wider Danish population, and other Northern European senior cohousing communities. The differentiation is marked “with 83% of the respondents having completed a medium-long education (e.g. schoolteacher) or a university education” and with a “level of education is significantly above the Danish average” (Jakobsen & Larsen, 2018, p. 11). Taken together, the educational and socio-economic status of these two groups (American and Danish cohousers) shows that this cohort has greater life resources in the form of financial and education than the average person (Jakobsen & Larsen 2018).

In comparison to previous generations in the United States, the current population of people older than 55 years are healthier, better educated, and have a longer life expectancy, increasing their desire and ability to stay active, productive, and remain in the labor force (Toossi, Torpey, 2017). The survey’s cohort of respondents follows national trends of employment for its age group. Six of the individuals work between one and 20 hours per week, seven work between 21 and 39 hours a week, and four work 40 or more hours a week. One respondent classifies their employment as homemaking and caring for family members, and one respondent is looking for work, 21 respondents are retired, and ten respondents have regular volunteer positions (see Table 4.5). This is consistent with national trends wherein individuals are continuing to work later in life. The labor participation rate for those over 55 has been growing steadily, with over “40% of people ages 55 and older working or actively looking for work in 2014” (Torpey, 2014; Torpey & May 2017, p. 1-3).

The elders living in cohousing have the necessary financial resources to make choices about where and with whom they will reside. There is an interlocking relationship between educational level and income. The education and income levels affect who can afford the more expensive senior cohousing market (Blagg and Bloom). Since cohousing's establishment of the first four senior cohousing communities in 2005-2006 in the United States, cohousing remains a niche market for white, highly educated, middle to the upper middle class, liberal individuals, despite it being a model of living that promotes sharing resources. Senior cohousing residents income level is well above the normal mean for seniors in the United States. The breakdown of annual income is shown in Table 4.6.

Table 4.6. Annual Income and Net Value of Household Assets of Respondents Living in Senior Cohousing

Annual income	Number of residents	Percentage
Less than \$20,000	5	10.20
\$20,000 to \$34,999	4	8.16
\$35,000 to \$49,999	2	4.08
\$50,000 to \$74,999	7	14.29
\$75,000 to 99,999	11	22.45
\$100,000 to 149,999	12	24.49
\$150,000 to 249,999	5	10.20
\$250,000 to 349,000	2	4.08
\$350,000 and more	1	2.04
Net value of households' total assets	Number of residents	Percentage
Less than \$0	0	0.00
\$0 to \$9,999	2	4.16
\$10,000 to \$24,999	0	0.00
\$25,000 to \$49,999	0	0.00
\$50,000 to \$99,999	1	2.08
\$100,000 to \$249,999	4	8.33
\$250,000 to \$499,999	9	18.75
\$500,000 to \$999,999	13	27.08
\$1,000,000 to \$2,499,999	10	20.83
\$2,500,000 or more	9	18.75

Note (n=48); some respondents did not answer question about the net value of assets

Senior cohousing residents tend to be very liberal, and the vast majority vote democratic. (Poley, 2007; Williams, 2005 as cited by Sanguinetti (2011)). None of the survey participants identified themselves as conservative. Compared with the general population, there are significant gender and age differences in the way the cohort votes, with women typically leaning democratic and men evenly divided (Chinoy, 2019). While there are significant gender differences that are evident nationally, our cohort is liberal or independent with no conservatives (see Table 4.7).

Approximately half of the survey respondents identified as either atheist or agnostic. There were 22 that identified as either Catholic, Protestant, or Unitarian. Irrespective of religious beliefs, 23 out of the 57 attended services at least once a week, with an equal number never attending any religious service. The religious preferences are detailed in Table 4.7.

Table 4.7. Political and Religious Preferences and Practices of Individuals Living in Senior Cohousing

Variable	Number	Percentage
Female	45	80
Age (y)		
60-64	6	13
65-74	21	46
75 and older	11	24
Male	11	24
Age (y)		
60-64	2	18
65-74	6	54
75 and older	3	27
Political leanings		
Democrat	41	73
Republican	0	0
Independent	13	23
Progressive Green	1	2
Other	1	2
Household Size		
Single	30	53
Partnered	24	32
Other	2	5
Political affiliation		
Republican	0	0
Democratic	41	73
Independent	13	24
Other (Democrat, votes Green)	2	3
Religious Beliefs		
Agnosticism	9	16
Atheism	7	12
Buddhism	3	5
Catholicism	3	5
Judaism	1	2
New Age Spirituality	1	2
Orthodox Christian	1	2
Other Christianity	6	11
Protestants	4	7
Unitarian	8	13
Aside from weddings and funerals, how often do you attend religious services?		
More than once a week	5	9
Once a week	13	23
Once or twice a month	9	16
A few times a year	7	12
Seldom	8	13
Never	13	23
Other	8	13

4.5. Social Housing, Typology and Alternate Strategies

This section looks at the survey results as they relate to why this cohorts' members choose senior cohousing, where they lived previously, and the considerations undertaken before joining the community. The survey results showed that out of the 56 respondents, 3 had previously lived cooperatively in some format that was not necessarily cohousing and wanted to live that way again because of its benefits. Thirty-four (n=34) of the resident respondents, or 68%, came from single-family homes; 20% came from an apartment, house, or condo; 1 came from a retirement community, and 5 came from living with family. Twenty-nine of the respondents had lived alone, 17 lived in other situations or with friends, and 17 lived with their family. Twenty-seven of the respondents indicated that they would not have moved, but for the opportunity senior cohousing presents. Housing demographic summaries are presented in Tables 4.8, 4.9, and 4.10.

Table 4.8. Prior Housing Situation

Housing situation before moving to cohousing (n=56)	Number	Percentage
Single family home	38	68
Apartment townhouse or condo	12	24
Retirement community	1	2
Other ³³	5	9

³³ Other housing situation before moving to cohousing (mobile home, cohousing, Eastlake Commons Ga, single family housing an intentional community, garden home)

Table 4.9. Housing Demographics and Prior Housing Situation ³⁴ (N = 56)

Variable	Number	Percentage
Female	45	80
Age (y)		
60-64	6	13
65-74	21	46
75 and older	11	24
Male	11	24
Age (y)		
60-64	2	18
65-74	6	54
75 and older	3	27
Marital Status		
Never married	3	6
Married	9	36
Divorced	15	21
Widowed	14	24
Household Size		
Single	30	53
Partnered	24	32
Other	2	5
Children (number)		
0	12	24
1	8	14
2	22	39
3 or more	14	25
Housing situation before moving to cohousing		
Single family home	38	68
Apartment townhouse or condo	12	24
Retirement community	1	2
Other ³⁵	5	9

One survey question asked the respondent to consider other housing options were cohousing was not viable. Respondents indicated they would have moved closer to their children, downsized, or moved to a retirement or gated community or a condo. Other options given for an

³⁴ Q68 - What was your housing situation before you moved here?

³⁵ Other housing situation before moving to cohousing (mobile home, cohousing, Eastlake Commons Ga, single family housing an intentional community, garden home)

alternative was moving to a smaller single-family home or into a developer-driven gated community. Only one resident indicated that they would have sought out a different cohousing community had they not moved into their current cohousing community.

Table 4.10. Demographics and Downsizing Effects

Variable	Number	Percentage
Female	45	80
Age (y)		
60-64	6	13
65-74	21	46
75 and older	11	24
Male	11	
Age (y)		
60-64	2	18
65-74	6	54
75 and older	3	27
Current Household Size		
Single	30	53
Partnered	24	32
Other	2	5
Housing situation before moving to cohousing (n=56)		
Single family home	38	68
Apartment townhouse or condo	12	21
Retirement community	1	2
Other	5	9
In which, if any ways did you undergo significant downsizing when moving to cohousing? (Check all that apply)		
Reduced dwelling size/floor area	52	18.37
Reduced household chores	35	12.37
Reduced yard/land area	46	16.25
Reduced yard maintenance	36	12.72
Reduced personal belongings	54	19.08
Reduced housing value or equity	19	6.71
Reduced cost of living	35	12.37
None of the above	3	1.06
Other (please specify)	3	1.06

Table 4.11. Rating the Factors in Deciding to Join a Cohousing Community

Factors	Not at all important		Slightly important		Moderately important		Very important		Extremely important		Total
Had positive experience of community living during my childhood	59.68%	37	19.35%	12	12.90%	8	4.84%	3	3.23%	2	62
Had positive experience of community living during my adulthood	43.08%	28	10.77%	7	24.62%	16	12.31%	8	9.23%	6	65
Dissatisfaction with traditional nuclear family living models	53.03%	35	3.64%	9	10.61%	7	16.67%	11	6.06%	4	66
Desire to live in a more ecologically sustainable manner	6.06%	4	10.61%	7	25.76%	17	25.76%	17	31.82%	21	66
Desire to age independently in a home of my own	10.45%	7	13.43%	9	10.45%	7	29.85%	20	35.82%	24	67
Desire for practically supportive and helpful relationships with neighbors	1.52%	1	1.52%	1	21.21%	14	46.97%	31	28.79%	19	66
Desire for emotionally connected and supportive relationships with neighbors	4.55%	3	1.52%	1	12.12%	8	48.48%	32	33.33%	22	66

The most important factors influencing the decision to join a cohousing community were the desire for (1) emotionally connected and supportive relationships with neighbors, (2) practically supportive and helpful relationships with neighbors, (3) living in a more ecologically sustainable manner, and (4) aging independently in a home of their own (see Table 4.11). Forty-

six of the respondents indicated the desire to maintain independence and autonomy as driving motivations for joining SC. Those three residents who had lived cooperatively before moving into their current community came to cohousing not from theory or idealism alone, but because of prior positive experiences with group living. The type of factors that can influence an older adults' decision to consider future housing options include retirement savings, gender, education, increased health needs, the death of a spouse, divorce, or an abrupt change in one's health status.

The motivations for joining a senior cohousing community provide insight into what types of individuals are likely to be attracted to cohousing. The survey results showed that the individuals who became members sought communities of individuals with similar values and goals. It also highlights the importance of the community in helping the individual retain their autonomy through peer support. The residents had common strong motivations to move into the community to avoid loneliness and achieved high life satisfaction. The female residents were more likely than male to be motivated by being a widow, looking for safety, or seeking social support. This is consistent with the ongoing feminization of older age, reflecting the common bonding to live together.

The site plan of the cohousing community depends on the size and shape of the land purchased. In most of the communities researched, the individual residences were placed along the periphery, with the common house centrally located. The design factors referenced in the survey, which contributed to the level of social interaction in the cohousing communities, included: the layout, the clear separation, and the functionality of the common public and private space. The community layout with the common house centrally located had the added benefit of allowing the residents to have a clear view of what was going on in the community while addressing safety and security concerns. However, one surprising result from the survey is that the placement of the

dwellings relative to the common spaces had only a minimal effect on satisfaction with the community; this is at odds with the typical responses, one would expect, where location plays such a dominant role in housing choices. The findings show that the physical environment and common house have an important role in helping residents maintain a higher level of active and social engagement through both the design and common community activities.

We now turn our attention to the activities and frequency, and reasons for participation. The most common activity was shared meals in the common house with dinners a few times a week. The cohousing activity in which residents most frequently participate is community meals, with a median participation rate of about once per week. Common house meals are followed by small dinner groups, small team management meetings, and movie night and community meetings, which occur about once a month. The common meal is considered the most important common activity in cohousing that presents social interaction and saves the tedium of residents having to cook meals for themselves while also reducing waste and cooking costs and having social contact through shared activities. The residents also found substantial benefit from routine maintenance activities to contribute to productive members of the community and a healthy way to socialize with neighbors.

In the evaluation of the frequency of common activities, more than a half of the respondents (65.6%) show a level of satisfaction in common activities as been “just right as it is”. This can be interpreted as most of the respondents are satisfied at the current frequency of common activities and there is a desire to take part in more common activities. In regards to the contents of common activities, 55.6% of the respondents reported being satisfied with the current activities; however, a considerable number of respondents, 44.4%, have other

interests. Results related to participation in activities are summarized in Tables 4.12., 4.13., 4.14., and 4.15.

Table 4.12. Participation in Activities in the Cohousing Community

Activities	More than once a week (%)	Once per week (%)	Less than once a month (%)	Once a month (%)	It occurs I do not participate (%)	Does not occur (%)
Community meals	44.62	24.62	16.92	6.15	4.62	3.08
Smaller diner groups	8.20	18.03	26.23	26.23	6.56	14.75
Community meetings	6.35	6.35	80.95	3.17	3.17	0.00
Management meetings	6.35	41.27	28.57	19.05	4.76	0.00
Community work days	4.69	12.50	31.25	42.19	4.69	4.69
Routine building maintenance	4.69	9.38	10.94	35.94	26.56	12.50
Construction projects	1.67	0.00	8.33	18.33	33.33	38.33
Routine grounds maintenance	7.94	12.70	23.81	28.57	20.63	6.35
Landscaping projects	9.52	6.35	12.70	25.40	34.92	11.11
Gardening, farming or husbandry	16.95	8.47	6.78	13.56	37.29	16.95
Physical, spiritual wellness	6.25	14.06	21.88	18.75	31.25	7.81
Move, game & talent nights	3.17	30.16	20.63	30.16	11.11	4.76
Live, music, performances	1.59	3.17	14.25	49.21	12.70	19.05
Literature & arts clubs	3.33	3.33	16.67	26.67	31.67	18.33
Other special interest groups	3.51	12.28	17.54	22.81	19.30	24.56
Parties & holiday celebrations	1.56	3.13	37.50	45.31	10.94	1.56
Other community traditions	1.82	3.64	20.00	50.91	9.09	14.55
Baby sitting or childcare	0.00	0.00	0.00	1.69	8.47	89.93
Carpooling	6.67	20.00	15.00	36.67	8.33	13.33
Care & support of rly neighbors	5.26	8.77	24.56	38.60	8.77	14.04
Care & support of sick neighbors	3.33	8.33	21.67	53.33	8.33	5.00
Support of new parents	0.00	0.00	0.00	0.00	1.67	98.33
Exchange of services	5.17	6.90	18.97	41.38	17.24	10.34
Materials exchange	8.33	3.33	40.00	6.67	8.33	3.33
Voluntary financial aid/neighbors	1.69	3.39	3.39	20.34	10.17	61.02
Skill sharing/training	5.08	8.47	28.81	32.20	13.56	11.86
Events that benefit the community	7.02	10.53	12.28	40.35	8.77	21.05
Informal spontaneous interactions	42.62	7.87	18.03	4.92	4.92	1.64
Informal spontaneous interaction, animal/husband or enjoyment of the green spaces/animals in the community	38.33	26.67	13.33	6.67	5.00	10.00

Table 4.13. Reason for Participation in Activities

Activity	I enjoy it (%)	Benefits the community (%)	Expected of members (%)	It is required (%)	I do not participate (%)
Community meals	78.33	10.00	5.00	0.00	6.67
Community meetings	8.06	53.23	27.42	9.68	1.61
Small management meetings	13.11	59.02	14.75	1.64	11.48
Community work days	13.11	55.74	19.67	3.28	8.20
Gardening, farming, or animal husbandry	28.07	21.05	3.51	0.00	47.37
Routine building maintenance	8.62	41.38	1.72	0.00	48.28
Construction projects	8.93	23.21	0.00	0.00	67.86
Routine grounds maintenance	12.07	37.93	8.62	1.72	39.66
Landscaping projects	14.29	30.36	7.14	0.00	48.21
Physical, spiritual or mental wellness groups	50.00	12.50	1.79	0.00	35.71
Parties & holiday celebrations	75.41	21.31	0.00	0.00	3.28
Other community traditions	64.71	27.45	0.00	0.00	7.84

Table 4.14. Changes in Participation After Joining the Community

Political activity	Increased a lot (%)	Increased somewhat (%)	No change (%)	Decreased somewhat (%)	Decreased a lot (%)
Talking about politics	14.52	40.32	35.48	6.45	3.23
Writing to members of congress	14.29	17.46	6.67	1.59	0.00
Making financial contributions to campaigns	11.11	9.52	74.60	3.17	1.59
Campaigning door to door	1.61	8.06	82.26	1.61	6.45
Voting	3.23	1.61	93.55	1.61	0.00

Table 4.15. Cohousing Activities PCA 2017 Survey

Activity	RC1	RC3	RC2	RC7	RC5	RC4	RC8	RC6
Landscaping projects	0.86	-0.01	-0.05	0.16	0.18	-0.07	-0.02	-0.21
Routine grounds maintenance	0.81	-0.02	-0.33	0.13	0.13	-0.06	-0.08	-0.16
Informal, spontaneous interaction with or enjoyment of the green spaces or animals in the community	0.69	0.04	0.33	-0.28	-0.06	-0.09	0.19	0.20
Gardening, farming or animals' husbandry	0.69	-0.11	0.02	-0.10	0.22	-0.19	0.21	0.02
Skill sharing or training among neighbors	0.58	0.33	-0.11	0.15	-0.19	-0.00	-0.09	0.39
Community meetings	0.38	0.30	0.24	0.30	0.27	0.23	-0.05	-0.07
Other community traditions	-0.07	0.82	0.07	-0.02	-0.19	0.02	-0.09	-0.09
Parties, holiday celebrations	0.15	0.76	0.14	0.01	0.09	0.25	0.15	0.23
Events that benefit the larger community	0.01	-0.61	0.12	0.43	0.10	-0.08	0.04	0.27
Other special interest groups	-0.06	0.15	0.75	0.10	-0.09	-0.04	0.04	-0.23
Physical, spiritual or mental wellness groups	-0.20	-0.17	0.74	-0.03	0.10	-0.13	0.13	0.17
Live music, other art shows/performances	0.24	0.16	0.64	0.26	-0.22	0.20	0.03	0.16
Voluntary financial aid or assistance between neighbors	0.30	0.23	0.40	-0.09	0.24	-0.08	0.29	-0.16
Care and support of sick or injured neighbors	0.10	-0.05	0.01	0.75	0.04	0.14	0.28	-0.06
Care and support of elderly neighbors	0.03	0.12	0.35	0.71	0.14	-0.40	-0.01	0.00
Smaller management team meetings	-0.04	-0.14	-0.02	0.70	-0.11	0.24	-0.03	0.24
Materials exchange, gifting or sharing	0.17	-0.12	-0.02	-0.12	0.80	0.29	0.33	0.09
Carpooling	0.10	0.01	-0.05	0.28	0.74	-0.08	0.02	0.01
Smaller dinner groups	-0.17	0.27	-0.02	0.27	-0.64	-0.01	0.35	0.17
Movie or game nights, talent shows	-0.13	0.30	-0.25	0.14	0.09	0.76	0.09	0.04
Community meals	-0.36	0.30	0.04	0.10	0.06	0.70	-0.19	-0.11
Exchange or donation of services	-0.03	-0.14	0.39	-0.01	0.03	0.49	0.25	0.30
Community work days	0.35	-0.28	0.17	0.03	-0.29	0.37	-0.06	-0.14
Routine building maintenance	0.07	-0.15	0.15	0.15	0.18	-0.11	0.79	0.01
Literature, arts or crafts Clubs	-0.03	0.41	0.12	0.11	-0.01	0.08	0.65	-0.00
Babysitting, childcare exchange or cooperative	0.13	-0.23	-0.00	-0.04	-0.31	0.20	0.54	-0.36
Construction projects	0.26	0.13	0.06	-0.08	0.01	-0.16	0.23	-0.81
Informal, spontaneous social interactions	0.33	0.11	0.12	0.15	0.01	-0.37	0.37	0.63

Varimax rotated principal component analysis factor loadings with Kaiser normalization

4.6. Homogeneity Versus Heterogeneity in Senior Cohousing

Four topics bear interest relating to the demographic makeup of the senior cohousing cohort in the United States. They are age, gender, ethnicity, and life resource accumulation. The age factor is obvious; most domestic senior choosing communities have minimum age requirements and developed for individuals over 55 years of age, who can be retired, semi-retired, professionally active or volunteering. The survey respondents desire to live with others who share similar views and are environmentally conscious. The current study highlights the importance of gender in

senior cohousing given the numerical dominance of women. The gender issues in cohousing are also linked with the feminization of old age and the need for meaningful social space sharing.



The 'New Ground' Older Women's Co-Housing (OWCH) Community. Reprinted from *Older Women's Co-Housing*, n.d. Retrieved March 8, 2021, <https://www.owch.org.uk/> Copyright n.d. by Older Women's Co-Housing. Reprinted with permission.

The senior cohousers who completed the survey felt most comfortable in their homogeneous social surroundings of mutual and emotional support, consistent with Rosow's (1967) study highlighting exact preferences for association with neighbors of similar backgrounds (Jirovec et al., 1985). Subsequent studies have found consistent preferences for elder communities with others of similar ethnic and social status (Hamovitch & Peterson, 1969). This supports the view that for most older persons, homogeneous communities contribute to greater levels of community and feelings of safety, security, and life satisfaction (Lawton et al., 1984). Most of the respondents felt that they were provided with a sense of emotional security and well-being because there was someone they could talk to about important decisions.

Another way of looking at cohousing's general lack of diversity is to view it as a matter of individual choice. After all, this third and fourth age mode of living appeals to a predominantly female, educated, and affluent cohort. As communities build and successfully cohousing communities develop, others may find ways to reconfigure the model to make it an affordable living alternative for a more diverse and inclusive set of elders

4.7. Satisfaction with Cohousing and Mutual Support

The residents responded that cohousing had positively impacted their satisfaction with life and their community. Almost all of the residents responded that their satisfaction with life was positively affected (N=55), with only two of the respondents reporting life satisfaction negatively. Studies have shown that positive satisfaction leads to greater well-being. In addition to the opportunities for social interaction and inter-community relationships that living in senior cohousing offers, the respondents were also generally satisfied with the altruistic nature of the work the residents do for the community and the help that residents give to each other. The majority of respondents agreed that they were very attached to their community, felt a strong community spirit, and considered the community to be home. Most of the cohousing residents agreed that when challenges arise for the group they were able to respond collectively, and recover from difficult setbacks, which is consistent with the community building that has taken place. A small number of individuals disagreed that the group could bounce back from difficult challenges. The strongest of all responses was that the individuals feel safe and secure in their community. See Table 4.16.

Table 4.16. CPA Correlations (2017 Survey)

	1	2	3	4	5	6	7	8	Median	SD
1 The physical appearance of my community fits well who I am as an individual	1.00								Strongly agree	0.99
2 I live in my community, but feel like my roots are elsewhere†	0.12	1.00							Mildly disagree	1.42
3 My community is home to me	0.30*	0.44**	1.00						Strongly agree	0.90
4 I feel safe here	0.02	0.08	0.53**	1.00					Strongly agree	0.40
5 There is a strong community spirit here	0.14	0.23	0.67**	0.27*	1.00				Strongly agree	1.01
6 When talking to others about my community I feel proud	0.24	0.26	0.69**	0.12	0.60**	1.00			Strongly agree	0.90
7 I am attached to my community	0.30*	0.29**	0.70**	0.09	0.60**	0.78**	1.00		Strongly agree	1.00
8 I would be sorry to move, even if the people I appreciate in my community moved with me	0.24	0.37**	0.68**	0.25	0.51*	0.46**	0.72**	1.00	Mildly agree	0.90
†: reverse-scored **: $p < 0.01$ *: $p < 0.05$										

Mutual support and reciprocal caregiving were additional driving reasons to move into cohousing, confirming their importance and relation to self-determination and autonomy. As residents' physiological functions may decline, other members' support may allow them to age in place for a longer period of their later life, providing a safe, more secure environment and more satisfying experience. An analysis of the qualitative responses indicates that many skilled care services typically associated with elders are better appreciated and supplied by neighbors known and trusted by the resident, rather than outside service providers. Another recurring theme in the responses was the desire to be emotionally connected and have supportive relationships with neighbors. A third one was the desire to live in a more

ecologically and sustainable manner. Previous research of intergenerational cohousing communities found stronger mutual support networks and relations than in similar residential areas (Williams, 2005, p. 147)

One member wrote that living in a cohousing community offers residents more engagement with the outside world. In her response, she wrote:

“Living in community is the best way for seniors to journey through the many obstacles of this potentially last 30 years of life. Senior cohousing has more advantages to seniors, multi-generational cohousing is better than living in the general community. Many seniors suffer from social and physical atrophy that accumulates over time. Living in senior cohousing is the best antidote. Unlike traditional retirement housing that often reduces interaction with the outside world, senior cohousing members are able to venture out into the community fortified by their neighbors”.

The residents clearly understood the benefits of the social architecture of senior cohousing. There seems almost a consensus of the benefits of cohousing. The ability to share domestic chores and remain active, dominate the qualitative responses. Another woman in different community wrote about cohousing life and her involvement in everyday activities.

“I think cohousing will only become more popular. It makes sense to live in community when you can determine how much to participate. I love working in groups, but I also like a lot of alone time. My cohousing community allows me to attend the social events I want to attend (i.e. community meals), but does require 12 hours a month of participation. Three hours must be related to the kitchen or dining room. So far (13 months into our community life) we think this works very well. I have been involved since before we moved in”.

Considerations of a relatively close-knit community, safety, and security are among the most prominent reasons for joining a cohousing community (Brenton, 2010). The theory of Legitimate Peripheral Participation (LPP) describes how newcomers and those involved in the community's formulation and development become the driving force of a community of

practice (Wenger 1998). LPP identifies learning as achieved through participation in ongoing developmental community practice. The learning within the cohousing community develops through the participation in the shared domain of initial community planning and development and then the daily life (Lave, 1982). This researcher believes that the prospective SC is a sociopolitical organization of practice, both built and social (Lave, Wenger, 2000). Necessarily any newcomer who may desire to join the future community is involved, both in terms of initial interaction, selection, and development.

Viewed from time as an increasingly valuable resource, the discussion turns to how identity and motivation can be generated as newcomers move toward participation with the initial forming group. Given the homogenous makeup of the communities, it becomes apparent that there are contradictions inherent in any newcomer's attempt to join an existing community (i.e. a developed sociopolitical group), potentially resulting in conflicts to the continuing development of the group's identity. Understanding the importance of mutual support in cohousing and the survey results are consistent with theories relating to mutual support (Lawrence & Schigelone, 2002)

4.8. Individual Health and Well-being

One goal of this research was to determine whether SC communities succeed in meeting expectations and maintaining or improving the residents' self-rated health and well-being. The respondents were not measured externally but allowed to self-report. Various demographics and necessary biometric measures (as indicia of general health) and characteristics were sought along with assessments of life satisfaction, social integration, and community role. Several analyses were conducted based on a Likert type scale designed to capture an order of magnitude for some responses. The gender and breakdown by age group

and the height and weight of the individual residents with their primary biometrics are found below. The weight of individuals living in the community ranged from 90 to 275 pounds, with 34.46 within one SD, whereas the height of the individuals ranged from 59 to 73 inches, with 3.67 inches within one SD. Their BMI ranged from 17 to 37.29, with a 4.28 range within one SD of the mean. This information is presented in Table 4.17.

In their responses to the self-rated health questions, most residents reported having a high degree of life satisfaction and rated themselves in good health (see Table 4.18). This reference suggests that while BMI can be used as a measure of well-being, it is only one indicator of well-being or overall health. This poses the vexed question that despite the presence in some of our cohort of chronic health conditions, the resident's well-being appears to rise with available resources and is the "turning point" in helping generate an accepting cohort with a high degree of life satisfaction. The residents were open about discussing their health conditions, with 39 members of the community willing to discuss their health issues with other community members. In the qualitative part of the responses, the residents acknowledged the importance of social and mutual support in realizing improved well-being and successful aging. The study cohort accepted aging as a natural process and enjoyed a rich, socially mutually supportive lifestyle.

**Table 4.17. Summary Biometrics of Individuals Living in Senior Cohousing
(N = 300/R=56)**

Variable	Number	Percentage
Female	45	80
Age (y)		
60-64	6	13
65-74	21	46
75 and older	11	24
Male	11	24
Age (y)		
60-64	2	18
65-74	6	54
75 and older	3	27
BMI		
Underweight	3	5 ³⁶
Healthy	35	63
Overweight	18	32
Diet (special)		
Yes	18	32
No	38	68
Type of special diet		
Normal	38	68
Low sodium	0	0
Low fat	0	0
Mediterranean	1	2
Vegetarian	2	3.5
Vegan	2	3.5
Other	13	23
Blood Pressure		
Slightly low	7	11
Healthy	42	65
Slightly High	8	13
Requires medication	7	11
Days of exercise during the week		
0	14	26
1	4	7
2	7	13
3	10	18
4	3	5
5	5	9
6	5	9
7	6	11

³⁶ Compare to the general population still in development

**Table 4.18. Demographic Profile of Senior Cohousing Communities Residents
(N =300/R=56)**

Variable	Number	Percentage
Female	45	80
Age (y)		
60-64	6	13
65-74	21	46
75 and older	11	24
Male	11	24
Age (y)		
60-64	2	18
65-74	6	54
75 and older	3	27
Do you suffer from any chronic diseases ^{37?} (n=56)		
No	32	57
Yes	24	43
How do you rate your general health ^{38?} (n=63)		
Much better	22	34.92
Slightly better	32	50.79
About the same	7	11.11
Slightly worse	2	3.17
Much worse	0	0.0
Memory problems Q48		
No	52	92.85
Yes	4	7.14
Annual wellness visit (n=56)		
No	8	14.28
Yes	48	85.71

As the length of life and number of elders increase, a central question is whether this aging group will be accompanied by sustained health and well-being. The answer to this question lies in the following comparison between a similar aged group and our cohort. Analysis of the differing responses, even with the presence for chronic health conditions is instructive. Of the survey respondents, over eighty five percent reported their general physical

³⁷ Diabetes, asthma, autoimmune disorder: Myasthenia Gravis: symptoms under control without medication, incontinence, diabetes, pulmonary disease & chronic fatigue, pre-diabetic; controlled epilepsy, sleep apnea, arthritis, mild diabetes, scoliosis, rheumatoid arthritis, idiopathic weakness one side, Crohn's, asthma, celiac, lymphedema, asthma, arthritis, COPD, osteoarthritis, A Fib; slight diabetes, arthritis, chronic pain, autoimmune, unusually low bone density, high blood pressure

³⁸ Q42

health as “much better” or “better “compared to others, while over ninety eight percent self-reported their mental health as “very good” or “good.”

Surveyed residents generally gave a good objective assessment of their health when compared to the general population. They are more accepting of aging related changes and show greater resilience in adapting to the changes. Twenty-two of the survey respondents rated their general physical health, when compared to others of their own age, as much better or slightly better, and only two answered that it was slightly worse. Relative to common standard measures of physical well-being, 27 residents (approximately 50%) considered themselves a little overweight. Thirty-one of the respondents described their blood pressure as healthy. Seven stated that their blood pressure was slightly low, forty-two said that they had healthy results, with eight reporting higher than normal and seven requiring medication. Thirty-six of the resident’s exercise on a regular basis with three exercising on at least one day per week, seven on two days, ten on three days, three on four days, five on five days, four on six days, seven exercising on seven days. Seventy-seven percent of the respondents exercised, compared with 72% of the adults 50 and over in the United States who are inactive, despite the benefits of exercise. Overall, the survey contributes to established evidence in terms of SRH (self-rated health) that higher degrees of education, social connectedness, and income levels generally allow responding elders to enjoy better health and life satisfaction (Hawton, et al, 2011).

Table 4.19. Rating of Mental Health of Senior Cohousing Communities Responding Residents (N =300³⁹/R=56)

Variable	Number	Percentage
Female	45	80
Age (y)		
60-64	6	13
65-74	21	46
75 and older	11	24
Male	11	24
Age (y)		
60-64	2	18
65-74	6	54
75 and older	3	27
Rating of mental health compared to others (n=56)		
Very good	30	54
Good	25	45
Neither good nor poor	1	1
Poor	0	0
Very poor	0	0

The results from the survey relative to social connectedness indicate a beneficial effect on three types of social support:

1. Instrumental (or functional) social support, involving activities such as meal preparation and care during illness
2. Emotional support alleviating loneliness having close friendships
3. Recreational support, through the different activities in the community

The long development period for the communities and close relationship of the individual helped develop a strong sense of self-identification and pride. Most of the residents found the amount of daily informal social interaction and support to be just about right, with six indicating it should be more and two it should be less. Most of the respondents felt that the amount of mutual support

³⁹ Total number of residents (N) is an approximation based on available data. R is the number of survey respondents

was more significant in cohousing than it would be in other housing situations (n=42), with seven reporting that it appeared about the same and one that it was less.

The domestic senior cohousing residents exhibited a more adaptive view of life. Most respondents, 33 residents, indicated that their the mental health was very good, 26 that it was good, with only one responding that it was neither, and no one reported their mental health as either poor or very poor (see Table 4.19). The results from the survey are supported by existing research demonstrating that social and mutual support have a positive influence on the mental health of elders (Retell, Gilmour, & Berkman, 2009 Fiori, Antonucci, & Cortina, 2006; Golden, Conroy, & Lawlor, 2009; Kawachi & Berkman, 2001; Thoits, 2011; Umberson & Montez,2010). The impact of social and mutual support availability is an integral part of the positive social dynamics of senior cohousing.

The dynamics of mutual support enable residents to negotiate the existential contradiction between their potentially increasing need for help with ADL (activities of daily living) and their autonomy. For instance, most residents noted that there are people on whom they can depend and felt close to other community members. Only one respondent out of 56 indicated that he or she did not have a close personal relationship with their fellow residents. The results show the value the respondents place on autonomy and independence and the impact of increased opportunities for socialization on the desire to remain independent, autonomous, and control one's life.

Social interaction and engagement are measures of well-being and may be as important as physical health; the two are inextricably intertwined in ways we are only beginning to fully comprehend (Depp & Jeste, 2006; Rowe & Kahn, 1997). The social support provided in SC through the “social, emotional, cognitive, and behavioral processes occurring in community...

promotes adaptive coping” and is an essential part of the SC model (Dalton, Elias, & Wandersman, 2001, p. 234). The current findings related to life satisfaction and satisfaction with community are consistent with the hypothesis that the social support found in senior cohousing acts as a buffering mechanism, providing a necessary link to improved self-reported physical and psychological well-being through increased opportunities for social interaction.

For resident elders, social involvement and community integration meet a broad array of Maslow’s hierarchy of human needs and goals, including social, emotional embeddedness, and connectives with others. This is consistent with the idea that through the third and fourth ages larger support networks are important to meeting elders’ emotional and structural needs for support (Walker, & Lynn, 2013; Fuller-Iglesias, 2015). Humans are by their very nature social beings, and social interaction is necessary if they are to flourish. In the context of seniors living in cohousing, the opportunities for social interaction are enhanced in the very complex social environment as a constructive counterpoint for elders where the trajectory of social contact decreases with age (House, 1987). In the survey, residents described the advantages and disadvantages of living in senior cohousing community and acknowledged the importance of social and mutual support. The availability of mutual support in SC can help preserve an individual’s self-identity and autonomy.

These findings point out that there is a positive correlation between available support network sizes and well-being, because individuals with larger support networks report greater life satisfaction and satisfactions with their social relationships (Luong, Charles, & Fingerman, 2011). The qualitative survey findings support the hypotheses that social connectedness and close relationships can positively impact life satisfaction. The analysis

shows that the communities provide the residents with mutual support, self-determination, and dignity. This research suggests the importance of life satisfaction between the greater available social network size and mutual support leading to greater self-reported life satisfaction consistent with previous research (Cornwell & Waite, 2009; Hall, 2004; Miyawaki, 2015; Seeman, 2000).

These findings point out that there is a positive correlation between available support network sizes and greater well-being. Individuals with larger support networks report greater life satisfaction (Luong, Charles, & Fingerman, 2011). The survey findings support the hypotheses that social connectedness and close relationships positively impact life satisfaction. The majority of residents consider the other residents as more than “just neighbors”.

4.9. Connection to Nature

The section deals with connectedness to nature and the sense of oneness with the natural world; there are important relationships between connection to nature and personal well-being, well-established among those electing to live in intentional housing (Sanguinetti, 2011). When asked if they believe that the natural world is a community to which they belong, 28 of the residents strongly agreed, and only one of the participants felt strongly disconnected from nature. See Table 4.20.

Table 4.20. Connection to Nature. CNS correlations (2017 Survey)

		1	2	3	4	5	Median	SD
1	I feel a sense of oneness with the natural world around me	1.00					Strongly agree	1.04
2	I think of the natural world as a community to which I belong	0.78**	1.00				Agree	0.95
3	I recognize and appreciate the intelligence of other living organisms	0.75**	0.74**	1.00			Strongly agree	1.12
4	I often feel disconnected from nature†	0.24	0.40**	0.29*	1.00		Strongly disagree	0.88
5	My personal welfare is independent of the welfare of the natural world†	0.19	0.20	0.13	0.23	1.00	Strongly disagree	1.47
†: reverse-scored								
**: $p < 0.01$								
*: $p < 0.05$								

CHAPTER FIVE: DISCUSSION, CONCLUSIONS, DIRECTIONS FOR FURTHER RESEARCH

5.1. Discussion

Developing an understanding of an aging population while ensuring their well-being will be crucial to provide suitable housing for our elders in the near future. This theme has been repeated at differing stages throughout this research. It is “L'éléphant dans la pièce”. Economists predict that a graying population will have severe consequences for the provision and funding of medical and care resources (Rich, Barry, 2017). As referenced in earlier chapters, we are not prepared for an aging population's consequences with increasing medical costs. Together with the near-perfect storm of escalating medical costs, longer life spans, and inflating housing prices, it presents a formidable challenge for elders, especially those on fixed incomes or pensions. The inflation in housing costs is addressed from a reference point once an individual lives in cohousing and reduces long-term operating costs versus initial building costs. In response, this research presents programs on how elders can achieve greater well-being and life satisfaction in SC. The cohousing model contradicts the prevalent ageist medical model of disease and decline.

There is a shared acknowledgment that the residents in cohousing have reached a life stage where they no longer feel they need to respond to normative demands around work, marital relationships, or raising families. Instead, SC allows greater prioritization of individuals' own needs and desires. The availability of an individual's resource capital (educational, financial, and social) is a positive attribute they bring to this life stage and the community. The community's location concerning family, friends, desired amenities,

services, and benefits to the individual is essential for those exploring the possibility of moving and those who already live there. Finding suitable sites, sponsors for the cohousing projects, more realistic timelines (for shorter development) are examples of the headwinds facing developing cohousing communities. Finding suitable sites, sponsors for the cohousing projects, more realistic timelines (for shorter development) are examples of the headwinds facing developing cohousing communities.

The frequency for social interaction of close social relationships presents the argument that proactive and meaningful social engagement in senior cohousing is crucial for the individuals' L.S., QOL, and W.B. The majority of respondents stated the main advantage their cohousing community provided was the social contacts. Social interaction was the primary reason they chose to live in a cohousing community. One's environment is an essential determinant of health; thus, S.C. offers an accessible, equitable, inclusive, safe, secure, socially supportive environment and contributes to successful aging and well-being (Wong, 2018). According to Fromm (1947), individual human development and happiness are possible only by interacting with other people as long as they live in solidarity with them and positively affect them (Demetrice, Ensi, 2018; Fromm,1947).⁴⁰

The survey results emphasize the role of social relations in managing the challenges of elderhood. The results showed that the desire to be emotionally connected and have supportive relationships with neighbors (n=22/33.3%) and a desire for partially supportive and helpful relationships with neighbors (n=19/28.79%) were two of the primary reasons driving the decision to join an SCC. The majority of responding residents (n=47/77.05%)

⁴⁰ Other research has assessed that social relations significantly influence health and well-being (Cantor, 1979; Fischer, 1982; Wellman & Wortley, 1989, Antonucci et al., 2014).

felt that they could count on other residents' help if needed. The majority of the subjects (n=54/85.11%) rated their general physical health from slightly better to much better than others of their age. Comparatively, in the United States, those over 50 years of age (aged 50-74) reported worse general physical health than the survey respondents (U.S. Census Bureau 2014). The self-reported health evaluations for those over 65 who rated their health as poor or fair had poor social connections compared to those who were satisfied with the emotional support they received (White, Philogene, Fine, & Sinha, 2009). Social connections, social support, and individual perceptions become increasingly crucial as individuals age, affecting resilience, WB, LS, and QOL at all levels.

The survey results emphasize the role of social relations in managing the challenges of elderhood. The results showed that the desire to be emotionally connected and have supportive relationships with neighbors (n=22/33.3%) and a desire for partially supportive and helpful relationships with neighbors (n=19/28.79%) were two of the primary reasons driving the decision to join a SCC. The majority of responding residents (n=47/77.05%) felt that they could count with the help of other residents if needed. The majority of the subjects (n=54/85.11%) rated their general physical health from slightly better to much better than others of their own age. Comparatively, in the United States, those over 50 years of age (aged 50-74) reported worse general physical health than the survey respondents (U.S. Census Bureau 2014). The self-reported health evaluations for those over 65 who rated their health as poor or fair, had poor social connections, in comparison with those who were satisfied with the emotional support they received (White, Philogene, Fine, & Sinha, 2009). Social connections, social support and individual perceptions become increasingly important as individuals age, affecting resilience, WB, LS and QOL at all levels.

The survey results are consistent with earlier work, finding positive effects from more significant social relationship opportunities and utilization with positive correlations with well-being measures (Cassel, 1976). In the survey, 32.5% (n=22) of the people indicated that cohousing strongly positively affected their satisfaction with life, and 45.6% (n=31) reported having a generally positive effect on life satisfaction. In an early study, House (1987) defines three relevant social relationship aspects relative to social support. Despite it predating the establishment of senior cohousing, it provides a basis for analysis relevant to the dynamics of the mutual support, social capital, and social structures prevalent in elder cohousing. Those seniors enjoy greater well-being through the positive effect created by the stability and predictability than those lacking social support (Glass, Mendes de Leon, Marottolie & Berkman, 1999; Gottlieb, 1985; House & Kahn, 1985).

Senior cohousing's social support network size is vital because of individuals' homogeneous nature with similar views providing support (Antonucci, 20010). There are seven possible mechanisms, all of which play a part in the complex social dynamics of senior cohousing: "social influence/social comparison, social control, role-based purpose and meaning (mattering), self-esteem, sense of control, belonging and companionship, and perceived support availability which acts as access-buffering processes" (Thoits, 2011, p. 145). More than half of the residents (n=39/60.9%) found that the available social support positively affected their feeling about cohousing.

The current findings that measure life satisfaction and satisfaction with the community are consistent with the hypothesis that senior cohousing's social support leads to improved self-reported physical and psychological well-being. The individuals' social involvement and community integration meet a broad array of Maslow's hierarchy of human needs and goals,

including social, emotional embeddedness, and connectives with others (Fuller-Iglesias, 2015; Walker, & Lynn, 2013). In the context of the studied cohort, social interaction opportunities markedly improve in the complicated social environment. The availability of mutual support in SC is instrumental in preserving an individual's self-identity and autonomy. The survey findings are consistent with research, showing individuals with larger support networks report greater life satisfaction and being more pleased with their social relationships (Luong, Charles, & Fingerman, (2011).

Longitudinal studies indicate that emotional isolation (i.e. persistent loneliness) has damaging effects on health, including impaired immune function, and impair overall cardiovascular function in the context of increasing trends towards living alone (Griffin, (2010), as cited in Cacioppo (2008). Elders without a life partner need social engagement and social network ties more than partnered persons to maintain a sense of well-being (Klaus & Schnettler, 2016, as cited by Ermer, & Prolux, M. 2019). Cohousing provides a social network and opportunities for social engagement.

There has been an increasing trend to singularity covered in Chapter Two. The household composition and size play an essential role in individuals' economic and social well-being, specifically the pool of economic resources available for basic living and service expenses. In the United States, households made up of married couples with children decreased by almost 50% between 1970 and 2019 (Veneman & Jacobsen, 2020). However, while there is an increase in single-person households, there is a related trend in increasing household size. The average household size increased between 2010 and 2017 from 2.58 to 2.65 persons, with the largest increase in non-traditional household composition (Mather et al., 2019). Individuals move in with others to lessen isolation, share housework, and provide

a limited socializing amount. As referenced earlier in this work, most trends are driven by economics, and the growth of cohousing in the U.S. will occur once domestic housing policies become more financially supportive towards this typology. Many elders who chose never to marry or lived in unmarried partnership will want to consider cohousing as a way not only to combat isolation but to improve socialization and life satisfaction.

The survey results showed that 32% (n=19) of respondents had a strong positive effect on life satisfaction, 46% (n=25) generally reported positive satisfaction, and 16% (n=25) more positive than negative, and none reported negative satisfaction. When asked to rate their general physical health compared to others, 50.8% (n=32) responded slightly better, 34.9% (n=22) reported much better, 11.1% (n=7) about the same, and only 3.2% (n=2) slightly worse. The survey results show that life satisfaction, successful aging, wellbeing, and happiness, are achieved by working and networking within the community simultaneously for individual and community social goals. Thus, the development of housing typologies that lead to greater wellbeing is essential for healthy aging (Raggi et al., 2016).

On the other hand, Labit (2015) found that among the many different types of conflicts that arise in intergenerational cohousing, conflicts between generations was one of the most common, with differing ideas on a wide range of subjects ranging from management and conflict resolution, to how to look after communal spaces and amounts of mutual support. The qualitative statements referenced in Chapter Five point out the preference for like-minded individuals. The results are similar to other cohousing studies with most intergenerational groups with limited background diversity with 95% of European ancestry members or descent (Meltzer, 2000).

If there are different views within the community, the residents can discuss various issues without fear of significant dissent. The residents who completed the survey felt most comfortable in their homogeneous social surroundings of mutual and emotional support, expressing feelings of safety (n=57/100%), feelings of strong community spirit (n=40/70.17%), strong feelings of attachment to the community (n=36/63.16%), and strong community spirit (n=40/70.17%). The findings are consistent with Rosow's (1967) study, which highlighted preferences for association with neighbors of similar backgrounds. Individuals involved in the survey strongly agreed that there were people in their communities on whom they could depend and with whom they could have healthy relationships due to their homogenous nature and similar backgrounds, which provided a sense of emotional security and well-being, being able to discuss important decisions.

This mode of living appeals to a cohort that is predominantly female, educated, and affluent. Individuals must learn to effectively allocate their resources and determine strategies to manage long-term health considerations, functional capacity, and ADL (Pennell, as cited in Dessert, 2019). The functional capacity of residents is an essential consideration in the continuation of the community. There comes the point where it becomes a burden for other community members to care for individuals who are no longer able to effectively care for themselves. This requires some forward-thinking planning and objective criteria to know when this milestone is reached. Setting age limits early in the community formation This would eliminate the frustration some members felt that there should have been an upper age limit established for new residents not to become a burden on the community

Most movements are either socially or economically driven, so it will be the cohousing movement (Goodlad & Robina, 1999). As the U.S. government finds itself unable to fund the

growing number of seniors and starts reducing benefits (OASDI Trustees Report, 2018), cohousing may present itself as a viable way to reduce health care and collateral care costs for seniors. When the cost of housing combined with the typical cost of assistance needed in typical senior and assisted living housing is compared to the peer support available in senior cohousing, senior cohousing becomes an attractive alternative.

While many residents cite the initial cost of cohousing as expensive, there is a substantial reduction in ongoing costs associated with owning one's own home over the long term. This makes living in cohousing units more affordable over time, but the initial cost and long planning periods remain substantial barriers to entry when larger condominium units in gated communities are available at a lower cost. The substantial time lag between the future communities' ideological inceptions to the completed project presents a substantial challenge to all the future residents except the most dedicated. Time begins to accelerate for the prospective residents as they age and move further into their third and fourth age, highlighting the need for more significant policy or developer-driven initiatives (Barnes, 2011). The types of fiscal burden sharing and wide range of public policies that currently help sustain Northern Europe's cohousing, if implemented domestically, would help enhance the well-being of a substantial number of domestic seniors excluded from entry.

An aging population should encourage policymakers to consider the challenges of adequately supporting individuals as they age. New strategies designed to promote healthy aging and quality of life should consider an aging population's viewpoints, vulnerabilities and needs. There is a need to inform policymakers about cohousing's potential for increasing social and physical resilience, reducing long-term health care costs, and the potential to address long-term social and housing challenges in American metropolitan regions. The senior cohousing model has

been slow to diffuse beyond a demographically narrow niche. Despite its perceived benefits, the senior cohousing model presents a frustrating and unappealing housing model for policymakers in its current form, where results are needed in the short term. Given cohousing's potential and long-term benefits, it, therefore, may be viewed as an impractical policy objective in the short term.

This research explored how the community's environmental impact life satisfaction and well-being. Housing adaptations to facilitate aging in place are essential housing characteristics to elders. The location and environment are drivers of housing preferences; a safe and secure neighborhood, accessibility to amenities, and a natural and walkable environment are also important considerations. The concentration of individuals in smaller residences in an intentional community with shared meals are clear advantages concerning social and environmental sustainability and are consistent with the themes developed early on. However, these qualities are not always compatible with the typical American ideal of larger residential dwelling spaces. Central to senior cohousing communities' design is design features that enhance community connection through the central common house and close grouping of individual residences (Sanguinetti, 2011).

Senior cohousing reflects a more adaptive approach considering an individual's functional capabilities while preserving their autonomy, mediating the effect of some functional losses. Having smaller residences and less square footage to be responsible for were considerations by many residents. More green space in the communities is a desirable feature. The individuals and communities studied showed a clear preference for access to nature, greater green space, and both community and individual gardens. This research has described the importance of green space for health. The existing biophilia research reviewed has substantiated the beneficial health effects, of the natural environment including reduced cardiovascular mortality, improved mental health, ,

increased physical activity, social contacts, and restoration. The resident's views are consistent with research that the inclusion of green space within the community is beneficial for healthy psychophysiological functioning, health, and well-being.

There exists a social mandate to plan for a future with more sustainable housing typologies that consider the spectrum of socio-economic-physiological factors that affect seniors' well-being. This research supports the case that senior cohousing brings significant benefits to its members, companionship, autonomy, life satisfaction and that such success is based on increased social-psychologically supportive 'frameworks' found in cohousing. The aging identity and homogenous nature of the group play a critical role in the group's identity as a whole. For decades, the holistic needs of U.S. elders have been neglected. Reviewing the survey results, education, income, and opportunities for socialization, along with mutual support, were qualitative dominating factors within the studied population that inform the preventative interventions:

- (1) Increased opportunities for socialization and education have a protective effect on self-reported general well-being and correlate highly with life satisfaction, irrespective of the presence of some chronic diseases.
- (2) The analysis of interaction with the natural environment as a potential WB determinant presented desirable but with inconclusive results.
- (3) Consistent with existing research and the hypothesis put forward, security, autonomy, and connection to nature figured in residents' qualitative responses.

It is apparent from the residents' educational levels that they understand the processes and need for social interaction, supplementing family and friends' traditional support roles. The individuals surveyed are prosocial. Within purposefully designed physical spaces, residents commit to their neighbors to help each other combat the social isolation and loneliness, reflecting the values of safety, autonomy, and connection to nature that surfaced

in this research. However, this comes with a price. The residents' prosocial behavior encompasses more significant positive effect, lower negative affect, and greater well-being and life satisfaction (Diener, Suh, Lucas, Smith 1999)

The cohort's characteristics in question, viewed within the survey results, point to an elevated educational level, which correlates with a high level of health intelligence, satisfaction with life, and SRH (self-reported health). The survey respondents are well above the mean in terms of education and financial resources. The residents realize the benefits of senior cohousing where they could flourish, feel safe and secure, and enjoy greater well-being, including health-related resources, sense of self-efficacy, social capital and general attitude as improving their satisfaction with life.

The following conclusions, are drawn from this research:

1. The social support network available in senior cohousing is viewed positively as a significant indicator of well-being, quality of life and life-satisfaction.
2. The feminization of old age within the communities is a dominant factor with correlations between satisfaction with life and selected personal resources (Zielińska-Więczkowska, 2017).
3. Social isolation is an essential factor in senior health, happiness, quality of life, well-being, and life satisfaction. An increasing number of elders live singly; this is through changing demographics, including increasing income and educational levels, as referenced in Chapter Two. As individuals age, they lose spouses, friends, family members, and Research has consistently linked social isolation to a higher level of adverse health outcomes, expenses, and early morbidity. The survey population reported that the active lifestyle prevented social isolation and loneliness. Social interaction was enhanced through the design of both residential and shared spaces.
4. We see that supportive social networks have the effect of supporting a more positive emotional well-being, even in the face of some degree of functional competence losses. The environmental concerns expressed in the survey by the residents and the psycho-social interchange, while desirable, do not significantly positively influence well-being.

5. Most of the resident's basic hierarchy of needs are met and living in cohousing allows a degree of freedom for the residents to: (1) feel connected to the people they interact with on a daily basis, and (2) see how their help is making a difference at the individual and community level. The survey results suggest that motivations to join cohousing are based on a complex set of interrelated factors.
6. A sense of belonging and adaptation allow residents to maintain autonomy, which is relevant in cohousing communities given the close living situations they live in (Oswald, Wahl, Schilling, & Isaksson, 2007; Wahl, Oswald, Schilling, & Iwarsson, 2009).
7. The survey results show a cohort at the time of the survey that was overwhelmingly female, older, highly educated, of above average income and assets resources and liberal. The survey respondents also showed a relative degree of adaptability and resilience and considered themselves being in better physical and mental condition than the general population.
8. Individuals in the later stages of life must be willing to enter into a community building process that currently takes years, not months. Central to building the social networks and relationships for these future communities depends on the ability to act cooperatively (Destano, 2009). This time lag, however, is a major drawback to self-developed communities.
9. Many of the elders in the general population who would benefit from cohousing and the benefits of a close-knit socially interconnected community may not have access to senior cohousing in the United States. The relative education and income levels of the cohort are reflective of a self-selected group. This is not a criticism. These individuals are pursuing a strategy maximizing life course trajectories and minimizing loneliness. They've earned it and are entitled to enjoy the benefits.
10. Since its introduction in the United States by Durrett and McCamant years, cohousing projects had mainly been initiated "bottom-up" and many initiatives failed because of the complex planning process. In other countries the cohousing model housing model has reached the policy and political where municipalities set up specific support structures for co-housing (Ache, Fredorowitz, 2012). This housing typology could have greater acceptance if the United States adopted more supportive housing policies and housing organizations as is found in other European Countries, Denmark, Sweden, Germany and more recently the United Kingdom.

11. While current senior cohousing communities may be viewed as homogeneous and elitist, that in the later stages of life may be part of an individual's strategy to minimize conflict. Most gated communities are no different and relatively homogenous. If the government wants to address the crisis in affordable housing, a graying population and escalating medical costs, senior cohousing makes all the sense in the world. It can be cost effective, increase life satisfaction and substantially reduce health care costs for seniors. (Ache, Fedrowitz 2012; Borgloh, S., Westerheide, P. (2012); Perino, 2019).
12. The interrelation and having access to nature-based environments, and individual gardens have a positive effect on individual well-being.

The cohousing model posits that group belonging and mutual support increase in importance as people enter old age; this assumption is supported by the survey results, consistent with aging theories discussed in Chapter Two (Erikson, 1950; Tornstam, 2005). The search for a more sustainable life, happiness, and successful aging are important motives for moving to cohousing (Clapham, 2010; Glass & Vander Plaats, 2013; Jolanki & Vilkkö, 2015). The respondents' biometrics and values showed greater stability, less decline, and increased forging new relationships and explorative behavior. The nurturing environment of senior cohousing ameliorates or moderates these conditions, all of which are interrelated.

After reviewing the qualitative responses, the individuals studied are at the point where certainty and happiness play an ever-increasing role in their daily lives. The individuals in the study seek to reduce uncertainty in social interaction based on internally perceived evaluations of interactions that may occur and the perceived value of the events. Research has found that, although group members feel happy and enjoy groups with a shared sense of reality and values, such feelings are associated with community conformity to the subject group's values, goals, and ethics. This reduces conflict and maximizes harmony and conformity (Janis 1972; Lerner, li, Valdesolo & Kassam (2015).

While not “golden gated communities” in an unembellished sense, the survey results underscore the homogenous socio-educational and economically privileged nature of the thirteen communities studied. While not gated in a real sense, currently, the barriers to entry of senior cohousing present a virtual wall, longitudinally from a life span perspective, and financially to all, but the economically well off and relatively healthy individuals (Jakobsen & Larsen, 2019).

There is a sustained and growing interest from a number of related disciplines supporting intentional communities and cohousing; there are many obstacles to establishing cohousing communities, including organizing leadership, choosing site location, obtaining funding, and ensuring continuity. These factors raise questions regarding the feasibility of domestic cohousing communities, given the long-time differential from planning to move in. The extended community group formation period (an average of 5.6 years) allows time to build trust, understand and develop the skills necessary to resolve conflicts, build strong social relationships and negotiate the long establishment process. However, it is also one of the most glaring fundamental flaws in the process of community development. The very long planning stage is a factor that hinders the further successful development o

In this study, cohousing members' qualitative responses underscore the importance of how to address, learn collectively and resolve conflict. Domestically, slow progress, ongoing financial participation, the burden of future residents from the planning stage onwards, and conflictual decision-making processes, while individually address typical aging trajectories, are obstacles to establishing a cohousing community. Given the concern for the health and wellbeing of graying populations, its relevance for policy and society is of increasing importance.

The policymakers' responsibility is to consider cohousing as a typology that will enable elders to age in place and live in a healthier environment. As we prepare for new demographic realities, this research helps raise awareness about the links between greater social integration levels, community support, nature, and wellbeing. The underlying principles of cohousing offer a better model and more humanistic approach to the typical gated senior housing development. This study's findings support the hypothesis that senior cohousing communities benefit elders' life satisfaction and that cohousing represents a positive housing alternative for single and coupled individuals.

In an ideal world, everyone should have the opportunity to grow old in an age-friendly, socially connected environment. The world is not ideal. We take it as it is. There is not unlimited funding for social experiments, despite evidence of the benefits of intentional cohousing for elders. The research in part concludes that senior cohousing can contribute to healthy aging and the maintenance of wellbeing that is essential for these individuals to do the things that they value: while meeting their basic needs; to learn, to grow, and make independent decisions; to be able to move freely about; to be able to build and maintain quality relationships, and to feel productive while contributing to the community. Holistically, together these intentional communities can enable an elder to age safely and securely in a community that is right for them and to be able to continue to develop personally and to contribute to their communities while retaining autonomy and relative health. Senior cohousing would also allow seniors to remain independent for longer. Danish research shows that Seniors in cohousing can live independently than isolated and sedentary peers while maintaining their autonomy (The PLoS Medicine Editors (2010).

The design actions necessary to foster these abilities take different forms but operate in three fundamental ways:

1. Build and maintain individual residences that incorporate universal design in the schematic design stage so the elders may age in place.
2. Create mutual support communities that enable elders to feel connected and avoid the adverse effects of loneliness.
3. Create communities that incorporate nature-rich environments in the landscape design and gardens appurtenant to the residence.

This dissertation concludes with the observation that there is a potential to meet elders' needs better while also improving life satisfaction. However, governmental housing policies in the United States have not kept pace with these developments, as they have in Northern Europe. These policy differentials represent a significant structural lag between the social and eldercare policies of the United States and Northern Europe (Kahn, 2004). Senior cohousing supports healthier aging in place, and quality of life, while decreasing health care system expenditures (Westerlogh, 2014). From the point of view of well-being, the domestic expansion of cohousing would respond to social isolation through cohousing community- models that promote a healthy prosocial environment.

In Northern Europe, the cohousing model is credited with improving housing affordability while reducing health care costs. A study comparing the costs for support and care for elders living in cohousing with a control group of people in conventional settings found that the elders living in senior cohousing were less costly in terms of health care costs than those living in conventional settings and receiving care (Borgloh and Westerlogh, 2014). There is a growing recognition that "place matters" to elders' health and that the implications on well-being should be considered in national policy dialogue.

Right now, senior cohousing in the U.S. is more theory than reality. The cohort studied in this research has chosen to coalesce around a housing typology that breaks traditional models, focusing instead on a community and residence, which encourages autonomy, interaction, and self-reliance. One foundational weakness of our national housing and aging policies is that several administrations have embraced deregulation, privatization, and austerity when it comes to national housing policy. The result has been growing wealth inequality, increasing rising debt levels, and shrinking opportunities, especially for elders on fixed incomes. Combined with limited social security benefits and an unsustainable health care system, it suggests a bleak future for many elders who would most benefit from senior cohousing.

In the third and fourth stages of life, the long design development process needs to be shortened to months, not years. The addition of a professional management structure and a better understanding of the impact of the educational and social-psychological makeup of residents both domestically and from Northern European countries would contribute to the successful shorter time frame development of a community. Identifying the specific aspects that characterize potentially successful candidates for senior cohousing beyond those in this and previous research is needed.

I would be remiss if I did not comment on the feminization of old age, a subject that deserves and requires a great deal more study. Relationally, the overwhelming population of senior cohousing are women. There are many women-only intentional communities, separate and distinct from the studied communities, in several regions across the United Kingdom, which provide an opportunity for other researchers to continue studying this topic with a more significant open-ended time frame. Future research could involve a wider cohort of women respondents and a lengthier response time.

Building senior cohousing communities are to recognize an obligation to provide for elders' well-being, not unlike the more humanistic democracies in Western Europe. There are several possible options for further development of SC with its potential benefits. However, the current cohousing development process's nature means that cohousing remains at a substantial disadvantage, given its long planning process and higher original development costs. If we increase diversity and the nominal number of cohousing communities while ensuring affordability, different development models are necessary to enable groups to access land and financing, shortening the current longer-term development processes. One example would be the use of church properties where there is enough available land to build the community around existing structures. With attendance at religious institutions in a long decline, this would serve several different possibilities while optimizing the land use, which is typically not highly utilized for much of the week. The alternative land use strategies open the potential to creating communities in shorter periods, building on existing alternative land use g structures. It also creates a built community where individuals know each other.

The housing typologies that dominated U.S. housing policies for decades have been exhausted. There is a need for new approaches coinciding today with a growing housing affordability crisis. These challenges are coming, and they require planning, adaptation, and greater regard for ensuring the life satisfaction, well-being, and quality of life for all our older citizens. Looking at the survey responses, the close relationships built in the communities are the ties that bind and keep our cohort happy, adding to their life satisfaction and well-being throughout the remaining of their lives. Those ties protect older individuals from life's adverse events, helping delay some aspects of mental and physical decline, and are better predictors of happy lives than

material goods or social class. This study shows that the people who have greater resiliency levels and who cultivate close relationships are more likely to age more successfully.

5.2. Directions for Further Research

This study (i.e., need for a larger population) is relevant for evaluating elder cohousing. This research provides a reference point and foundation to add to the already developed wealth of research, which needs further development. Significant portions of older adults socialize less frequently, are lonelier, either aging in place or after moving to typical senior housing in contrast to the positive effect of those who move into senior cohousing. Additional research is needed to determine if this survey's positive findings are consistent across larger populations, both in Northern Europe and in the United States. This research's respondents have markedly higher education levels, income, and assets than the United States' elderly population. As such, they may not represent the entire older adult population, and more extended, more inclusive studies are needed.

Future studies should also focus on longitudinal data in senior cohousing and current dominant senior housing typologies. For cohousing, picking communities with sufficient participation levels and finding non-cohousing comparative cohorts, analyzing the biometric and related survey results would help validate the current research conclusions regarding improved QOL, LS & WB.

The data collected from the survey and individual comments need detailed follow-up qualitative interviews. A much greater survey size of domestic residents is needed, including multi-generation communities, inducing better biometric data that is not self-reported. The use of self-reported health was a necessary limitation. There is a need for further research of senior cohousing to make comparisons over a decade or more against several control groups of elders:

1. Those living in gated communities
2. Those living in assisted living
3. Those who are aging in place in their residences
4. Those living in senior cohousing in the Northern European countries
5. Those living in senior cohousing domestically

The purpose is to get the actual parameters of similar elders living in the different housing types and establish biometrics and qualitative interviews determining QOL, well-being, and health care cost differentials. While such an extensive study would be costly, it may very well yield results, which would, despite the methodological challenges, positively impact the growing health costs for elders.

Additionally, surveying more women-only organizations in more countries and a more culturally diverse group of respondents would help develop a better understanding of the types of individuals who would have the most interest in senior cohousing. The Enlistment of women's organizations to participate and join in the research would create greater interest at policy-making levels and potentially lead to the development of much-needed community service organizations similar to those in Denmark and Sweden.

An additional area that needs exploration is comparing the life satisfaction of those in domestic cohousing and Northern Europe with more intergenerational cohousing. The concept that generativity⁴¹ is an essential contributor to a successful aging process was proposed by several aging theorists and Baltes and Baltes (1990) but was outside of this research scope. There was significant evidence of the development of social capital from the respondents. However, this study

⁴¹ Erickson & Erickson, 1997, p. 63) "the concern in establishing and guiding the next generation" (p. 267). He assumed a developmental model throughout life with eight stages and defined generativity as the seventh developmental task in midlife (Erickson, 1950).

had several limitations: the necessity of control, non-cohousing sample groups of similar age, and cross-sectional study designs with much larger sample sizes. A key finding and recommendation from this research is the need to further research cohousing models, both senior and intergenerational, to determine benefits for well-being, life satisfaction, and quality of life.

Future research on senior cohousing should include the study of transportation and view cohousing through a walkable neighborhood lens. There is existing research that examines the relationship between social capital, community design, safety, security, and well-being, based on the walkability of the neighborhood. In most cohousing communities, both domestic and European, cars are kept on the periphery. Keeping vehicles on the periphery positively impacts the community's overall design and creating a user-friendly walkable community (Leyden, 2003). The use of bicycles is more prevalent in Europe than domestically. What is the comparative experience between domestic and European cohousing communities relative to the amount of walking and bicycle usage to nearby grocery stores, doctors' offices, places of worship, restaurants (within a quarter-mile or half-mile, and mile for example) that the residents experience and what effects on well-being? This inquiry would make sense since walking and transportation by bicycle in Europe has a long history.

Among other related avenues for research, what are the environments outside of these senior cohousing developments like, and are they safe for walking and bicycling? What barriers to walking and bicycling do the senior cohousing residents experience or perceive if any? If walking and bicycling beyond the immediate development are not options, how does this impact the residents' well-being? This research looked at proximity to parks and green space, but that is a limited lens, and the concern was the effects of biophilia on well-being. This research indicated

access to green space within a walkable distance was considered in domestic cohousing communities' site location.

Relative to domestic communities' future research should compare cohousing residents living in a walkable community with a similarly aged cohort living in the suburbs and gated communities. Cohousing communities for elders should be safe, secure, easy to navigate, have adequate lighting, incorporate green space, be easily walkable and enable residents to perform daily activities (e.g., grocery shopping, going to the park) without using a car. Many suburbs are car-centric and not designed to encourage social interaction, unlike cohousing communities which motivate social interaction.

In future research, data is needed from a survey that measures individuals' social capital, an additional exercise in walking, cycling, and effects on social connections. It would also be essential to note how much driving is saved by peer pooling and medical transportation costs by having a friend drive an individual to doctor's appointments and shopping. The use of friends for medical transportation should theoretically simulate some positive effects well beyond the saving of medical transportation costs.

The interaction with the natural environments, including green space and gardening (with resultant health benefits), is an essential consideration in cohousing. However, there is a need for more rigorous studies on green space and gardening's physical benefits. Further research is needed to quantify the strength of association between the natural environment and general well-being, overall and mental health in comparative urban and suburban areas that are more difficult to measure (Lee, Maheswaran, 2010). As more is known about senior cohousing communities and the research expands emphasizing its benefits, more significant numbers of elders may find this alternative to their liking.

Furthermore, these communities' programs and systems need evaluation to better define the impacts of the range of interventions that measure qualities of life and well-being. These research findings strongly suggest that, while the residents have not escaped the common ailments that accompany aging, they are more likely than the general older population to consider themselves as very healthy, with a display of "joie de vivre." Such findings provide information about why the mutual support found in cohousing is essential to overall health, physical, intellectual, and emotional well-being. Moreover, findings provide insight into why community attachment and social integration and support are associated with better self-rated health.

This study provides evidence for the importance of further developing senior cohousing communities domestically, in Canada, United Kingdom, Western and Northern Europe, and other countries with greying populations. The degree of social interaction and continued involvement of the elderly stakeholders in planning senior cohousing communities is essential for the typology's continued growth. Existing studies on the adoption of telehealth-related technologies indicate that senior cohousing and telemedicine integration, hypothetically, could positively affect well-being and quality of life (Angioni & Musso, 2020). These developing technologies, if integrated into the initial stages of schematic design development, will be cost-effective, can be located in the common house or built-in individual units, and detect anomalies in residents biometrics, leading to better health intelligence, predictive analyses on the individual's physiological health (Angioni & Musso, 2020).

Despite the limitations addressed, the present study contributes to our understanding of the relative importance of social relationships, mutual support, well-being, and its impact on cohousing residents. New gerontological research endeavors are necessary and required to deal with the realities of increased numbers of elders, providing for their well-being in the fourth age.

We should be considering the value of diverse, inclusive, less ageist models of life and happiness and consider concepts such as “harmonious aging” implicit within domestic senior cohousing (Liang & Luo, 2012). Those existential concepts have overlaps, both Nordic and Eastern, where “happiness” and “successful aging” are ethereal terms taking more pivotal roles; there is much we could learn.

To this end, this research provides a broad overview of the subject on the importance of design, socialization, and well-being implications of senior cohousing and several pattern languages to further enable development. Senior cohousing represents a solution to serve both active and functionally independent and lack the financial resources for senior housing. Among these solutions is finding less costly ways to provide housing and health care. Hopefully, this research and future studies will further develop these aging models as they relate to senior cohousing as one optimal typology. Hopefully, these results are considered by policymakers, intending to design healthier elder communities. The time has arrived for governments to research the relationship between the built environments, senior cohousing, and impacts on well-being and healthy aging, a priority.

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Appendices

Appendix 1. Photos of Cohousing Community Members

United States

Oakcreek Community (Stillwater) – Senior



The Residents of Oakcreek Community. Reprinted from *Oakcreek Community*, n.d. Retrieved March 1, 2021, <https://www.oakcreekstillwater.com/> Copyright n.d. by Oakcreek Community. Reprinted with permission.

Wolf Creek Lodge – Senior



Some Members of the Wolf Creek Lodge Community. Reprinted from *Wolf Creek Lodge*, n.d. Retrieved March 2, 2021, <http://www.wolfcreeklodge.org/> Copyright n.d. by Wolf Creek Lodge. Reprinted with permission.

Ankeny Row – Senior



Community Garden at Ankeny Row. Reprinted from *Green Hammer*, n.d. Retrieved March 7, 2021, <https://www.greenhammer.com/> Copyright n.d. by Green Hammer. Reprinted with permission.

Sunnyside Village Cohousing – Intergenerational (Developing)



Sunnyside Village Gardens. Reprinted from *Sunnyside Village Cohousing*, 2021. Retrieved March 1, 2021, <https://www.sunnysidevillagecohousing.com/> Copyright n.d. by Sunnyside Village Cohousing. Reprinted with permission.

Canada

Harbourside Cohousing – Senior



Residents at Harbourside Cohousing. Reprinted from *Harbourside Cohousing*, n.d. Retrieved February 25, 2021, from <http://www.harbourside.ca/index.html> Copyright n.d. by Harbourside Cohousing. Reprinted with permission.

West Wind Harbour Cohousing – Intergenerational



West Wind Harbour Community Members. Reprinted from *West Wind Harbour Cohousing*, n.d. Retrieved February 24, 2021, <https://www.westwindharbour.ca/> Copyright n.d. by West Wind Harbour Cohousing. Reprinted with permission.

United Kingdom

‘New Ground’ Older Women’s Co-Housing (OWCH) – Senior



The ‘New Ground’ OWCH Community. Reprinted from *Older Women’s Co-Housing*, n.d. Retrieved March 8, 2021, <https://www.owch.org.uk/> Copyright n.d. by Older Women’s Co-Housing. Reprinted with permission.

Halton Senior Cohousing Project – Senior (Developing)



Halton Community Members and Project Architects. Reprinted from *Halton Senior Cohousing Project*, n.d. Retrieved March 2, 2021, <https://haltonseniorcohousing.org.uk/> Copyright n.d. by Halton Senior Cohousing Project. Reprinted with permission.

Cannock Mill Cohousing – Intergenerational



Members of Cannock Mill Cohousing. Reprinted from *Cannock Mill Cohousing*, n.d. Retrieved February 27, 2021, <http://cannockmillcohousingcolchester.co.uk/> Copyright n.d. by Cannock Mill Cohousing. Reprinted with permission.

Marmalade Lane – Intergenerational



Marmalade Lane's Community. Reprinted from *Marmalade Lane*, n.d. Retrieved March 2, 2021, <https://marmaladelane.co.uk/#home> Copyright n.d. by Marmalade Lane. Reprinted with permission.

Denmark

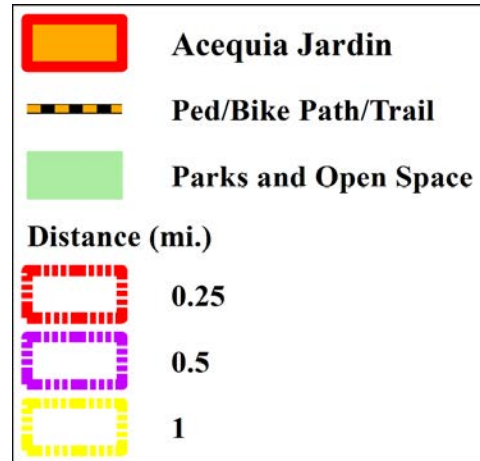
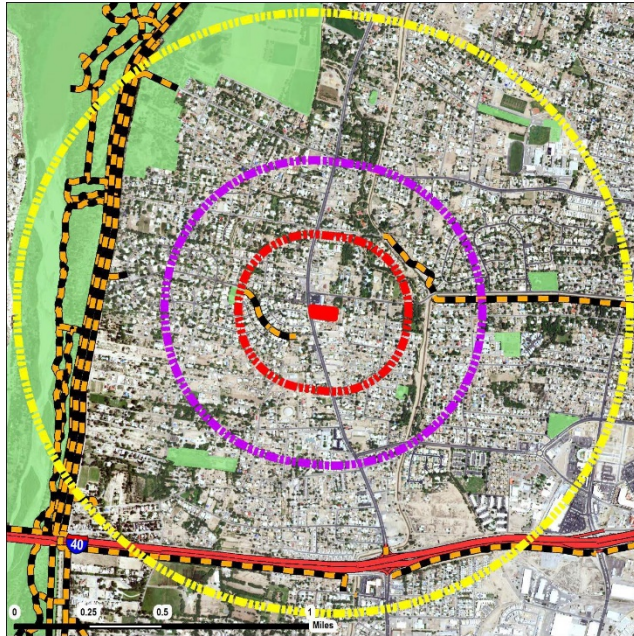
Bofællesskabet Ibsgården – Intergenerational



Bofællesskabet Ibsgården Group Photo. Reprinted from *Bofællesskabet Ibsgården*, n.d. Retrieved February 22, 2021, <http://www.ibsgaarden.dk/> Copyright n.d. by Bofællesskabet Ibsgården. Reprinted with permission.

Appendix 2. Communities' Green Space Summaries

Acequia Jardin Senior Cohousing Community



Vector data: <https://www.cabq.gov/gis/geographic-information-systems-data>

Background aerial photo:

https://gis.apfo.usda.gov/arcgis/services/NAIP/New_Mexico_2016_1m/ImageServer

Acequia Jardin Senior Cohousing Community is an environmentally sustainable cohousing community. It is located in Albuquerque's North Valley. The homes range from 800 to 1200 sq. ft. and are clustered around a courtyard.

The area in Green represents the amount of green space within .25.50 & 1 mile of the community

Distance miles	# of parcels	Area in Sq. ft	Name of community
1	14	12316267.92	Acequia Jardin, Albuquerque, NM
0.5	2	99027.80981	Acequia Jardin, Albuquerque, NM
0.25	1	8436.731638	Acequia Jardin, Albuquerque, NM

Plot area: 1 Acre = 43560 sq. ft

Community Information: <https://acequijardin.com/>

Status: Established (At least 4+ adults, 2+ years)

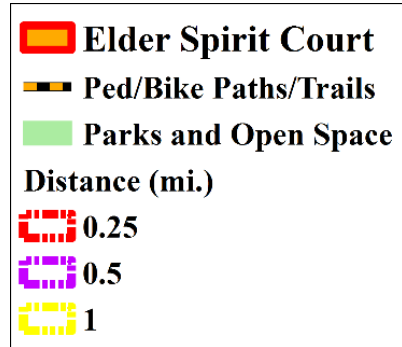
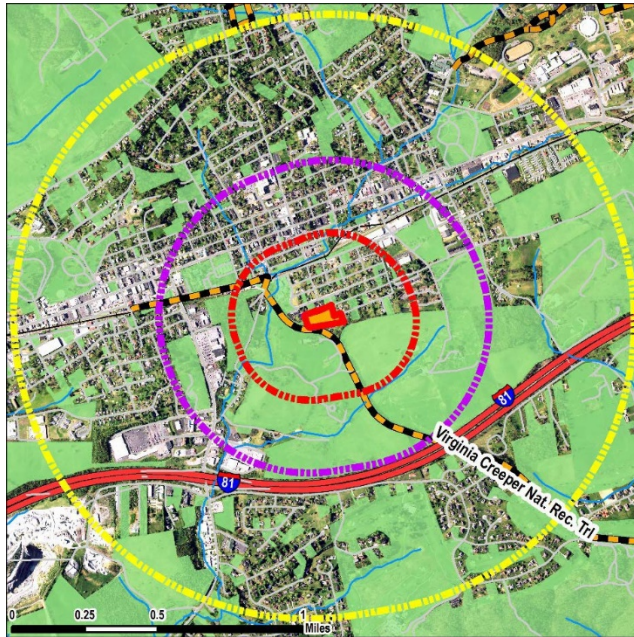
Move-in: 2013

Location: Suburban Land: 1.1 acres

Units: 10

Common House Size: 0

Elder Spirit Court Senior Cohousing Community



Vector data:

<http://washcova.interactivegis.com/>

https://abingdongis.integritygis.com/H5/Index.html?viewer=abingdon_tl_2017_51191_edges.shp

Town of Abingdon Virginia Parks and Playgrounds locations:

https://docs.wixstatic.com/ugd/fcb69f_1b9cd0ba666d45e198a1964625abb187.pdf

Background aerial photo: https://gis.apfo.usda.gov/arcgis/services/NAIP/Virginia_2016_1m/ImageServer

The Elder Spirit Community is located on 3.7 acres in Abingdon, Virginia.

The area in Green represents the amount of green space within .25, .50 & 1 mile of the community

Distance miles	# of parcels	Area in Sq. ft	Name of community
1	418	40067613.71	Elder Spirit, Abingdon, VA
0.5	103	14185258.57	Elder Spirit, Abingdon, VA
0.25	64	4712853.471	Elder Spirit, Abingdon, VA

Plot area: 160235.6522 sq. ft.

Community Information: <http://www.elderspirit.org>

Status: Established (At least 4+ adults, 2+ years)

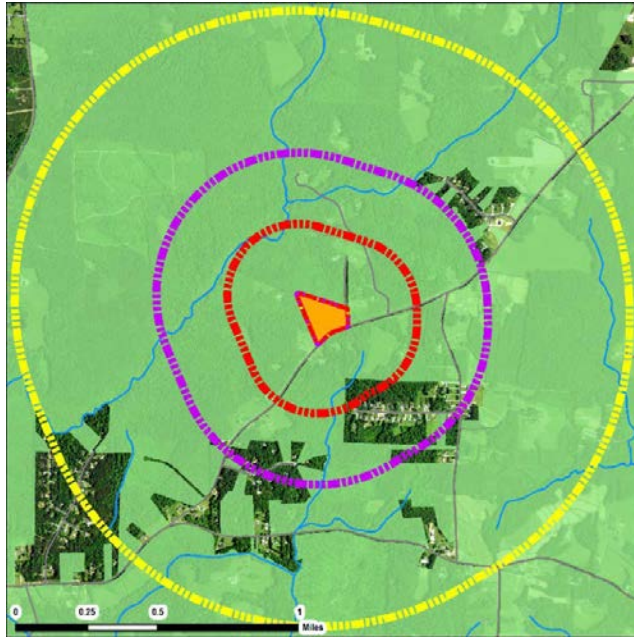
Move-in: 2006

Location: Small Town or Village Land: 3.7 acres

Units: 29

Common House Size: 3300 sq.ft

Elderberry Lane Senior Cohousing Community



Vector data: <http://gis.personcounty.net/arcgis/rest/services>

<http://data.nconemap.gov/downloads/vector/parcels/>

<http://gis-durhamnc.opendata.arcgis.com/>

Raster data: Background aerial photo:

https://gis.apfo.usda.gov/arcgis/services/NAIP/North_Carolina_2016_1m/ImageServer Rougemont, North Carolina

The Elderberry lane Senior Cohousing Community is found on a 10-acre farmstead in Rougemont, North Carolina. The homes are range up to of 1200 square feet. They are duplexes and quadraplexes, to create a sustainable greenspace environment, preserve nature and increase energy efficiency.

The area in Green represents the amount of green space within .25, .50 & 1 mile of the community

Distance miles	# of parcels	Area in Sq. ft.	Name of community
1		91421282.06	Elderberry Lane, Rougemont, NC
0.5		25473431.88	Elderberry Lane, Rougemont, NC
0.25		8633742.231	Elderberry Lane, Rougemont, NC

Plot area: 392697.3654 sq. ft.

Status: Established (At least 4+ adults, 2+ years)

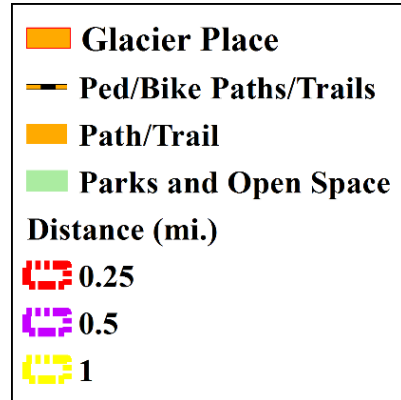
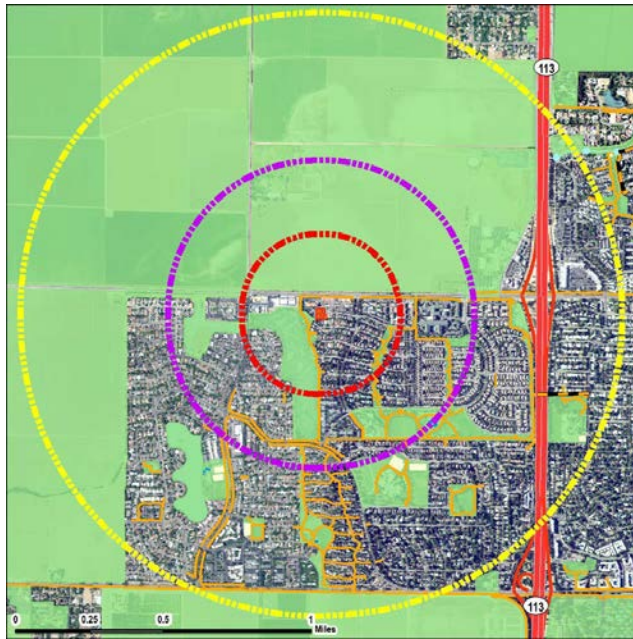
Move-in: 2014

Location: Rural Land: 10 acres

Units: 14

Common House Size: 2800 sq. ft

Glacier Place/Circle Senior Cohousing Community



Vector data: <http://maps.cityofdavis.org/library/>

Background aerial

photo: https://gis.apfo.usda.gov/arcgis/services/NAIP/California_2016_60cm/ImageServer

The Glacier Place /Circle Senior Cohousing Community consists of eight townhouses and a common house with a living room and communal dining area and is located in Davis, California.

The area in Green represents the amount of green space within .25.50 &1 mile of the community

Distance miles	# of parcels	Area in Sq. ft	Name of community
1	51	53450001.6	Glacier Place, Davis, CA
0.5	18	12980994.68	Glacier Place, Davis, CA
0.25	7	3300959.684	Glacier Place, Davis, CA

Plot area: 36009.2926 sq. ft.

Status: Established (At least 4+ adults, 2+ years)

Move-in: 2006

Started Planning: 2002

Start Living Together: 2006

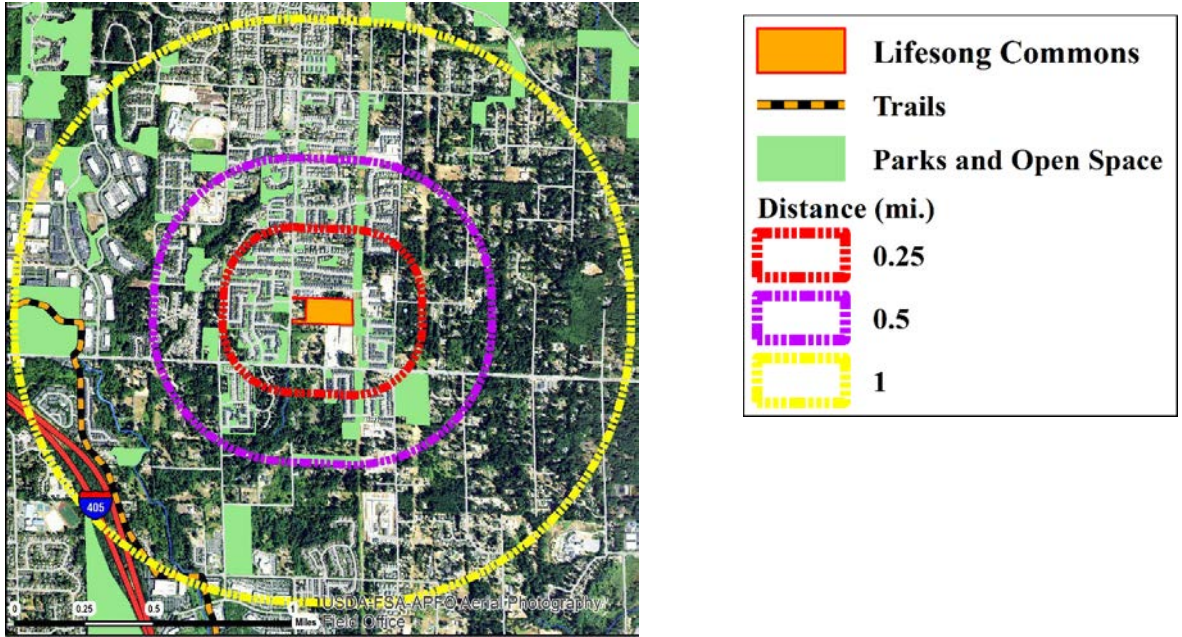
Visitors accepted: Yes

Location: Suburban Land: 2 acres

Units: 8

Common House Size: 1000 sq. ft.

Lifesong Commons Songaia Neighborhood Cohousing Community



Vector data: <http://www5.kingcounty.gov/gisdataportal/https://snohomishcountywa.gov/2027/GIS-Data-Downloads>

Background aerial photo: <https://gis.apfo.usda.gov/arcgis/services/NAIP/Washington/ImageServer>

The Songaia Neighborhood is a multigenerational cohousing community located north of Seattle. It originally consisted of 15-17 homes intentionally surrounded by a small forest, organic gardens, orchards, and a meadow.

The area in Green represents the amount of green space within .25, .50 & 1 mile of the community

Distance miles	# of parcels	Area in Sq. ft	Name of community
1	69	7581306.428	Lifesong Commons, Bothell, WA
0.5	41	3028060.681	Lifesong Commons, Bothell, WA
0.25	23	936094.6998	Lifesong Commons, Bothell, WA

Plot area: 460009.228 sq. ft.

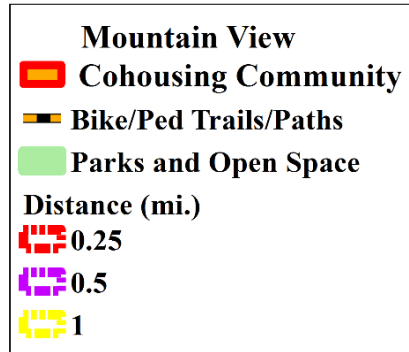
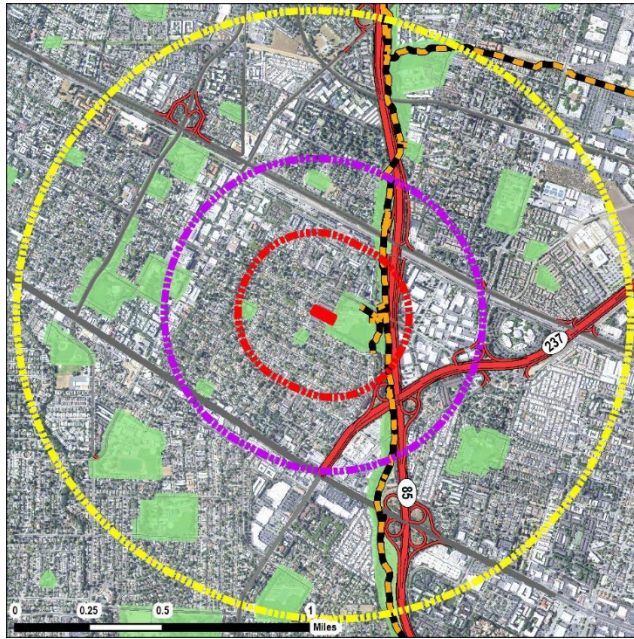
Note this a subset of Songia, the parent community

Suburban Land: 10.6 acres

Units: 15-17

Common House Size: 0

Mountain View Cohousing Community



Vector data:

<http://data-mountainview.opendata.arcgis.com/> background aerial photos:

https://gis.apfo.usda.gov/arcgis/services/NAIP/California_2016_60cm/ImageServer

The Mountain View Cohousing Community consists of 19 units located near Mountain View, California, which is just south of San Francisco and Northwest of San Jose.

The area in Green represents the amount of green space within .25, .50 & 1 mile of the community

Distance miles	# of parcels	Area in Sq. ft	Name of community
1	26	7725524.157	Mountain View Cohousing, Mountain View, CA
0.5	8	1380191.654	Mountain View Cohousing, Mountain View, CA
0.25	4	759737.5682	Mountain View Cohousing, Mountain View, CA

Plot area: 53921.73748 sq. ft.

Community Information: <http://MountainViewCohousing.org>

Status: Established (At least 4+ adults, 2+ years)

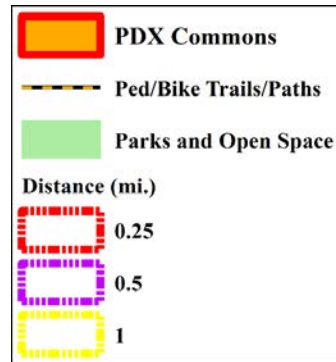
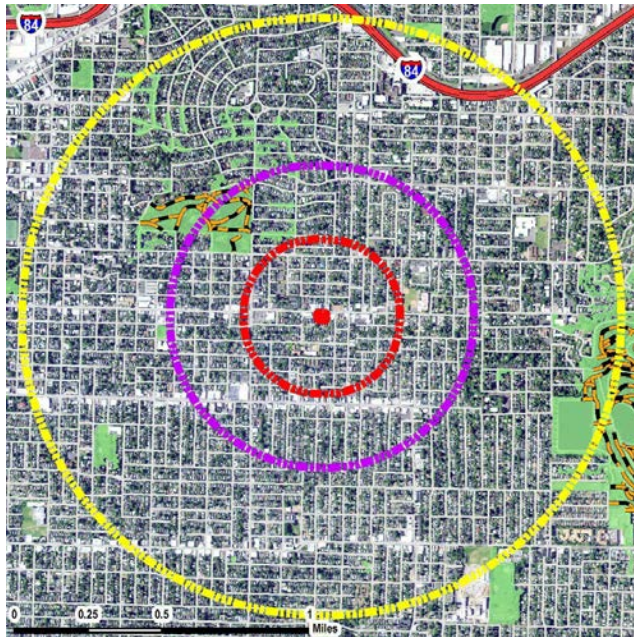
Move-in: 2015

Location: Urban Land: 1.1 acres

Units: 19

Common House Size: 4000 sq. ft.

PDX Commons Portland Oregon



Vector data (parks, open space, bicycle and pedestrian trails): <https://www.portlandoregon.gov/28130>
 Parcel boundaries: (image from this site georeferenced and digitized)
https://www.portlandmaps.com/detail/property/4262-SE-BELMONT-ST/R169544_did/# Background
 Aerial Photo:
https://gis.apfo.usda.gov/arcgis/services/NAIP/Oregon_2016_1m/ImageServer
 4262 SE Belmont --PDX Commons, Portland OR

PDX Commons is an infill urban cohousing condominium consisting of 27 units situated around an enclosed garden courtyard and common house. The 27 units (1, 2 and 3 bedrooms) range in assize from 650-1250 square feet. It is located in Portland, Oregon.

The area in Green represents the amount of green space within .25.50 &1 mile of the community

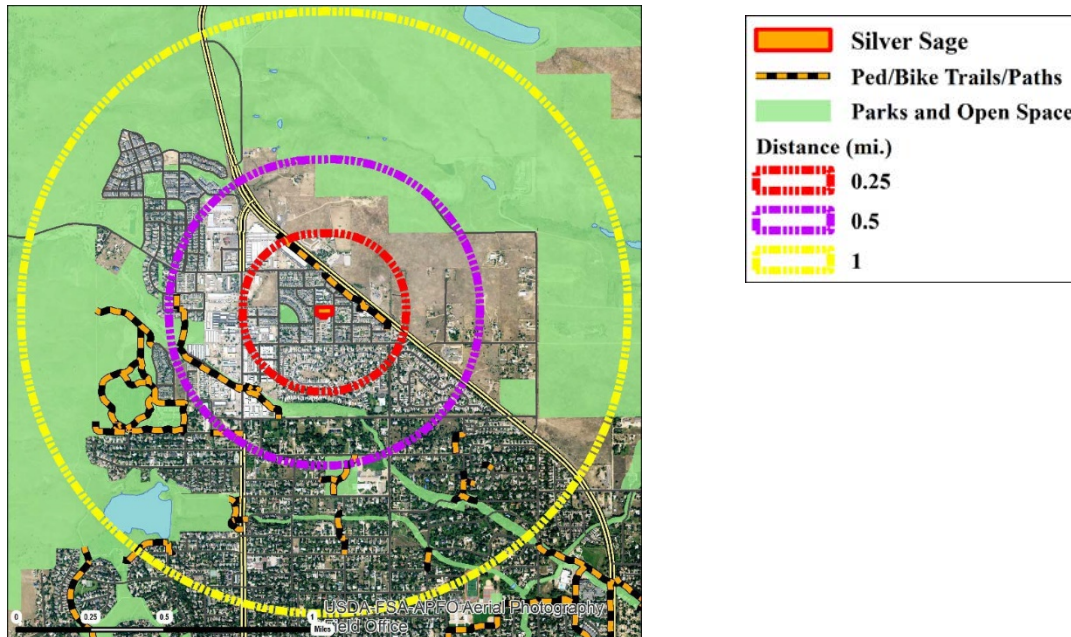
Distance miles	# of parcels	Area in Sq. ft	Name of community
1	61	5209672.454	PDX Commons, Portland, OR
0.5	10	985032.0467	PDX Commons, Portland, OR
0.25	0	0	PDX Commons, Portland, OR

Plot area: 17880.67186 sq. ft.

Community Information: <http://pdxcommons.com>
 Status: Established (At least 4+ adults, 2+ years)
 Move-in: 2017
 Location: Urban Land: 0.4 acres
 Units: 27
 Common House Size: 4995 sq. ft.
 Contact:
 Jim Swenson
 4262 SE Belmont Street, Office Portland, Oregon 97214



Silver Sage Senior Cohousing Community



Vector data: <http://gis-bouldercounty.opendata.arcgis.com/>
<https://www.bouldercounty.org/property-and-land/assessor/data-download/>
 Aerial photo basemap: <https://gis.apfo.usda.gov/arcgis/services/NAIP/Colorado/ImageServer>

Silver Sage Senior Cohousing Community consists of 16 units duplexes and attached homes, a community center, and a large common greenspace. It is located in North Boulder County, Colorado.

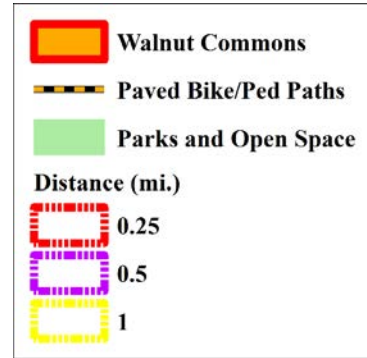
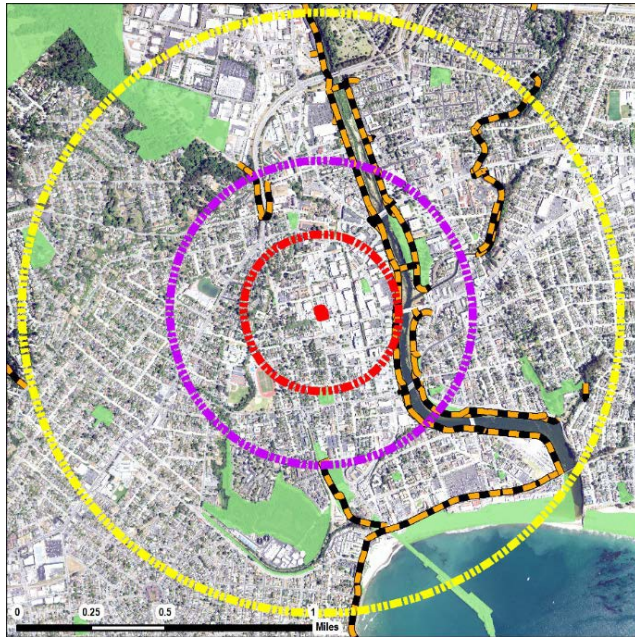
The area in Green represents the amount of green space within .25.50 &1 mile of the community

Distance miles	# of parcels	Area in Sq. ft	Name of community
1	32	43799786.38	Silver Sage, Boulder, CO
0.5	11	2625614.665	Silver Sage, Boulder, CO
0.25	2	76582.1752	Silver Sage, Boulder, CO

Plot area: 39634.14477 sq. ft.

Community Information: <http://www.silversagevillage.com/>
 Status: Established (At least 4+ adults, 2+ years)
 Move-in: 2007
 Location: Urban Land: 1 acre
 Units: 16
 Common House Size: 0

Walnut Commons



Vector data:

<http://datascggis.opendata.arcgis.com/>

<https://data1-cruzgis.opendata.arcgis.com/>

Background aerial photo:

https://gis.apfo.usda.gov/arcgis/services/NAIP/California_2016_60cm/ImageServer

Walnut Commons is intergenerational urban infill cohousing community located in downtown Santa Cruz. It consists of 19 units ranging from 700-1400 sq. ft., each in a 3-story LEED compatible building with underground parking.

The area in Green represents the amount of green space within .25, .50 & 1 mile of the community

Distance miles	# of parcels	Area in Sq. ft	Name of community
1	30	6981668.376	Walnut Commons, Santa Cruz, CA
0.5	16	997625.0807	Walnut Commons, Santa Cruz, CA
0.25	7	64740.48803	Walnut Commons, Santa Cruz, CA

Plot area: 12925.08813 sq. ft.

Community Information: <http://www.walnutcommons.org>

Status: Established (At least 4+ adults, 2+ years)

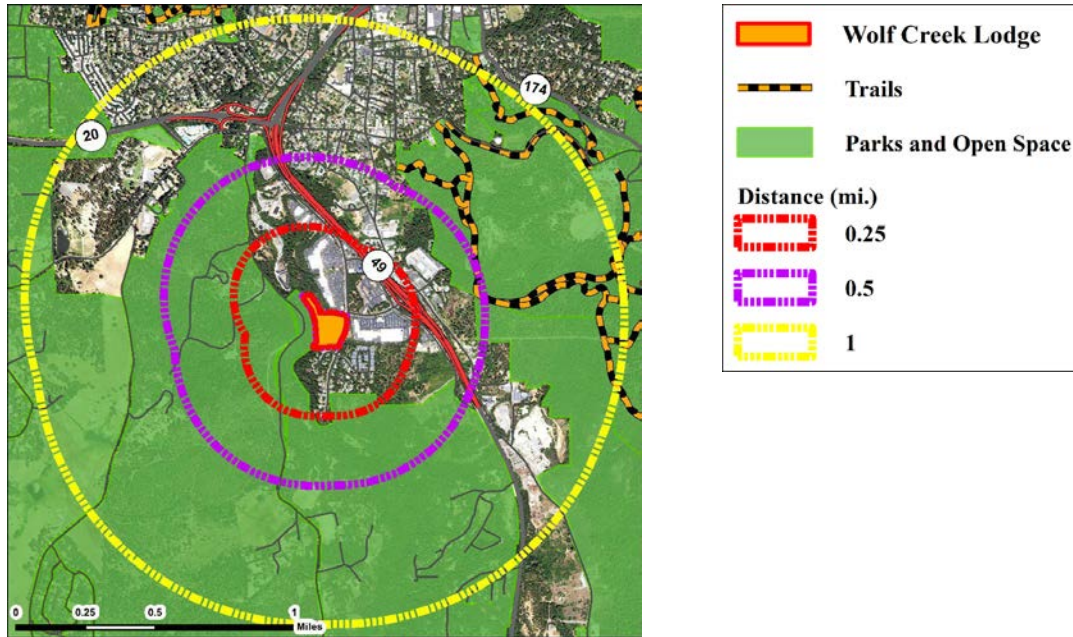
Move-in: 2014

Land: 0.3 acres

Units: 19

Common House Size: 2300 sq. ft.

Wolf Creek Lodge Senior Cohousing Community



Vector data: <http://data-nevcounty.opendata.arcgis.com/>

Raster aerial photo background:

https://gis.apfo.usda.gov/arcgis/services/NAIP/California_2016_60cm/ImageServer

Wolf Creek Lodge Senior Cohousing Community is a community located on approximately 8 acres, consisting of 30 condominium style residences.

The area in Green represents the amount of green space within .25, .50 & 1 mile of the community

Distance miles	# of parcels	Area in Sq. ft	Name of community
1	13	64358920.34	Wolf Creek Lodge, Grass Valley, CA
0.5	6	15216762.58	Wolf Creek Lodge, Grass Valley, CA
0.25	2	3052508.517	Wolf Creek Lodge, Grass Valley, CA

Plot area: 365522.1747 sq. ft.

Community Information: <http://www.wolfcreeklodge.org>

Status: Established (At least 4+ adults, 2+ years)

Move-in: 2012

Location: Suburban Land: 7.9acres

Units: 30

Common House Size: 0

Appendix 3. 2017 Senior Cohousing Survey



Welcome to the 2017 Senior Cohousing Survey!

This survey is part of a research study that aims to describe senior cohousing and identify factors that contribute to residents' satisfaction and well-being. We are inviting all residents of senior cohousing communities in the US to participate. Participation consists of completing this survey, which will take approximately **30 minutes**.

You may elect to be entered in a raffle for a **\$150 gift card** if you **send an email to cohosurvey@gmail.com with "senior coho" in the subject line**. Your email address will not be associated with your survey responses. No other identifying information, such as your name or the Internet Protocol (IP) address of this computer, will be collected, stored, or accessed by the researchers. The anonymous survey data will be retained indefinitely by researchers for future use. The Institutional Review Board at University of Wisconsin at Milwaukee or appropriate federal agencies like the Office for Human Research Protections may review this study's records.

Your participation is voluntary and you may discontinue participation at any time without penalty; however, we encourage you to answer all questions because it will strengthen the results of the study. There are no known risks to your participation. Your participation (or decision to not participate) will have no impact on your relationship with your cohousing community.

This study is **sponsored by Coho/US and Cohousing Research Network (CRN)** and is under the supervision of faculty at the University of Wisconsin-Milwaukee School of Architecture & Urban Planning, with collaborators at University of North Carolina, Wilmington. If you have any questions please contact Angela Sanguinetti, Director of CRN, at angelasanguinetti@gmail.com. If you have any complaints about your treatment or questions about your rights as a participant please contact the

Institutional Review Board (IRB), University of Wisconsin-Milwaukee, (414) 229-3173, P.O. Box 413, Englemann 270, Milwaukee, WI 53201.

You are eligible to participate if you are at least 55 years of age, live in a senior cohousing community, and have not already taken this survey.

- I agree to these conditions and wish to participate
- I do not agree and/or decline to participate

Warm-up questions

What is the name of your senior cohousing community?

- Acequia Jardin
- Elderberry
- ElderSpirit Community at Trailview
- Glacier Circle
- LifeSong Commons
- Mountain View Cohousing
- Oakcreek Community
- Phoenix Commons
- Sand River Cohousing
- Silver Sage Village
- Valverde
- Walnut Commons
- Wolf Creek Lodge
- Other (please specify): _____

How long have you lived here?

What was your housing situation before you moved here?

- Single family house
- Apartment, townhouse, or condo
- Retirement community
- Other (please specify): _____

Did you live alone?

- Yes
- No, lived with family
- No, lived with friends
- Other (please specify) _____

If you had not moved here, where do you think you would be living?

- Would not have moved
- Other (please specify): _____

Did you live in cohousing at any time prior to moving to your current community?

- Yes
- No
- Not cohousing, but another type of intentional community

Moving in to cohousing

Please rate the following factors in influencing your decision to join a cohousing community.

	Not at all important	Slightly important	Moderately important	Very important	Extremely important
Desire for emotionally connected and supportive relationships with neighbors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Desire for practically supportive and helpful relationships with neighbors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Desire to live in a more ecologically sustainable manner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Had positive experience of community living during my childhood	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Had positive experience of community living during my adulthood	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dissatisfaction with traditional nuclear family living models	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Desire to age independently in a home of my own	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

In which, if any, of the following ways did you undergo significant downsizing when moving in to cohousing? (Check all that apply)

- Reduced dwelling size/floor area
- Reduced household chores
- Reduced yard/land area
- Reduced yard maintenance
- Reduced personal belongings
- Reduced housing value or equity
- Reduced cost of living
- None of the above
- Other (please specify): _____

About how many square feet is your individual cohousing unit?

Do you have a private fruit/vegetable garden and/or access to a shared fruit/vegetable garden in your community? (Select all that apply)

- Private garden for my household
- Access to community garden
- No access to garden in community

Satisfaction with community

How has living in cohousing affected your satisfaction with life?

- Strongly positively
- Generally, positively
- Somewhat more positively than negatively
- Somewhat more negatively than positively
- Generally, negatively
- Strongly negatively

Overall, how satisfied are you with your cohousing community?

- Very dissatisfied
- Somewhat dissatisfied
- Somewhat satisfied
- Very satisfied

How satisfied are you with each of the following aspects of your cohousing community?

	Very dissatisfied	Somewhat dissatisfied	Reasonably satisfied	Considerably satisfied	Extremely satisfied
Monetary cost	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Placement of dwellings and common spaces	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The help residents give each other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The work residents do for the community	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Opportunities for social relationships	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Opportunities to live a sustainable life	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Geographic location	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sharing of goods and services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

To what degree have the following factors affected (positively or negatively) your feelings about cohousing?

	Has a minimal effect	Has a moderate effect	Has a very high effect
Monetary cost	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Placement of dwellings and common spaces	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The help residents give each other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The work residents do for the community	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Opportunities for social relationships	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Opportunities to live a sustainable life	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Geographic location	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sharing of goods and services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Is the amount of daily informal social interaction in your community sufficient for you?

- Should be less
- About right
- Should be more

How do you think the amount of mutual support in your cohousing community compares to what would be available in these other housing situations?

	More in cohousing	About the same	Less in cohousing
Where you used to live?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Where you would probably be living if not here?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please describe how cohousing has impacted your household's cost of living, including any examples of situations where living in cohousing saved you money or incurred unexpected costs.

Please think about your cohousing community when rating the following statements:

	Strongly disagree	Mildly disagree	Neutral	Mildly agree	Strongly agree
The physical appearance of my community fits well with who I am as an individual.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I live in my community, but feel like my roots are elsewhere.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My community is home to me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel safe here.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
There is a strong community spirit here.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When talking to others about my community I feel proud.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am attached to my community.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would be sorry to move, even if those people closest to me moved with me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please think about your cohousing community when rating the following statements:

	Strongly disagree	Mildly disagree	Neutral	Mildly agree	Strongly agree
If challenges arise for the group as a whole, we are able to actively respond to those challenges.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Our group is able to obtain what it needs to thrive.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Our group bounces back from even the most difficult setbacks.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Our group is able to achieve things.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Our group is adaptable.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

To what degree do the following aspects of life in cohousing cause you stress?

	Not at all		A little bit		A lot	
Community meals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Community governance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Social events	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

What do you like best about living in your community?

What do you like least about living in your community?

Daily life in cohousing

Please describe your participation in the following activities at your cohousing community.

	More than once a week	About once a week	About once a month	Less than once a month	It occurs but I never participate	Does not occur in my community
Community meals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Smaller dinner groups	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Community meetings	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Smaller management team meetings	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Community work days	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Routine building maintenance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Construction projects	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Routine grounds maintenance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Landscaping projects	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Gardening, farming or animals husbandry	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Physical, spiritual or mental wellness groups	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Movie or game nights, talent shows	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Live music, other art shows or performances	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Literature, arts or crafts clubs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other special interest groups	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Parties, holiday celebrations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other community traditions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Babysitting, childcare exchange or cooperative	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Carpooling	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Care and support of elderly neighbors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Care and support of sick or injured neighbors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Support of new parents	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Exchange or donation of services (home/car/bike repair, computer support, pet/plant care, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Materials exchange, gifting or sharing (tools, clothes, housewares, vehicles, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Voluntary financial aid or assistance between neighbors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Skill sharing or training among neighbors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Events that benefit the larger community (fundraising, educational, entertainment, political)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Informal, spontaneous social interactions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Informal, spontaneous interaction with or enjoyment of the green spaces or animals in the community	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please indicate the major reason why you participate in the following activities.

	I enjoy it	It benefits the community	It is expected of community members	It is required of community members	I don't participate in this activity
Community meals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Community meetings	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Smaller management team meetings	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Community work days	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Gardening, farming or animal husbandry	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Routine building maintenance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Construction projects	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Routine grounds maintenance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Landscaping projects	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Physical, spiritual or mental wellness groups	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Parties and holiday celebrations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other community traditions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Exchange or donations of services

How (if at all) has your participation in the following changed since you moved in to cohousing?

	Increased a lot	Increased somewhat	No change	Decreased somewhat	Decreased a lot
Talking about politics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Writing to members of Congress	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Making financial contributions to campaigns	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Campaigning door to door	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Voting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Physical well-being

The following questions pertain to your physical health. We are collecting this information to better understand the complex relationships between health and life in community. As with all the survey questions, your responses are anonymous and confidential.

What is your weight?

What is your height?

Do you consider yourself overweight, a little overweight, about right, or underweight?

- Underweight
- About right
- A little overweight
- Overweight

What is your waist circumference (in inches)?

Do you follow a special diet?

- Yes
- No

Which of the following best describes your diet?

- Normal
- Low sodium
- Low fat
- Mediterranean
- Vegetarian
- Vegan
- Other _____

How would you rate your general physical health compared to that of others of your own age?

- Much better
- Slightly better
- About the same
- Slightly worse
- Much worse

Which best describes your blood pressure?

- Slightly low
- Healthy
- Slightly high
- High, requiring medication

On how many of the past 7 days did you engage in vigorous physical activity?

(Vigorous physical activities cause you to breathe hard and your heart rate to increase. Examples include jogging, swimming, tennis, aerobic dancing, or bicycling.)

0	1	2	3	4	5	6	7
---	---	---	---	---	---	---	---

Do you visit a physician for an annual wellness visit?

- No
- Yes

Do you suffer from any chronic disease or disability? If "yes", please briefly describe.

(According to U.S. National Center for Health Statistics, chronic diseases last longer than 3 months and generally cannot be prevented by vaccines or cured by medication, nor do they just disappear.)

- No
- Yes _____

Do you have any memory problems that affect your ability to function on a daily basis? If "yes", please briefly describe.

- No
- Yes _____

Do you discuss your health problems (chronic or acute) with any members of your cohousing community?

- No
- Yes

Approximately what is the annual out-of-pocket cost for your health care (including deductibles, co-pay, and prescriptions)?

Psychological well-being

The following questions pertain to your psychological health. We are collecting this information to better understand the complex relationships between health and life in community. As with all the survey questions, your responses are anonymous and confidential.

The following is a list of values that some people want out of life. Please rate the importance of each in your daily life, where 1 = very unimportant and 7 = very important.

	Very unimportant	2	3	4	5	6	Very important
Sense of belonging	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Warm relationships with others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Self-fulfillment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Being well-respected	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fun and enjoyment of life	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Excitement	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Security	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Self-respect	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A sense of accomplishment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please indicate where you generally place yourself on a continuum of introversion to extroversion. Introversion means you generally feel more energized by solitude or solitary pursuits. Extroversion means you generally feel more energized by social activity and being with others.

Introvert

Extrovert

1 2 3 4 5 6 6 7 8 9 10



How would you rate your general mental health status?

- Very good
- Good
- Neither good nor poor
- Poor
- Very poor

To what degree do the following aspects of life cause you stress?

	Not at all		A little bit		A lot	
Work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Family or significant relationship	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Social	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Finances	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Health	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

With which of the following role(s) do you identify? (Check all that apply)

- Friend
- Caregiver for child
- Parent
- Employer
- Employee
- Volunteer
- Caregiver for adult
- Neighbor
- Other _____

In answering the following questions, please think about your current relationships with friends, family members, co-workers, community members, and so on. Please indicate whether you strongly agree, agree, disagree or strongly disagree with the following statements:

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
There are people I can depend on to help me if I really need it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel that I do not have close personal relationships with other people.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
There is no one I can turn to for guidance in times of stress.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
There are people who depend on me for help.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
There are people who enjoy the same social activities I do.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other people do not view me as competent.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel personally responsible for the well-being of another person.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel part of a group of people who share my attitudes and beliefs.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I do not think other people respect my skills and abilities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If something went wrong, no one would come to my assistance.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have close personal relationships that provide me with a sense of emotional security and well-being.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

There is someone I can talk to about important decisions in my life.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have relationships where my competence and skill are recognized.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
There is no one who shares my interests and concerns.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
There is no one who really relies on me for their well-being.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
There is a trustworthy person I could turn to for advice if I were having problems.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel a strong emotional bond with at least one other person.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
There is no one I can depend on for aid if I really need it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
There is no one I feel comfortable talking about problems with.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
There are people who admire my talents and abilities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I lack a feeling of intimacy with another person.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
There is no one who likes to do the things I do.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
There are people I can count on in an emergency.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

No one needs me to care for them.

Please rate each of these statements in terms of the way you generally feel.

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I often feel a sense of oneness with the natural world around me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I think of the natural world as a community to which I belong.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I recognize and appreciate the intelligence of other living organisms.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I often feel disconnected from nature.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My personal welfare is independent of the welfare of the natural world.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Aging in cohousing

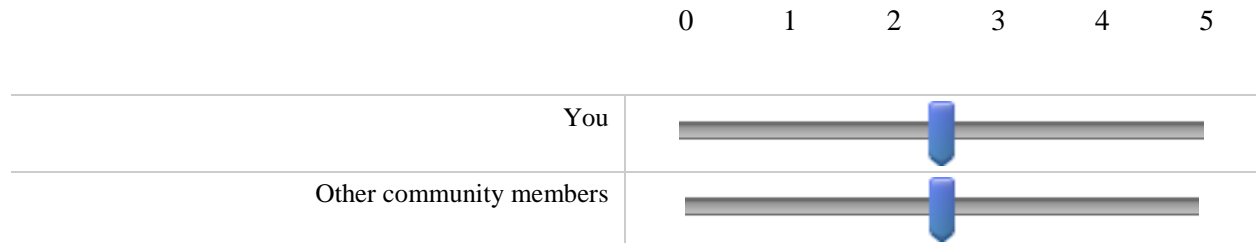
How would you describe your community's approach to aging?

	Strongly disagree	Somewhat disagree	Somewhat agree	Strongly agree
Lots of people who live here are in the same situation that I am.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel like I am mostly dealing with my aging alone.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
We do not deny the realities of aging here.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel like learning to age well together is a goal here.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
We have forums and other planned opportunities to talk about aging concerns and issues.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have a neighbor who I can count on as my care coordinator or "buddy" to help me if I need it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

If your community is discussing aging related issues, what resources have you used? (Select all that apply)

- Study guides
- Books/publications
- Consultants
- Organizations
- Speakers/media presentations
- Aging is not being discussed
- Aging is being discussed but I am not involved
- Name any specific resources if you wish or others not listed above:

On a scale of 1-5, where 1 = "not interested and 5 = "open, very interested", how would you describe **your own** willingness to discuss issues related to aging and the willingness of **other community members**?



Aging in place means living where you want to live for as long as possible. To what degree are the following factors limiting or supportive of your ability to age in place at your cohousing community?

	Very supportive	Somewhat supportive	No impact	Somewhat limiting	Very limiting
Physical distance from services and amenities outside the cohousing community	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Physical layout of the cohousing community	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Amenities and services within the cohousing community	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Physical layout of my unit	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Square footage of my unit	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Social relationships with cohousing community members	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Distance from relations outside the cohousing community	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Has your community engaged in any of the following to support a resident aging in place? (Check all that apply)

- Unit swaps to accommodate residents' changing needs (please describe):

- Modification of existing units or addition of units to meet residents' changing needs (please describe):

- Policy changes (please describe): _____
- None of the above

If older adult community members have needed care, how has the community learned about the need? (Select all that apply)

- The member or someone in their household informed the community
- A care team or residents' committee keeps track of members' health and needs
- A community member reached out to the member or someone in their household
- An outside family member or friend informed the community
- Other (please specify): _____

How has the community responded to older adult members' care needs? (Select all that apply)

- Individual members provided care based on existing personal relationships
- The community had a committee organize community volunteers
- Each member has chosen a neighbor to organize community volunteers to help if needed
- The community arranged for professional caregivers
- Outside family members and/or friends helped with care or care arrangements
- Other (please specify): _____

If the community cannot/did not provide necessary support, either based on the level or possible duration of need, how has this been determined and communicated? (Select all that apply)

- A community policy addresses this
- No community policy exists; care needs are addressed on a case-by-case basis
- A care committee/representative meets with the member households to discuss
- The community does not get involved in care issues
- Other (please specify): _____

If a member moves out to receive more care, temporarily or permanently, how has the community managed the transition? (Select all that apply)

- The community was informed about the change by community representatives
- There was no formal communication about it; only word-of-mouth
- There was some community recognition of the changes (group event or gathering)
- The transition was purposely kept quiet
- The community continued to support the member by visiting regularly
- The transition led to discussions about care support in the future
- The transition led to development of a community event or ritual
- Other (please specify): _____

Please describe anything else the community is doing to help older adult members to age in place.

Please describe anything else you think the community should be doing to help older adult members age in place.

How has living in your cohousing community affected your quality of life during your aging experience?

How does your experience of growing older in your community compare to your experience where you used to live?

If you would like, please share any other thoughts you have on aging in your community.

Demographics

Almost done! These final questions are demographic and personal. They will help us describe who is living in senior cohousing.

What is your age?

What is your sex?

- Male
- Female
- Not that simple

With which category do you most identify?

- Hispanic, Latino or Spanish origin
- Not Hispanic, Latino, or Spanish origin

With which category do you most identify?

- White
- Black or African American
- Asian
- Native Hawaiian or other, Pacific Islander
- From multiple races

What is your sexual orientation?

- Heterosexual
- Homosexual
- Bisexual
- Other

Are you now married, widowed, divorced, separated, or never married?

- Never married
- Married
- Separated
- Divorced
- Widowed
- In a long term committed partnership, but not married.

How many children do you have?

0	1	2	3	4	5	More than 5
---	---	---	---	---	---	-------------

Do you have a pet? (Check all that apply)

- No
- Cat(s)
- Dog(s)
- Other (please specify): _____

How many people live in your unit (only including people who regularly stay there, not visitors or less than half time residents or occasional guests)?

- 1 (just you)
- 2
- 3
- 4
- 5
- More than 5 (please explain): _____

What is the highest level of schooling that you have completed?

- Less than a high school degree
- High school degree or equivalent
- Some college, but no degree
- Associate's degree
- Bachelor's degree
- Some graduate work but no degree
- Master's degree
- Doctoral degree

Which of the following categories best describes your employment situation?

- Employed, working 1-20 hours per week
- Employed, working 21-39 hours per week
- Employed, working 40 or more hours per week
- Primary work is home-making or caring for family members
- Full time student, including employment as part of a graduate program
- Not employed, looking for work
- Not employed, NOT looking for work
- Not employed, but have a regular volunteer position
- Retired
- Retired, but have a regular volunteer position
- Disabled, not able to work
- Disabled, but have a regular volunteer position

Do you currently have a valid driver's license?

- Yes
- No

How many vehicles are owned or leased by members of your household?

- 0
- 1
- 2
- 3
- 4
- More than 4 (please specify): _____

Which of the following religions best describes your religious beliefs?

- Aboriginal
- Agnosticism
- Atheism
- Baha'i
- Buddhism
- Catholicism
- Ceremonial magic (Kabbala, OTO, etc.)
- Confucianism
- Discordian
- Druidry/Faerie/Old Gods
- Goddess Worship
- Hainism
- Hedonism
- Hinduism
- Islam
- Jehovah's witness
- Judaism
- Mormon
- Muslim
- Native Spirituality

- New Age Spirituality
- Orthodox Christianity
- Other Christianity
- Protestantism
- Quakerism
- Santeria
- Satanism
- Scientology
- Shinto
- Sikhism
- Taoism
- Unitarian-Universalist
- Universal Life Church
- Wicca/Witchcraft
- Zen
- Zoroastrianism
- Other

Aside from weddings and funerals, how often do you attend religious services?

- More than once a week
- Once a week
- Once or twice a month
- A few times a year
- Seldom
- Never

Generally speaking, do you consider yourself a Republican, Democrat, Independent, or something else?

- Republican
- Democrat
- Independent
- Other (please specify): _____

What was the approximate PRE-TAX combined income of your HOUSEHOLD (all members 18 and older) in 2016? This includes money from jobs; net income from business, farms, or rent; pensions; dividends; interest; social security payments; and any other money income.

- Less than \$20,000
- \$20,000 to \$34,999
- \$35,000 to \$49,999
- \$50,000 to \$74,999
- \$75,000 to \$99,999
- \$100,000 to \$149,999
- \$150,000 to \$249,999
- \$250,000 to \$349,999
- \$350,000 and more

What is the approximate net value of your HOUSEHOLD'S total assets (including the house/after deducting the mortgage)?

- Less than \$0
- \$0 to \$9,999
- \$10,000 to \$24,999
- \$25,000 to \$49,999
- \$50,000 to \$99,999
- \$100,000 to \$249,999
- \$250,000 to \$499,999
- \$500,000 to \$999,999
- \$1,000,000 to \$2,499,999
- \$2,500,000 or more

Thank you so much for your participation. Your responses will contribute to a better and broader understanding of cohousing. Remember to send an email to cohosurvey@gmail.com with "senior coho" in the subject line to enter a raffle for \$150.

Please share with us any additional insights you have about senior cohousing or special circumstances that may have affected your survey responses.

CURRICULUM VITAE
MICHAEL D. MANDELMAN

School of Architecture
University of Wisconsin–Milwaukee
Milwaukee, WI 53211

RESEARCH INTERESTS

Environmental design research, building technologies, architectural design, and the integration of telemedicine in design.

EDUCATION

- 2021 Ph.D., Architecture - University of Wisconsin-Milwaukee School of Architecture, Milwaukee, WI
Dissertation: *Senior Cohousing: The Social Architecture of Cohousing, Community Design & Well-Being*
- 2012 M.ARCH., Architecture - SARUP-UWM, Milwaukee, Wisconsin
- 1995 L.L.M. - Kent College of Law, Chicago, IL
- 1980 M.B.A., Business Administration - University of Chicago, Chicago, IL
- 1979 Juris Doctor - Marquette, Milwaukee, WI
- 1975 B.B.A. - University of Wisconsin-Milwaukee, Milwaukee, WI

ACADEMIC POSITIONS

2018 - Present **Adjunct Professor** - Department of Architecture, University of Wisconsin-Milwaukee

TEACHING EXPERIENCE

2018 - Present **Adjunct Professor** - Department of Architecture, University of Wisconsin-Milwaukee

COURSES TAUGHT

Undergraduate

ARCH 190 Organic Architecture Introduction to Architectural Design

SERVICE

University / Departmental service (University of Wisconsin-Milwaukee)

2018 - Present PhD Committee Member - Department of Architecture

PROFESSIONAL EXPERIENCE ARCHITECTURE

School of Architecture and Urban Planning(SARUP)-University of Wisconsin-Milwaukee(UWM) (2018-present)

Adjunct professor teaching students ARCH 190 Organic Architecture. Course prepares students with drawing, analytical and CAD skills(REVIT) necessary as the students' progress through the undergraduate program.

School of Architecture and Urban Planning(SARUP)-University of Wisconsin-Milwaukee(UWM) (5/11-present)

IT technology specialist provide support to professors, staff and students for all CAD, graphics software and Office 365 environment. Troubleshoot technical issues in graphics and document development.

ARC Architectural Group LLC, Racine, WI (2015- 2018)

Worked in collaboration with principal architect and designers to fulfill architectural tasks. Create conceptual designs, renderings and construction documents, create preliminary cost estimates, develop complete project manuals, help organize, attend client meetings and plan reviews.

CERTIFICATIONS

Construction Document Technologist(CDT), Construction Specifications Institute

LICENSURE

Architect Licensure Progress

Architects Record Exam (ARE 5.0) In process 2355/3740 required hours approved

PROFICIENCIES

REVIT, AutoCAD, Architectural Design, Specification Analysis, CSI Master Format, Code Compliance and Analysis, Lumion Rendering Software, Project Manuals, Adobe Photoshop, InDesign, Microsoft Office Suite, Excel,