CULTIVATING SMALL-SCALE COMMUNITY THROUGH DESIGN: DEVELOPING GUIDELINES TO PROMOTE SOCIAL INTERACTION IN COTTAGE CLUSTERS

by

OLIVER PENNY

(Under the Direction of Ron Sawhill)

ABSTRACT

The rising rates of loneliness and isolation in the developed world appear to be creating a growing public health problem. One way to combat this issue is to strengthen social ties among neighbors. To further this end, this thesis explores the potential of a certain type of small-scale residential development to increase social interaction among neighbors. Specifically, it attempts to identify the outdoor design elements that have the greatest effect on promoting social interaction among residents within cottage clusters. As a concurrent goal, this thesis develops useful guidelines to promote social interaction in such developments. To establish useful guidelines, case studies are conducted on existing developments in the southeastern United States that share cottage cluster features. In addition to an interdisciplinary literature review, interviews with designers, planners, and real estate professionals help further refine the guidelines. The guidelines are subsequently tested on a cottage cluster under development in Athens, Georgia.

INDEX WORDS: Landscape Architecture, Social Interaction, Neighborhood Design, Environment and Behavior, Social Groups, Psychology, Community Design

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DEDICATION

To my parents, Bill and Lindy Penny, thank you for all your support in helping me further my education over the past few years.

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This thesis journey would not have gone far without the aid of a few friendly allies along the way. First, I would like to thank Ron Sawhill for his steady guidance and encouragement throughout the process. Also, I would like to thank Brian Orland, Bob Smith, and Jack Crowley for contributing their time and expertise.

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CHAPTER 1

INTRODUCTION

Purpose of Research and Significance

This thesis is primarily concerned with establishing useful guidelines that help promote social interaction among neighbors situated within a certain type of residential development. The development type in question is called a pocket neighborhood. Ross Chapin, the architect who coined the term pocket neighborhood, defines pocket neighborhoods as a cohesive cluster of attached or detached houses gathered around a shared open space, which may be a lawn, plaza, pedestrian street, or the open space formed by unfenced yards in a standard subdivision. What all these spaces have in common is a clear sense of territoriality and stewardship that is shared among the surrounding residents (Chapin 2019). Within the broader pocket neighborhood category, this thesis will focus on a specific subset of pocket neighborhoods known as a cottage cluster, which can be defined as "four to fourteen detached homes situated around a shared open space" (Kovacs and Spevak 2016). The relatively small number of houses sharing the common space has been described by Chapin—who has developed numerous cottage clusters—as providing the optimum scale for fostering sociability among neighbors (Chapin 2019).

Not only do these cottage clusters have the potential to improve neighborly ties, they can also help address larger societal issues, such as those related to climate change.

The need to develop mitigation efforts in response to climate change requires adopting development practices that reduce the negative environmental effects associated with suburban sprawl. Some experts in urban planning believe an increase in housing density is one way to meet this objective (Speck 2018, 7).

To make denser residential developments more attractive than the typical suburban development, the quality of life needs to be improved in these spaces, to off-set the perceived privacy advantages of more dispersed living. In addition to the health benefits related to improved walkability, denser residential environments have a greater potential for strengthening community ties compared to the typical single-family subdivision (Francis 2003). Strengthening ties between neighbors can lead to increased community resiliency through the establishment of a strong support network among neighbors, which will become increasingly important as our society is expected to continue to face more extreme environmental shocks and upheavals related to climate change. Fostering strong neighborhood ties may also help communities respond to potential catastrophes such as wildfires, floods or pandemics.

Strengthening community ties through residential design also addresses the growing public health crisis related to increasing levels of social isolation in the developed world. Substantial evidence now shows that social isolation and loneliness are associated with an increased risk for mortality across all causes (Leigh-Hunt et al. 2017). Indeed, a 2010 metanalysis of multiple studies involving more than 300,000 participants in total found that the mortality risks related to loneliness are comparable with other well-established risk factors, such as smoking, alcohol consumption, and obesity (Holt-Lunstad, Smith and Layton 2010).

Rates of loneliness appear to be rising across the United States. According to a 2019 survey conducted by Cigna Insurance, 61% of those surveyed reported significant levels of loneliness and social isolation, which represented a seven percent increase over the 2018 survey results (Cigna 2020). This trend of increasing rates of loneliness coincides with the rise of single-person households in the developed world. In the United States, the proportion of one-person households has more than doubled since the 1960s (Joseph 2017). The rise in living alone appears to be especially pronounced among senior Americans, among whom approximately one-third of people over sixty-five and one-half of those over eighty-five now live alone (Hafner 2016).

Cottage clusters could potentially address the growing loneliness crisis by offering a viable alternative to the typical single-family detached home. As an added benefit, this sort of development does not require a drastic change in living standards, since they are typically situated within a traditional neighborhood and are often used as an infill option to increase density within a traditional neighborhood composed of single-family homes. Each cluster usually includes communal features, such as a common house, to further enhance sociability among the residents. Clustered housing retains many of the perks of single-family housing, such as high levels of privacy, without the potential drawbacks of single-family residential neighborhoods, such as the lack of a sense of community among neighbors (Chapin 2011; Chapin 2019).

A cottage cluster can also offer a host of environmental and economic benefits over the conventional, large-lot subdivision. A previous study has suggested that a well-designed cluster plan is environmentally superior to a conventional subdivision plan. The research found that out of three residential design types, only a clustered housing plan

offered significant improvements in air, water, and forest quality compared to a New Urbanist development and a traditional suburban development. (Jarvis 1993; Girling et al. 2000). Increasing density in suburban neighborhoods also helps address the economic issues tied to unchecked suburban sprawl. A growing number of cities appear to be heading toward insolvency as a result of being unable to pay for the future maintenance costs associated with expanding infrastructure to the suburban developments located at their periphery (Marohn 2019).

As a final benefit worth noting, cottage clusters potentially address a strong, untapped demand in the market for affordable housing in a walkable neighborhood. These developments can be appealing across a wide demographic spectrum, from students and young professionals to Baby Boomers who no longer wish to deal with the upkeep of a traditional single-family home. Further adding to their relevance for study, there is currently one cottage cluster planned for development in the city of Athens, Georgia (Tingle 2019).

Research Question

This thesis explores the potential for cottage clusters to provide the conditions to increase sociability among neighbors. Specifically, it attempts to identify the outdoor design elements that have the greatest effect on promoting social interaction among residents within the cottage cluster. Furthermore, it will use these identified elements to establish a useful set of guidelines to inform the design of future cottage clusters. Framing the research objectives as a set of questions yields the following list:

1. Which outdoor design elements have the greatest effect on promoting social interaction within a cottage cluster?

2. Can useful guidelines be developed to promote social interaction in cottage clusters?

In studying the promotion of social interaction, the research does not intend to focus solely on increasing social interaction within the development, as there is bound to be a natural limit to social interactions within a neighborhood setting; rather, this research is more concerned with discovering the favorable conditions that appear to strike an optimal balance between the desire for privacy and the need for community. Establishing the right balance between privacy and community should lead to an optimal level of social interactions that is sustainable over the long term.

The purpose of this research is not to collect substantial new data related to cottage clusters but rather to synthesize and make more readily available existing research in a useful and accessible format. As a related goal, this research is focused on creating useful guidelines that can inform future designs of cottage clusters and other developments with similar characteristics in the United States. The utility of these guidelines will be tested through a design application on a real cottage cluster development, which will be discussed in Chapter 5.

Limitations

The primary limitation relates to the novelty of cottage cluster developments in the Southeastern region of the United States. Most of the current built examples appear to be concentrated on the west coast of the United States. Likewise, the oldest examples appear to be located on the west coast. Indeed, many of these developments have multiple decades of resident occupancy and thus could provide a rich source of data for research.

However, owing to the expense of travel, the researcher was unable to visit these west coast developments.

Another limitation is the lack of published research on social interaction and its benefits for residents of cottage clusters. The researcher primarily drew on research covering similar types of developments when forming the design guidelines. The formal research conducted on similar developments, such as cohousing communities, helped inform the present guidelines. However, further research is needed to determine the degree to which the research findings from these other developments apply to the cottage clusters described in this thesis.

Delimitations

This thesis focuses only on cottage clusters of approximately one-half to one acre in size. Cottage clusters of this size can be combined to form larger developments, but this thesis only considers an individual, stand-alone cottage cluster that comprises approximately four to twelve housing units.

Furthermore, this research only considers cottage clusters that increase density within the context of a surrounding suburban neighborhood with a lower density of residential homes. Although cottage clusters can be found in a wide range of residential environments—including urban, suburban, or rural areas—this thesis will focus exclusively on those found in a suburban or small-town neighborhood. Moreover, the focus of the present work is on cottage clusters that serve as infill development in established neighborhood areas, where preserving the existing character of the

community is a priority. This type of infill development can take the form of construction on vacant lots in addition to the redevelopment of pre-existing buildings.

Methodology and Thesis Framework

This thesis uses multiple research strategies for developing design guidelines to promote social interaction within a cottage cluster. The thesis primarily relies on an extensive, interdisciplinary literature review, which is bolstered by case studies and interviews with local experts in the fields of design, urban planning, real estate development, and construction.

The investigation begins in Chapter 2 with a brief history of the origins of pocket neighborhoods in the United States. Chapter 3 utilizes case studies and interviews as research methods to gain a better understanding of contemporary pocket neighborhoods within the state of Georgia. Three local pocket neighborhoods were identified, and key professionals involved in the planning and design of each development were interviewed to gain a better understanding of the outdoor design elements that affect social interaction within the spaces. At the end of each case study, a visual matrix will clearly identify the major outdoor design elements on each site that affect social interaction.

Chapter 4 uses the findings from Chapters 2 and 3 along with additional guidance from the scholarly literature to propose design guidelines that have the greatest effect on promoting social interaction within a cottage cluster. The design guidelines are ordered roughly by scale, from largest to smallest. In addition, each design guideline contains a written rationale that references supporting research. The guidelines are not an exhaustive

list but, rather, include only those items that appear to have the greatest potential for promoting social interaction.

Chapter 5 tests the guidelines developed from the previous chapter by incorporating them into three viable designs that are applied to a local site. The design principles also have the potential for broad application across a diverse range of sites. Chapter 6 concludes the thesis with an assessment of the proposed designs' success in meeting the established guidelines. It also highlights the implications and relevance of the research while identifying avenues for further research.

CHAPTER 2

HISTORICAL CONTEXT OF POCKET NEIGHBORHOODS IN THE UNITED STATES

The Garden City Movement

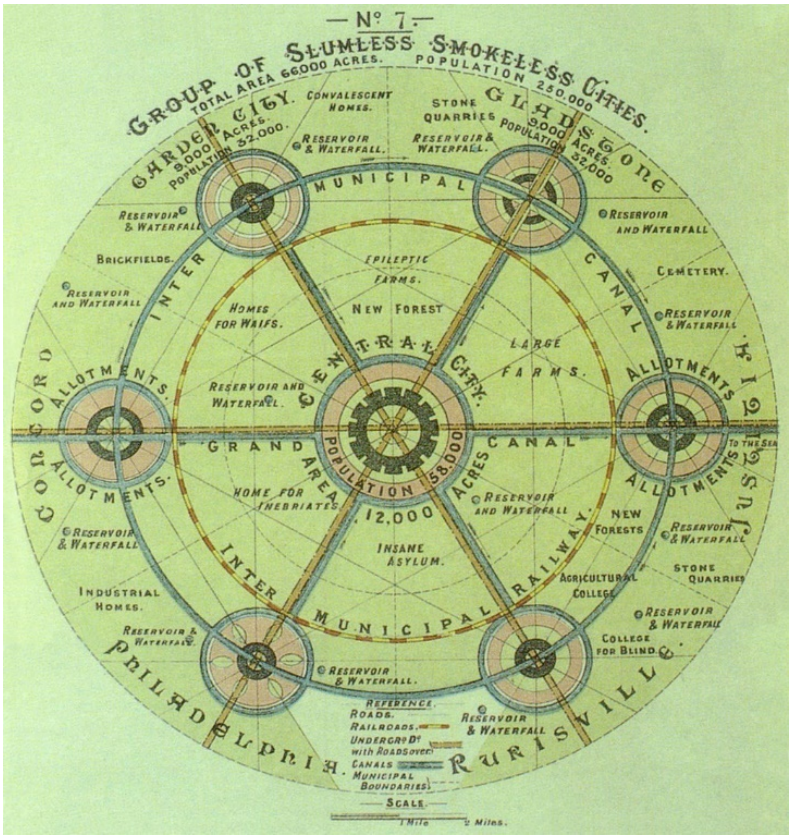

Figure 2.1. An early concept diagram of a Garden City (Howard 1902).

The origins of the pocket neighborhood settlement pattern in the United States can be traced back to an urban reformer from the late eighteenth century. The Englishman Ebenezer Howard founded the garden city movement in 1898 to address the blight caused by rapid industrialization in cities. The movement attempted to combine the benefits of

rural and urban life while limiting the disadvantages posed by each. A central feature of these circular garden cities was the liberal inclusion of greenspaces and "greenbelts" spread across each community in concentric rings (Rogers 2011).

Each city was intended to be self-sufficient, with a core consisting of a garden ringed by institutional buildings (see Figure 2.1). An expansive central park was located between this central core and an intermediate ring of clustered houses featuring private gardens. Industrial and agricultural activities were relegated to the rings furthest from center (Rogers 2001).

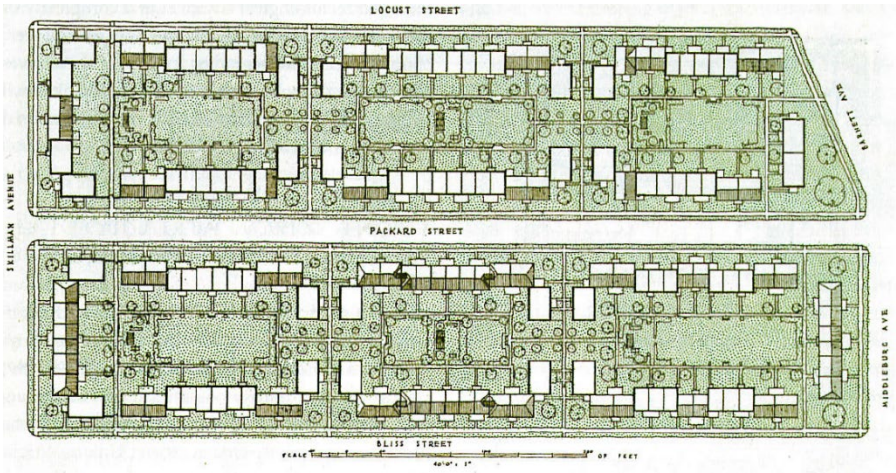

Figure 2.2. A plan view for two blocks of Sunnyside Gardens (Rogers 2001, 421).

The early success of Letchworth Garden City near London helped ignite American interest in the garden city movement, which led to one of the first applications of garden city concepts in the Sunnyside Gardens development of Queens, New York. Constructed in 1926, the designers created a plan that contained many of the essential features of a garden city. The two 900-foot blocks were subdivided into three clusters (see Figure 2.2). Each cluster contained approximately thirty-six row houses with small

private yards fronting a large common greenspace. The common greenspace was managed by a homeowners association.

The plan maximized greenspace through tightly clustering rowhouses along the outer edge of each courtyard and providing an internal pedestrian walkway for each block. The architectural details were standardized and economical, but pleasing aesthetics were still achieved by varying building heights and setbacks to create a dynamic visual rhythm. The architecture remains largely intact today, although the common areas have become somewhat messy and overgrown owing to infrequent management (Chapin 2011; Rogers 2001).

Radburn

The Sunnyside Gardens development influenced the subsequent plan for the residential development of Radburn in Fair Lawn, New Jersey. This city was constructed in 1928 by the same development team as Sunnyside Gardens and was originally designed to house 25,000 people, but only one third of the plan was completed before the Great Depression put an end to further work. Many of the design patterns established in Sunnyside were further refined in this site. Like Sunnyside, the houses faced onto common greenspaces that were connected by pedestrian walkways (see Figure 2.3). However, the scale of each housing cluster was smaller, as each cluster comprised approximately fifteen to twenty detached houses (Chapin 2011; Rogers 2001).

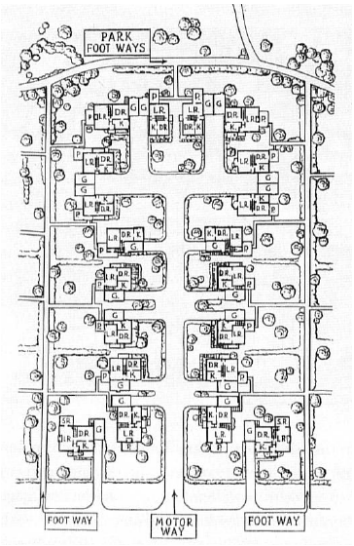

Figure 2.3. A plan view of a residential cluster within Radburn (Rogers 2001, 422).

One notable innovation of the development dealt with pedestrian circulation. The pedestrian walkways were completely separated from the roadways through overpasses and underpasses. The growing influence of the automobile was further curtailed by reducing the total length of roadways through dead-end streets that terminated at the private garages of detached houses. This design layout resulted in roadways that resembled the modern cul-de-sacs of suburban neighborhoods. However, unlike modern cul-de-sacs, a strong connection with neighboring houses was maintained through the shared greenspaces linked by pedestrian trails. These pedestrian trails tied into a larger greenspace shared with an elementary school (Chapin 2011; Rogers 2001).

The Bungalow Courts of California

Figure 2.4. Site entrance to Gatz Court, originally constructed in 1910 and restored in 1984 by Moule & Polyzoides, Architects and Urbanists (Luke 2010).

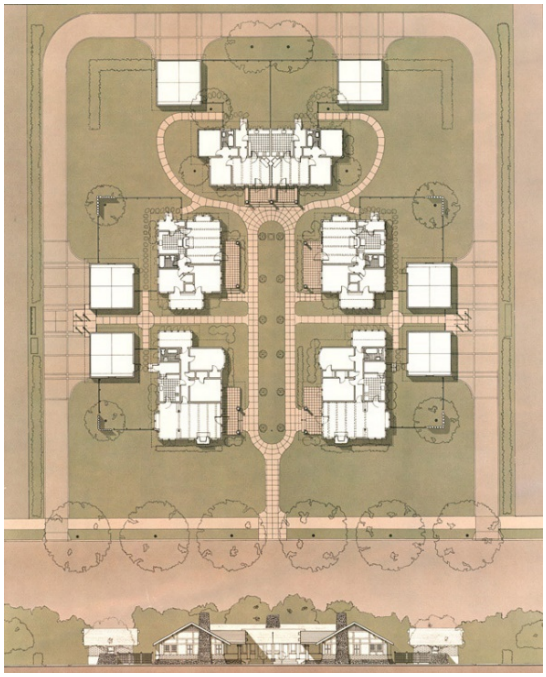

Figure 2.5. The 1984 site plan and section of Gatz Court. Along with restoring the four detached bungalows and one duplex, the designers added additional garages and small enclosed backyards to each unit (Luke 2010).

During the same period that garden city concepts were being applied to residential sites in the northeast, a similar type of development was evolving on the west coast.

These developments were known as bungalow courts and were concentrated in southern California. These areas were being developed at a time when many new housing types were arising to meet the demands of a burgeoning working-class population. The bungalow court was one solution to meet this growing demand and typically consisted of the following pattern: two rows of bungalow houses faced each other across a shared common courtyard with parking accessed behind the court or through a side yard alley (see Figure 2.5)(Polyzoides 2002).

For the typical bungalow court, the pair of bungalows nearest to the street usually related well to the neighboring houses and were designed in the Craftsman style typical to the region, with features such as generous front porches (see Figure 2.4). The space between the street-facing bungalows was slightly larger than a typical side yard setback to accommodate the entrance to the courtyard (Polyzoides 2002). The sites were usually located on small infill lots, where developers typically tried to include as many pairs of bungalows as could fit within the lot depth. Such a building pattern has the potential to result in cramped living quarters; however, the spaces between bungalows were usually slightly larger than the average side yard setback of the time. These in-between spaces were typically reserved as private gardens and were well used by the residents (Luke 2010; Polyzoides 2002).

The bungalow courts of California came to fill a certain niche, spurred on by the growing demand for workforce housing at the turn of the twentieth century. In Pasadena alone, bungalow courts housed 8 percent of its 81,000 residents by 1933. As land prices increased following World War I, bungalow courts were increasingly built on narrower lots. In the 1910s, the average development in California had approximately 150 feet of

street footage, which allowed for a central garden space of approximately fifty feet in width. After World War I, the street frontage shrunk to approximately seventy-five feet in width, which came at the expense of a greatly reduced central garden space or even its complete removal from the property (Chapin 2011).

In San Diego, the most common type of bungalow court consisted of individual cottages clustered around a spacious, garden-like courtyard. Less popular were bungalow courts that featured a long, narrow walkway in place of a courtyard. Although most of the bungalow courts were composed of detached cottages, there were some examples of bungalow courts that featured attached units, where two or more bungalows shared a common wall (Curtis and Floyd 1988).

As was the case with Radburn, the Great Depression led to a decrease in bungalow court development. Once the U.S. economy revived with the post-World War II economic boom, American housing tastes had generally shifted to preferring the low-density, single-family developments typical of modern suburbia. This preference was further fueled by government incentives and policies, such as easy access to low-cost mortgages through the G.I. Bill. Moreover, the 1956 Highway Act, which funded the interstate highway system, contributed to the suburban housing boom by providing easy access to the major cities for suburban commuters (Rogers 2001).

Given the development shift towards the suburbs, many of the central city neighborhoods were ignored for more than a decade after the postwar boom. Once development resumed in these neighborhoods, multistory apartment complexes became more popular among developers. In cities like San Diego, bungalow courts could not compete with the profitability of denser apartment complexes. The rise in land values

following inner city revitalization programs further shifted emphasis to denser residential developments that offered better returns on investment for developers (Curtis and Floyd 1988).

Despite the shift to denser residential developments in the neighborhoods near the central core of San Diego, nearly 80% of the bungalow courts built prior to World War II remained intact and in good condition for many decades following the postwar boom. The survival of these bungalow courts in the face of competing market forces can be viewed as a testament to the popularity of the development pattern. It should also be noted that many of these bungalows were located at the end of streetcar lines in a zone that was essentially the suburbs of time. Given this historical fact, it seems likely that any modern revival of bungalow courts would be most suitable for development in the present-day suburbs (Curtis and Floyd 1988).

Village Homes

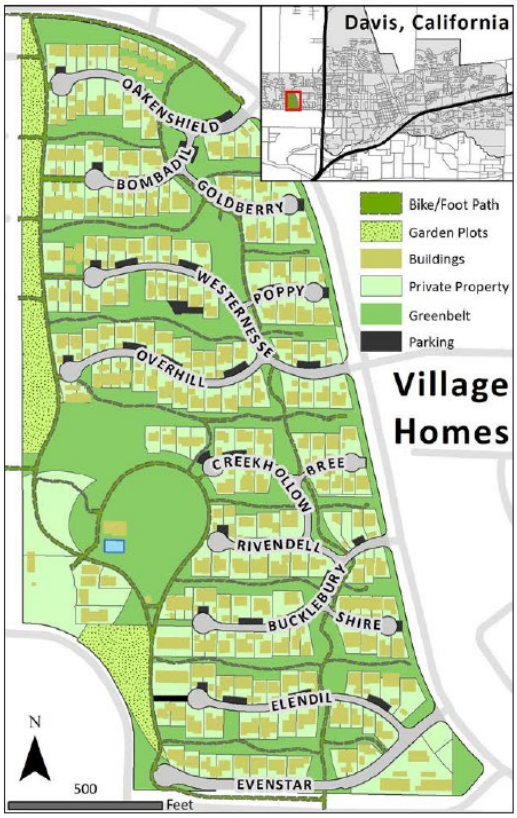

Figure 2.6. Site plan of the Village Homes subdivision (Dingemans 2018, 15*)*.

The next significant U.S. residential development that featured pocket neighborhoods was the Village Homes subdivision in Davis, California. This development (see Figure 2.6) was constructed in the 1970s and features 244 housing units on sixty acres (222 single family units, 22 apartments). The housing units range in size from 600 to 3,000 square feet, with an average lot size of approximately 4,000 square feet (Francis 2003, 9). The developers were greatly influenced by Radburn, as their final design borrowed many of its core features (Francis 2003). Like Radburn, the site was organized around communal greenspace. The design of this open space was prioritized over other considerations; the roadways and houses played a subservient role to the larger

goal of connecting the interior greenspaces through pedestrian and bicycle paths, which had been designed prior to the street layouts.

The streets were drawn out in the same cul-de-sac fashion as Radburn and featured narrow, curving lanes to reduce traffic speeds (Francis 2003). The residential lanes are approximately twenty-five feet in paved width, substantially narrower than the forty-foot width found in a common subdivision (Dingemans 2018, 23). Many of the detached, single-family houses are clustered in groups of eight to ten around a common greenspace (Owens et al. 1993).

Despite multiple similarities, Villages Homes differs from Radburn in certain respects. For one, it provides a much larger suite of communal features in addition to agricultural land. In addition to the housing itself, the sixty-acre site consists of twelve acres of greenspace, twelve acres of common agricultural land, two "village greens," a swimming pool, 4000 square feet of office space, a community center building, a restaurant, a dance studio, and a daycare center (Francis 2003, 9).

Impact of Village Homes and Radburn

A few scholars have noted that since the construction of Village Homes there has not been a single residential development designed in a similar fashion in the United States (Francis 2003; Dingemans 2019). This fact can be puzzling given the broad array of documented benefits provided by the development. Research has shown that Village Homes houses have a higher resale value than similar homes in the surrounding city. Moreover, residents have been reported as having high levels of satisfaction with the community and were especially appreciative of the sense of community the development

fosters. One survey found that the residents had twice the number of friends and triple the number of social contacts compared to a control neighborhood with a conventional suburban design (Francis 2003, 2).

In a similar vein as Village Homes, Radburn is reported as being a successful development in terms of resale, value, resident satisfaction, and resident tenure. Residents are particularly appreciative of how the neighborhood "facilitates friendships," whether through repeated encounters with neighbors in the car access lanes or along the pedestrian paths of the greenspaces (Martin 2001).

Residents of both Radburn and Village Homes also praise the developments for being well-suited for raising children; each development offers safe, open space that is segregated from car traffic. Even the areas adjacent to the cul-de-sac roads are considered safe for kids owing to the traffic-modulating effects of the narrow residential lanes, which stand apart from the greater traffic flows of the collector streets (Francis 2003; Martin 2001). The provision of safe play spaces for children can also help facilitate friendships among parents; many commentators have noted how children can serve as a social glue for fostering connections among parents (Alexander 1997; Francis 2003; Martin 2001).

Although the designs of Village Homes and Radburn have many positive features, there are still problem areas within each community that can be considered design flaws. Residents in both developments have consistently raised issues related to parking (Francis 2003; Martin 2001; Owens et al. 1993). In Village Homes, on-street and visitor parking is quite limited. Moreover, the houses lack garages, which has resulted in inadequate storage space for many residents. As a workaround, the residents often use

their covered carports for storage, which can result in cluttered and messy streetscapes (Dingemans 2018; Francis 2003).

Figure 2.7. A residential carport in Village Homes. Only forty-nine dwellings have their own garages, whereas 140 houses have only carports. As a result of this parking situation, the streetscape can appear messy and cluttered in some areas (Dingemans 2018, 25).

In contrast to Village Homes, the Radburn developers provided attached garages for each house; however, many of these garages have been converted to non-garage uses (see Figure 2.7) leading to a continued parking shortage. Furthermore, the narrow lanes and hammerhead configuration of the cul-de-sac lane can result in tight maneuvering for parking spaces and service vehicle access (Martin 2001).

In addition to the parking issue, Radburn has other shortcomings related to the reversed faces of the houses. Visitors routinely find it difficult to navigate the pedestrian walkways on the interior greenspace, since the novelty associated with having the front door reversed to face a greenspace as opposed to a street can conflict with traditional behavioral norms related to front and back doorways (Martin 2004). This ambiguity regarding the legibility of the main entrance was also a problem in Village Homes, where

the designers' ambivalence about the front door placement ultimately led them to place it on the side of the house. In retrospect, the designers admitted that this choice was probably a bad decision, as it has been quite difficult for some visitors to find these entrances (Francis 2003; Owens et al. 1993).

New Urbanism

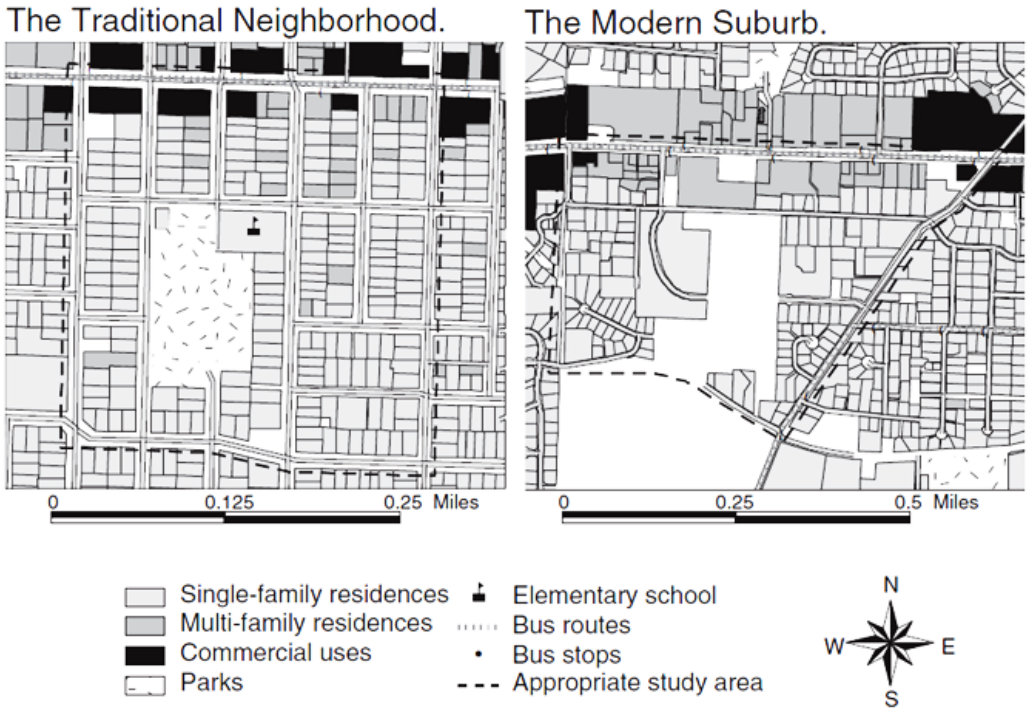

Figure 2.8. A comparison of the layouts of two neighborhoods. The traditional neighborhood conforms to many of the principles of New Urbanism (Lund 2002, 304).

In addition to these minor design flaws, certain design and regulatory factors have prevented another Radburn or Village Homes from being developed in the United States. One factor contributing to why the design features of these developments have not been replicated in their entirety is because their greenspace-oriented design conflicts with many of the central tenets of New Urbanism, a design movement that arose in the early

1980s in response to suburban sprawl, and attempts to address suburban sprawl's negative effects on society and the environment by designing neighborhoods with a layout that mimics those that were prevalent prior to the post-war boom (Duaney, Plater-Zyberk, and Speck 2010).

Like Village Homes or Radburn, New Urbanism attempts to develop community through creating a more walkable, pedestrian-friendly environment. However, the design focus for achieving this end relies more on improving the streets and the adjacent streetscape environment as opposed to improving the interior greenspaces located between houses (Duaney, Plater-Zyberk, and Speck 2010). Improving the streets and streetscapes includes such measures as creating streets in a grid pattern (see Figure 2.8) to improve traffic flows, along with providing ample sidewalk space and generous front porches for individual houses. The neighborhoods are also characterized by higher housing densities, a concentrated core of retail and employment within walking distance, and dedicated public and open spaces for each development (Lund 2002).

Even though New Urbanist developments place more emphasis on the public street as the neighborhood social commons, the internal greenspaces of pocket neighborhoods can still be successfully implemented in such developments—especially for small developments like the Wellington Neighborhood in Breckinridge, Colorado (Chapin 2011, 112).

Although New Urbanist ideology and the greenspace-oriented designs of pocket neighborhoods both attempt to address the erosion of neighborly ties, the greenspace-oriented design of a development like Village Homes might have an edge over other alternatives when considering environmental benefits alone. One published study

compared the effects of three different types of neighborhoods on air, water, and urban forest quality (Girling et al. 2000). The three developments studied were a traditional suburban development, a New Urbanist development with gridded streets, and an open-space-oriented development modeled after Village Homes. After extensive modeling, the study found that only the Village Homes-type development provided significant improvement in air, water, and forest quality. The traditional and New Urbanist developments were found to have similar environmental impacts on measures of runoff and energy use. These results are promising for making an environmental case for a Village Homes-type development, but the researchers acknowledged that more comparative studies are needed to further validate or disprove the results of the study (Girling et al. 2000).

In addition to the competing ideologies of these design approaches, American culture and regulatory practices have also established certain barriers to the widespread adoption of these types of developments. One of the main roadblocks is the inherent conservatism of the real estate industry in the United States. This conservatism is especially pronounced in suburban developments, where strict and inflexible zoning regulations greatly limit the options for the layout of housing and its supporting infrastructure. Moreover, the inflexible regulations are further compounded by the fact that residential developers generally operate within narrow financial margins, which makes them more risk averse and less likely to accept novel design patterns (Weller 2008, 254).

The conservative nature of the real estate industry has been noted by numerous commentators—including the developers of Village Homes (Francis 2004; Owens et al.

1993). Indeed, Judy Corbett—one of the lead developers, along with her husband Mike—described the initial development process as "hell" owing to the resistance shown by the City of Davis Planning Commission toward her site plan (Owens et al. 1993). The Corbetts eventually had to appeal the commission's decisions to the City Council—which was described as "very liberal" at the time (Owens et al. 1993). Furthermore, obtaining financing for the project proved to be a considerable challenge, as the Corbetts were turned down by thirty different banks before finally securing a loan (Owens et al. 1993).

Cohousing

Although there has not been another Village Home or Radburn built in the United States, many smaller-scale developments—including conventional pocket neighborhoods—have been built that share many of the core design elements of those developments. One prominent example of a popular housing movement that presents a viable alternative to a conventional suburban development is the cohousing movement. Cohousing is a type of living arrangement that shares many design features with a cottage cluster. Unlike a cottage cluster, a cohousing development is an intentional community consisting of private homes clustered around a common space. Within the intentional community typology, cohousing can be viewed as a practical intentional community that developed in response to the perceived shortcomings of living in modern societies, including the lack of community among neighbors in modern suburbs and the lack of assistance with child rearing for single mothers (Lopez and Weaver 2019). Indeed, single mothers formed a disproportionate share of the population in the initial cohousing communities formed in Denmark (Durrett and McCamant 2011).

The private houses in such communities tend to be smaller than average, but the loss in space is remedied by the inclusion of more communal facilities, such as a common house. The common house, although not a requirement for a cohousing development, is typically designed as a social hub for residents where planned group meals and other activities frequently occur. In addition, the developments tend to have more housing units than a cottage cluster—typically, a cohousing development hosts a range of twenty to thirty households, whereas a typical cottage cluster has from eight to twelve households (Durrett and McCamant 2011).

Another key difference between a cottage cluster and a cohousing development relates to the level of residential involvement in the planning, development, maintenance and management of the community. Whereas a typical cottage cluster usually begins as a developer-led project, most cohousing projects are initiated by a core group of future residents, who usually develop a clearly defined set of shared values and visions for how they want the community to function. These future residents are also encouraged to be involved in the planning and development process from the beginning to help foster stronger connections and exert more control over the final design (Durrett and McCamant 2011).

Once built, the property is actively managed and maintained by the residents—usually without the help of outside professionals, such as a landscaping crew (Chapin 2011; Durrett and McCamant 2011). While a cohousing development includes formalized social arrangements to strengthen sociability among residents, a cottage cluster allows sociability to arise naturally as a result of the design patterns present in the development,

without formalizing any social arrangements to further encourage social interaction (Chapin 2011).

The first cohousing development was built in Copenhagen, Denmark, in 1972 and featured twenty-seven families who were seeking a greater sense of community than they could find in a standard suburban neighborhood or apartment complex. One of the central aims of the development was to combine the autonomy of private houses with the advantages of community (Durrett and McCamant 2011). The developers accomplished this goal through a variety of design decisions. The site featured twenty-seven attached units clustered around a central common area, a centrally located common house, and parking confined to the southern edge of the site. The idea proved successful, and by 2010, more than 700 of these communities had been built in Denmark alone (Durrett and McCamant 2011).

The concept was eventually brought over to the U.S. by Kathryn McCamant and Charles Durrett, who established the first American cohousing community in Davis, California, in 1991; not by accident, it was located less than a mile away from the Village Homes development. The designers described Davis as an ideal city for a novel residential development, since it was a university town with a reputation for innovation (Durrett and McCamant 2011). The 2.6-acre site, known as Muir Commons, features twenty-six attached townhomes clustered around a central greenspace (see Figure 2.9). Parking is located at both the northeastern and southwestern edges of the site. The twenty-six two- and three-bedroom units are of modest size, ranging from 800 to 1,400 square feet. Each house has private backyard in addition to a front yard and shares

ownership of the common outdoor spaces and facilities, which are managed through a homeowners association (Durrett and McCamant 2011).

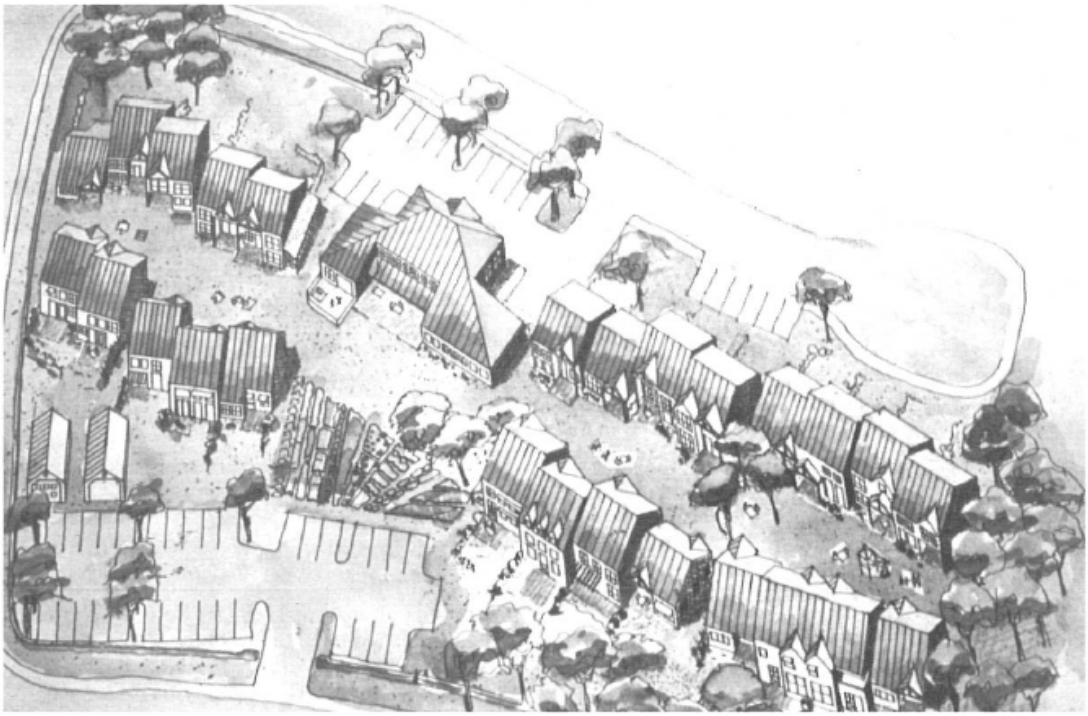

Figure 2.9. An illustrative site design for Muir Commons. The image includes a central common house facing a community garden across the interior greenspace (Durrett and McCamant 2011, 137).

Cohousing's Appeal in the United States

Although McCamant and Durrett describe Muir Commons as a successful project, information from sources that do not have a direct, personal stake in this type of project is necessary to ensure a relatively more objective picture of cohousing projects. Although current research on cohousing in the United States is scant, a few published academic papers do offer useful insights.

One name that stands out among the published research is Jo Williams, a planning professor at University College in London, England. Williams has written multiple journal articles on cohousing in the United States and in Europe. Her 2008 journal article,

titled “Predicting an American future for cohousing,” is especially insightful in identifying challenges and constraints hindering large-scale adoption of the cohousing model in the United States. In that article, she found that as of 2006, sixty cohousing communities had been completed in the United States, with another 132 in various stages of development (Williams 2008). Since her publication, the growth rate has appeared to remain anemic. As of May 2019, the same cohousing directory cited in her paper lists only 196 completed communities, with another seventy-six in various stages of development (Cohousing 2019).

One of the major weaknesses of the cohousing model identified in Williams’ research—which included a national post-occupancy survey of cohousing residents supplemented by a series of expert interviews—was the conflict of the cohousing model with certain cultural values in the United States. Specifically, cohousing was viewed as infringing on individual freedom of choice along with rights to privacy. Additionally, the intense level of resident involvement required in both the formation and continual management of the cohousing development was seen as a drawback of the model (Williams 2008).

In a further note of interest, cohousing was found to conflict with the housing industry’s top-down approach to development, in which the developer oversees financing and site acquisition. This arrangement helps to reduce the development timeline, thus leading to less cost and risk for developers and their financers. This top-down model also conflicts with the typical cohousing development process, where resident involvement in the early project stages was cited by developers as leading to increases in the development timeline—thereby ultimately leading to increased development costs.

Furthermore, specializing in the limited niche market of cohousing was seen as financially risky by developers (Williams 2008).

However, in contrast to the reported downsides of cohousing, Williams also highlighted several notable benefits of the living arrangement in her research. The surveyed residents reported high levels of satisfaction with their communities and mentioned greater social interaction, support, and security as some of the key benefits. Additionally, higher resale values were cited as a key advantage of living in the community. Security, strong neighborly ties, and high resale values were all listed as being consistent with American cultural values (Williams 2008). Nonetheless, these benefits might still be insufficient to offset the drawbacks of cohousing communities, especially those relating to the intense residential involvement that tends to occur in cohousing developments. To ameliorate this situation, the author proposed a retrofit approach or a partnership with developers as possible ways to reduce some of the time and resource commitments required by residents starting a new community (Williams 2008).

Contemporary Cottage Clusters

Figure 2.10. An aerial view of the Third Street Cottages development (Chapin 2011, 61).

One of the first contemporary examples of cottage clusters was built in the small town of Langley, Washington, approximately an hour's drive from downtown Seattle (with an additional fifteen-minute ferry ride). The development, known as Third Street Cottages, was created by the architect Ross Chapin, working in concert with developers Jim Soules and Linda Pruitt of the Cottage Company. Ross Chapin is the man who coined the term "pocket neighborhood" to describe the types of residential developments that typically include six to twelve houses clustered around a shared open space. He first developed the term to describe the Third Street Cottages project after its completion. His firm has become known for its work on pocket neighborhood developments, and many of the design patterns applied to later projects were first developed with Third Street Cottages (Chapin 2011).

Third Street Cottages was completed in 1998, just after the adoption of a new city ordinance that allowed cottage courtyard housing to encourage "smart growth" while addressing the placeless sprawl engendered by typical suburban developments. The new code was also focused on expanding housing choices for one- to two-person households. The site features eight cottages and a commons building situated on two-thirds of an acre (see Figures 2.10 and 2.11). Parking is confined to the eastern edge of the site, where eleven uncovered parking spaces are provided (Chapin 2011; Chapin 2016).

Figure 2.11. Front entrance to Third Street Cottages (Chapin 2011, 60).

Some of the new design elements introduced include a commons building, featuring a gathering space on the ground floor and a rooftop terrace on the second floor; slightly larger cottages of 1 ½ stories, with none over 975 square feet, as required by the city ordinance; a shared tool shed; and layers of personal space created by design features such as split-cedar fences delineating the private front yard of each house. The cottages sold quickly, and many of the first buyers were described as active singles and couples aged forty to sixty-five. Only one family with a child was part of the original resident group (Chapin 2011, 71).

The historical examples described above provide useful insights that can inform the design patterns for increasing opportunities for social interaction in cottage clusters. Although the following patterns were developed for small-scale, infill sites in a suburban context, many of the design features from larger developments—such as Village Homes—can inform the design elements featured in smaller sites with a similar layout.

Moving away from the historical examples described above, the next chapter will present local examples of pocket neighborhoods as case studies. These case studies will inform the development of subsequent guidelines for encouraging social interaction in pocket neighborhoods.

CHAPTER 3
CASE STUDIES

This chapter presents case studies of local examples of cottage clusters and other types of pocket neighborhoods. The case studies discussed in this section have either already been built or are currently under construction. Through these case studies, this thesis will identify certain design elements that will inform the subsequent design guidelines for promoting social interaction in pocket neighborhoods.

At each site, interviews were conducted with the key designers and developers involved in the design process. These interviews were supplemented with personal observations from site visits. The three sites were chosen based on their proximity to Athens, Georgia. All sites have a similar density and size, although they vary with respect to certain features such as site layout, provision of communal features, the surrounding neighborhood context, and construction date.

The first site selected is Lake Claire Cohousing in Atlanta, Georgia. The tiny home village of Pinewood Forest in Fayetteville, Georgia, is the second site of study. Finally, the proposed cottage cluster of 413 Millard Avenue in Athens, Georgia, represents the third site for analysis.

Lake Claire Commons – Atlanta, Georgia

Lake Claire Cohousing is located ten minutes east of downtown Atlanta in a rapidly gentrifying neighborhood. The development is bordered by DeKalb Avenue along

its southern boundary (see Figure 3.2); just south of DeKalb Avenue, and running parallel with the street, lie multiple railroad tracks for cargo and mass transit trains. The heavy transit corridor to the south of the site lowered the desirability of the site owing to the noise generated by the cars and trains and partially explains why it was still underdeveloped prior to the cohousing project. Indeed, the site had to be rezoned from light industrial to multifamily residential before construction began (Torres-Antonini 2001). The site also features a twenty-foot wide sanitary sewer easement along its southern boundary, which had to be accounted for in the final design. General project data is summarized below in Table 3.1.

Table 3.1. Overview of Lake Claire Commons

PROJECT OVERVIEW	
Location:	DeKalb County, 4 miles east of downtown Atlanta
Completion Date:	1997
Development Timeline:	4+ years
Property Area:	1 acre
# Units:	12
Developer Entity:	self-developed by residents
Lead Designer:	Greg Ramsey, Preston & Associates / Village Habitat Design
Home Ownership:	Fee Simple w / HOA
Layout:	clustered, 4 different unit types
Typical Unit:	1300 SF; 3 BR, 2 BA; 3 stories; 2 parking spaces
Home Prices at completion:	$60,000 to $130,000
Common House:	4,200 SF, 3 stories

Sources: (Ramsey 2019; Torres-Antonini 2001; Zillow 2020)

Figure 3.1. Illustrative plan of Lake Claire Cohousing (adapted from Ramsey 2019).

Neighborhood Context

Despite the drawbacks of the site, it is still located in a desirable Midtown neighborhood that has seen a large increase in property values over the past few years. The surrounding neighborhood consists primarily of blocks of single-family detached cottages, many of which were built prior to World War II (Ramsey 2019; Torres-Antonini 2001).

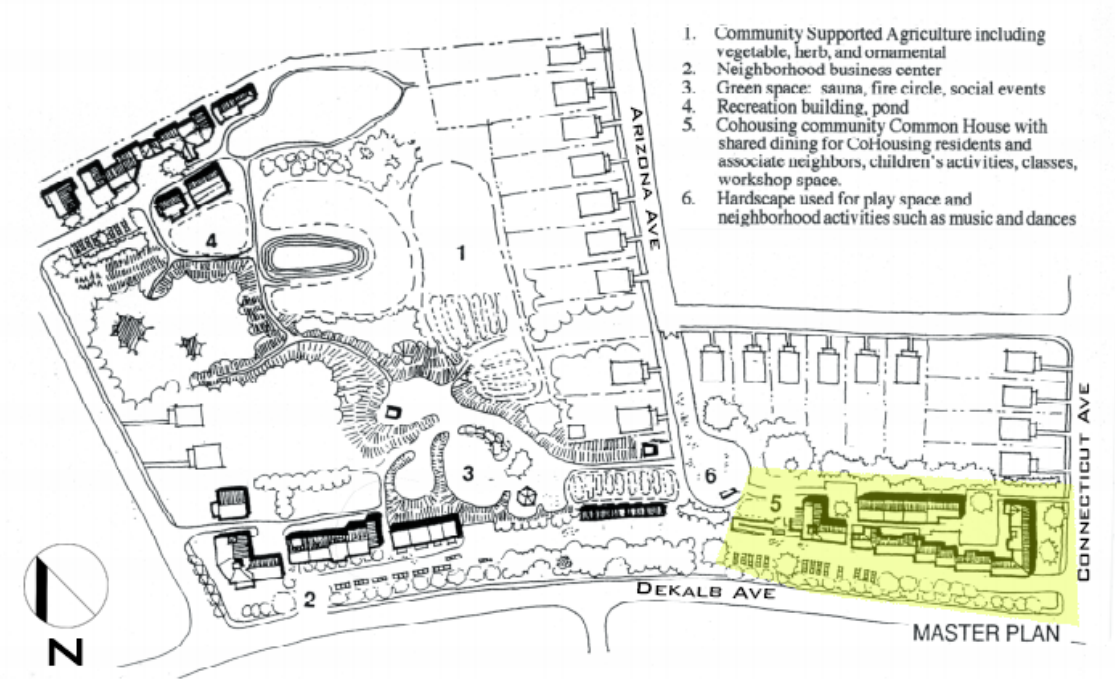

Figure 3.2. Neighborhood context diagram for Lake Claire Cohousing. Certain features from this early conceptual plan, such as the neighborhood business center and CSA operation field, were never brought to fruition (adapted from Ramsey 2019).

The development features twelve townhouses and a common house on one acre of land (see Figure 3.1). The residents have fee-simple ownership of their houses, and a Homeowners' Association was created for ownership and management of the common spaces. The development was completed in April of 1997 and has the distinction of being the first cohousing community in the state of Georgia, along with being one of the smallest cohousing communities in the United States.

The Lake Claire Commons development can be considered a resident-led project, as it was funded by a group of people inspired by McCamant and Durrett's cohousing book (Jenkins 2017). They hired Greg Ramsey of Village Habit Design to handle most of the design and development requirements of the site. Ramsey offered development consultation services in addition to providing the master plan, architectural design, and

construction drawings for all of the buildings. In accordance with the guidelines recommended by cohousing authorities, Ramsey worked closely with the future residents in a participatory design process to incorporate their suggestions into his final designs (Ramsey 2019).

The community is located adjacent to the 1.7-acre Lake Claire Community Land Trust (see Figure 3.2), which is a neighborhood park owned by the surrounding residents through a 501.C3 nonprofit and is protected from future development through a conservation easement. This neighborhood park offers many perks not found in a typical public park, including a community garden featuring more than sixty individual plots, a children's playground, a Japanese meditation garden, and an amphitheater used for performances and bi-weekly drum circle parties (see Figure 3.3)(Wing 2017). The Land Trust park can be considered an extension of the cohousing development, as it furnishes a large host of functions not included within the cohousing development and is located just west of the cohousing site.

Figure 3.3. Front entrance to Lake Claire Community Land Trust. *Photo by Author.*

Site Description

The cohousing site features twelve attached townhouses that range in height from two to three stories. The site occupies a narrow, rectangular lot of approximately 450 feet in length and has a width that tapers from 130 feet along its eastern edge to approximately 105 feet along the western edge (see Figure 3.4). The eastern and western edges of the site are each bordered by two-lane city streets (see Figure 3.2). The western street (Arizona Avenue) terminates in a cul-de-sac that provides parking spaces for visitors to the adjacent Land Trust park. The eastern street (Connecticut Street) connects with DeKalb Avenue. The site slopes towards the southwestern corner and features a notable vertical drop of twenty-six feet from the northeast corner to the southwest corner (Torres-Antonini 2001).

The townhomes have an average size of 1300 square feet and are tightly clustered around a central pedestrian street. The townhomes connect and share common walls to form two rows facing each other across the pedestrian street. The southern row of townhomes is the longer of the two and turns at a right angle along its eastern edge to provide more enclosure for the pedestrian street.

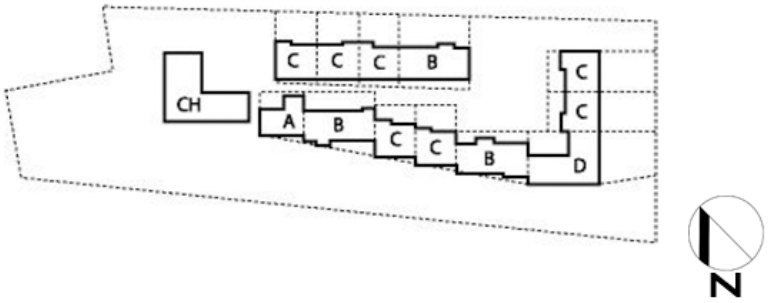

Figure 3.4. Layout of Lake Claire Cohousing. The layout shows the common house (CH), the different floor plans (A, B, C, D), site boundary, and private lot lines (Torres-Antonini 2001, 89 *Figure 5-2*).

The townhomes feature sloping roofs, and most have south-facing walls to maximize passive heating through enhanced sun exposure. The fronts of most of the individual townhomes are slightly offset to create more individual subspaces outside of each unit. The site also includes a three-story common house located along the western edge of the property. The common house features a large covered porch that was intended to serve as a link to the adjacent park while also hosting resident functions, such as planned group dinners (Torres-Antonini 2001).

Notable Design Factors Promoting Social Interaction

Walkable Neighborhood

The site is situated within a modestly walkable neighborhood. Easy access to the Land Trust park helps foster a pleasant walking environment. In addition, the development is close to public transportation options. The community is served by bus stops located two blocks north of the site. Additionally, there is a Metropolitan Atlanta Rapid Transit Authority (MARTA) station located 0.6 miles to the west of the site.

The surrounding neighborhood has also retained part of its pedestrian character from its early days as a streetcar suburb. Many of the pre-war single-family cottages are still present, and most of the blocks have sidewalks to further enhance the pleasant walking environment.

Protected Pedestrian Space

In accordance with the design guidelines recommended for cohousing developments, car traffic and parking are confined to the edge of the site (Durrett and

McCamant 2011). The parking area is confined to the southern edge of the site and accommodates twenty-two vehicles with vehicular access from Connecticut Avenue, which runs along the eastern edge of the site. Except for emergency vehicle access, cars do not intrude on the pedestrian street in the center of development. Emergency vehicle access is provided by the fire lane, which connects the terminal point of Arizona Avenue with the western entrance to the site (Torres-Antonini 2001).

The development offers pedestrian access into the site from three points (see Figure 3.5). Approaching from the cul-de-sac along the western edge, one walks along a fire lane and approaches a gate situated along a low, wooden fence. Above the fence is an elevated patio that connects to the second story of the common house to the right. The gate, along with the raised deck and common house building to the right, helps to create a compressed entryway that enhances the sense of arrival. Passing through the gate, one enters a hardscaped courtyard that features a central brick path with crushed gravel on both sides. A staircase that connects the southern parking lot to the western plaza provides the southern access point. On the western side, a ramp for handicap access is located at the western edge of the parking lot and connects with the fire lane to offer access along the western entry point.

Eastern access into the site is from a narrow sidewalk that passes through a low, wooden gate. This gated entrance has a similarly compressed feel as the western entryway and, once again, features a raised, wooden deck above the gate to provide vertical enclosure with the townhome to the left and the deck support beams to the right, thereby providing further enclosure along both sides (Torres-Antonini 2001; Ramsey 2019).

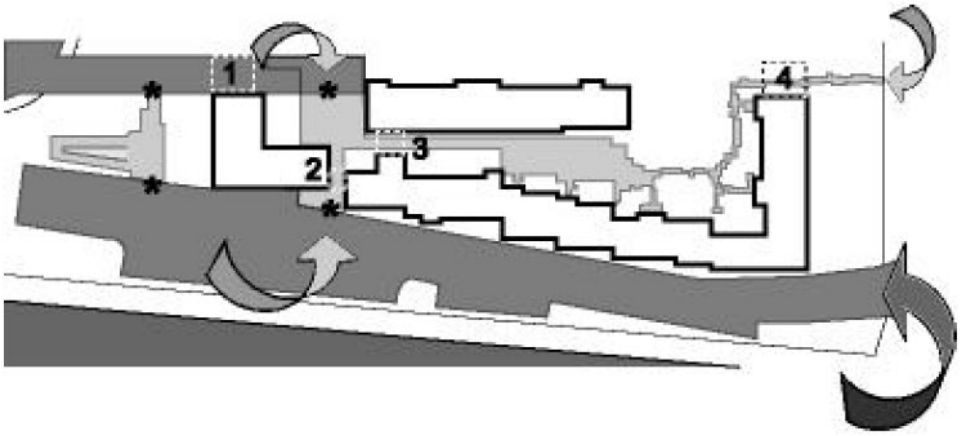

Figure 3.5. Diagram of circulation systems. Lightly shaded areas show pedestrian circulation, darker areas show vehicular circulation, and the asterisks mark the edge zones between the two circulation zones. Arrows show entry direction, while numbers mark the location of gateways and entrance zones (Torres-Antonini 2001, 99).

Extensive Provision of Common Facilities

Lake Claire Cohousing features many of the key design elements intended to promote social interaction and sense of community in cohousing developments. The three-story common house functions as the primary shared resource of the cohousing community and is the main site for social activity. The generously sized building (approximately 4,200 square feet) provides a wealth of amenities, including a kitchen and dining area for group meals, a children's play room, a laundry room with three washers and three dryers to supplement the small W/D units in each townhome, a workshop for woodworking and other crafts, and a recycling center in the basement. The common house also has an attached patio with a pergola to accommodate outdoor dining and socializing (Ramsey 2019; Torres-Antonini 2001). The common house is used for many shared activities among residents, including organized group dinners and resident meetings to discuss management issues. In addition to resident-focused services, the

building also hosts events and classes that bring in outsiders. In the past, opening the common house to outsiders has caused tension among some residents, who resent outsiders having open access to their common house (Jenkins 2017).

The two courtyards at each end of the pedestrian street provide additional social functions. The courtyard adjacent to the common house is primarily hardscaped and intended to provide "village square" functions; it represents the more formal and public of the two squares within the development. This courtyard includes a stone fountain feature along with typical outdoor patio furniture. The courtyard at the opposite end of the pedestrian street contains more softscape features and is intended primarily to serve as a play space for children (Ramsey 2019). The function of this softscape courtyard as a children's play area was confirmed by a recent site visit, where many children's toys were seen scattered in the lawn area near the concrete walkway (see Figure 3.6). The softscape courtyard also includes built features such as play slides and a small swing.

Figure 3.6. Looking west across the softscape courtyard from the pedestrian street. The children's toys scattered across the courtyard provide evidence of its function as a children's play space *Photo by Author.*

Visibility into Common Spaces

The kitchens and active rooms in the individual townhomes face the common space. This arrangement allows parents to easily monitor children playing in the pedestrian street. Furthermore, most townhomes offer unobstructed views into the softscape courtyard to further enhance the surveillance of that area. However, most of the townhomes lack unobstructed views into the formal courtyard adjacent to the common house.

In divergence with cohousing guidelines, the common house is located along the western edge of the development instead of in a more central location. This decision was made to provide a stronger connection to the Lake Claire Land Trust, located immediately west of the development. The common house, being the most public building of the development, serves as the primary space for hosting outsiders, and thus,

locating it immediately adjacent to the Land Trust makes it more accessible to outsiders, such as those tied to the Land Trust as well as residents from the surrounding neighborhood (Torres-Antonini 2001). This design decision can be viewed as a tradeoff in which using the common house to enhance integration with the surrounding neighborhood detracts from its role in enhancing connections within the cohousing development. Cohousing guidelines recommend a central location for the common house, in part, to ensure good visibility into the common house from each housing unit. At Lake Claire, only five townhouses have a good view into the common house from their respective locations. The reduced visibility for the remaining seven townhomes prevents these residents from seeing activities within and immediately adjacent to the common house. This visual obstruction might hinder social interaction by making it more difficult for these residents to observe current social activities in which they might wish to engage (Durrett and McCamant 2011; Torres-Antonini 2001).

Sense of Enclosure

The central outdoor space within the community features a strong sense of enclosure, in accordance with cohousing principles (Durrett and McCamant 2011). This outdoor space was deliberately enclosed through design decisions such as adding a northward projection for the eastern edge of the southern row of townhomes to provide enclosure along the eastern edge. Furthermore, the common house encloses the western edge, resulting in a protected space for the two courtyards and the pedestrian street nestled between the two rows of townhomes. This protected space offers a safe, child-friendly environment that is free from vehicle traffic. The northern enclosure is created

by the northern row of townhomes along with a wooden fence that lines much of the perimeter of the site. The constrained entrances along the western and eastern edges further add to the sense of enclosure.

Privacy Gradient

In addition to its overall sense of enclosure, the provision of private, semi-private, and semi-public spaces within the development also appears to exert a positive influence on social interaction within the community. In terms of private space, many of the townhomes have a private patio at the rear of the townhome. However, most of these private outdoor spaces lack fences or other physical barriers to mark lot lines and ensure visual privacy between the townhomes. While this openness may be argued to increase possibilities for social interaction, the lack of visual privacy between individual townhomes can also be viewed as a drawback that prevents a fully private outdoor space from appearing in the community.

Despite this potential disadvantage, the development does feature a semi-private space at the entrance of each individual house, in addition to the more public spaces such as the common house, pedestrian streets, and two courtyards. These semi-private spaces are located adjacent to the pedestrian street, and their individual character varies by townhome. At minimum, they consist of simply a doorstep with potted plants. At the other extreme, two units have terraced patios enclosed by a trellised wall with climbing vines.

The issue of visual privacy is also of interest when considering the space between the two rows of townhouses facing each other across the pedestrian street. Approaching

from the west, the pedestrian street starts out very constricted, as it begins with a narrow stretch of seventy-two feet marked by just ten feet of separation between the two rows of townhomes. This narrow gap between the townhomes could create issues of visual privacy, but the designer and residents seem to have remedied this problem by offsetting the placement of the windows facing each other across the two rows so that no two windows mirror each other in orientation. Moreover, this narrow stretch features elevated patios with trellised walls, which further ensures visual privacy between some of the facing units (see Figure 3.7) (Torres-Antonini 2001).

Figure 3.7. Looking west along the narrow stretch of the pedestrian street. The trellised vines help ensure visual privacy for the semi-private patio spaces to the left. *Photo by Author.*

Customized Houses

One of the unique features of Lake Claire that sets it apart from other cohousing developments is the aesthetic diversity of the townhomes. Looking down the pedestrian street one encounters a variety of colors, facades and design features that help differentiate each townhome. Indeed, Greg Ramsey custom built each townhome after receiving feedback from the future residents. Ramsey states that the individual design of each housing unit reflects the unique personality of each resident (Ramsey 2019). This distinctiveness is especially apparent when studying the facades of each townhomes, where a variety of building heights and fenestration patterns create a pleasing visual rhythm (see Figure 3.8).

Figure 3.8. Elevation diagram of the southern row of townhomes. Image A faces towards the pedestrian street and B shows the rear side facing the parking lot (Torres-Antonini 2001, 91 *Figure 5-4*).

The primary design elements that are most likely to exert the greatest effect on influencing social interaction are listed in Table 3.2. The positive influences are shaded in green, whereas the negative influences are shaded in red. Overall, the development appears to have more positive influences than negative influences affecting social

interaction, which is corroborated by the reports of positive social relationships within the community in the existing data (Jenkins 2017; Ramsey 2019; Torres-Antonini 2001; Wing 2017).

Table 3.2. Lake Claire Commons Findings

Summary of Site Features Possibly Influencing Social Interaction	
Positive Influences	**Negative Influences**
1. Sociable scale: 12-unit cluster around shared common spaces	1. Poor visibility into common house from majority of townhomes
2. Walkable neighborhood	2. Poor visual privacy for private backyard spaces
3. Extensive provision of common facilities	3. No room-sized front porches or covered patios provided for all units
4. Good visibility into plaza and pedestrian street from most housing units	4. All units are attached, which can detract from visual, auditory, and olfactory privacy
5. Strong enclosure for common spaces	5. Minimal spacing for units facing each other across the pedestrian street
6. Multiple layers of privacy, including semi-private buffer zone attached to the entrance of each townhome	
7. Adequate visual privacy maintained for front side of townhomes through vegetative screens and window placement	
8. Customized townhomes that reflect owners' personalities	

Micro Village of Pinewood Forest – Fayetteville, Georgia

The micro village of Pinewood Forest is located approximately fifteen miles south of the Atlanta airport in the suburb of Fayetteville, Georgia. The micro village is just one small portion of the larger development of Pinewood Forest, a 235-acre New Urbanist

community under construction on former pastureland (see Figure 3.9). The development is located across the street from the massive Pinewood Atlanta Studios, which is now the second-largest film studio in North America (Baker 2019; Pinewood Group 2020). General project data is summarized below in Table 3.3.

Table 3.3. Overview of Micro Village of Pinewood Forest

PROJECT OVERVIEW	
Location	Fayetteville, GA; Fayette County
Completion Date	2019
Development Timeline	1.5 years
Property Area	0.25 acres
# Units	6
Developer Entity	Pinewood Forest
Lead Designer	Jefferson Browne Gresham Architects
Project Manager	Brett Baker, Director of Residential Construction, Pinewood Forest
Home Ownership	Fee Simple w / HOA
Layout	clustered, 6 different unit types
Typical Unit	400 SF; 2 BR, 1 BA; 1 1/2 stories; 2 parking spaces
Home Prices at completion	anticipated $200,000+
Common House	None

Sources: (Baker 2019)

Neighborhood Context

Figure 3.9. Site plan of Pinewood Forest development (adapted from Pinewood Forest n.d.).

Pinewood Forest received a Planned Community Development zoning designation, which allowed the developers to implement innovative design features such as decreasing the minimum square footage requirements for the houses. Indeed, many of the houses outside of the micro village site have a smaller square footage than the average American house. The smallest home offered is a 1,326 square foot house, which has a listing price of $409,900 (Baker 2019; Pinewood Forest 2020). Also, in line with the tenets of New Urbanism, the community is designed to foster a highly walkable environment and will feature over fifteen miles of bike and pedestrian paths. Furthermore, every residence will be within one block of a park or greenspace, and over 50% of the developed land will be preserved as greenspace (Baker 2019).

The micro village of tiny homes is located at the southeast corner of the site. Initially, the six units will be available only for lease and will serve to establish a proof of concept for tiny-home living prior to selling the units. The builder anticipates the houses having a starting price point of $200,000 once they are on the buyers' market. The project developer also has permits to build additional units within the development if the concept proves successful (Baker 2019).

Site Description

Figure 3.10. Conceptual site plan of the micro village (Jefferson Browne Gresham Architects 2019).

The micro village consists of six tiny homes clustered in a semi-circle around a common lawn. The entire site is quite small and has approximate dimensions of 75 feet by 155 feet, which translates to one-quarter acre. The tiny homes range in size from 300 to 500 square feet, with minimal spacing between adjacent houses. Of indirect interest,

the development is billed as a net-zero development and features geothermal heating and cooling systems coupled with solar power (Baker 2019).

The row of three homes along the western edge of the development were intentionally placed near one of the main thoroughfares of the development to extend a welcoming gesture to the larger community. Furthermore, the development provides easy access to a wooded area that is located immediately to the east of the development. This forested area is accessed by a crushed gravel trail that connects with the larger trail system encircling the entire development (see Figure 3.10) (Baker 2019).

Notable Design Factors Promoting Social Interaction

Walkable Neighborhood

In accordance with New Urbanist principles, the site is designed to foster a highly walkable environment for future residents. Pinewood Forest will be a mixed-use development that offers residents the chance to walk or bike to work. In addition to having Pinewood Atlanta Studios located just across the street, the developers are planning to add 270,000 square feet of commercial space for restaurants, retail and office space in the town center. The development also has plans for a "micro-school" for grades 1-12 (Baker 2019).

Protected Pedestrian Space

The central greenspace is adequately protected from the encroachment of cars. Parallel parking is provided along the two streets along the western and northern edges of the tiny home cluster. The central greenspace is accessed by crushed gravel pathways at

the northwestern and southeastern edges of the site. There are likely to be additional informal pathways created as future residents follow desire lines from their parked cars to their homes. These informal pathways between the cars and the residences could potentially detract from social interaction with fellow neighbors, since they could allow residents to avoid walking past the homes of other neighbors to avoid potential social encounters.

Provision of Common Facilities

The micro village provides multiple communal amenities, including a central firepit encircled by Adirondack chairs (see Figure 3.11); a community burrow, or "hobbit hole," which consists of a shipping container tucked into a berm (see Figure 3.12); and the gravel path that connects the residences to the street and the larger trail system (Baker 2019).

The hobbit hole serves a similar function to a common house. It provides shaded seating and electrical outlets for the residents. However, there is currently no way to close the burrow opening to create a true indoor space. The earthen mound housing the hobbit hole, located along the southern edge of the site, primarily functions as a visual screen and forms part of the seventy-five-foot buffer between the micro village and a suburban neighborhood to the south.

Figure 3.11. The common greenspace of the micro village. *Photo by Author.*

Figure 3.12. The community burrow for the micro village. *Photo by Author.*

Visibility into Common Spaces

The visibility into the common spaces from the residences is one of the strengths of the design. All six housing units have a clear line of sight into the central lawn and fire circle area. Likewise, all but one of the residences have unobstructed views into the community burrow.

The visibility into adjacent residences is also limited to prevent residents from easily peering into the homes of their adjacent neighbors. Most of the windows for each home face onto the common green. These openings—besides one notable exception—are of modest size to preserve adequate privacy for the residents.

Sense of Enclosure

The sense of enclosure for the development is insufficient—especially in comparison to Lake Claire Commons. The homes, together with the burrow, do provide a sense of enclosure around the common greenspace, but the southern flank is still exposed to outside elements. The tight spacing between the houses also helps to create enclosure. However, there are currently no physical barriers to discourage an outsider from freely wandering into the community.

Figure 3.13. View of western edge of the development from the main street. The private patio spaces for the three tiny homes along the western edge are shown in the foreground. *Photo by Author.*

Figure 3.14. One of the private patio spaces along the western edge. *Photo by Author.*

Privacy Gradient

The provision of private, semi-private, and semi-public spaces within the development also appears to be lacking. The main entrance off the street creates a somewhat legible main entrance and is marked by a border of shrub plantings on each side of the gravel path. This shrub border helps to mark a sense of arrival into the community from the outside. However, after this transition from semi-public to semi-private space, there are no clear transition zones prior to entering the private spaces of the homes' interiors. The notable absence of a functional, semi-private buffer zone outside each housing unit is a major detraction of the design that could hinder social interaction among residents.

Regarding the spaces outside home entrances, the development does provide an elevated patio for each home (see Figure 3.15). However, none of these patio spaces are shaded, and none provide any enclosure to create an outdoor room that functions like a covered porch. Similarly, no shade trees are provided on site beside a few small saplings at the periphery that might provide some functional shade in approximately ten years. Furthermore, the yards around each home do not contain any clear delineation—such as a fence or hedge—to clarify boundaries for the private yards of each home. It is unclear where the private lot boundaries end for each home—especially for the side yard spaces between each home.

Each home does provide a partially screened patio space at the rear of the development that appears to function as a private outdoor space. However, the lack of complete visual privacy for these spaces prevents them from functioning as a truly private outdoor space (see Figures 3.13 and 3.16). Moreover, most of these screened

patios are located within view of a major road, which further detracts from the sense of privacy within the space (see Figure 3.14).

Figure 3.15. Main entrances for the two tiny homes along the eastern edge. *Photo by Author*.

Figure 3.16. The private rear patio for the home situated in the southeast corner. *Photo by Author.*

The primary design elements that are most likely to have the greatest effect on influencing social interaction are listed in Table 3.4. The positive influences are shaded in green, whereas the negative influences are shaded in red. Overall, the development appears to have more negative influences than positive influences affecting social interaction, which could result in diminished social interactions that fail to fully live up to the design intent of creating a "tribe-like" sense of community among the residents (Baker 2019).

Table 3.4. Pinewood Forest Micro Village Findings

Summary of Site Features Possibly Influencing Social Interaction	
Positive Influences	**Negative Influences**
1.Social scale: Six-unit cluster around shared greenspace	1. Poor enclosure along the outer edges of the site
2. Located in New Urbanist development with great walkability potential	2. No semi-private buffer zone at the front entrance of each home
3. Good visibility into all common areas from each tiny home	3. No room-sized front porches or covered patios provided for any of the homes
4. Provision of multiple communal amenities, including cornhole boards, firepit, and hobbit hole	4. Poor legibility of private lot lines for each housing unit
5. Each tiny home has a unique design and layout	5. Insufficient visual privacy for rear patios
6. Parking confined to the periphery	6. No common house
	7. Homeowner demand for tiny homes unproven

413 Millard Avenue Master Planned Development – Athens, Georgia

The proposed redevelopment at 413 Millard Avenue is an infill project located in the southwest region of the Normaltown neighborhood in Athens, Georgia. As of this writing, it is currently in the preliminary stages of construction. The site is situated on a lot of approximately one acre near the intersection of Clover Street and Millard Avenue. To the west of the site lies Hawthorne Avenue, a busy street lined with small shops. General project data is summarized below in Table 3.5.

Table 3.5. Overview of 413 Millard Avenue Master Planned Development

PROJECT OVERVIEW	
Location	Athens, GA; Athens-Clarke County
Completion Date	2021 (anticipated)
Development Timeline	2.5+ years
Property Area	1.02 acres
# Units	7
Developer Entity	Matt Tingle (property owner)
Lead Designer	Bob Smith, Smith Planning Group
Home Ownership	Fee Simple w / HOA
Layout	clustered, 7 detached units
Typical Unit	1,100+ SF; 2 BR, 2 BA; 1 1/2 stories; 2 parking spaces
Home Prices at completion	anticipated $200,000+ (market-rate for Normaltown neighborhood)
Common House	650 SF (proposed)

Sources: (Smith 2019) (Tingle 2019)

Neighborhood Context

Figure 3.17. Site context map for Millard Avenue. The context map shows the subject site and proposed pedestrian easement connecting Hawthorne Avenue. The map also shows the location of the closest bus stops on Hawthorne Avenue (adapted from Smith Planning Group 2019).

Most of the site had a zoning designation of Single-Family Residential District RS-8 and a Traditional Neighborhood designation on Athens-Clarke County's Future Development map. An 0.11-acre tract in the southwestern corner had a commercial zoning designation of C-G along with a Main Street Business designation on the county's Future Development map (Smith 2019).

The entire site was rezoned to RS-5 Planned Development and is intended to serve as a transition zone between the commercial zones to the west and the conventional residential zones to the east and north. The surrounding homes along Clover and Millard predominately consist of conventional single-family residences zoned RS-8, and the surrounding neighborhood is designated as a Traditional Neighborhood on the Athens-Clarke County Future Development map (Smith 2019).

Site Description

Figure 3.18. Proposed site plan by Smith Planning Group (adapted from Smith Planning Group 2019).

The site is currently occupied by two existing homes of 1250 and 900 square feet. Both homes will be demolished as part of the redevelopment process. The vegetation onsite consists of mature oaks and a few pine trees for the canopy layer, while the ground plane features invasive exotics—including Chinese Privet and English Ivy—along the eastern and western property lines. The site slopes gently down from Millard Avenue to the back of the site (Smith 2019).

The new development will feature seven detached single-family residential homes clustered around a central greenspace owned in common among the residents (see Figure 3.18). Each home is anticipated to be a minimum of 1,100 square feet and will accommodate two to three bedrooms. The homes will have individual fee-simple lots of a relatively small size to maximize common open space. To meet this goal, the developer will strive to preserve approximately 40% of the site as common open space (Smith 2019).

The development will maintain the required setbacks of RS-8 for the adjacent residential parcels, but within the development itself, front and side-yard setbacks will not be incorporated; instead, a minimum twelve-foot building separation will be observed to meet fire safety regulations. Furthermore, a Homeowners Association will be formed to govern and assess fees for the maintenance of the open spaces and the private drive (Smith 2019).

Notable Design Factors Promoting Social Interaction

Walkable Neighborhood

Currently, the surrounding neighborhood is not very walkable or bicycle-friendly, although it is still one of the more walkable neighborhoods in Athens. Neither Clover Street nor Millard Street offer sidewalks along the adjacent blocks (see Figures 3.19 and 3.20). One must walk three blocks north along Clover to Gilmer Street to arrive at a sidewalk. However, Sunset Drive—just one street over from Clover—has a sidewalk on the western side of the street.

Easy access to groceries, work, and retail is limited if travelling by bicycle or on foot. Access to the University of Georgia Health Sciences Center is relatively easy—as it is just off Oglethorpe Avenue—and can be reached by a 0.8-mile bicycle trip. However, bicycle and pedestrian access for other types of daily commuting activities is quite limited. At a minimum, the shops along Prince Avenue are still a mile away, and they provide very limited options for staples such as groceries.

The walkability of the immediate streetscape along Millard Street will greatly improve if a proposed pedestrian easement connecting Hawthorne Avenue and Millard is constructed (see Figure 3.17). Full connection between Hawthorne and Millard is not guaranteed, as the proposed pedestrian easement will still require an easement agreement with the property owners of three separate parcels. If full consent is obtained, a mere 450-foot walk along the easement will be all that is required to access Hawthorne Avenue. In addition to providing shorter access to the wider array of shops lining Hawthorne Avenue and Alps Road, the proposed easement would also be near two bus stops along Hawthorne Avenue.

Figure 3.19. View of the current site entrance from Millard Avenue. *Photo by Author.*

Figure 3.20. View along Millard Avenue looking east. No sidewalks are provided for either side of the road. *Photo by Author*.

Protected Pedestrian Space

In line with historical cottage courts, car traffic will be confined to the edge of the site and will not invade the shared pedestrian space. A single private drive from Millard Street will provide access to a parking lot along the western edge of the site. Two parking spaces will be provided for each home, with one of these spaces under a covered carport. The carport will also provide storage spaces for each housing unit. The other provided parking space will be on exposed gravel. As required by code, four on-street parking spaces will be included along Millard Avenue (Smith 2019).

Provision of Common Facilities

The site will feature multiple communal amenities. The initial site design and application report calls for a fire circle, a children's playground, perennial and vegetable gardens, and an open central lawn. The site will also feature a small common house of approximately 650 square feet centered along the southern edge of the site. Each house will also have a usable front porch with a minimum depth of 6 feet to further encourage outdoor activities and interaction among the residents (Smith 2019).

Privacy Gradient

The site clearly establishes a progression of privacy thorough various design elements. The site has two distinct entrances into the community. One entrance is situated at the front of the site along Millard Street and adjacent to the on-street parking. This entrance appears to be the primary entrance for guests entering the site and marks the transition from the public space of the street to semi-public space of the development

edge. The pedestrian entrance off the street will feature a border of shrubs on either side to help define the edge of the site. The plantings will also create a compressed entryway that fosters a sense of arrival. To the east of the entrance path, there will be two cottages fronting Millard Avenue. These two cottages extend a welcoming gesture to the wider community and further reinforce the legibility of the entrance.

Potential guests will walk down a paved pathway to the west of the front cottages and arrive at the central greenspace. This central greenspace can be considered the next layer of privacy along the privacy gradient. The front edge of this space will feature a massing of perennials to help create an attractive garden space. The pathway splits at the head of the greenspace and walking down either path will lead one past a central lawn and toward the common house at the southern end of the site, where the two paths once again converge. The remaining five homes will be clustered around the central greenspace and adjacent to the pathway encircling the central greenspaces. Four of the homes will be clustered along the eastern path, and the front facades will line up in a build-to-line fashion to increase uniformity (Smith 2019).

Access from the parking areas is provided by a paved sidewalk located at the center of the covered parking space area. The transition from the residential parking to the central greenspace appears to be less distinct than the transition from the on-street parking to property boundaries. Moreover, there appear to be no visual screens—such as a hedge—to shield the parking and traffic from the central greenspace.

The homes will feature covered front porches with a minimum depth of six feet to create a usable space that functions as an outdoor room. These front porches will function as transitional buffer zones that mark the transition from the semi-private central

greenspace to the more private front porch space at the entrance of each house. Currently, there appear to be no other design elements—besides the central pathway— that clearly mark the transition from the semi-private greenspace to the private, individual lots. The side yard spaces between the homes also represent a potential area where private lot lines are ambiguous. At a minimum, these side yards will have a width of twelve feet to meet fire safety regulations.

Creating a usable side yard whereby the south-facing side yard is fully owned by the adjacent home to the north is one possible solution to address this ambiguity where it exists. Other design elements, such as adding low, wooden fences to delineate the private lot boundaries, offer additional solutions to create an additional layer of privacy between the front porch space and the common green. As an added flourish, a perennial border could be added in front of the front-yard fences to create a softer edge.

The row of four houses along the eastern edge of the site also has the potential for the creation of private outdoor spaces attached to the back side of each house. These spaces could function like the backyard spaces in a traditional single-family home, where visual screens such as fences and shrub borders help define the spaces and enhance visual privacy.

Sense of Enclosure

In general, the site will have a strong sense of enclosure for the residents. Articulating the northern boundary of the development with shrub plantings helps define the front edge while creating a clear transition zone between the public street and the semi-public entrance to the development. There is a clear and unambiguous entrance

pathway for guests to enter the development from the on-street parking. Furthermore, the site's location on a quiet street corner away from busy intersections further adds to the sense of enclosure. It is unlikely that strangers will inadvertently wander into the development, which should increase the feeling of safety among residents in the community.

Visibility into Common Spaces

The site provides a good line of sight into the common green for six of the seven homes. In addition, it appears that six of the seven homes will have unobstructed views into the common house from their respective locations. As a possible design improvement, the two homes fronting the street could be shifted slightly to the west to create unobstructed views into the common spaces for all seven houses. However, such a move might interfere with preserving the two existing trees situated to the west of these two homes.

The key design elements that are most likely to have the greatest effect on influencing social interaction are listed below in Table 3.6. The positive influences are shaded in green, whereas the negative influences are shaded in red. Overall, the development appears to have more positive influences than negative influences affecting social interaction.

Table 3.6. Millard Avenue Findings

Summary of Site Features Possibly Influencing Social Interaction	
Positive Influences	**Negative Influences**
1.Sociable Scale: Seven-unit cluster size	1. Poor visibility into common house for one of the homes fronting Millard
2. Moderately walkable neighborhood	2. No sidewalks for adjacent blocks along Millard Avenue and Clover Street
3. Common house	3. No current pedestrian easement to Hawthorne Avenue
4. Extensive provision of communal amenities, including a fire circle, children's playground, and a community garden	4. Lack of fences or vegetative borders to delineate private lots
5. Strong sense of enclosure for common spaces	5. No visual screens for private backyard spaces
6. Multiple layers of privacy, including semi-private front porches for each unit	6. No visual screen between the residential parking and the central greenspace
7. Additional storage space provided for each unit in covered carport	
8. Unique, Craftsman-style homes	
9. Small houses with small lots to maximize common open space (approx. 40% of site)	
10. Parking and vehicular traffic confined to the western edge of site	

CHAPTER 4

DESIGN GUIDELINES

The design guidelines developed in this thesis are influenced by those created in the influential book *A Pattern Language,* written by Christopher Alexander, Sara Ishikawa, and Murray Silverstein in 1977. Although all the authors were architecture professors from the University of California, Berkley, Christopher Alexander is the most well-known of the three architects and has been noted by contemporary commentators for his unconventional views regarding architecture and environmental design (Pollan 1997, 74). His book is essentially a compilation of 253 design guidelines—or "patterns," in his words—presented as possible solutions to recurrent design problems faced by human cultures throughout history. The authors state that many of the patterns are "archetypal," meaning that they can be considered immutable design principles deeply engrained in human nature (Alexander, Ishikawa, and Silverstein 1997).

Each pattern is written in a general and abstract way to make it more flexible when applied to the unique circumstances of a particular place and environment. This added flexibility can be considered an asset and stands in contrast to more rigid rules. A rule establishes clear and direct guidelines without much room for interpretation, whereas a pattern raises issues that need to be considered while providing possible solutions. A pattern allows the individual to use more of his/her knowledge and intuition regarding the

unique features of the particular environment, whereas a rule is more likely to result in trying to force a design to fit within the particulars of a certain place.

Alexander's patterns have proven popular with designers, and many continue to cite the book when justifying certain design decisions. In fact, the designer of the Lake Claire cohousing community cites the book as major influence on his designs (Ramsey 2019). Ross Chapin also cites the work as a major source of inspiration (Chapin 2019). The unique format of the book has been used in subsequent books containing design guidelines, such as *With People in Mind* by the prominent environmental psychologists Rachel and Stephen Kaplan (1998). The Kaplans employ Alexander's pattern style in their guidelines for the design of green spaces such as parks, corporate grounds, and backyard gardens. They acknowledge *A Pattern Language* as their chief influence when choosing to establish their guidelines in the pattern format and praise the flexibility of the format, as they believe that "there is rarely a solution that is universal" when confronting the unique design issues presented by each site (Kaplan et al. 1998, 3).

In a similar vein to *A Pattern Language,* the guidelines established in this thesis are roughly ordered from the largest scale, dealing with the design of the surrounding neighborhoods, down to the smallest scale, which includes construction details for individual houses. This format helps better acknowledge the interconnections among patterns of different scales. The larger-scale patterns—such as neighborhood design and community input—will generally shape and influence the patterns of the smaller scale more than the inverse situation and thus should be considered prior to delving into smaller details.

What follows is a list of proposed design guidelines for increasing social interaction within cottage clusters. The list was developed through examination of the existing scholarly research along with interviews with experts within the fields of design, planning, and real estate development. The list of principles is far from exhaustive, but it attempts to include the key design elements that this research has indicated have the greatest positive effect on promoting social interaction within a cottage cluster. The design guidelines begin by addressing the site selection process and the approach that should be taken in the initial design process. Next, the list includes essential elements that should be applied to every project. The list concludes with a list of optional features that can further increase social interaction; these optional features might be considered essential in a certain context, but given their conditional nature, they are included as non-essential features in this list. Moreover, both the essential and non-essential lists are ordered by their effect on social interaction—the items with a greater positive effect on social interaction are given at the beginning of the list, and those with the least effect are given at the end.

As a final note, each guideline has a similar format. First, a picture or diagram is presented that provides an illustration of the guideline. Then, a more detailed discussion of the guideline follows; this discussion section also provides evidence supporting the guideline. Finally, at the end of each section, the guideline is summarized in a few instructional sentences.

Essential Design Elements

1. Walkable neighborhood

Figure 4.1. A pedestrian street in Habersham, South Carolina (Congress for New Urbanism, n.d.).

The first pattern addresses the surrounding neighborhood context outside of the boundaries of the pocket neighborhood development. Most of the pocket neighborhoods developed under the Ross Chapin model are suburban infill projects. Suburban infill attempts to increase density within a suburban neighborhood by adding more housing units within a given residential area.

Increasing density within a low-density residential neighborhood—such as a typical suburban neighborhood composed of single-family detached homes—can alter the character and function of the neighborhood and lead to resistance by the neighboring residents. To address concerns related to increasing density, such as increased traffic loads on the residential streets, the pocket neighborhood should attempt to minimize its impact, ideally by locating the development in a transition zone between an area with higher density and more intense uses and a standard residential zone.

The location of the development within a transition zone helps to create a more seamless transition between the denser zone—which can include both residential and

commercial areas— and the residential zone. The cottage cluster should also be within walking distance of adequate public transportation to reduce car use and car ownership among the new residents of the cottage cluster. This advice was offered through consultation with a local planning department official involved in the review of a pocket neighborhood project within Athens, Georgia (Lonnee 2018).

Decreasing car use among the residents of pocket neighborhood also helps increase opportunities for social interaction with the surrounding neighbors by encouraging more walking through the neighborhood for daily errands. Moreover, creating a more walkable environment addresses criticisms that pocket neighborhoods could be too insular and closed off from the surrounding neighborhood. This criticism was raised on multiple occasions during the public hearing for a rezoning request tied to the development of the aforementioned pocket neighborhood development in Athens (ACC Planning Commission 2019). Encouraging more social interaction with the surrounding neighbors through chance encounters along the shared sidewalk can help address this criticism. Furthermore, encouraging more walking can increase opportunities for social interactions among residents of the cottage cluster—where interactions occurring outside the development can possibly carry over to interactions within the development.

Decreasing car use among the residents also allows for less land devoted to parking. More land can then be devoted to other uses that better promote social interaction among residents. Excessive land devoted to parking and neighborhood design that prioritizes the needs of the car over the pedestrian has been criticized by numerous

researchers for the deleterious effects such choices have on social interaction within a neighborhood (Duaney, Plater-Zyberk, and Speck 2001; Gehl 1987; Jacobs 2011).

In contrast to the car-centric design of the typical suburban neighborhood, New Urbanism—also known as Neotraditional development—has been found to enhance social interaction and sense of community in numerous studies. One study of two comparable neighborhoods in Portland found sense of community to be greater in the pedestrian-oriented neighborhood as opposed to an automobile-oriented neighborhood. The pedestrian-oriented neighborhood was developed in the early 1900s and included many of the features common to neighborhoods of that time, including small, narrow lots; a gridded street pattern with short blocks of approximately 200 feet; narrow streets; a continuous network of sidewalk lined with shade trees (see Figure 4.1); and front porches located near the sidewalks (Lund 2002).

In contrast, the automobile-oriented neighborhood included many of the design elements common to modern suburban neighborhoods built in the post-World War II era, including larger residential lots, a disconnected and curvilinear street pattern of cul-de-sacs, a lack of sidewalks within residential areas, large house setbacks with highly visible garages, and few street trees (Lund 2002).

Despite the importance of limiting the land area devoted to parking, a successful development can still provide two parking spaces for each housing unit along with a few guest parking spaces. Many of the pocket neighborhoods designed by Ross Chapin average less than two cars per household. Part of this circumstance arises because, in some cases, only one parking space was provided per household (Chapin 2011). However, in the larger development of Village Homes, where residents report higher

levels of interaction with one another compared to a traditional suburban neighborhood, the residents average less than two cars per household even when two parking spaces are provided for each house (Francis 2003; Owens et al. 1993). In light of this circumstance, it could be prudent to make one of the two parking spaces provided for each resident undesignated to help provide additional parking from unused parking spaces that belong to households with only one car.

It is possible that the unique parking circumstance in Village Homes arose because the residents were found to share similar values that differed from those of residents in a traditional subdivision. These values include an increased concern for environmental issues and sustainable living compared to residents in a typical subdivision. Therefore, the reduced levels of car ownership could be part of residents' effort to reduce their carbon footprint and mitigate the other negative environmental effects associated with excessive car use (Francis 2003). Regardless of the causes of this circumstance, the question of how best to accommodate the needs of the car through parking and road access is an important factor affecting social interaction and is further addressed by a subsequent guideline.

In summary, try to locate a proposed cottage cluster in a compact, mixed-use neighborhood that encourages walking and biking. Moreover, consider limiting the number of parking spaces for each household to two or less to further encourage walking and biking. Making one of the two spaces undesignated can help increase parking capacity if some households have only one car.

2. Community engagement

Figure 4.2. A design charrette in Charlotte, North Carolina (Hardy 2019).

At the earliest stages of planning a proposed cottage cluster development, the developer should receive community input for the designs through community meetings or design workshops (see Figure 4.2). Receiving community input might be a necessity, especially if the site requires rezoning to create the cottage cluster. Setting up formal or informal meetings and inviting residents from the surrounding neighborhood to participate in initial designs can help the designer gain valuable input for design features that meet the specific needs of the community. Moreover, making the effort to reach out to the community can help establish a strong base of local community support, which can be necessary for receiving approval for rezoning from local government officials (Smith 2019).

On a related note, the designers and developers should attempt to involve potential residents early in the design process. Not only can early resident participation help residents address their specific needs before too many decisions become irrevocable, but it can also help the residents foster early relationships with one another and with the designers and developers, allowing them to feel more invested in the community. Early

resident involvement in the design process is considered an essential element in cohousing designs, and such early involvement has been noted for the positive effect it has on forging relationships among future residents that carry over to daily interactions after project completion (Durrett and McCamant 2011, 236).

In summary, gather community input and support for initial designs through informal community meetings or formal design workshops. Start engaging the community at the beginning stages of the design process to receive better feedback and help residents forge early bonds that carry over to the post-completion phase.

3. Cluster of four to twelve cottages

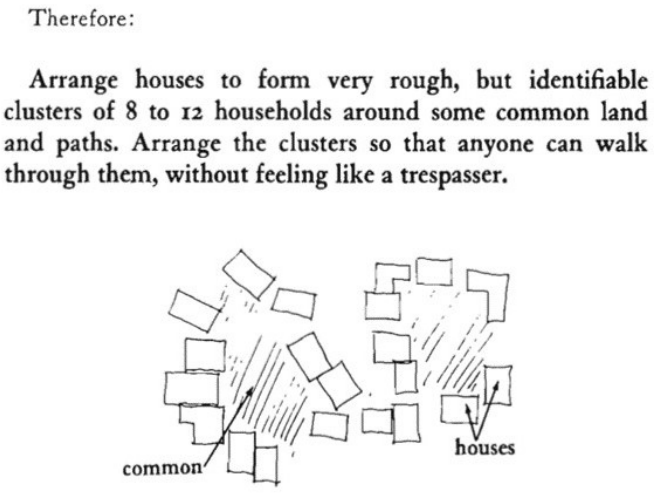

Figure 4.3. The original diagram for Pattern 37 from *A Pattern Language*. (Alexander et al. 1977, 202).

The recommendation for a small cluster aligns with Pattern 37 from Alexander, Ishikawa, and Silverstein's *A Pattern Language* (see Figure 4.3). In support of this cluster size, the authors state that developments with eight to twelve households adequately allow for a representative from each household to sit comfortably around a common table

to discuss the management of the central common space (Alexander, Ishikawa, and Silverstein 1997, 200). Chapin references a range of four to twelve houses, which he found through his experience in designing pocket neighborhoods to be the ideal number for supporting social interaction and sense of community among the residents (Chapin 2019). The developers of Village Homes created clusters of eight to ten households around a common greenspace, as they believed it be the optimal number for supporting social interaction. Their hypothesis was later supported by subsequent research showing the greater amount of social connection among the residents in the development compared to a traditional neighborhood (Francis 2003, 2).

A cluster size of four to twelve cottages is further supported by the cohousing communities to a certain extent. After trial and error with various sizes, the Danish cohousing authorities recommended that no cohousing community should contain more than fifty adults. Most American cohousing communities appear to have heeded this advice, as most cohousing developments accommodates a range of fifteen to thirty-four households (Durrett and McCamant 2011, 31). Coincidentally, the Atlanta area is home to both the largest cohousing community and the smallest cohousing community in the United States; East Lake Commons in the Atlanta suburb of Decatur holds the distinction of being the largest cohousing community, at sixty-seven units, while Lake Claire Cohousing in Atlanta contains only twelve housing units (Jenkins 2017).

Although most cohousing examples in America fall outside the recommended range of four to twelve households for a cottage development, many of these developments are arranged as multiple clusters of approximately eight to ten units (Chapin 2011). The cohousing developments that feature multiple clusters of

approximately a dozen homes around a central common space can provide a template for how multiple pocket neighborhoods can be combined to create a larger community connected by pedestrian walkways.

Dropping the lower range from eight to four is supported by research related to small-group dynamics. Specifically, this reduction helps ensure optimal group management of the common spaces. Research related to small-group psychology has suggested that groups of five to seven people are ideal for completing decision-making and action-oriented tasks (Pennington 2002, 79).

This small group size is recommended, in part, because the number of potential communication links within a group exponentially increases as group size increases. The number of links among members in a group can be expressed by the formula: [N*((N-1) / 2)], where N represents the group size. Using the formula, one can see that a group size of four has only six unique pairs among members, whereas a group size of twelve has sixty-six. As group sizes become larger, and the complexity of interactions increases, the group becomes more vulnerable to negative group dynamics that hinder task performance, such as social loafing or the incorrect assessment of the contribution of individual team members. In view of these findings, the Harvard professor who conducted the research related to negative group dynamics strictly enforced group sizes under six for all student projects in his classes (Hackman 2005, 134).

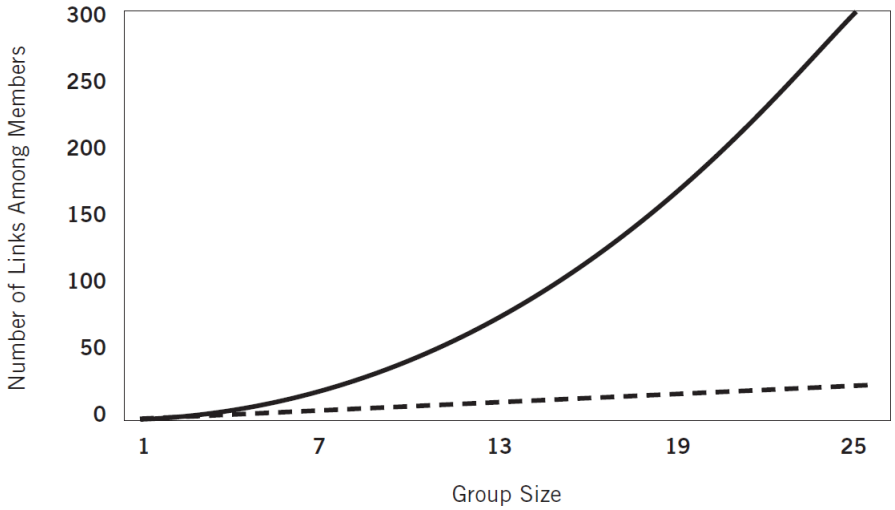

Figure 4.4. Graph by Richard Hackman: *Group Size and the Number of Links among Members.* This graph shows the relationship between group size and the number of unique pairs among the group. The number of unique pairs increases exponentially with a rise in group size. The dotted line shows a linear 1:1 relationship as a reference (Hackman 2005, 134).

Not only can larger group sizes lead to the development of negative group dynamics, they can also lead to a loss of privacy and a diminishing sense of control for each inhabitant of the environment. An individual's sense of privacy can vary greatly from person to person and is affected by variables such as socio-economic status, prevailing cultural norms, and personality characteristics (Churchman 1999). Despite high levels of variability in the subjective sense of privacy, a commonality across all circumstances is the ability to exert control over one's environment. Indeed, most definitions of privacy have one thing in common: they stress that privacy is intimately tied to an individual's ability to control his/her visual, auditory, and olfactory interactions with others (Lang 1987, 110). If there is too little privacy within the development, it can lead to a subjective feeling of crowding. Crowding can be viewed as lying on the opposite end of the privacy spectrum and is associated with a strong feeling of a lack of control over one's environment. Under such circumstances, individuals are more likely to

withdraw from social interactions to regain a greater sense of control over their environments (Lang 1987, 147).

It is also worth considering cluster sizes of four to twelve in relation to research on natural social network sizes in humans. Robin Dunbar, a British anthropologist and evolutionary psychologist, has hypothesized that humans are only able to maintain stable relationships with approximately 150 people at one time. In support of this claim, Dunbar researched the relationship between group size and neocortex size in primates to predict a cognitive limit of 150 stable relationships for each human. His research was supported by census data covering a range of tribal and traditional societies showing that groups of 150 individuals were a common feature in such societies (Dunbar 1993). Recent research by Dunbar has supported his hypothesis in contemporary societies. In one study, he conducted a survey assessing individuals' Christmas card lists and found an average network size close to the predicted 150 social network size (Dunbar 2003).

Dunbar's number represents a compelling hypothesis that has possible implications for determining the ideal size for a larger development—such as one modeled after a Village Homes-type development—comprising multiple pocket neighborhoods. Even within a network of 150 individuals, Dunbar has posited that there are hierarchical subgroups ordered by frequency of contact; he speculates that the most intimate group consists of a support clique of five persons, followed by a sympathy group of twelve to fifteen members (Dunbar 2003). The speculated size of the support clique is bolstered by a 2009 national sample of American households that found that Americans have an average of 4.4 close social contacts, with the majority falling within a range of 2.6 to 6.2 (Christakis 2019, 260). These close social contacts included spouses and

siblings, along with non-family members. Similar results have been found around the world, where people of various nationalities have been found to have approximately four to five close social ties on average (Christakis 2019, 260).

Determining whether there is a universal range for the second-smallest subgroup has possible implications for setting the ideal range of a pocket neighborhood cluster, as many individuals within pocket neighborhoods appear to develop strong friendships that contain attributes of a sympathy group, which Dunbar defines as the first group that can include non-family members (Dunbar 2003; Francis 2003; Torres-Antonini 2000).

In summary, arrange the cottages in a cluster of four to twelve around a central common space that is collectively owned by the cottage cluster. Ensure that the main entrance for each cottage is oriented towards the central common space.

4. **Smaller houses on smaller lots**

Figure 4.5. The front entrance of a 1,200 square-foot cottage in Bend, Oregon (Tyee Development 2016).

To help ease the disruption of creating a development with double the density of the typical suburban zone, the overall size of each unit should be kept small (see Figure 4.5) (Chapin 2011). As an added benefit, a smaller footprint for each home allows for more space to be devoted to the common greenspace and other communal features. Furthermore, since most cottage clusters are located on lots of approximately one acre, houses with a smaller footprint might be a necessity to enable a cluster size of four to twelve houses.

Chapin does not offer an exact figure for the ideal square footage range for each housing unit, but many of his developments feature detached houses with a square footage of approximately 1,000 square feet (Chapin 2011). Also, many city ordinances for cottage clusters have a range between 1,000 and 1,200 square feet (Kovacs and Spevak 2016, 7). This range is much smaller than the median size of an American family home, which has been listed at 1,600 to 1,650 square feet for all existing homes while exceeding 2,000 square feet for newly constructed homes (Pinsker 2019).

There are a few ways to make smaller houses more appealing to the general public. For one, a strong environmental argument can be made in favor of smaller houses. One study found that a 1,500 square foot with average energy performance standards will use far less energy for heating and cooling than a 3,000 square foot home with superior energy performances standards (Boehland and Wilson 2005). To further make smaller houses appealing to a broader pool of potential buyers, Chapin offers a few design guidelines for making a small house seem large. These recommendations include adding an abundance of natural light with high ceilings, large windows, and skylights; creating a 1-½-story cottage with a loft space accessed by a ship's ladder; and ensuring adequate

storage space by including a multiple storage spaces inside the house along with an outdoor storage room near the parking area (Chapin 2011; Chapin 2016).

In addition to overall size, the question of whether the housing units should be detached or attached is worthy of further study. One recent survey conducted by the National Association of Home Builders found that most homebuyers (sixty-five percent) still prefer to own a single-family detached home (Quint 2016). Although many cohousing communities that report high levels of sociability feature attached housing units, it could be considered more prudent to appeal to a larger potential market with detached housing to encourage developers to build more cottage clusters. The issue of detached versus attached housing's effect on measures of social interaction is beyond the scope of this research and warrants further study.

In summary, keep the square footage and lot area for each home in a range smaller than the average size of newly constructed homes in the United States. Typically, this approach translates to houses with square footage ranging between 600-1800 square feet and individual lot sizes of approximately 3,000 square feet.

5. Traffic and parking along the outer edge

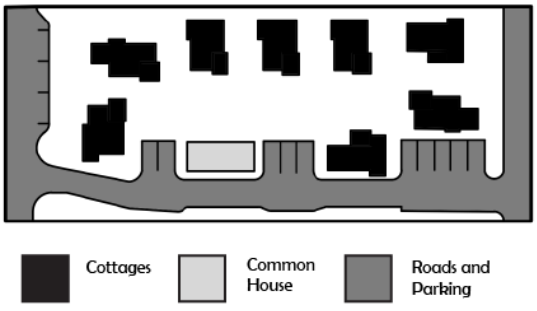

Figure 4.6. Diagram showing the site layout for a typical cottage cluster. Parking and traffic are confined to outer edge of the development to create an interior pedestrian space protected from car intrusion. *Image by Author.*

This guideline accords with those offered by multiple designers concerned with creating vibrant, pedestrian-friendly spaces in residential settings. A similar recommendation is found in the general design guidelines for cohousing developments, along with the guidelines developed by Ross Chapin for his cottage cluster developments (Durrett and McCamant 2011; Chapin 2011). This guideline is also in harmony with the patterns developed by Christopher Alexander and is a requirement to fulfill many of his patterns, such as pattern 37, which calls for arranging clusters of 8 to 12 houses around an area of common land and pedestrian paths (Alexander, Ishikawa, and Silverstein 1997, 202). Parking confined to the outside edges is also a common feature of most cohousing developments. The high levels of observed and self-reported social interaction within these communities gives further credence to the guideline's utility in promoting such interactions (Cooper Marcus 2000; Durrett and McCamant 2011).

Christopher Alexander addresses parking in multiple patterns spread across the book. Pattern 22 advocates that no more than nine percent of the land in any given area be devoted to parking. Pattern 97 recommends that all parking be shielded with visual barriers, while pattern 103 attempts to further curtail the influence of the car by calling for small parking lots that serve no more than five to seven cars (Alexander, Ishikawa, and Silverstein 1997). The guiding ethic behind these patterns is an attempt to reclaim the built environment as an environment that prioritizes the needs of people over those of the car. In support of Pattern 22, the author claims that when the density of cars passes a certain threshold, people begin to subconsciously feel that they no longer have any ownership or agency over such an environment; in a sense, it becomes a place for cars

and not people (Alexander, Ishikawa, and Silverstein 1997, 122). This claim is further supported by the effect created by all the additional infrastructure required to service the car—i.e., the roads, garages, asphalt, and concrete structures that are all needed to accommodate the car and provide little use for humans outside of driving concerns.

Although many of these parking recommendations offered by Alexander are compelling and align with our intuitions, there is a lack of empirical evidence to support claims such as limiting parking to nine percent of a given area or restricting each parking lot to five to seven parking spaces. Ross Chapin advocates for similar measures, such as confining parking to the edge of the site, shielding it with vegetation, and allowing parking areas of no more than five parking spaces per cluster (Chapin 2011; Chapin 2016). As a compromise, given the lack of formal research suggesting a causal link between vehicular design prescriptions and social interaction, the guidelines in this thesis recommend only confining parking to edge of the site along with screening the parking with soft elements such as vegetation. Although there appears to be a lack of formal research suggesting a positive relationship between visual screening of parking and social interaction, its inclusion does support other guidelines developed in this thesis—primarily, the guideline of creating a strong sense of enclosure within the development, which is tied to more robust research.

As a possible downside of locating parking along the periphery, it can lead to a larger amount of the land devoted to hardscape compared to locating the parking area in a central location (see Figure 4.6). In order to mitigate this potential problem, runoff should be treated at the source with a variety of infiltration practices. Some of these practices could include using pervious pavers for the driveway and parking lot and incorporating

additional conveyance features including grassed swales, raingardens, and dry stream beds.

In summary, locate roads and parking along the outer edge of the development to create an interior pedestrian space that is free from car intrusion. In addition, consider shielding the parking with vegetation to further curtail its influence on the protected pedestrian space.

6. Clear and gradual transition between public and private spaces

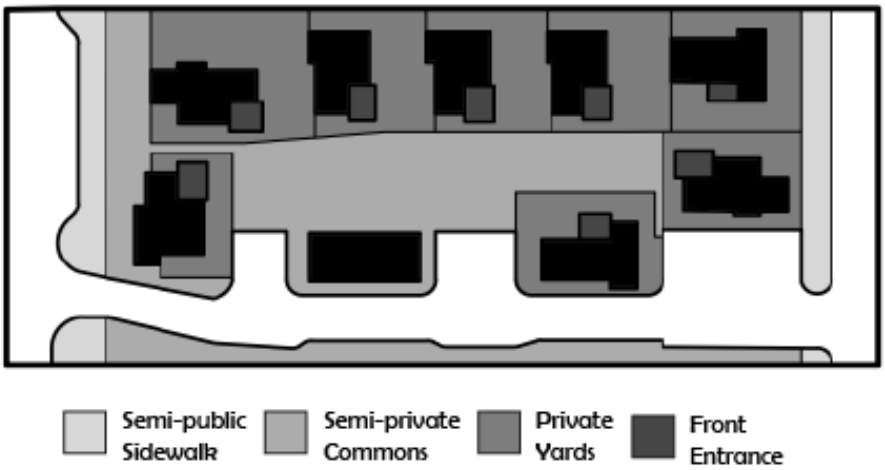

Figure 4.7. Diagram depicting the outdoor privacy layers of a cottage cluster. *Image by Author.*

This pattern addresses how people perceive the spaces within a pocket neighborhood along a public-private gradient composed of public, semi-public, semi-private, and private layers. Within the context of a cottage cluster development, the adjacent public streets can be considered the public space. The semi-public space will usually encompass the sidewalk space at the outer edge of the development, while the semi-private space begins at the property line of the development (see Figure 4.7). The

private layer will usually encompass the interior of the homes along with any backyard spaces that feature adequate visual privacy.

A useful distinction offered by researchers to help distinguish a semi-public space from a semi-private space concerns the ownership of such spaces. Semi-public spaces can be described as areas that the residence owners do not own but over which they nevertheless feel a sense of ownership. A public sidewalk in front of a private development would be an example of such a space. In contrast, semi-private spaces are described as being owned in association with others, or those that, if they are privately owned, are subject to surveillance by others outside of the privately owned area (Lang 1987, 150). The common green in a pocket neighborhood would be a good example of semi-private space that is owned collectively, while the front yard and porch of a private residence would both be examples of semi-private spaces with private ownership.

Each privacy layer should have clear boundaries to separate it from the other layers. These boundaries can take the form of conspicuous barriers such as gates, barriers, and railings, or may be provided by the softer definitions offered by hedges, raised flower beds, or a change of pavement. The boundary between public and semi-public areas is usually defined by the roadside curb and is usually beyond the control of designers. The transition from semi-public to semi-private deals with the entry points into the pocket neighborhood community. Chapin advocates including design elements such as a trellised entry gateway located at the public sidewalk entrance into the development (Chapin 2016). The sense of arrival can be further accentuated by narrowing the entrance with vegetative barriers planted along each side of the entrance pathway. Entry points from the

parking lot also can also be compressed with vegetation to enhance the sense of arrival and to provide a greater sense of enclosure within the development.

Research suggests that providing a strong sense of enclosure for the shared commons can increase social interactions among residents (Cooper Marcus 2000). To achieve this enclosure, vegetation should be given priority over harder materials like wooden fences or stone walls. Vegetation provides a softer edge and sends a more welcoming message to outsiders compared to the less friendly gesture implied by a wall or fence (Marcus and Francis 1998).

After moving through the entrance and into the shared common space, the next layer of privacy occurs at edge of the front yards for the individual houses. This layer marks the transition from the semi-private, central greenspace to the private land owned by the individual homeowners. Much like the transition from semi-public to semi-private at the entry points into the community, there should be a physical barrier to demarcate individual houses' privately owned land. Chapin recommends both a border of plantings and a low fence to delineate the boundaries for the private front yard (Chapin 2016). Viewed from the central green, the border of plantings would be in front of the low fence and would help soften the edge of the low fence. At minimum, a border of plantings along the outer edge of the central pedestrian pathway would suffice to create some sense of private ownership of the front yard space up unto the pathway's edge.

The next layer of privacy concerns the semi-private buffer zone adjacent to each home's entrance. This layer markers the transition from the semi-private outdoor space to the private interior of each home. This final transition layer is a crucial feature that is covered in more detail in the next guideline.

The same principle of creating a gradient of privacy applies to the interior layout of the house as well; the more active rooms, such as the kitchen, should be at the front of the house, while more private rooms, like the bedroom, should be confined to the rear of the house. Placing active rooms at the front of the house allows for more surveillance and visibility into the common area, which can lead to more social interactions as one can more readily see social activities in which one might wish to engage (Williams 2005).

In summary, clearly define the boundaries for at least three layers of outdoor spaces that correspond to increasing degrees of privacy. These three boundaries include: the boundary along the property edge, the boundary between the interior common space and the private yards of the cottages, and the boundary between the private yard and the front entrance of each home.

7. **Buffer zones**

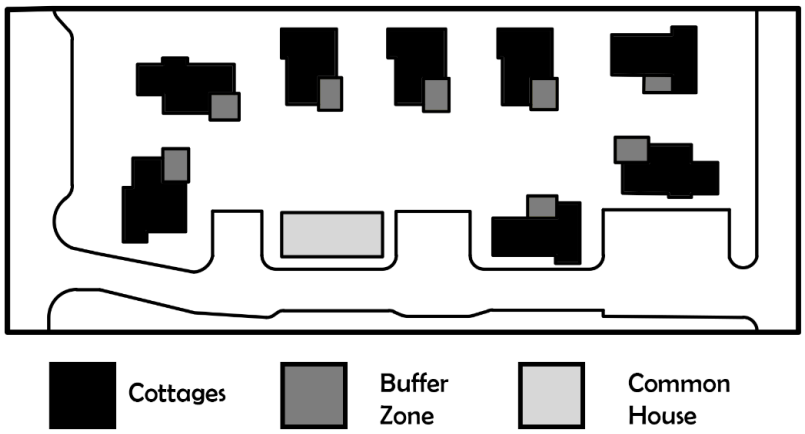

Figure 4.8. Diagram showing the front entrance of each cottage, shaded in dark grey. The front entrance acts as a buffer zone between the private interior space and the more public common space of the central green. *Image by Author.*

The semi-private front yard is crucial for enhancing social interaction among neighbors. The importance of this space for sociability was one of the central insights gained by the acclaimed urban designer and public life researcher Jan Gehl in his studies of residential neighborhoods (Gehl 1987). Gehl refers to the semi-private front yard as a "soft edge" since this space provides a soft transition from the private life of the home to the more public life outside the front door. Likewise, this buffer zone allows residents to exert more control over their interactions with the outside environment, as they can choose to engage in solitary activities—such as reading or gardening—while still leaving open the possibility to engage with nearby neighbors (Gehl 1987). Ideally, this front yard space should provide enough room for a garden plot, which would encourage sustained outdoor activities among residents, thereby increasing further opportunities for social interaction.

This buffer zone marks the transition from the front yard to the front entrance (see Figure 4.8). Either a private garden or a front porch alone would fulfill the bare minimum requirement of creating Gehl's soft edge; however, this thesis is concerned with optimizing social interaction within a pocket neighborhood, and therefore, both a front porch and a front yard garden space are recommended. If a choice must be made between the two options, a front porch should be given priority as Chapin considers it to be one of the most important design features for fostering interactions among residents (Chapin 2016). Likewise, other research related to social interaction in residential settings has found a front porch to be a key design element for enhancing social interaction (Bothwell, Gindroz, and Lang 1998).

Ideally, the front porch should feel like a room; it should have a depth of at least six feet to accommodate several chairs and a table and should also face onto the commons. Chapin also recommends adding flowerboxes supported by a low railing to enclose the porch as added flourishes that can increase the use of the space by the residents while also making it feel more like a room with a strong sense of enclosure (Chapin 2016).

In summary, include a semi-private buffer zone attached to the front entrance of each cottage. A room-sized front porch would be best, although other features such as a covered patio or private garden provide adequate alternatives. Ideally, both a private garden and front porch should be included if they can fit within the project constraints.

8. **Clear view into the commons**

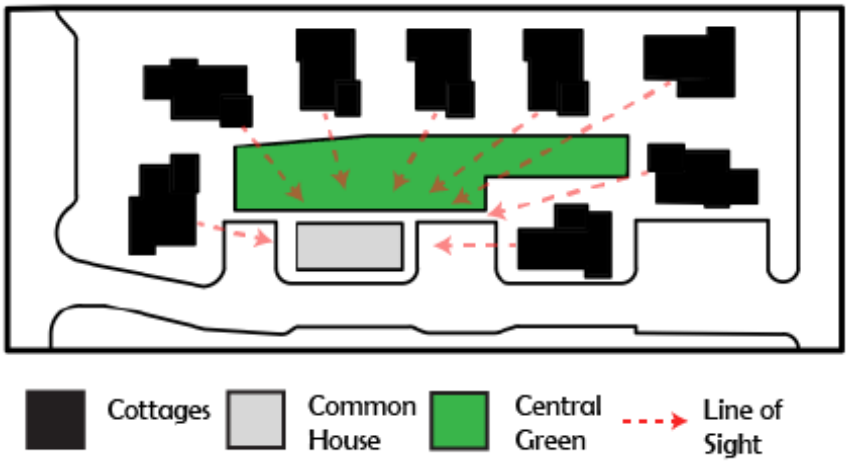

Figure 4.9. Diagram showing the clear line of sight from each individual cottage. *Image by Author.*

Research on cohousing communities suggests that having a clear view into the common spaces from the vantage point of each cottage (see Figure 4.9) can lead to increases in social interaction while also increasing the sense of community within the development (Cooper Marcus 2000; Williams 2005). To achieve this end, placing the active rooms—such as the kitchen and dining area—at the front of the house allows for more surveillance and visibility into the common area. This improved visibility can lead to more social interactions, as one can more readily see social activities one might wish to engage in (Williams 2005).

In addition to this benefit, placing the active rooms at the front of the house allows for increased surveillance of the common spaces, which can increase the sense of security within the community. This increased sense of security can, in turn, promote more social activities. The increased opportunities for surveying the common areas also allows for surveillance of young children during play activities without interference from

adult supervisors and allows residents to easily notice the presence of any strangers who wander into the community.

Ensuring good surveillance of the residential common spaces by the surrounding residents is one of the chief guidelines developed by the city planner and architect Oscar Newman through his studies of high-rise apartment buildings. Providing good visibility into the common areas helps create defensible space—a term Newman coined to describe a residential layout that fosters a sense of ownership among the residents for the common areas, which, in turn, allows them to become proactive agents in deterring crime in their development (Newman 1972). Good surveillance into common space is also similar to the concept of Jane Jacob's concept of "eyes on the street," which she developed to describe convivial neighborhoods that feature good surveillance of their streets by their respective residents (Jacobs 2011).

In summary, arrange the cottages and central communal features so that each cottage has a clear view of the central activity sites.

9. Central commons as an open greenspace

Figure 4.10. The central green of Danielson Grove in Kirkland, Washington. (Ross Chapin Architects n.d.a).

The design of the central common area is a crucial element for either supporting or discouraging social interaction among neighbors. In many of Chapin's developments, the central common area is an open lawn (see. Figure 4.10). Chapin recommends dedicating at least a portion of this central area to a lawn to increase the flexibility of the space for supporting active uses such as children's play or a game of croquet (Chapin 2016). He also encourages preserving one or two mature trees located in this area to give the development a sense of place while providing a focal point for the space (Chapin 2016).

Although preserving existing trees might conflict with the function of creating an open and flexible lawn, research has suggested that the existence of trees within residential settings can lead to increased opportunities for social interaction. One study of a public housing community composed of rowhouses found that the presence of trees in the outdoor public spaces adjacent to the rowhouses consistently predicted increased use of these outdoor areas by residents. Additionally, the results of the study indicated that the location of the trees was important, as more people spent time outside in locations where the trees were closer to the residential buildings (Coley, Kuo, and Sullivan 1997). This additional finding suggests that increasing the accessibility of the trees by locating them closer to residential buildings can lead to greater use of outdoor space. Applying this insight to pocket neighborhoods, the research suggests that preserving trees along the edges of central common areas should be given preference over preserving those in the middle of the space (Coley, Kuo, and Sullivan 1997). Following this recommendation

allows the center of the lawn to maintain an open character that supports a diverse range of functions.

The maintenance and management of the central green by the residents provides another opportunity for increasing social interaction among the residents. On the one hand, the easiest management strategy would be to create a Homeowners Association and hire outside professionals to manage this space, but such a strategy eliminates a key opportunity for enhancing social interaction among residents. On the other hand, leaving the greenspace completely in the hands of the residents could lead to the space becoming messy and unkempt, which could foster resentment towards those residents who might not contribute their fair share to the management and maintenance of the space. Such hard feelings could lead some residents to withdraw from social interactions.

As a possible remedy to this predicament, giving the residents the choice of how the space should be designed and managed can help them find an optimal solution to meet the particular needs of their community. This solution accords with the approach taken by the developers of Village Homes for the common greenspaces tied to each housing cluster. Each resident of a cluster received a small payment to go towards the landscape design of this common space and was told to coordinate with their neighbors for the design of the space (Owens et al. 1993). Such a strategy could help foster connections among new residents, and the high levels of documented social interaction among residents in Village Homes provide support to such an approach. The Village Homes approach also helps address the issue of whether other communal features, such as a firepit, children's playground, or community garden, should be included in the space. Moreover, initially keeping the space as an open lawn allows for optimal flexibility in

accommodating present and future uses of such a space and thus can be considered an ideal starting point for design guidelines covering the design of common areas.

In summary, design the central commons as an open and flexible greenspace that accommodates a diverse range of functions and allows for future alterations and management by the residents. In addition, consider preserving mature trees located along the periphery of the central green.

10. Visual Nesting

Figure 4.11. View of a side yard between two cottages in Third Street Cottages. The more open side of the house to the left faces the closed side of the house on the right (Chapin 2011, 68).

Nesting deals with arranging the houses so that the open side of one house faces the closed side of an adjacent house (see Figure 4.11). The open side refers to the side that has larger windows, more fenestration and contains active spaces such as the kitchen. This open side also faces onto the private yard and, ideally, should face south to increase natural lighting (in the northern hemisphere). The closed side of the adjacent house should have only high windows and skylights to prevent the adjacent neighbors from looking into these windows.

Visual privacy is a key consideration when trying to balance the needs for community with the needs for privacy. The renowned environmental psychologist Robert

Sommer found through his extensive research of living spaces, such as student dorms, that Americans mainly associate privacy with visual protections (Sommer 1997, 224). This guideline helps ensure visual privacy—especially in cottage clusters, where residents are more likely to live closer to one another compared to the typical suburban neighborhood.

In summary, arrange each home so that the open side of one home faces the closed side of the adjacent home. The open side refers to the side with more window openings, while the closed side has fewer windows that are at a higher elevation.

11. Personalization

Figure 4.12. Example of personalization within Third Street Cottages (Chapin 2011, 71).

This guideline concerns the design of the individual houses within a pocket neighborhood. Taking a craftsman approach to the design of these houses can lead to increased social connections. Using local materials and building traditions while designing each house in a unique fashion (see Figure 4.12) helps to foster a sense of pride in the community. Along with providing for a variety of floorplans, the houses can be differentiated through measures such as using different exterior colors for each home, using different exterior materials for the facades, and providing private garden spaces for

each home that can be individualized to suit the homeowner's tastes. Much like creating defensible space through the sense of enclosure, individualizing the houses in true artisanal fashion offers future residents a deeper personal investment in the development, which should translate to increased engagement within the community.

Increased individualization of the houses also allows future residents more options to select a house that better aligns with their personality, tastes, and needs. The process whereby an individual personalizes aspects of his/her built environment to better reflect his/her individuality and uniqueness is defined within human behavior research as personalization. Personalization has been found to be one of the key alterations that humans make to their environment (Zeisel 2006, 175). Increasing each resident's sense of ownership by fostering personalization in the design of individual homes should lead to more engagement in the community, which translates to more social interactions and more social cohesion.

In summary, differentiate the housing units by creating unique, customizable houses and private yards that reflect each resident's unique personality. Furthermore, provide multiple floor plans to accommodate a broad range of preferences and needs.

Optional Design Elements

12. Common House

Figure 4.13. The common house of Conover Commons in Redmond, Washington. (Chapin 2011, 89).

This guideline addresses the main communal building typically provided in cottage clusters. Although such a building is a common feature in many of Chapin's developments, budget constraints might prevent it from being included in some developments. Research has suggested that the common house can be a key design element for influencing social behaviors such as social interaction, community participation, group cohesion, and the sense of safety within a cohousing community (Torres-Antonini 2000). This finding is not surprising, as a common house is considered one of the essential features of cohousing communities (Durrett and McCamant 2011, 28). The common house can host a large array of highly social activities ranging from shared group meals and parties to group meetings involving management issues within the community. This area also can help ease the burden of living in the smaller houses typically found in cottage clusters and cohousing communities, where hosting parties and guests within one's house can present more of a challenge.

At the bare minimum, the common house should provide a gathering space to support resident parties and meetings, which entails providing adequate space for gatherings of small groups both within the common house and also in the adjacent outdoor space fronting the common green (see Figure 4.13). Within the common house, there should be at least a sink and bathroom to support small gatherings (Chapin 2016). Furthermore, the outside space should provide a hardscaped patio space to support outdoor gatherings. The common house's function as a gathering space can be enhanced by adding additional features, such as laundry facilities and a kitchen space. Research suggests that limiting kitchen and laundry facilities within the private housing units of cohousing communities and locating them in communal spaces such as the common house can lead to increases in social interaction (Williams 2005).

Another key consideration is the placement of the common house. Locating the common house in a central location near the highest volume of pedestrian traffic—such as adjacent to the middle of the parking area—increases passing foot traffic and allows for more interactions between residents using the common house and those passing by for daily commuting activities (Williams 2005). The central location also improves visibility of the common house from the individual houses, which promotes the guideline calling for clear views into the common spaces.

In summary, include a central common house when targeting certain resident profiles. If catering to a high-end clientele, the common house can be considered an essential feature, whereas it might be less feasible in an affordable housing development or one looking to achieve higher densities.

13. Community Garden

Figure 4.14. A typical layout for a community garden featuring raised beds (Durable GreenBed n.d.).

A community garden (see Figure 4.14) can be considered the communal amenity with the second-greatest potential for fostering social interaction among residents, the other being the common house. Community gardens have been associated with a host of social benefits for nearby residents. The renowned landscape architect Karl Linn discovered that not only can community gardens with edible vegetables increase community engagement within a typical suburban context, their inclusion encourages regular maintenance of the surrounding common space (Linn 2007, 12).

Much like the common house, a community garden's degree of importance will depend on the site conditions and the resident profile. Chapin recommends giving priority to establishing a home garden for each dwelling over creating a community garden (Chapin 2016). Moreover, on a site of approximately one acre, it might be difficult to find a suitable location for a community garden—especially while trying to maintain the open character of the central green. Furthermore, some residents might not be interested in handling the maintenance and upkeep associated with the garden. Given the

conditionality of a community garden's suitability, it would be prudent to treat such gardens as an optional feature that residents could elect to add later at their discretion.

In summary, a community garden has great potential for enhancing social interaction if it is feasible for the site conditions and has broad support among residents. Ideally, locate the community garden on or near the central green.

14. Supplemental Communal Features

Figure 4.15. The firepit within the Micro Village of Pinewood Forest. *Photo by Author.*

After considering the two communal amenities with the greatest potential for enhancing social interaction, it is also worth mentioning some additional communal amenities that could provide further social benefits. An outdoor firepit can be a great addition for encouraging outdoor gatherings (see Figure 4.15). A tool shed with shared tools could be a practical addition and help reduce household spending on gardening supplies—moreover, its inclusion might even be necessary to support a community garden. In a similar vein, a compost bin is another item that promotes sustainability while providing a free source of garden soil. An outdoor storage room could help reduce the

eyesore of a cluttered carport area, while an outdoor picnic shelter could provide a cheap alternative to a common house. A covered mailbox kiosk near one of the main entrances could encourage more interaction among residents. Chapin suggests adding benches under the covered kiosk area to encourage more lingering and resultant opportunities for interaction, in addition to providing a comfortable waiting area for pickups (Chapin 2016). A children's playground is also worth mentioning as a final amenity; determining its social utility is dependent on the target market—a playground would more suitable for a multigenerational community as opposed to an elder community.

In summary, consider adding additional communal amenities that could provide marginal increases in social interaction. These amenities include a firepit, a tool shed, compost bins, an outdoor storage room, a mailbox kiosk, a children's playground, and a picnic shelter.

15. Private backyard

Figure 4.16. The private rear patio for one of the homes in the micro village. The slated screen provides adequate visual privacy which will be enhanced as the shrubs of the backyard mature. *Photo by Author.*

Adding a private outdoor space (see Figure 4.16) to the rear of each house could lead to more social interactions by creating a balance between private and public outdoor spaces. Research suggests that having a choice between private outdoor space—such as a backyard patio—that is visually protected from outside surveillance and the semi-private outdoor spaces of the front porch and garden can lead to a stronger sense of community than developments that do not provide such a choice (Cooper Marcus 2000).

Although a private backyard for each home can enhance sociability by creating a more distinct balance between private and public outdoor spaces, it might not be feasible on certain sites. In particular, it can be a challenge to provide a private backyard space on corner lots bordered by streets on two sides. Chapin considers such sites to be some of most challenging from a design standpoint due to the conflicting goals of creating formal front entrances that conform with homes from the surrounding neighborhood while also trying to create a private yard in the same space (Chapin 2019). In such a situation, creating a main entrance facing the common green should be given precedence over creating a main entrance fronting the public street. Creating entrances at opposite ends of the house should be avoided, as it has been shown to make the entrance unclear for visitors in developments like Radburn, which features double entries on opposite ends of the house (Alexander and Chermayeff 1965, 187). Even without a formal street entrance, the street-facing side of the house should still conform with homes from the surrounding neighborhood by having the facade align with the public street. In addition, front setbacks that conform with surrounding homes should be observed when possible.

In summary, provide private backyards for all homes not bordering a public street. For houses bordering public streets, place more priority on locating the main entrance on the side of the house fronting the common green, while still aligning the back sides of the houses with the public street and offsetting the back facade in a way that conforms with homes of the surrounding neighborhood.

16. Private Side Yard

Figure 4.17. Photo of a side yard in Ross Chapin's Danielson Grove. The side yard runs to the wall of the adjacent cottage (Chapin 2011, 79).

This recommendation builds on the visual nesting guideline and helps encourage further outdoor activities through the provision of a functional outdoor space that supports activities such as gardening or child's play. Chapin considers small side yards, such as those five feet wide or narrower, to be unusable (Chapin 2016). Side yards of such narrow dimensions might arise as a result of complying with building codes that require the property line to be located at least five feet from the house. Furthermore, there is usually a code requiring minimum building separation—for example, twelve feet in Athens-Clarke County, Georgia—to satisfy fire safety regulations. If the building codes

require side yard setbacks, then a landscape easement can be created between adjacent houses to provide each house with a large side yard of at least ten feet that runs all the way to the wall of the adjacent home (see Figure 4.17) (Chapin 2016).

In some cases, front and side-yard setbacks are not required for the houses within the community, and if so, it should be easier for each house to have a side yard that runs all the way to the wall of the adjacent house. Ideally, the side yard should be located along the southern face of each home to maximize sun exposure; however, this situation is not possible for houses oriented along an east-west axis. In such cases, it would generally be advisable to assign each home the side yard with the greatest amount of open space.

In summary, create a usable side yard with a minimum of ten feet in width for each home. Furthermore, try to locate each resident's side yard in a location that maximizes sun exposure.

17. Sense of Place

Figure 4.18. A view of the Pacific Ocean from Lawrence Halprin's Sea Ranch. In harmony with its past use as a sheep meadow, Halprin's design preserved the open, windswept character of the site. The houses also utilized native materials, such as unpainted Douglas fir and redwood for the cladding on the homes (Goldhagen 2017, 247; Holt 2016).

This guideline offers a more philosophical approach as opposed to a guideline backed by formal research. Thus, the guideline is in keeping with the general spirit of *A Pattern Language,* where many of the justifications for the patterns are supported by appeals to subjective experience and other qualitative aspects not easily captured by formal research.

A sense of place can be defined as the unique local qualities that distinguish one place from another (see Figure 4.18) and help shape a community's collective identity along with their sense of belonging to a particular locale. This feeling of belonging can elicit feelings of care and stewardship for their particular place (Nelischer, Perkins, and Smith 1997). Eliciting feelings of care and stewardship among residents can lead to increased community engagement which, in turn, promotes social interactions.

One practical step to foster a sense of place involves taking an immersive approach during the site analysis phase to discover the distinguishing characteristics of a site. This process requires going beyond standard site analysis techniques and taking a deep dive into the history of the site along with its surrounding social context to discover its connections with local traditions, customs, and ecological systems. This approach also entails discovering and celebrating local building traditions, which usually represent a successful response to local environmental conditions and can, therefore, lead to a more environmentally sensitive design. Using local materials and building traditions, along with native plantings, helps evoke a sense of place in the development.

In summary, cultivating a sense of place through measures such as the abundant use of native plantings, along with incorporating local materials and building traditions,

could possibly promote social interaction, but more research is needed to establish a correlation.

Chapter Summary

The guidelines described above are summarized below in Table 4.1.

Table 4.1. Proposed Guidelines for Promoting Social Interaction in Cottage Clusters

Essential Design Elements	**Description**
Walkable neighborhood	Locate the site in a compact, mixed-use neighborhood that encourages walking and biking. Additionally, consider limiting the number of parking spaces for each resident to two or less to further encourage walking and biking. Making one of the two spaces undesignated can help increase parking capacity if some households have only one car.
Community engagement	Gather community input and support for initial designs through informal community meetings or formal design workshops. Start engaging the community at the beginning stages of the design process to receive better feedback and help residents forge early bonds that carry over to the post-completion phase.
Cluster of four to twelve cottages	Arrange the cottages in a cluster of four to twelve around an area of common land. Ensure the main entrance for each cottage is oriented towards a central common area that is collectively owned by the cottage cluster.
Smaller houses on smaller lots	Keep the square footage and lot area for each in a range smaller than the average American home. Typically, this approach translates to houses whose square footage ranges between 600-1800 and individual lot sizes of approximately 3,000 square feet.

Table 4.1. Continued

Essential Design Elements	Description
Traffic and parking along the outer edge	Locate roads and parking along the outer edge of the development in order to create an interior pedestrian space that is free from car intrusion.
Clear and gradual transition between public and private spaces	Clearly define the boundaries for at least three outdoor spaces that each correspond to increasing degrees of privacy. These three boundaries include: the boundary along the property edge, the boundary between the interior common space and the private yards of the cottages, and the boundary between the private yard and the front entrance of each home.
Buffer zones	Include a semi-private buffer zone attached to the front entrance of each cottage. A room-sized front porch would be best, although other features such as a covered patio or private garden provide adequate alternatives. Ideally, both a private garden and front porch should be included if they fit within the project constraints.
Clear view into the commons	Arrange the houses and central communal features so that each house has a clear view of the central activity sites.
Central commons as an open greenspace	Design the central commons as an open and flexible greenspace that accommodates a diverse range of function and allows for future alterations and management by the residents.
Visual nesting	Arrange each home so that the open side of one home faces the closed side of the adjacent home. The open side refers to the side with more window openings, while the closed has fewer windows, placed at a higher elevation.

Table 4.1. Continued

Optional Design Elements	**Description**
Common house	Include a central common house if it fits within the budget. If catering to a high-end clientele, the common house can be considered an essential feature, whereas it might be less feasible in an affordable housing development or one looking to achieve higher densities.
Community garden	A community garden has great potential for enhancing social interaction if it is feasible for the site conditions and has broad support among residents. Ideally, locate the community on or near the central green.
Supplemental communal features	Consider adding additional communal amenities that could provide marginal increases in social interaction. These amenities include: a tool shed, a compost bin, an outdoor storage room, a mailbox kiosk, a children's playground, and a picnic shelter.
Private backyard	Provide private backyards for all homes not bordering a public street. If the site borders multiple public streets, give more priority to creating formal street entrances for each home bordering a public street.
Private side yard	Create a usable side yard with a minimum width of ten feet for each home. Try to locate each resident's side yard in a location that maximizes sun exposure.
Sense of place	Cultivating a sense of place through measures such as the abundant use of native plantings along with incorporating local materials and building traditions could possibly promote social interaction, but more research is needed to establish a correlation.

CHAPTER 5

DESIGNS

This chapter tests the proposed design guidelines on the 413 Millard Avenue site described in Chapter 3. As a refresher for the surrounding neighborhood context, the site is located in the southwest corner of the Normaltown neighborhood. Overall, the Normaltown neighborhood is one of the more desirable neighborhoods in Athens, which is reflected in median home prices well above the city average (Lonnee 2019). The site is located near the intersection of Clover Street and Millard Avenue. To the immediate west of the site lies a conventional single-family detached home along with a car shop bordering the southwest corner of the property edge. Further to the west lies the commercial zone of Hawthorne. The remainder of the site is bordered by conventional single-family detached homes. Currently, the site is not very walkable or bike friendly as neither Clover Street nor Sunset Drive offer sidewalks along the adjacent blocks.

Three designs were developed to provide alternatives to the current design and appeal to a broader range of potential residents. Each design varies in its application of certain design guidelines to appeal to a primary target demographic. Design A is designed for one- and two-person households that need affordable housing. Design B could serve a broader, multigenerational community that can afford homes at the local market rate. Design C offers a high-end option that could be appealing to empty nesters, retirees, and extended families. The diversity of the designs shows how the guidelines offer broad

applicability and flexibility when meeting local market demands. Focusing on a certain demographic for each design is necessary to hone the guidelines and increase their utility for informing the overall design of the site (Chapin 2019). It should also be noted that the first two elements from the list of proposed guidelines (Walkable Neighborhood and Community Engagement) were excluded from analysis, since they deal primarily with factors that are not under direct influence within the site boundaries.

Design A

Design A tests the guidelines on a nine-unit cottage cluster. The housing style and site layout were inspired by the historical bungalows of California, and this design seeks to cater to a similar demographic of one- and two-person households seeking affordable housing. The development features two housing types. The eight cottages along the western and eastern flanks have one-bedroom layouts, each with a size of approximately 800 square feet. In addition, each cottage has a height of 1 ½ stories to reduce the visual scale of the project and help it blend in seamlessly with the surrounding neighborhood. For the other floorplan, the central cottage anchoring the southern edge of the central green has two bedrooms and two stories, with an approximate building footprint of 1,000 square feet.

Parking is confined to the northern edge of the site to help maximize the common greenspace and increase the amount of private yard space apportioned to each home. A total of twenty parking spaces are provided in the parking lot to ensure that each household has two parking spaces, with an additional two spaces available for service vehicles and guest parking. The driveway was widened to twenty feet to facilitate two-

way traffic. In addition to the lot, the site features four on-street parking spaces. Communal features are kept to a minimum to reduce costs. Besides the central green, a covered mail kiosk and fire circle are the chief communal features provided.

The guidelines were consulted in a systematic fashion when developing the design, beginning with the essential elements on the list and then attempting to add optional features if possible. The design began with the following functional diagram (see Figure 5.1) to assist with the placement of the key design elements.

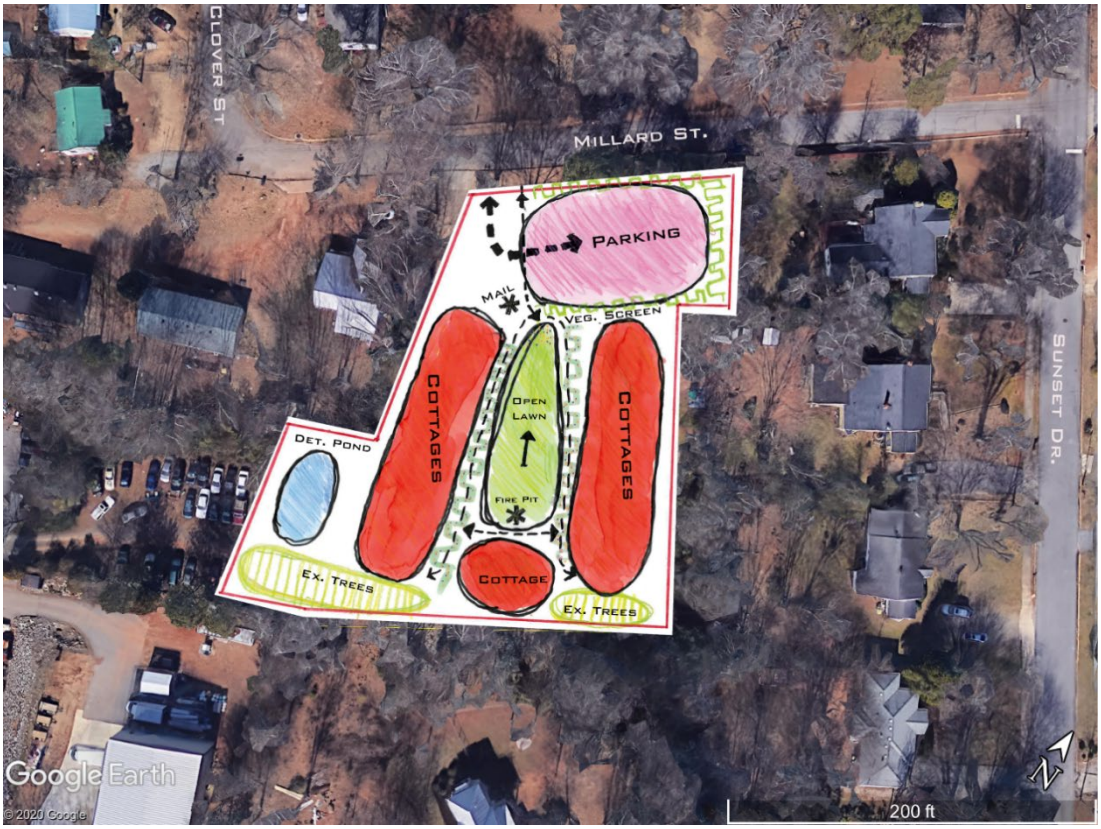

Figure 5.1. Functional diagram, Design A. Google Earth 2020 - Athens, GA.

The functional diagram helped clarify the approximate placement of the parking and cottages, along with the placement of the fire circle and covered mail kiosk. The rough placement of these key elements helped prioritize preserving a strong connection with the surrounding neighborhood by ensuring a direct connection of Millard Avenue from the central lawn. The functional diagram evolved into the conceptual master plan shown in Figure 5.2.

Figure 5.2. Conceptual master plan, Design A. *Image by Author.*

Overall, the design was successful in incorporating all but one of the essential design elements and even included a few of the optional design elements. Table 5.1 provides a summary of how each guideline was addressed in design. Guidelines highlighted in green were successfully implemented in the design, while those highlighted in red were either unsuccessful or determined to be unfeasible given the design constraints.

Table 5.1. Summary of Application of Guidelines to Design A

Essential Design Element	**Description of Site Application**
Cluster of 4-12 cottages	This guideline was successfully met with the ten-unit cluster oriented around the central greenspace.
Smaller houses on smaller lots	The cottages range in size from 800 to 1,000 square feet—well within the standard range for the typical cottage cluster. The individual lots, ranging in size from 2,000 to 2,500 square feet, also conform with the lot sizes found in the typical cottage cluster.
Traffic and parking along the outer edge	Parking and traffic are located along the northern edge of the site and do not intrude upon any of the interior pedestrian spaces. Two parking spaces are provided for each household in addition to four on-street parking spaces and two guest parking spaces.

Table 5.1. Continued

Essential Design Element	**Description of Site Application**
Clear and gradual transition between public and private spaces	The boundaries for four outdoor spaces that vary in their degree of privacy are clearly defined through various design elements. Starting with the transition from the semi-public sidewalk to the property edge, this boundary is defined by screening shrubs along the northern edge of the parking lot. The next layer of privacy from the parking lot to the central green is defined by a compressed entrance featuring a pair of ornamental trees mirroring each other across the pedestrian walkway. Next, the transition from the central green to the private yards is defined by a low fence marking the private yards for each house. The low fence has a perennial border in front of it to create a softer edge. The final layer of privacy from the private front yard to front entrance is clearly marked by the inclusion of covered porches for all of the units.
Buffer zones	Each unit includes a room-sized front porch that serves as an ideal buffer zone. Moreover, each house has a usable side yard of at least ten feet in width for the cultivation of private gardens.
Clear view into the commons	All nine cottages have a clear view into the commons and the central activity sites.
Central commons as an open greenspace	The central commons' character as an open greenspace is preserved by confining a perennial bed and a fire circle to the northern and southern edges, respectively.
Visual nesting	This guideline is achieved with the open side of one house facing the closed side of the adjacent house.
Personalization	This objective is only partially achieved by offering plenty of private yard space that allows for customizable gardens by each resident. However, only two floorplans are provided to reduce costs.
Optional Design Element	**Description of Site Application**
Common house	To keep costs to a minimum, a common house is not provided in the development.

Table 5.1. Continued

Community garden	Community gardens are not provided, although edible landscaping features can still be incorporated in the design.
Optional Design Element	**Description of Site Application**
Supplemental communal features	Only a fire circle and a covered mail kiosk are provided as supplemental communal features.
Private backyard	This guideline was only partially achieved with the row of cottages along the eastern edge. Each cottage has a backyard width of 10 feet from the edge of the cottage to the property line; however, only partial visual privacy is achieved along the northern edge of each backyard with a vegetative screen. The private backyards for the row of cottages have fences, but they are kept to a low height of three feet.
Private side yard	This guideline was successfully met for all nine cottages. Landscape easement agreements among the adjoining cottages might be necessary to create the south-facing yards for the six of the nine cottages along the eastern and western rows.
Sense of place	This guideline is met through the use of Craftsman-style cottages that have a similar appearance to many historical cottages built in the Athens area. The liberal use of native plants and native materials can also help fulfill the guideline.

Analysis of Design A

Design A offers numerous benefits to help promote social interaction while still potentially providing affordable housing to an underserved demographic. Nonetheless, this approach has its drawbacks, as many of the optional communal features were not included in this development; however, the design still was able to satisfy the guidelines for all of the essential design elements outside of personalization. To reduce construction costs, the standardization of the cottages was given priority over creating a diverse array of housing options

Cost considerations also were the primary driver in the decision to exclude a common house. Likewise, community gardens were not included to reduce costs while also maximizing the size of the common greenspace. Despite these limitations, the central greenspace still has plenty of space for the inclusion of community gardens if the residents decide to place them there. As another option, the developer could provide each household with a small amount of money to go towards a landscaping budget—in a similar fashion to the developers of the Village Homes development—and the residents could coordinate on how best to design the space. Such an approach could help forge early bonds among the new residents while helping to foster a pioneering spirit similar to the one present in the early days of Village Homes.

Another downside of the design concerns the location and size of the parking lot. Providing two parking spaces for a development aimed at one- and two- person households might be excessive. A smaller amount of parking spaces, such as 1.5 spaces per unit, might be more prudent, while also having the added benefit of reducing the size of the parking lot. The current size of parking lot and driveway effectively covers the top third of the development, which creates more of a physical and psychological divide with the surrounding neighborhood. If the number of parking spaces were reduced to 1.5 per unit, the pedestrian walkway could be shifted further east, which would create a more direct pedestrian connection with the surrounding neighborhood.

As a final note, the guideline calling for private backyards was not completely fulfilled. More precedence was given to maximizing the size of central green. A usable backyard with a minimum depth of 10 feet from the house edge to the property line was created. The private backyard also features hedges and trees along the northern and

southern ends to serve as visual screens. However, the backyard fence does not provide full visual privacy, since it is kept low to reduce costs while avoiding the creation of a tight, claustrophobic enclosure.

Design B

Design B tests the guidelines on a seven-unit cluster of cottages. Compared with Design A, Design B attempts to appeal to a broader demographic and could potentially serve a multigenerational community that can afford houses at the current market rate for the surrounding Normaltown neighborhood. The cottages are slightly larger than in Design A and range in size from 1,000 to 1,400 square feet, with each house having two to three bedrooms. In addition, the cottages range in height from 1 ½ stories to two stories. The design also features a wider array of communal features, including a 500-square-foot common house, raised beds for a community garden, a children's playground, a tool shed, compost bins, and a mini-orchard.

As with Design A, the guidelines were consulted in a systematic fashion when developing the design, starting with the first elements on the list and working down the list as the design took shape. The design process also began with the following functional diagram to determine the placement of key elements (see Figure 5.3).

Figure 5.3. Functional diagram, Design B. Google Earth 2020 - Athens, GA.

The functional diagram helped clarify the placement of the key design features such as the cottages, parking and common house, as well as supplemental communal features like the mail kiosk, fire circle, playground, and orchard. As with Design A, maintaining a strong connection with Millard Avenue from the central green was prioritized. The functional diagram evolved into the conceptual master plan shown in Figure 5.4.

Figure 5.4. Conceptual master plan, Design B.

The design was successful in incorporating a majority of the essential design elements, along with many of the optional design elements. Table 5.2 provides a summary of how each of the guidelines were addressed in the design along with a description of their application onsite. Guidelines highlighted in green were successfully implemented in the design, while those highlighted in red were either unsuccessful or determined to be unfeasible given the design parameters.

Table 5.2. Summary of Application of Guidelines to Design B

Essential Design Element	Description of Site Application
Cluster of 4-12 cottages	This guideline was successfully met with the seven-unit cluster oriented around the central greenspace.
Smaller houses on smaller lots	The cottages range in size from 1,000 to 1,400 square feet—well within the standard range for the typical cottage cluster. The individual lots fall within the range of 2,000 to 2,600 square feet, which is also typical for a cottage cluster.
Traffic and parking along the outer edge	Parking and traffic are located along the western edge of the site and do not intrude upon any of the interior pedestrian spaces. Two parking spaces are provided for each household, in addition to four on-street parking spaces.
Clear and gradual transition between public and private spaces	The boundaries for three outdoor spaces that vary in their degree of privacy are clearly defined through various design elements. Starting with the transition from the semi-public sidewalk to the property edge, this boundary is defined by a compressed entrance created by the mailbox kiosk and the ornamental tree planting facing each other across the entrance to the central pathway that leads into the community. The next layer of privacy, from the semi-private central green to the private lots, is clearly defined by low fences that delineate the private yards for each home. The final layer of privacy, from the private front yard to front entrance, is clearly marked by the inclusion of covered porches for all of the units.
Buffer zones	Each unit includes a room-sized front porch that serves as an ideal buffer zone. Furthermore, each house has a usable side yard of at least ten feet in width for the cultivation of private gardens.
Clear view into the commons	Six of the seven units have a clear view into the central activity sites. The unit in the northeastern corner of the site has only a partial view of the central green. Furthermore, its view of the common house is fully obscured by other cottages.

Table 5.2. Continued

Essential Design Element	**Description of Site Application**
Central commons as an open greenspace	The central commons' character as an open greenspace is preserved by confining a perennial bed and a fire circle to the northern and southern edges, respectively.
Visual nesting	This guideline is only partially achieved for the ground floor, with the open side of one house facing the closed side of the adjacent house. However, the second story for the row of houses along the eastern edge has large dormer windows that are aligned with the second-story dormer windows of the adjacent homes.
Personalization	This objective is achieved by offering three housing types as opposed to the two of Design A. This design also offers plenty of private yard space that allows for customizable private gardens by each resident.
Optional Design Element	**Description of Site Application**
Common house	An approximately 500-square-foot common house with a covered porch is provided at the southern end of the central green. Its location at the terminus of a strong central axis underscores its importance as one the chief communal features of the community.
Community garden	A raised bed for each housing unit is provided along the western edge of the development.
Supplemental communal features	Additional communal amenities include a tool shed, a fire circle, compost bins, a mailbox kiosk, a mini-orchard, and a children’s playground.
Private backyard	This guideline was only partially achieved with the row of cottages along the eastern edge. Each cottage has a backyard width of 10 feet from the edge of the cottage to the property line; however, only partial visual privacy is achieved along the northern edge of each backyard with a vegetative screen. The private backyards for the row of cottages do have fences, but they are kept to a low height of three feet. The three northernmost houses have even less visual privacy for their private backyards. A private backyard is not provided for the westernmost house.

Table 5.2. Continued

Optional Design Element	Description of Site Application
Private side yard	This guideline was successfully met for all seven cottages. Landscape easement agreements between adjoining cottages might be necessary to create the south-facing yards for three of the four cottages along the eastern row.
Sense of place	This guideline is clearly met through the use of Craftsman-style cottages that have a similar appearance to many historical cottages built in the Athens areas. The liberal use of native plants and native materials also helps fulfill the guideline.

Analysis of Design B

Design B offers numerous benefits over Design A. The design includes more communal features, along with a larger range of houses that could potentially appeal to a more diverse community. Due to this greater variety, the houses would also be more expensive than those in Design A, an obstacle that could screen out potential buyers and detract from the goal of creating a diverse community.

Another benefit of the development is that it fulfills more of the overall design guidelines in comparison to Design A. However, Design B fulfills fewer of the essential design guidelines. The guideline calling for a clear view into the commons was not satisfied because the house at the northeastern corner does not have a clear view of the central green or common house. This guideline could have been met by moving the location of this house to the northwestern corner of the site, next to the driveway entrance; however, such a move would place the house in a highly exposed area that would create less privacy for the homeowner. Furthermore, locating the house in this

opposite corner would hinder a strong connection with the public street, as the entrance to the central pathway would have to be awkwardly diverted to the northeastern corner of the site. As an alternative, the locations of the common house and the western house could be switched to improve visibility for the northeastern house; however, locating the common house closer to the public street could lead to the common house being used more by outsiders to the community—much like the common house in Lake Claire—which could potentially lead to strained relations among the residents.

Design B is also unable to fully meet the essential guideline calling for visual nesting. The second stories of the eastern row of houses all have large dormer windows that are aligned with the large dormer windows of the adjacent houses from the row. This fact can be partly explained by building all four houses of the row with a similar layout to reduce construction costs and fulfill the design goal of appealing to a broader demographic. As a possible remedy, the dormer windows between adjacent homes could be offset to prevent direct alignment; however, such a move might lead to excessive increases in construction costs.

All of the optional design elements were satisfied except for the creation of fully private backyards for each house. Fulfilling this guideline while meeting the other guidelines presents a considerable challenge on this site. Although only one side of the development faces a public street, the awkward shape of the property limits the options for the layout of the houses—especially when trying to maximize common space inside the property. Limiting the backyard space to a width 10 feet from the house edge to the property line can be viewed as a tradeoff that allows for sufficient space to create a common green of a usable size.

Design C

Design C tests the guidelines on a four-unit cluster. This design offers a higher-end design that could appeal to a wealthier demographic—for example, empty nesters, retirees or extended families. The houses range in size from 1,800 square feet to 2,100 square feet. Given their size, it might be a stretch to refer to them as cottages, but most are still at or below the average size of newly constructed homes in the United States (Pinsker 2019). Four different floorplans are provided for the development, each with enough space for at least three bedrooms.

Despite creating larger houses with larger lots, the development still has plenty of space devoted to communal amenities. These amenities include a two-story common house of approximately 900 square feet, a large central lawn, a tool shed, a fire circle, a covered mail kiosk, raised beds, and compost bins. Parking is consolidated along the western edge of the site with each house having two covered parking spaces, in addition to four on-street parking spaces.

In addition to consulting the guidelines in a top-down approach, the design process began with the functional diagram shown in Figure 5.5 to determine the placement of key elements.

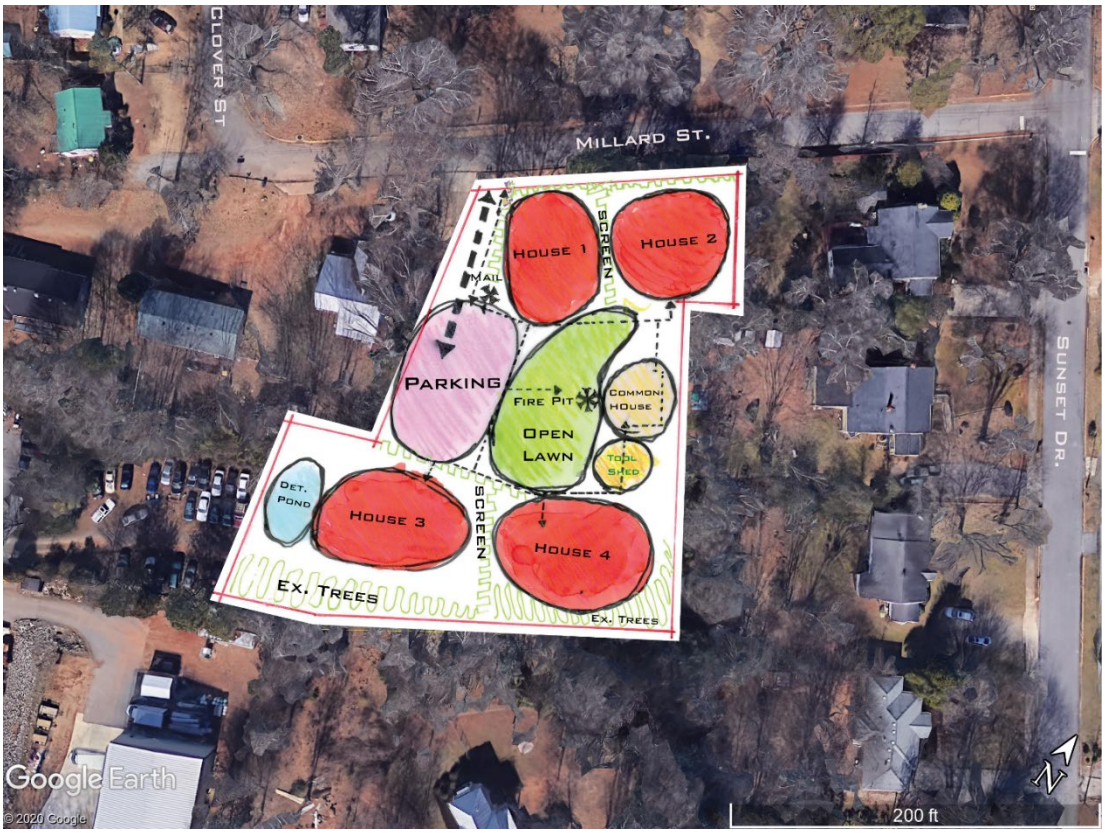

Figure 5.5. Functional diagram, Design C. Google Earth 2020 - Athens, GA.

The functional diagram assisted with determining the approximate placement of the houses and the parking, along with shaping the positive outdoor space of the central lawn. The common house was located along the eastern edge to create a strong sense of enclosure for the central lawn. Communal amenities such as the mail kiosk, tool shed, and the fire circle were also placed along the periphery to preserve the open character of the central green. With the key design elements in place, the bubble diagram was then refined into the conceptual master plan shown below (see Figure. 5.6).

Figure 5.6. Design C conceptual master plan.

All of the essential design elements are represented in the design except for the one calling for smaller houses on smaller lots. Moreover, all of the non-essential elements are included in the design except for the one related to private backyards. The table below provides a summary of how each of the guidelines was addressed in the design along with a description of their application onsite. Guidelines highlighted in green were successfully implemented in the design, while those highlighted in red were unsuccessful in fulfilling the requirements of the guideline.

Table 5.3. Summary of Application of Guidelines to Design C

Essential Design Element	Description of Site Application
Cluster of 4-12 cottages	This guideline was successfully met with the four-unit cluster oriented around the central greenspace.
Smaller houses on smaller lots	The houses range in size from 1,800 to 2,100 square feet, which is slightly above the range of the typical cottage cluster development. The private lot sizes are also much larger than the typical cottage cluster and range in size from 4,000 to 12,000 square feet.
Traffic and parking along the outer edge	Parking and traffic are located along the western edge of the site and do not intrude upon any of the interior pedestrian spaces. Two parking spaces are provided for each household, in addition to four on-street parking spaces.
Clear and gradual transition between public and private spaces	The boundaries for three outdoor spaces that vary in their degree of privacy are clearly defined through various design elements. Starting with the transition from the semi-public sidewalk to the property edge, this boundary is defined by the low fences delineating the private yards of the two houses adjacent to the street. This boundary is also defined by the compressed entrance for the public pathway leading to the central green in the northwestern corner of the site. The next layer of privacy, from the semi-private central green to the private lots, is clearly defined by low fences that demarcate the private yards for each home. The final layer of privacy, from the private front yard to the front entrance of each house, is clearly marked by the inclusion of covered porches for all of the units.
Buffer zones	Each unit includes a room-sized front porch that serves as an ideal buffer zone. Moreover, each house has a usable yard of at least ten feet in width for the cultivation of private gardens.
Clear view into the commons	All four units have unobstructed views of the central activity sites.
Central commons as an open greenspace	The central commons' character as an open greenspace is preserved by confining a perennial bed and a fire circle to the eastern edge of the site.

Table 5.3. Continued

Essential Design Element	**Description of Site Application**
Visual nesting	This guideline is easy to achieve given the wide distance separating each house. The house spacing is similar to the spacing found in a traditional suburban neighborhood.
Personalization	This objective is fulfilled by offering unique floorplans for each house. This design also offers plenty of private yard space that allows for customizable gardens by each resident.
Optional Design Element	**Description of Site Application**
Common house	A 900-square-foot common house with a second-story terrace overlooking the central green is provided along the eastern edge of the central green.
Community garden	A raised bed for each housing unit is provided along the eastern edge of the central green.
Supplemental communal features	Additional communal amenities include a tool shed, a fire circle, compost bins, and a covered mail kiosk.
Private backyard	This guideline was not fulfilled for the two houses adjacent to Millard Avenue. Each house has enough space for a visual barrier that would provide adequate visual privacy, but more precedence was given to creating a formal front entrance that conforms with the house layouts of the surrounding neighborhood.
Private side yard	This guideline was successfully met for all four houses. Each lot is large enough for a usable yard on all four sides of the house.
Sense of place	This guideline is met through the use of Craftsman-style house plans that have a similar appearance to many historical houses built in the Athens areas. The liberal use of native plants and native materials also helps fulfill the guideline.

Analysis of Design C

Design C offers multiple benefits over the other two designs, along with a few drawbacks. Given the large size of the houses and the private yards, sufficient privacy for each household is easily attained. Furthermore, the design provides the best solution out of the three for ensuring that the street frontage complements the character of the surrounding neighborhood. The two houses fronting Millard Avenue each have a formal entrance that conforms with the layout of a traditional suburban home.

The main issue with the design is whether or not it will provide measurable improvements in social interaction compared with typical suburban homes. In addition, the lower density of the development might be considered sub-optimal for promoting social interaction since it has a similar density to a standard subdivision—approximately three to five units per acre (Francis 2003, 47). When attempting to optimize social interaction, a four-unit cluster might be more appropriate on a smaller site, such as half an acre. As a possible counterbalance, the design provides a large array of communal features to counteract the potentially negative effect of a layout similar to that found in a typical subdivision.

Financial considerations also played a role in determining the size and layout of each house. To make the development more financially feasible for a developer, the houses and lots are larger than the typical cottage cluster. The larger lots and houses should generally command higher prices and might lead to a gross sales price that is comparable to the cumulative sales price for each of the other design alternatives. Although the resulting development might not technically meet the definition of a cottage

cluster, it is still a useful exercise that tests the limits of the cottage cluster concept to promote a diverse array of design alternatives within the cottage cluster typology.

Overall Evaluation of the Designs

All three designs effectively incorporated the majority of the design elements from the guidelines established in Chapter 4. Each design varied in effectiveness in addressing the essential and non-essential design elements. Most of this variability is a result of the differing density levels for each design. Moreover, having each design cater to a different target demographic played a role in the variability of the application of key design guidelines.

Despite the diversity of the three designs, one way to cross-compare the effectiveness of all three designs in promoting social interaction is to measure the amount of space devoted to car-free common land in each development. The authors of *A Pattern Language* recommended that at least 25% of the land within a housing cluster be devoted to common land that is not dominated by cars (Alexander et al., 339-340). It is also useful to measure the amount of land devoted to the central green—the communal feature with perhaps the most potential for promoting social interaction in cottage clusters.

Table 5.4 gives a summary of the percentage of land, excluding the parking lot and driveway, owned in common. It also the lists the size of each central green as well as the number of housing units for each design and their corresponding percentage of land devoted to common space on a per-unit basis, as well as the size of each common greenspace on a per unit basis.

Table 5.4: Summary of Common Land Ratio and Common Green Size

	Number of Housing Units	% Common Land (Excluding Driveway and Parking Lot)	Size of Central Green (sq. ft.)	% Common Land per Unit (Excluding Driveway and Parking Lot	Central Green per Unit (sq. ft.)
Design A	9	37.13%	3,626	4.16%	402.89
Design B	7	51.12%	2,621	7.30%	374.43
Design C	4	29.00%	6,139	7.25%	1,534.75

As reflected in the table, all three designs have a proportion of common land above the recommended 25% level. Each design offers tradeoffs in its attempt to maximize the quantity and quality of the common space. Design B offers the highest amount of land devoted to common space; however, it also has the smallest central green. Design C has the largest central green, but the least amount of land devoted to common spaces. Design A can be viewed as a balanced compromise, coming in second for both the amount of land devoted to the common space and the size of the central green.

The fact that Design A also has the highest home density is another factor that could lead to higher levels of social interaction compared to the other two designs. However, this added density comes at the expense of having the lowest percentage of common land per unit. Nonetheless, overall, the potential drawback of having the lowest percentage of common land per unit is partially mitigated by having the second-largest central greenspace per unit. Such compromises allow this design to retain a balance between private and common uses.

The tradeoffs described above help demonstrate the difficulty present in determining the most appropriate design for promoting social interaction; however, despite this difficulty, one can still evaluate which design most closely conforms to the traditional character of cottage cluster developments. Design B clearly maintains the highest degree of fidelity to the built examples of cottage clusters. This fidelity is reflected in lot and cottage sizes that fall within the typical range for cottage clusters. Moreover, the provision of key communal facilities, like the common house, aligns with many built examples. Furthermore, the cluster of seven homes falls within the mid-range of the design guideline calling for clusters of four to twelve. It is true that Design B could potentially offer more intrusions on residents' privacy compared to the other designs, but the quantity and quality of the communal features has a strong chance of negating any marginal increases in privacy intrusions. Not only does it have the largest percentage of common land, it also has the largest variety of communal amenities on this land.

The fact that Design B is the most similar to the proposed site plan by Smith Planning Group (see Figure 3.18) gives it further utility in helping to inform the current design, along with similar developments that may spring up in the area. Design B can be considered a refinement of the proposed design and, therefore, it is worth exploring its design characteristics in more detail. The design perspective images in Figures 5.7 through 5.17 illustrate some of the key design elements.

Figure 5.7. Looking south across the central lawn. *Image by Author.*

Figure 5.8. Looking northwest along the sidewalk adjacent to the eastern cottages. *Image by Author.*

Figure 5.9. Entrance to the common house. *Image by Author.*

Figure 5.10. Entrance to the western cottage. *Image by Author.*

Figure 5.11. Front entrance to one of the two cottages adjacent to Millard Avenue. *Image by Author.*

Figure 5.12. Entrance to northernmost cottage along the eastern row. *Image by Author.*

Figure 5.13. Looking northeast from the resident parking lot. *Image by Author.*

Figure 5.14. Looking northeast across the detention pond and the resident parking lot. *Image by Author.*

Figure 5.15. Looking north from the common house patio. *Image by Author.*

CHAPTER 6

CONCLUSIONS

Summary

This research centered around answering the initial question: *Which outdoor design elements have the greatest effect on promoting social interaction within a cottage cluster?* Attempting to discover a causal link between physical elements in the environment and human behavior can be a formidable task. Human behavior is extremely complex; there are a multitude of factors that shape our behavior. These factors include individual personality traits, cultural norms, formal social arrangements, and informal social factors, such as a person's beliefs and attitudes. Despite the difficulty in subjecting human behavior to empirical inquiry, it is still an area worthy of study—especially in the field of architecture, where an over-emphasis on aesthetics often prevents full consideration of the human bodily experience.

Further adding to the difficulty in studying the relationship between human behavior and the built environment, a systematic and objective evaluation of how people and places interact is often neglected in the professional practice of landscape architecture. Budgets and time constraints frequently prevent professional offices from evaluating the social aspects of their completed designs. The lack of research into the social aspects of design is further compounded by private clients' general indifference towards evaluating the social metrics of their designs (Marcus and Francis 1998, 345). Many private clients seem to have little incentive to learn from previous projects—

especially when they are viewed as one-time projects and concern the seemingly nebulous metrics related to social behavior. This situation is somewhat improved for public projects, where there is more public pressure to ensure taxpayer money is being used effectively to meet the explicit performance criteria related to social metrics (Marcus and Francis 1998, 346).

Despite the challenges preventing the effective study of the relationship between human behavior and the built environment, this thesis was still able to collect and synthesize relevant research to develop guidelines that can inform the design of future cottage clusters. Further adding to the utility of the research, the design guidelines were used to develop three viable design alternatives for the Millard Avenue property. Each design varied in its application of key design guidelines to appeal to a broader demographic of potential residents. Design A catered more towards one- and two-person households looking for affordable housing. Design B attempted to appeal to a wider group, envisioning the design as serving a multigenerational community that can afford houses at the market rate for the Normaltown neighborhood. Design C offered a high-end option that could appeal to empty nesters, extended families, and larger households. The diversity of the three designs shows how the developed guidelines offer broad applicability that can be further refined when catering to a particular demographic.

As mentioned in Chapter 5, it is difficult to determine the best design out of the three for promoting social interaction since each design offers distinct tradeoffs as a result of appealing to different demographics. Given the ambiguity of trying to determine which of the three designs offers the ideal level of social interaction, a prudent strategy for determining how best to apply the design guidelines would be to apply them in a way

that closely conforms to the current built examples of cottage clusters. In taking such a conservative approach, Design B clearly offers the best approach. Nonetheless, although this design closely mirrors current built examples of cottage clusters, it will not necessarily be the optimal design for all circumstances or in all future conditions.

On a related note, the demographics of cottage clusters does raise the question of whether there is an ideal resident composition for enhancing and promoting optimal levels of social interaction within such developments. The successful implementation of the guidelines across three designs that each serve a particular demographic suggests that there is no single ideal composition; however, further research would be needed to test such a question.

Opportunities for Future Research

While the proposed design guidelines were successfully tested through design, additional research is needed to further validate the guidelines and increase their utility in informing professional practice. Of particular note, there is a lack of quantitative and qualitative research that directly studies social interaction within cottage clusters. On the qualitative side, this research could take the form of interviews of current residents in cottage clusters. These interviews could be supplemented with site visits and extended stays within the developments. To complement such qualitative data and provide quantitative data, direct observation strategies could be employed in a more systematic and rigorous method.

One rigorous approach to such direct observation strategies could take the form of a Post-Occupancy Evaluation. A Post-Occupancy Evaluation (POE) is the process of

evaluating buildings and outdoor spaces in a structured and robust manner after they have been constructed and occupied for some time. A POE focuses on addressing the specific needs of the occupants while also evaluating how well the designers' stated goals and intentions for the development were realized through the design elements (Francis Marcus 1998, 345). Both the Millard Avenue cottage cluster and the Micro Village of Pinewood Forest could possibly be future candidates for a Post-Occupancy Evaluation once resident occupancy has been established for at least a year. However, a POE is generally more appropriate for larger public sites that offer easy access for research, such as a public park or plaza. Given the smaller size of cottage clusters, it would be harder to obtain meaningful data through activity observation of the outdoor spaces. Likewise, it would be difficult for the researcher to remain inconspicuous during his observations, so the observed behaviors might be influenced by the presence of the researcher.

Although a full Post-Occupancy Evaluation might be unsuitable for a small site such as a cottage cluster, some of the methods from a rigorous POE can still be employed with cottage clusters. Specifically, surveys and interviews of residents and key stakeholders could provide valuable quantitative and qualitative data. Measuring the results of these surveys and interviews against a control neighborhood with a similar layout and demographic profile could provide useful insights into how well the specific design elements of cottage clusters offer improvements in social interaction compared to a more traditional development of a similar size.

Furthermore, certain findings from this research could be tested on denser residential developments. These denser developments could include townhouses, rowhouses, and apartment complexes. The guideline calling for clusters of four to twelve

housing units around some common space is especially amenable to further study in other types of developments. In denser developments, the clustering doesn't have to be around a common lawn, instead, it can be around other types of common spaces—such as a shared stairway or entrance. In support of this research avenue, there have been some studies conducted in larger housing developments that link clusters of four to twelve housing units to positive social benefits. One U.S. study of high-rise apartments found that when six families shared an entry and stairway, there was a higher degree of supportive acts of neighboring compared to residents in both a luxury high-rise and low-income high rises; in the latter cases, each entry was shared by several hundred people (Marcus and Sarkissian 1986, 86).

Applying the findings from this research to high-density developments could have the greatest potential for future research while also having a higher likelihood of attracting outside funding. Much like Cohousing developments, cottage clusters still appear to have a very limited market within the United States. This fact can be explained partly by the difficulty involved in rezoning land for a cottage cluster—especially when the land is situated in a typical suburban neighborhood. Also, much like cohousing, the more open and shared living arrangements of cottage clusters can conflict with American cultural norms related to privacy and individuality.

Perhaps the largest constraint on widespread adoption of cottage clusters concerns the relatively modest density of cottage clusters. At their most dense, the cottage clusters modeled after the California bungalows have a maximum density of approximately twenty units per acre. In contrast, a low-rise apartment complex can easily achieve double the density (Sim 2019, 26). The comparatively lower density of cottage

clusters limits their potential adoption in more urban environments closer to city centers—places where higher land values makes them less economically viable for developers. However, as referenced earlier, some of the guidelines for cottage clusters are likely to be applicable to developments that have a higher density—especially for low-rise apartments that feature only a modest increase in density.

Opportunities for further research are summarized in the following list:

- Conduct partial or full-scale Post-Occupancy Evaluations for the Millard Avenue cottage cluster and/or the Micro Village of Pinewood Forest
- Gather quantitative and qualitative data for existing cottage clusters across the United States
- Study developments at slightly higher densities—such as low-rise apartment complexes—that contain traits of cottage clusters (e.g., clustering of four to twelve units) to see if they have improved social metrics compared to control neighborhoods
- Compare social metrics of cottage clusters with those of cohousing developments
- Refine and test the guidelines on additional local sites that appear suitable for a cottage cluster development
- Study other examples of pocket neighborhoods outside of cohousing and apartment complexes (e.g., informal pocket neighborhoods in traditional neighborhoods and cottage clusters featuring a blend of detached and attached housing)

- Develop cottage cluster guidelines that cater to a specific demographic that has a great need for a strong neighborhood support network—such as the elderly, single professionals or populations with certain illnesses or disabilities.

Broader Significance of Research

Although cottage clusters face significant limitations for broad-scale adoption, this fact should not detract from their ability to create positive impacts in the communities where they are built. The small-scale nature of the projects can be viewed as an asset that leads to increased resilience and flexibility in response to the ever-changing conditions of the surrounding environment. Developing cottage clusters also accords with historical development patterns. Cottage clusters—along with other types of infill projects—align with the incremental development pattern common to most cities prior to the Great Depression of the 1930s. Indeed, most cities in North America started as small groups of "pop-up shacks" that eventually grew into larger cities through an iterative process of improvement (Marohn 2019, 17).

The key component of this cycle of improvement is a series of small bets. For example, an owner of a small shack in a frontier town would upgrade from a shack to a brick-and-mortar building as the surrounding property values rose in response to population increases. Other adjacent property owners would follow suit, eventually resulting in a thriving downtown complete with multistory buildings of brick and granite (Marohn 2019, 19). Given the complexity of the factors influencing the growth of cities and towns, making a small bet on future growth—such as through a property renovation

or even a larger infill project—provides a prudent strategy that hedges against the inherent risk of trying to make predictions for complex systems. To foster more incremental development by individual property owners, laws and regulations related to land use need to be relaxed to give property owners more flexibility in choosing how they use their land.

Not only does incremental development provide a better hedge against risk, it can also be more adaptive to changing conditions in the local market—especially in comparison to a larger project like the Pinewood Forest development discussed in Chapter 3. A project like Pinewood Forest will typically have a longer development timeline and will be less likely to adapt to changing market conditions once the project is set in motion. In the worst case, this lack of flexibility can result in a failed project that bankrupts the developers. A more likely scenario is that the project will not adequately meet the particular needs of the local market. A New Urbanist community in the small suburban town of Fayetteville is quite a deviation from the surrounding context—one even more pronounced when you consider that the cheapest home in the development is currently priced above $400,000 (Pinewood 2020). Perhaps allowing more of the property owners in nearby urban areas the opportunity to build a guest cottage or cottage cluster on their property can better meet the demand for walkable and community-oriented neighborhoods.

The same incremental approach can also be applied to treating larger societal issues like climate change, the affordable housing crisis, and rising rates of loneliness. In some respects, local grassroots efforts can be more effective than a top-down approach employed by distant government officials and bureaucrats. Large governmental

organizations with expansive jurisdictions are less likely to account for the particularities and complexities of local conditions.

The potentially thorny issue related to housing affordability and gentrification is one area where local responses can be more effective than those of a distant governmental organization. Cottage clusters of an infill type have the potential to provide affordable housing by increasing the supply of housing stock in established neighborhoods; however, given the risk and difficulty associated with rezoning a parcel for a cottage cluster, developers are more likely to initially target a market rate or high-end demographic for their first developments. After completing a successful cottage cluster project in a new market, it will then become easier to provide affordable housing in subsequent cottage clusters. Although the issue of housing affordability and gentrification is highly complex and well beyond the scope of this research, it is still worth mentioning since it can be a key objection to cottage clusters voiced by the surrounding residents.

Another area where local actors can have more of a direct impact over distant governmental authorities is for problems related to the erosion of community ties. Much like with incremental development, significant transformations can occur through an accumulation of small changes at the local level. To cultivate this bottom-up change, one must first identify and build up the smallest political elements. Perhaps the most basic political unit is the association a person has with his/her immediate neighbors. Pocket neighborhoods help promote the development of this base political unit by using the surrounding land to knit neighbors together. At their essence, pocket neighborhoods are about using design to encourage neighbors to share and care for some common land

(Alexander et al 1977, 201, Chapin 2019). All the design guidelines related to promoting social interaction in cottage clusters should ultimately strive to fulfill this overarching goal.

The relationships and skills that develop among neighbors while cultivating and managing this common land can help strengthen and improve their interactions with larger political groups, such as a neighborhood association or a city government. Indeed, local associations can be considered the lifeblood of democracy. One can say larger political units flourish only when their smaller constitutive parts flourish (Deneen 2018, 80). Alexis de Tocqueville, an early commentator on American democracy, noted that "the strength of free peoples resides in the local community. Local institutions are to liberty what primary schools are to science: they put it within the people's reach; they teach people to appreciate its peaceful enjoyment and accustom them to make use of it" (Tocqueville 2000, 57).

On a similar note, the same principle of connecting a small group of neighbors to some common land can be applied to larger-scale sites with a broader and more diverse user base, such as a large public park. Ultimately, a large parklike setting has the greatest potential as a gathering place where the full spectrum of American society can meet and interact on a neutral ground. Frederick Law Olmstead, considered by many to be the founder of landscape architecture, envisioned his Central Park project as a democratizing agent that would allow the various classes of New York City to co-mingle in a setting conducive to interaction (Horowitz 2019). The convivial nature of a parklike setting is partly explained by the restorative effects of natural environments. Walking through the open greenspaces of Central Park provides a necessary reprieve from the bombardment to

the senses one is subjected to on the streets of Manhattan. The more tranquil setting of Central Park dampens people's stress response, which allows them to be more open to interactions with others—even those of a different race or creed.

To take full advantage of this increased sense of openness, people in such settings must do more than partake in passive recreation; they must be brought together and united around a common purpose that is marked by meaningful engagement with their surroundings. In order for common land to be a unifying agent at the national level, some help by larger governmental institutions might be warranted in this instance; something like a Green New Deal could not only attenuate the worst impacts of global warming, but, more crucially, it could help unite our fractured society and reverse its increasing atomization and polarization (Douthat 2020, 220).

Encouraging the interweaving of diverse groups on common land can potentially spark a renewed sense of a shared identity that unites a multicultural county like the United States and helps mend the growing rifts that are fraying the fabric of our society. Indeed, any sense of a shared national identity is ultimately rooted in devotion to a particular place and a common purpose (Collier 2018, 211). The seeds of this devotion can be planted by first uniting neighbors around some common land.

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