

ABSTRACT

Title of Thesis: FROM SUBURBAN TO SUB-URBAN:
REINVISIONING THE AMERICAN DREAM

Samantha Rachel Zuber, Master of
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Thesis Directed By: Assistant Professor, Joseph Williams, Ph.D.,
and Architecture

This thesis project will explore the design of multi-generational homes and their adaptation to support communal multi-family medium density housing. This typology will use form to inform function and rehabilitate the current exurban expectations and some of the more isolating urban behaviors. The bulk of today's housing projects do not adequately address our social connectivity, our ties to the landscape, our burgeoning millennial population, our mental well-being, and our aging baby boomer demographic. To address these issues, this thesis will propose the development of a hybrid social housing typology in the United States that would serve as a transition for suburban families to migrate back into the cities, and for individuals or co-families living in cities to build a "home". To inform this design, several multi-generational typologies will be studied, as well as the historical events that have shaped today's exurban communities and our "American Dream".

FROM SUBURBAN TO SUB-URBAN: RE-ENVISIONING THE AMERICAN
DREAM

by

Samantha Zuber

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of the requirements for the degree of
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Dedication

For my mother, who has continued to entertain my plans for her housing future, even as it leads her further from her suburban bubble.

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Part 1: The Rise to Cultural Prominence of the Single-Family

Home

Introduction

The objective of this section is to give a cultural context and a brief history of the events leading to today's contemporary American suburban housing development practices. This background will provide a clearer understanding of the values and philosophies that have come to be attached to the idea of the "American Dream". As will become more apparent, through the exploration of lower density settlements, the designations and language used to define "suburbia" must be further developed. For the purposes of this thesis, a *suburb* will refer to the immediate residential ring surrounding a city, while an *exurb* will refer to residential developments past the suburban ring dependent upon car commutes. Another four factors to be considered when discussing *sprawl* and identified in *Urban Sprawl and Public Health*, are density, land use, automobile dependence, and connectivity. The combination of varying levels of each of these factors producing different variations of sprawl.

Suburbs Pre 2000

Early Suburbs and the Urban Exodus

Some of the earliest mentions of suburbia, in fourteenth century BC, was in ancient Egypt, outside of Amarna, and later by Cicero, in first century BC, as *suburbani* outside of Rome. Initially, cities were the realm of the rich, while the suburbs were where the poor lived. There are examples of the wealthy building villas or manors in the countryside for relaxation and escape, but their primary dwellings were in the city near their businesses.¹ This status quo didn't change until the industrial revolution when wealth became available to the merchant middle class and cities became horribly polluted, causing an exodus of the upper class.



Figure 1: An example of one of the typical rooms rented by families, of up to nine people, in Manhattan during the 1910's, (Source: MOMA, https://post.at.moma.org/content_items/485-invisible-new-york), pending permission.

¹ Howard Frumkin, Lawrence D Frank, and Richard Jackson, *Urban Sprawl and Public Health : Designing, Planning, and Building for Healthy Communities LK -* <https://umaryland.on.worldcat.org/oclc/54455176>, TA - TT - (Washington ; SE - xxi, 338 pages : illustrations ; 24 cm: Island Press, 2004), <http://site.ebrary.com/id/10196528>, 26.

While suburbia seems to define so much of American culture today, it was not the initial housing dynamic. Like in Europe, American cities also were where the wealthy built homes and set up business. This continued until the industrial revolution came to America, having similar effects as it did in Europe. Manhattan's population reached an all-time high of 2.3 million people in 1910, most living in the 90,000 available windowless rooms with nine other occupants.²

The wealthy began their migration to outer boroughs, and as developments in transportation advanced these boroughs moved further from the city. Ultimately with the advent of the steam train, the first true suburban neighborhoods of America came to be.³ The train lines and their stations driving and informing the placement of these neighborhoods. Unlike today's exurban developments, people still relied upon walking to get from the train station to their house. Therefore, these suburban towns still possessed much of the dynamics of the city, such as mixed zoning, village centers, gridded street systems, and generally mixed income. This "mini-city" was just packaged with tree-lined roads, detached housing, front lawns, and plenty of fresh air.

² Leigh (Journalist) Gallagher, *The End of the Suburbs : Where the American Dream Is Moving* LK - <https://Umaryland.on.Worldcat.Org/Oclc/796756273>, TA - TT - (New York SE - 261 pages, 8 unnumbered pages of plates : illustrations, map ; 24 cm: Portfolio/Penguin, 2013), 29.

³ Frumkin, Frank, and Jackson, *Urban Sprawl and Public Health : Designing, Planning, and Building for Healthy Communities* LK - <https://Umaryland.on.Worldcat.Org/Oclc/54455176>, 27.

Early Models of Suburbia



Figure 2: A plan of Frederick Law Olmsted's Riverside community, (Source: Olmsted Society, <http://www.olmstedsociety.org/resources/maps-of-riverside/>), permission pending.

A couple of developments during this era varied from the rest, emulating the bucolic rolling countryside, namely Llewellyn Park in West Orange, New Jersey, designed by Llewellyn Haskell, and Riverside in Chicago, designed by Frederick Law Olmsted. While these neighborhoods employed winding roads and organic curves, they still maintained the same planning principles of its gridded cousin, walkability, town centers, and small streets.⁴

⁴ Gallagher, *The End of the Suburbs : Where the American Dream Is Moving LK* - <https://umaryland.on.worldcat.org/Oclc/796756273>, 31.

Housing in the Automobile Age

All of this changed with the invention of the Model T in 1908. Car registrations spiked from 8,000 in 1905 to 17 million in 1925. This pivotal shift in transportation brought with it the first glimpses of today's exurban fabric. With so many cars on the roads, traffic and safety of neighborhoods became a concern. Clarence Perry, an urban planner, created a solution for this problem, suggesting the creation of neighborhood units.

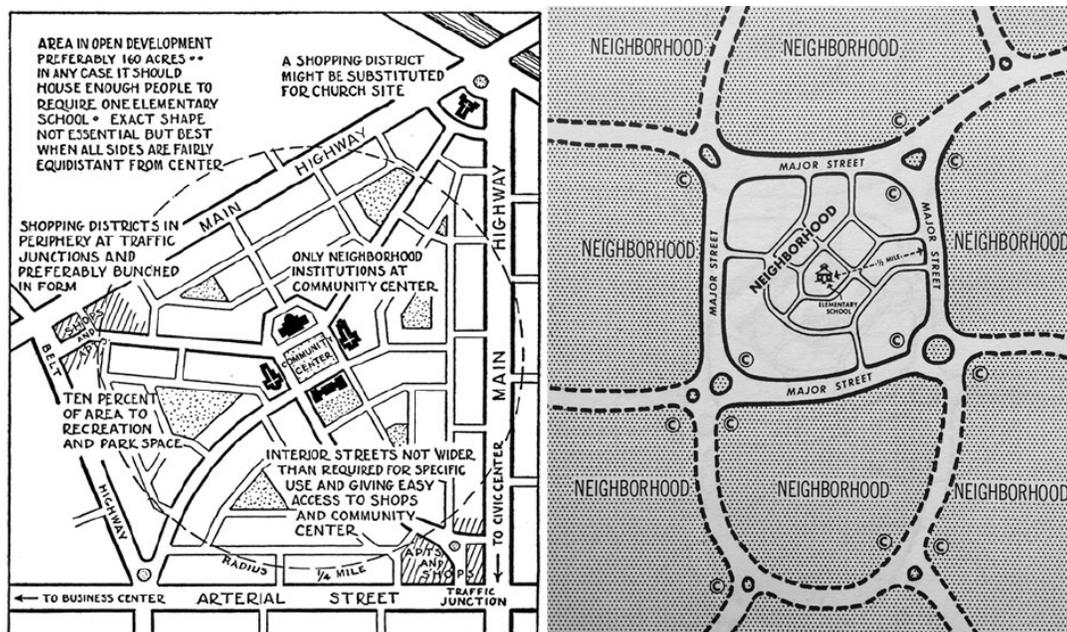


Figure 3: A diagram of Clarence Perry's proposal for street networks and neighborhood units, (Source: Congress for New Urbanism, <https://www.cnu.org/publicsquare/2019/01/29/once-and-future-neighborhood>), pending permission.

Perry's idea was to slow down traffic within neighborhoods by employing T intersections and cul-de-sacs, and having these smaller roads connect to broader, faster, feeder roads. In this scheme, retail was expected to fill-in along these larger arterial roads. These neighborhoods were heralded as "towns for the motor age," and

were widely embraced.⁵ But as Lewis Mumford so aptly pointed out in his book, *The City in History: Its Origins, Its Transformations, and Its Prospects*, “As long as the railroad stop and walking distances controlled suburban growth, the suburb had form.”⁶

Perry’s neighborhood units were not solely responsible for launching suburban residential development in the direction of today. An important Supreme Court ruling in 1926 was the push that was needed. In the town of Euclid, Ohio it was ruled that towns had the right to separate land uses and so was born single-use zoning.⁷ This zoning legislation would not have become so commonplace in development without the Federal Housing Authority requiring single-use zoning for mortgage approval. With the construction of over 420,000 miles of highway between the years of 1921 and 1936, development of these single-use neighborhoods took off with almost 900,000 being built each year. Thus, began the suburban taming of the great frontier.⁸

Post-War Ramifications

While Perry’s solution and Euclidean zoning started America on this journey of redefining the suburbs, it wasn’t until the end of WWII and several government

⁵ Ibid, 32-33.

⁶ Kenneth T Jackson, *Crabgrass Frontier : The Suburbanization of the United States* LK - <https://Umaryland.on.Worldcat.Org/Oclc/11785435>, TA - TT - (New York SE - x, 396 pages : illustrations ; 24 cm: Oxford University Press, 1985), <http://www.gbv.de/dms/bowker/toc/9780195036107.pdf>, 101.

⁷ Frumkin, Frank, and Jackson, *Urban Sprawl and Public Health : Designing, Planning, and Building for Healthy Communities* LK - <https://Umaryland.on.Worldcat.Org/Oclc/54455176>, 37.

⁸ Gallagher, *The End of the Suburbs : Where the American Dream Is Moving* LK - <https://Umaryland.on.Worldcat.Org/Oclc/796756273>, 34.

programs and policies that suburban sprawl became one of the dominating features of American culture. During the war, housing saw a significant downturn in production, averaging less than 400,000 houses per year for almost fifteen years.



Figure 4: An example of the temporary housing that many returning soldiers lived in due to the housing shortage, (Source: Bushywood, http://www.bushywood.com/building/History_House_Building_UK_WWI_WWII_Shortages.htm), permission pending.

With the end of the war though, and soldiers returning, there was a shortage of housing. In 1947, half a million families were living in temporary housing, and six million were doubling up with friends and relatives.⁹

To jump-start the housing market, the government began insuring long-term mortgages by private lenders. Before this point only the very wealthy could afford a mortgage, often they were short term and would only cover a small percentage of the total cost. With the government insuring these new loans, mortgages were offered for longer terms, 20-30 years, and would sometimes cover up to 90 percent of the overall

⁹ Ibid, 34.

cost of the house. In addition to this, the government also passed the GI bill, offering zero down, low-interest loans to veterans.¹⁰ With these two moves, the housing market was jump-started, with nearly a million houses being started in 1946 and two million in 1950. The number of homeowners went from 44 percent in 1940 to 64.4 percent in 1980. In the 1950s exurbs were growing nearly ten times faster than their city counterparts.¹¹

¹⁰ Frumkin, Frank, and Jackson, *Urban Sprawl and Public Health : Designing, Planning, and Building for Healthy Communities LK* - <https://umaryland.on.worldcat.org/oclc/54455176>, 38.

¹¹ Gallagher, *The End of the Suburbs : Where the American Dream Is Moving LK* - <https://umaryland.on.worldcat.org/oclc/796756273>, 35.

Most homes before this point would have been custom-built homes, only feasible for the wealthy. Returning from the war though, was William Levitt, who would soon become known for the creation of mass produced ‘tract’ housing.



Figure 5: An image of tract housing in Cincinnati that also employs Clarence Perry's road hierarchy, (Source: Wikipedia, <https://en.wikipedia.org/wiki/File:Cincinnati-suburbs-tract-housing.jpg>.)

Levitt envisioned simple, modular homes, that were customizable to a point and could be quickly and cheaply mass produced for soldiers and veterans to buy. These houses were so successful that many builders boasted having sold nearly 1,400 of these houses in a single day. The first Levittown, in Long Island, housed over 82,000 people, cheap but effective.¹² Because of how affordable building these tract houses were and how plentiful the highways became, developments began to pop up in farther locations on cheap farmland without access to public transportation. This

¹² Ibid, 37.

development boom caused a legislative response in the form of President Eisenhower, in 1956, signing the Federal-Aid Highway Act, funding another 41,000 miles of road.¹³

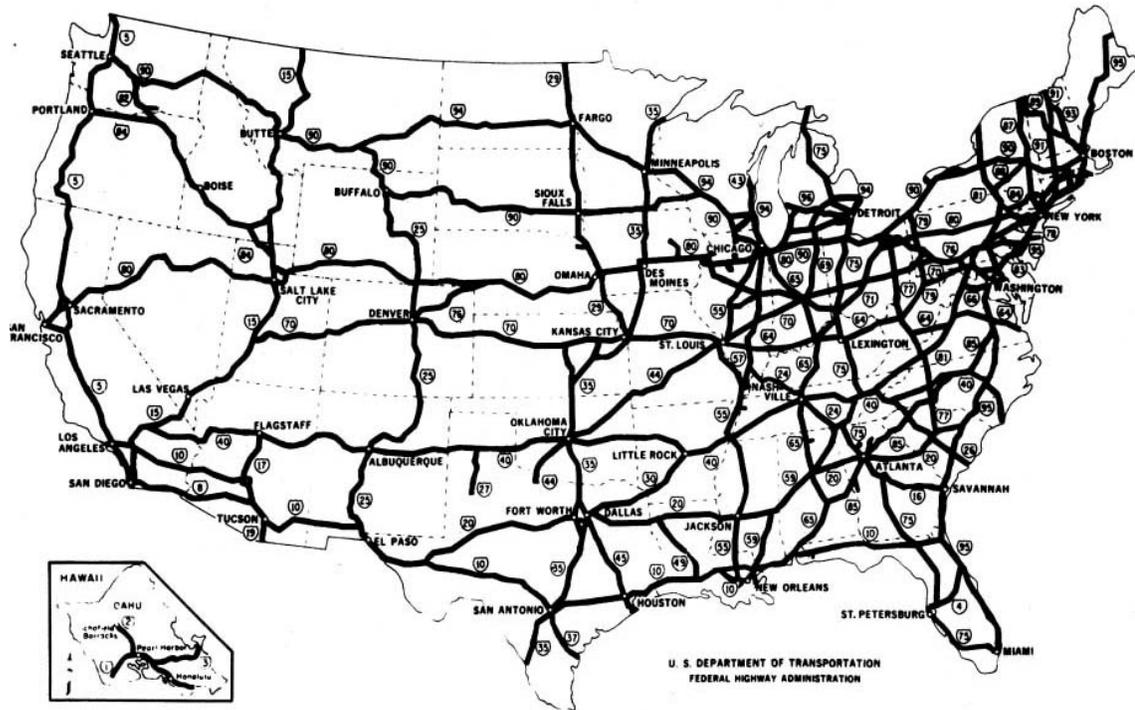


Figure 6: A map of the Dwight D. Eisenhower interstate highway system, (Source: Federal Highway Administration, <https://www.fhwa.dot.gov/interstate/finalmap.cfm>), permission pending.

While the construction method affected the homogeneity of the houses, Euclidean zoning caused developers to adopt the winding roads and fast-paced arterial corridors, along with T intersections and cul-de-sacs as default. Both aspects significantly shaped the image of the suburb, changing the picture from tree lined gridded streets and quaint town centers, to placeless neighborhoods connected by chutes of asphalt feeding into roads winding between faceless generic homes.

¹³ Frumkin, Frank, and Jackson, *Urban Sprawl and Public Health : Designing, Planning, and Building for Healthy Communities LK* - <https://Umaryland.on.Worldcat.Org/Oclc/54455176>, 40.

Even as early as the 1950's though, some began to warn of the imminent danger, the National Association of Home Builders released a movie, *Community Growth, Crisis and Challenge*, which warned,

“Once, the land seemed inexhaustible, today the land surrounding our metropolitan areas is being swallowed up at the rate of one million acres a year, by factories, shopping centers, highways, housing developments, and more housing developments. How did it happen in the span of a single generation?”¹⁴

The sad reality of this being that the worst wouldn't be seen until the peak in 2007, some 50 years later at a yearly pace that was ever growing.

Cultural and Commercial Implications

In addition to the construction and planning methods shaping our new suburban image, further policy began to shape the cultural image. The FHA used a rating system to assist in the evaluation of mortgage qualification developed by the Home Owners' Loan Corporation. A neighborhood rating system that included various variables evaluating overall health from green, good, to red, the slums, and while not explicitly racist, almost all black neighborhoods were marked red.¹⁵

¹⁴ Gallagher, *The End of the Suburbs : Where the American Dream Is Moving LK* - <https://Umaryland.on.Worldcat.Org/Oclc/796756273>, 39.

¹⁵ Frumkin, Frank, and Jackson, *Urban Sprawl and Public Health : Designing, Planning, and Building for Healthy Communities LK* - <https://Umaryland.on.Worldcat.Org/Oclc/54455176>, 39.

Neighborhood Classifications

HOLC appraisers divided neighborhoods by categories including occupation, income and ethnicity of inhabitants in an attempt to eliminate subjectivity of appraisers:

- **A (green)** were new, homogenous areas ("American Business and Professional Men), in demand as residential location in good times and bad.
- **B (blue)** were "still desirable" areas that had "reached their peak" but were expected to remain stable for many years.
- **C (yellow)** were neighborhoods that were "definitely declining." Generally sparsely populated fringe areas that were typically bordering on all black neighborhoods.
- **D (red)** (hence the term "red-lining") were areas in which "things taking place in 3 had already happened." Black and low income neighborhoods were considered to be the worst for lending.

These maps which separated neighborhoods primarily by race paved the way for segregation and discrimination in lending. Many argue that it was the HOLC maps that set the original precedent for racial discrimination and allowed for it to be an institutional practice.

Figure 7: A description of the historical designations the FHA used to evaluate loans and their inherently racist nature, (Source: Boston Fair Housing, <https://www.bostonfairhousing.org/timeline/1934-FHA.html>), permission pending.

This is significant, because the FHA directed their loans away from these redlined neighborhoods, in effect denying mortgages to black citizens. This rating system also led money away from existing older urban neighborhoods, that could use redevelopment, and into the newer suburbs. These neighborhoods, in turn, were bulldozed in favor of the ever-expanding highway system. So not only were the neighborhoods built to look the same, but they were also filled with the same people. This homogeneity continues to exist today with 65 percent of people owning homes,

and of those 65 percent, 73.6 percent are white and less than 50 percent are black or Latino.¹⁶

Another defining addition to our suburban image was a specific retail experience that grew in response to Perry's designation of retail along the larger arterial roads. Large "big box" stores began to pop up in the '80s, such as Best Buy, Lowe's, Home Depot, Walmart, etc.¹⁷ There was also the development of the shopping mall, which manifested in the '50s. Interestingly, the man credited with the creation of the shopping mall, Victor Gruen, later said that the legacy of his design had become "land-wasting seas of parking." So, the new consumer experience was one of self-contained shopping units, associated only by convenience to arterial roads and disconnected from an overall commercial network, the birth of the "strip mall."

In 2000, cities had grown and spread to almost twice what they were in 1970, and sparking the proposition of "At what point has a metropolitan area expanded so far that the suburb associated has ties so tenuous that it should be called a suburb with no 'urbs'?"¹⁸

¹⁶ Gallagher, *The End of the Suburbs : Where the American Dream Is Moving LK* - <https://umaryland.on.worldcat.org/Oclc/796756273>, 43.

¹⁷ Ibid, 45.

¹⁸ Ibid, 48.

The 2000's

The Housing Bubble

Like the National Housing Act of 1934, the government tried to stimulate the housing market again in 2001 by lowering interest rates to encourage home ownership. In addition to government action, there was also the addition of banks allowing investors to buy packages of home loans, which started a buying frenzy. Housing prices jumped nearly 200 percent between the years of 1995 and 2005. Some houses saw increases from \$300,000 to \$600,000 in only two years. Housing starts reached an all-time high since the 1970s with 1.3 million homes in 2000 and 1.7 million in 2006.¹⁹



Figure 8: A graph charting the housing starts from the 1950s to today, (Source: FRED, <https://fred.stlouisfed.org/series/HOUST>), permission pending.

To give perspective, almost 4 million acres of farmland were developed between 2000 and 2007. This land was also farther and farther away, nearly 3 million commuters now making 90-minute one-way trips five days out of the week.²⁰ During

¹⁹ Ibid, 67.

²⁰ Ibid, 68.

this time was also the development of the *McMansion*, defined by Merriam-Webster as “a very large house built usually in a suburban neighborhood or development, *especially*: one regarded critically as oversized and ostentatious,” which will be discussed in greater depth in the next section.²¹

Overall sizes of houses also increased with distance gained from the city. In 2006 the average home size was 2,500 sqft, doubling from what it was in the late 1970s.

During that year the concept house for the National Association of Home Builders was over 10,000 sqft. The sad truth about many of these homes was that developers used visual tricks to make them look even larger, stripping the property of trees and creating false hills under the houses.²²

Inevitably the housing bubble burst and housing prices plummeted nearly 29 percent by 2009, with over 2.1 million homes beginning the foreclosure process. While the

²¹ Merriam-Webster, “McMansion.”

²² Gallagher, *The End of the Suburbs : Where the American Dream Is Moving LK* - <https://umaryland.on.worldcat.org/Oclc/796756273>, 71.

overall price drop was 34 percent, some municipalities like Las Vegas experienced nearly 60 percent with 4.5 million homes repossessed due to foreclosure.²³

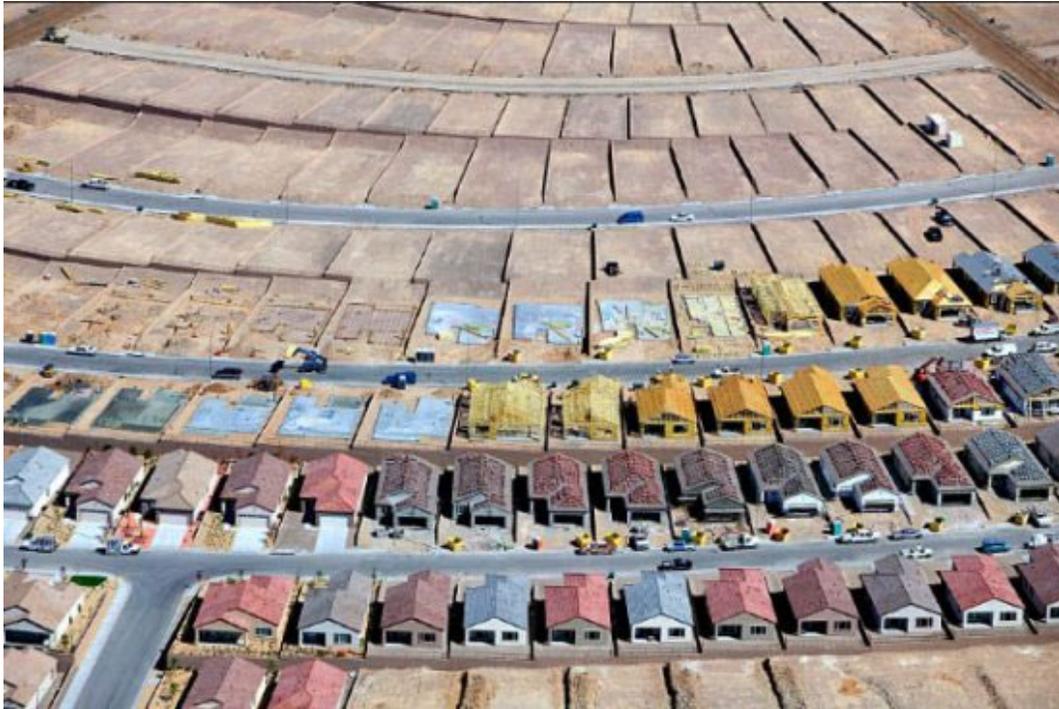


Figure 9: A photo of an abandoned neighborhood development project in Las Vegas during the 2008 housing crash, (Source: Carriage Trade, http://www.carriagetrade.org/spip.php?page=exhibition_images&id_article=13&id_document=126), permission pending.

Leigh Gallagher, in her book *The End of the Suburbs: Where the American Dream is Moving*, paints an eerie picture of a trip to Las Vegas in 2011, driving through one community and slowly coming to the realization that it was completely deserted. While initially, it had all the trappings of life, like Christmas decorations, she soon noticed that every door had the exact same wreath, the same inflatable snowman, some having lost their air, and some stoops, a pumpkin that had been forgotten by a real estate agent from the last holiday.²⁴

²³ Ibid, 72.

²⁴ Ibid, 73.

A real concern that many people fail to evaluate is the economic feasibility and stability of suburban municipalities. As Charles Marohn points out, a ‘recovering engineer’ as he coins, many exurban developments function like Ponzi schemes. The infrastructure required for exurban densities is often redundant and wasteful. For instance, when considering firehouses, the number of residences a single firehouse can service in a city is significantly higher than in an exurb which will require more per house because the response time and distance is now a significant factor. This reality can then be expanded to include all emergency services, multiplying the redundancy four-fold. In addition to this, there are longer and wider roads to be built and maintained, longer distances to bus your children to school, more costly sewage service, and so on.²⁵ A study done by the Denver Regional Council of Government estimates that lower density exurban community services would cost almost 2.5 times that of high-density cities.²⁶

Generally, communities deal with this by having the developer make the initial investment of installing all infrastructure, but because tax revenues are so low in exurban developments, the taxes are not enough to maintain the infrastructure. Because of this towns then must begin new development projects to have infrastructure funded again by developers, or take out loans, so the system is always relying on the next infusion of cash which in turn makes them more financially liable.

²⁵ Ibid, 58.

²⁶ Ibid, 60.

Marohn estimates that exurban municipalities get close to 4 cents to 65 cents for every dollar they are liable for.²⁷

The “American Dream”

It’s an interesting point of fact to be aware of that our current exurban form was not a result of need or a reflection of behavior but a response to legislation and policy, as seen in the previous sections. In this respect, one of the major defining qualities of American culture is a case where function followed form. Many people have tried to pinpoint the moment when the American Dream began to revolve around home ownership, but it was a slower process influenced by many factors, rather than a sudden paradigm shift.

The beginnings of homeownership and suburbia entering the vision of the “American Dream” could be argued to have begun with the end of the war in the 1950s. With the housing market dip and stagnation, war sentiments, overcrowding upon the return of soldiers, general dissatisfaction with cities, and the idolization of the automobile, an outlet could be found in the vision and pride of ownership of a quiet piece of land of your own in a bucolic setting. As Kenneth T. Jackson stated in his book, *Crabgrass Frontier*,

²⁷ Ibid, 58.

“The single-family dwelling became the paragon of middle-class housing, the most visible symbol of having arrived at a fixed place in society, the goal to which every decent family aspired.”²⁸

This was further reinforced by mass media shows like *Leave It to Beaver*, and *The Adventures of Ozzie and Harriet* all reinforcing happy suburban, middle-class lives, and rampant consumerism.²⁹ It was during this period that the initial image of the white picket fence began to form. The picture painted of cul-de-sacs and lemonade stands, of neighbors jovially greeting you by your shared hedgerow, a wife and 2.5 kids waiting by the door ready to welcome their father home with a steaming pot roast.

²⁸ Frumkin, Frank, and Jackson, *Urban Sprawl and Public Health : Designing, Planning, and Building for Healthy Communities LK* - <https://Umaryland.on.Worldcat.Org/Oclc/54455176>, 28.

²⁹ Gallagher, *The End of the Suburbs : Where the American Dream Is Moving LK* - <https://Umaryland.on.Worldcat.Org/Oclc/796756273>, 36.



Figure 10: A typical example of illustrations promoting home ownership in the 1950's, (Source: Flickr, <https://www.flickr.com/photos/paulmalon/9243492637/>), permission pending.

This image grew up with the years, but it's essence of family, home, and wholesomeness continued to persist. In the '80s, the suburbs are where Ferris Bueller skipped school, Samantha had her birthday forgotten and kissed Jake, and where Macaulay Culkin didn't go to Florida for Christmas.³⁰

During the Cold War this idea was further used as a political tactic with William Levitt stating that "No man who owns his own house and lot can be a Communist." Bill Clinton later was quoted in 1995 saying, "Strengthening families, establishing communities, and fostering prosperity, homeownership is the cornerstone of our

³⁰ Ibid, 9-10.

economy and a common thread in our national life.”³¹ It’s no wonder that this concept has become so central to the American identity, and therefore so difficult to alter. This vision though continued to evolve, in the 2000s inflating to all new heights of grandeur. It was with the development of the McMansion that developers began to sell a newer updated version of the American Dream.



Figure 11: An example of a McMansion, the visual embellishments can be seen even though they represent competing architectural styles, (Source: Think Realty, <https://thinkrealty.com/17-clarifying-home-definitions/>), permission pending.

Bob Toll, of Toll Brothers, recognized a new emerging middle-class and their desire to telegraph wealth. To appeal to this new market, he offered high-end visual embellishments that were mass produced, so while not as cheap as a tract house, nowhere near as expensive as a custom house. He gave the middle-class access to the superficial trappings of wealth and sold them the idea of a palace instead of a home.³²

³¹ Ibid, 65.

³² Ibid, 70.

Some have hypothesized the appeal that suburbia has, that it's the attempt to live a private life.³³ Marohn claims that it's an experiment of suburbanization that we've embedded into the American psyche by selling the idea as the American Dream, and now we attempt to maintain it at all costs.³⁴ Others say that owning a private home has always been a symbol of prosperity and that the American public can only be sold something that inherently they desire.

³³ Lewis Mumford, *The Culture of Cities* LK - <https://Umaryland.on.Worldcat.Org/Oclc/6790245>, TA - TT - (Westport, Conn. SE - xviii, 586 pages, 17 unnumbered leaves of plates : illustrations ; 22 cm: Greenwood Press, 1981), <http://www.h-net.org/reviews/showrev.php?id=2666>, 215.

³⁴ Gallagher, *The End of the Suburbs : Where the American Dream Is Moving* LK - <https://Umaryland.on.Worldcat.Org/Oclc/796756273>, 61.

Today's Situation

Millennials

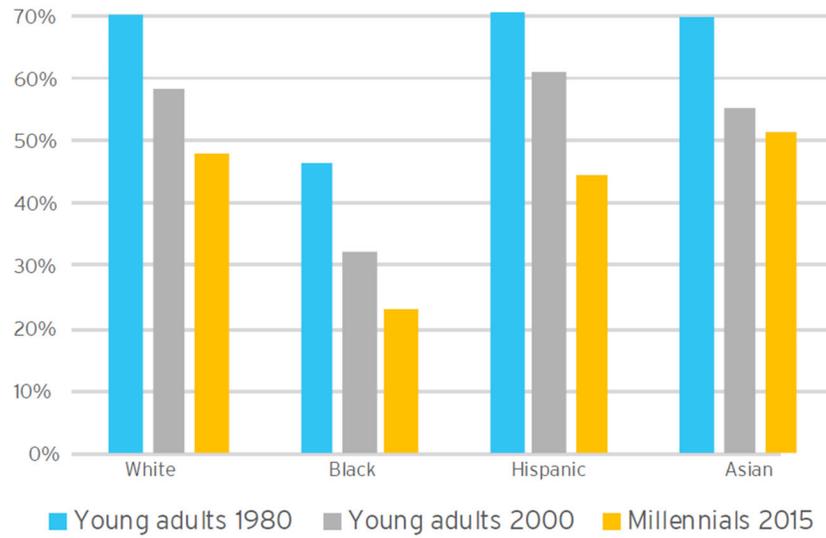
Current data shows the population leaving the distant exurbs. Today's millennials, defined by Gallagher as those born between 1977 and 1995, one of the largest generations, display a blatant dislike of the exurbs and preference for the city. When polled, 77 percent said they'd prefer to live in an urban area. Furthermore, it's taking millennials longer to leave the family home. Many opting to stay well into their late 20's and early 30's, which works out favorably since the previous baby boomer generation is more willing to live with their children than prior generations. All this leading to an overall greater cultural acceptance of sociable housing.³⁵

Several factors further influence this exurban exodus. One such factor is that overall household sizes are shrinking. People are having fewer kids, sometimes none, and getting married less and less. In 1960 over 75 percent of people were married, whereas today it stands at 50 percent. It's projected that in 2025 only a quarter of families will have children, down from the current 50 percent. Soon there will be as many single-person households as family households.³⁶

³⁵ Neil Howe, "Are Millennials Killing The U.S. Housing Market?," *Forbes*, last modified 2018, accessed April 22, 2019, <https://www.forbes.com/sites/neilhowe/2018/08/27/are-millennials-killing-the-u-s-housing-market/#5fe636791ead>.

³⁶ Gallagher, *The End of the Suburbs : Where the American Dream Is Moving LK* - <https://Umaryland.on.Worldcat.Org/Oclc/796756273>, 19.

Percent currently married: Generational differences by race at ages 25-34



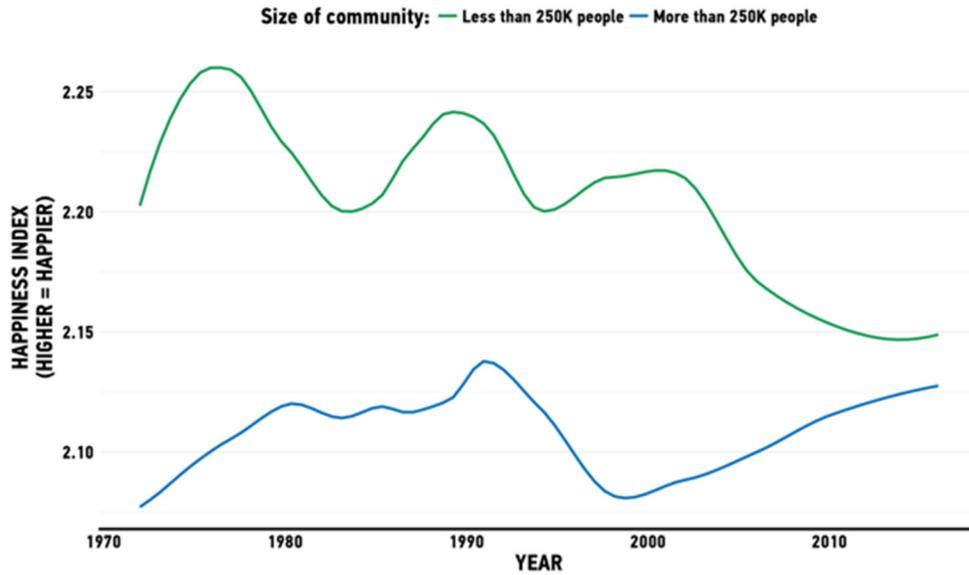
Source: Author's analysis of Current Population Survey Annual Social and Economic Supplements

Figure 12 A chart showing current marriage trends across race and generation, (Source: Brookings, The Millennial Generation: A demographic bridge to America's diverse future), permission pending

In Richard Florida's article "Millennials are Happiest in Cities," a study suggests that millennials serve as a turning point in housing trends. Millennials, unlike past generations, are happier in urban environments, a situation that generally corresponded with greater unhappiness from previous generations. The suggestion was made that millennials are younger and therefore enjoy cities more, but a further regression was conducted that showed the generation prefers cities regardless of their current age.

Small Towns Are Happier, but the Gap Is Closing

CITYLAB



City-Dwellers Are Less Happy, Except Millennials

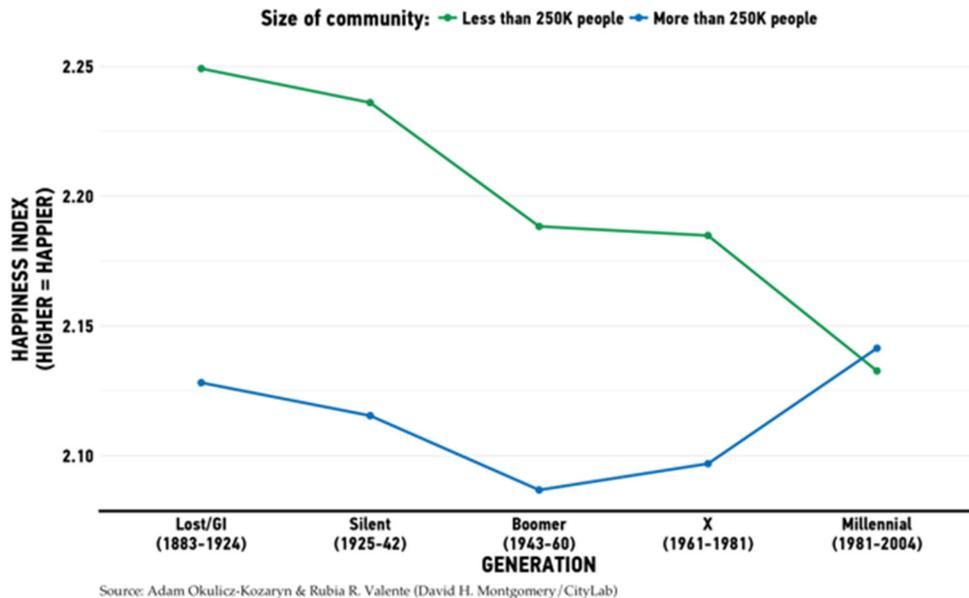


Figure 13 A chart mapping the overall happiness trend relative to density, decade, and generation, (Source: Citylab, <https://www.citylab.com/life/2018/06/millennials-are-happiest-in-cities/563999/>), permission pending

Some have hypothesized that this change in preference could be a result of altered perceptions of the city and a weakening emphasis on the conventional “American

Dream.”³⁷ The image of the city has improved since the 1950s, with wealth moving back into the cities as poverty has infiltrated the once Pleasantville-esque suburbs. Real-estate values have continued to climb in cities, as well as a movement in retail from malls to urban streets. Development of malls has slowed to a crawl since 2006, and many of the original “big box” stores have shifted their focus to creating smaller city-scaled versions.

In addition to this general preference for urban areas, there are also practical trends amongst millennials that make city-dwelling the more feasible option. For one, millennials are ditching their cars. In 1980 over 66 percent of people seventeen and up had their license, as of 2010 though, only 47 percent had their license. There is also the continuing concern of rising oil prices. Before 2007, with cheap housing becoming available farther and farther away, more and more of family income was being directed towards transportation costs and the average number of miles driven per family was on the rise. As of 2007, that number peaked and began its descent. In an article in *The Atlantic*, it was said that “The Beginning of the End for the Suburban America” has begun. There is also the issue of climate change and the overall environmental footprint that has become a topic of major discussion and focus. In reaction to this, many movements of “anti-stuff” and “collaborative consumption,” the ideological basis of most social housing, have begun to gain momentum.³⁸

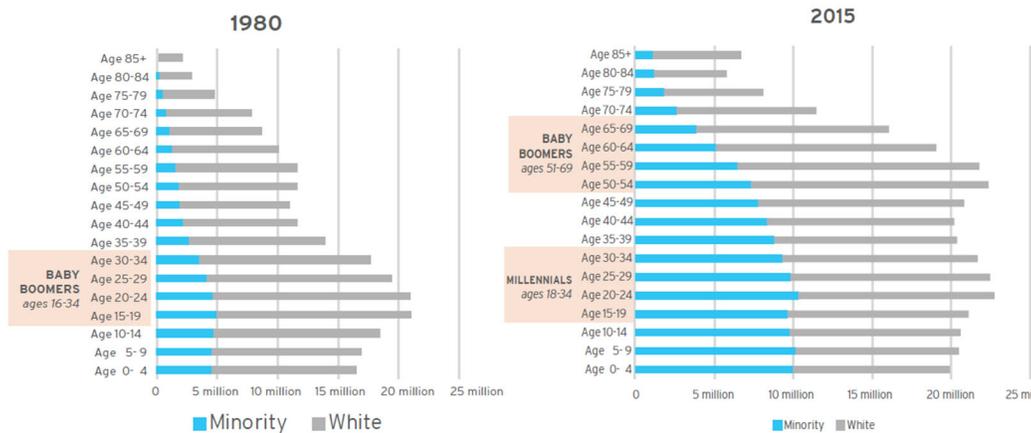
³⁷ Richard Florida, “Millennials Are Happiest in Cities,” *Citylab*, last modified 2018, accessed April 24, 2019, <https://www.citylab.com/life/2018/06/millennials-are-happiest-in-cities/563999/>.

³⁸ Gallagher, *The End of the Suburbs : Where the American Dream Is Moving LK* - <https://Umaryland.on.Worldcat.Org/Oclc/796756273>, 20-22.

Demographics

The overall demographics of the American tapestry are drastically changing as well. Just within the millennial generation, there is a rise in total racial diversity. A study conducted by Brookings projects that the current 44 percent minority group within millennials will grow to a majority by 2040. Many hold great hope for this generation, and the next generation for it's potential to overcome many of the racial and socio-economic divides still present in the U.S.

Age and race-ethnic distributions of U.S. population
1980 and 2015



Source: Author's analysis of 1980 U.S. Decennial Census and Census population estimates

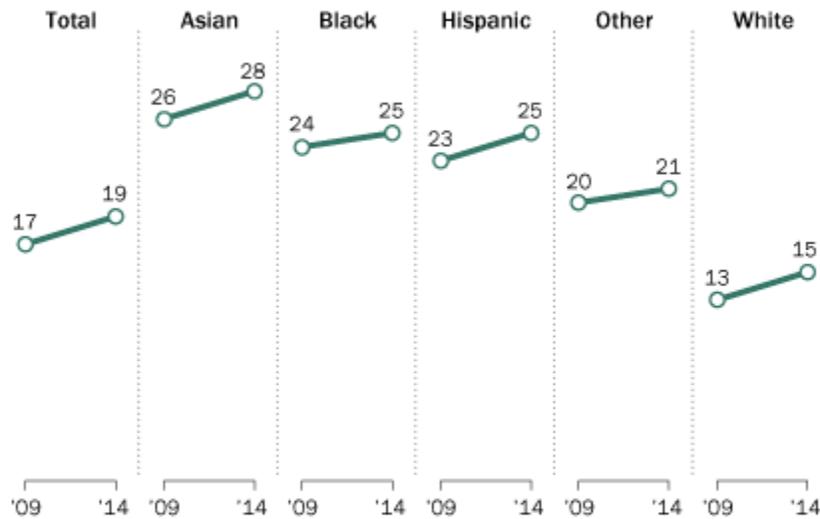
Figure 14 A graph showing the overall growth of minority groups by generation, (Source: Brookings, *The Millennial Generation: A demographic bridge to America's diverse future*), pending permission

Additionally, overall studies have shown that statistically, whites are less likely to live in multigenerational houses. But with the rise of immigrant populations and racial diversity, the percentage of families culturally predisposed to multigenerational living is rising. Already in 2014, the number of multigeneration homes were on the

rise from years prior with 25 percent of Hispanics and 28 percent of Asian households living with three generations or more.³⁹

Whites less likely than other racial and ethnic groups to live in multigenerational households

% of population living in multigenerational households



Note: Hispanics are of any race. Asians include Pacific Islanders. Whites, blacks and Asians are single-race only and refer to their non-Hispanic component. "Other" are single- or mixed-race non-Hispanics.
 Source: Pew Research Center analysis of 2009 and 2014 American Community Surveys (IPUMS).

PEW RESEARCH CENTER

Figure 15 A table showing an overall percentage breakdown of multigenerational households by ethnicity, (Source: Curbed, <https://www.curbed.com/2017/11/21/16682850/multigenerational-homes-millennials-immigration-family>), pending permission

Not only are there significant changes within ethnic populations, but also age groups. People are living longer, and as Patrick Sisson points out in his article *How a Return to Multigeneration Living is Shifting the Housing Market*, that doesn't mean people are spending longer in the last phases of their lives. While in retrospect, it might

³⁹ Sisson, "How a Return to Multigenerational Living Is Shifting the Housing Market."

seem obvious, longer life spans mean longer overall life phases. Statistically, this means that by 2035, one out of three households will be headed by a person over the age of 65. Already it's projected that in the next 20 years people over the age of 80 will jump from 6 million to 12 million. So, while there is a coming housing crisis for senior living and care, the baby boomer generation is also challenging independent living norms. Both aspects being quite suitable to a multigenerational housing model.⁴⁰

Co-families

Finally, the idea of family has evolved to encompass so many kinds of situations, sometimes it doesn't even refer to a group of people legally or genetically connected, that the idea as a whole must be revisited. Today a person's situation can vary widely, from married with children, divorced with kids, committed but living separately, single mother, remarried with stepchildren, to permanently single without children.

⁴⁰ Ibid.



Figure 16 A map of 50 family typologies that represent 94 percent of families in the US, (Source: Flowing Data, <https://flowingdata.com/2016/07/20/modern-family-structure/>), pending permission

With all of these different situations, the definition of family and what that encompasses, and manifests as requires redefining. Along with the more traditionally and legally recognized ideas of a family such as through marriage, birth, civil commitment, adoption, or romantic commitment, there is also the idea of the co-family. A co-family being one comprised of members who are not connected through the previously mentioned methods but by various social contracts. For instance, a group of roommates sharing a house. This is a more typical instance of a household being held together through a social contract, but in recent years this has been built upon in more formal and recognized typologies and programs. Unrelated people have

banded together to form groups that provide emotional support, economic support, and physical support.

Various co-family dynamics are discussed in Bella DePaulo's article *America is no longer a nation of nuclear families*. While statistically more people are living alone, they generally prefer to live independently within a more extensive social network. For instance, groups of single mothers coming together to share childcare responsibilities, senior citizens renting together to avoid undesirable senior care facilities and provide companionship, or large groups of people who share a central ideology forming a community together. The key in all of these dynamics is that the individuals involved are committed to more than just a living situation but the social contract which elevates these groups to 'families' or co-families.⁴¹

⁴¹ Bella DePaulo, "America Is No Longer a Nation of Nuclear Families," *Quartz*, last modified 2015, accessed April 22, 2019, <https://qz.com/440167/america-is-no-longer-a-nation-of-nuclear-families/>.

Part 2: The Analysis

This section aims to articulate and pinpoint the quintessential nuances of the “home” that the American citizen may be consciously or subconsciously striving towards. Through cataloging these various attributes and behavioral expectations, a better suited communal housing model can be proposed that will appeal to a broader audience.

Psychological Impact

Living Alone...

While it may seem like an exaggeration to say that loneliness is becoming one of the significant issues of our current settlement patterns, studies show that people are experiencing stronger feelings of loneliness in recent years. Higher levels of social isolation are connected to *vertical sprawl* in cities and horizontal sprawl in the suburbs.

Many Americans say they feel lonely

- 47%** Feel left out
- 46%** Sometimes or always feel alone
- 43%** Feel their relationships are not meaningful
- 43%** Feel isolated from others
- 27%** Rarely or never feel there are people who really understand them
- 20%** Rarely or never feel close to people
- 18%** Have people they can talk to

SOURCE Cigna survey of 20,000 Americans
George Petras/USA TODAY

Figure 17 Overall statistics of feelings of loneliness amongst Americans, (Source: USA Today, <https://www.usatoday.com/story/news/politics/2018/05/01/loneliness-poor-health-reported-far-more-among-young-people-than-even-those-over-72/559961002/>), pending permission

Studies have also shown that there is a direct correlation between isolation and overall health. PLOS Medicine published in 2010 that loneliness was considered just as dangerous as smoking, obesity, and physical inactivity. It has been linked to cardiovascular disease, dementia, and decreased mobility.⁴² Steve Cole, a genomics researcher, reports that social isolation can lead to early death, and in extreme cases, such as prisoners, madness, self-immolation, and suicide.

⁴² Carly Weeks, "From Hormones to Brain Function: Why Living Alone May Be Bad for Your Health," *The Globe and Mail*, last modified 2018, accessed April 25, 2019, <https://www.theglobeandmail.com/life/health-and-fitness/health/from-hormones-to-brain-function-why-living-alone-may-be-bad-for-your-health/article7251467/>.

Additionally, when isolated, the brain produces feelings of anxiety and fear that often create a cycle of social avoidance, which perpetuates the loop of isolation.⁴³ Social isolation is often overlooked and underestimated as something that most commonly affects the elderly but as John Cacioppo, director of the Center for Cognitive and Social Neuroscience at the University of Chicago, states, “I think we have underestimated the importance of the social milieu just as fish underestimate the importance of water.”⁴⁴

Some aspects that are thought to lead to social isolation are a weak sense of community, poor city design, and virtual contact. Many often confuse being near other people as social interaction, but creating genuine connections is what is required to fulfill a person’s social needs. Very often, in large cities, people function so independently and lead such busy lives that the social niceties and standard physical acknowledgment that you might find in a smaller village center are forgotten. Furthermore, the actual design of the city sometimes limits the areas in which genuine social connections can occur. Vertical sprawl often only allows for a semblance of interaction to occur on the elevator but past that people opt to stay within their individual dwellings rather than venture out into the crowd again.

⁴³ Suzanne H. Crowhurst Lennard, “Loneliness Is Life Threatening: We Can Design Cities to Foster Community,” *International Making Cities Livable LLC*, accessed April 25, 2019, <https://www.livablecities.org/blog/loneliness-life-threatening-we-can-design-cities-foster-community>.

⁴⁴ Weeks, “From Hormones to Brain Function: Why Living Alone May Be Bad for Your Health.”

socially isolated.⁴⁵ Furthermore, a study published in the American Sociological Review reported that overall numbers of friends have decreased. The number of Americans with no friends to confide in has tripled since 1985. It was only within the last 500 years that people began to separate and compartmentalize their family units, their friends, and their neighbors. Before this point, social housing and shared lives was the status quo and was something that strongly affected our evolution.

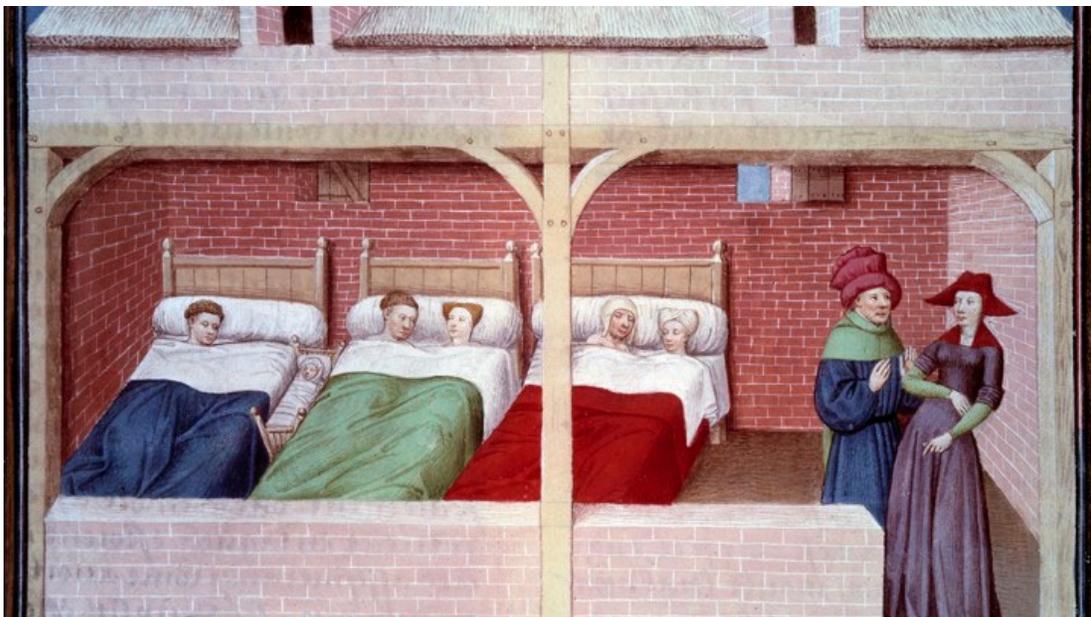


Figure 19 An image representing the social norm of sleeping together during the Middle Ages, (Source: *The Atlantic*, <https://www.theatlantic.com/business/archive/2016/09/millennial-housing-communal-living-middle-ages/501467/>), pending permission

As Ilana E. Strauss states in her article *The Hot New Millennial Housing Trend is a Repeat of the Middle Ages*, “That is why so many people today – from young coders to lonely septuagenarians to families – are experimenting with communal living, a

⁴⁵ Lydia Smith, “Why Is Living in a Big City so Isolating,” *CityMetric*, last modified 2018, accessed April 25, 2019, <https://www.citymetric.com/horizons/why-living-big-city-so-isolating-lonely-isolation-loneliness-4210>.

way of life that, whether they know it or not, echoes how things worked for most of human history.”⁴⁶

...Living Together

While living alone is a rising health concern, a long-standing stigma surrounding living together also exists and considering our housing options a well-deserved one. Living together can cause just as much emotional and physical strife as living alone, and it requires a little more work, but in the long run, has the most benefits. Today’s millennials are lonelier because they believe living alone is the solution to the complicated dynamics of living together and that this can then be supplemented by living in a city that will provide the necessary social outlets.

To understand the complicated nuances of interpersonal relationships and the effects space can have on them, it’s important to understand the types of space and the behaviors associated with them. To begin, one categorization of space is public, semi-public, and private. These degrees of privacy are contingent upon the type of space they are being applied to, but in general public space refers to areas with the least amount of privacy, semi-public is a transitional type with a moderate amount of privacy, and private having the most amount of privacy. If these were applied to a single family detached house, the sidewalk might be defined as public, the stoop and front yard as semi-public, and the spaces within the house as private. If just the

⁴⁶ Ilana E. Strauss, “The Hot New Millennial Housing Trend Is a Repeat of the Middle Ages,” *The Atlantic*, last modified 2016, accessed April 25, 2019, <https://www.theatlantic.com/business/archive/2016/09/millennial-housing-communal-living-middle-ages/501467/>.

spaces within the house were being considered the foyer, the kitchen, the living room could be designated as public space, perhaps a half bath downstairs, a shared bath upstairs, and a playroom upstairs could be considered semi-public, and then the bedrooms would be private spaces.

Just the identification of this house at two different scales demonstrates the nesting nature of a person's spatial experience through a day. Some architecture employs the use of these spaces at different scales successfully while others might miss some.

Through the analysis of several precedent projects, a few discussed in later sections, it's clear that successful designs that incorporate both shared and private spaces include clear navigation and consideration of each of these three degrees of privacy and their scalable nature. This movement between different scales from the worldwide level to the anatomic level is something people are negotiating every day. So, creating transitional spaces between these degrees and scales helps a person move smoothly between spaces and their day as well as assign an order and logic to their life. A well-designed map would help inform and convey expected behaviors and activities associated with each space mitigating many of the misunderstandings associated with social interactions occurring in these shared spaces.

When considering these three types of space, it's also important to understand that the behaviors associated with each are not singular. Very often, introspective activities can occur in public spaces. Alternatively, highly social activities can occur in private spaces. Both depend on the scale of the space.

For instance, a public square because of its size affords the occupant a certain degree of anonymity which allows for acts of introspection. The public square also allows for the congregation of a group participating in social activities. In general, because of its scale rarely will the square imply to its users a sense of belonging and direct interaction with the overall group, unless the space is being used for a demonstration or event.

As the spaces get smaller the social group it belongs to begins to affect its use and behaviors more and more. The living room of a single-family household considered public space within the family could still be used for introspective activities. A daughter sitting in the room might not necessarily be expected to interact with her mother if she came to sit as well. On the other hand, in a house shared with roommates, if that same girl were to go sit in the living room and another roommate entered the room, a degree of interaction would be expected. If the dwelling were to be augmented slightly to a larger house with a greater number of roommates and the space also enlarged to a point it could be considered a lounge interaction between the two might not be expected.

This shows that while the map is a helpful guide to interpreting these spaces and how to lay them out, it needs to be customized to the specific social dynamic of that user group and the scale of that group.

What's the Right Amount of Space?

A question that everyone asks but no one seems to be able to answer concretely is “how much space does a person need?” Of course, there are different interpretations and facets to this question. For instance, who is the user? Is it someone in their 20's, or perhaps someone in their 60's? Is the user from Asia, or maybe from Europe? What income bracket does the user fall into? Is there more than one occupant in the dwelling unit? These questions can continue, but it's evident that the answer is highly subjective based on a complex set of variables. Despite this, several studies have attempted to construct a loose framework of circumstances that help guide an overall estimate of spatial necessity.

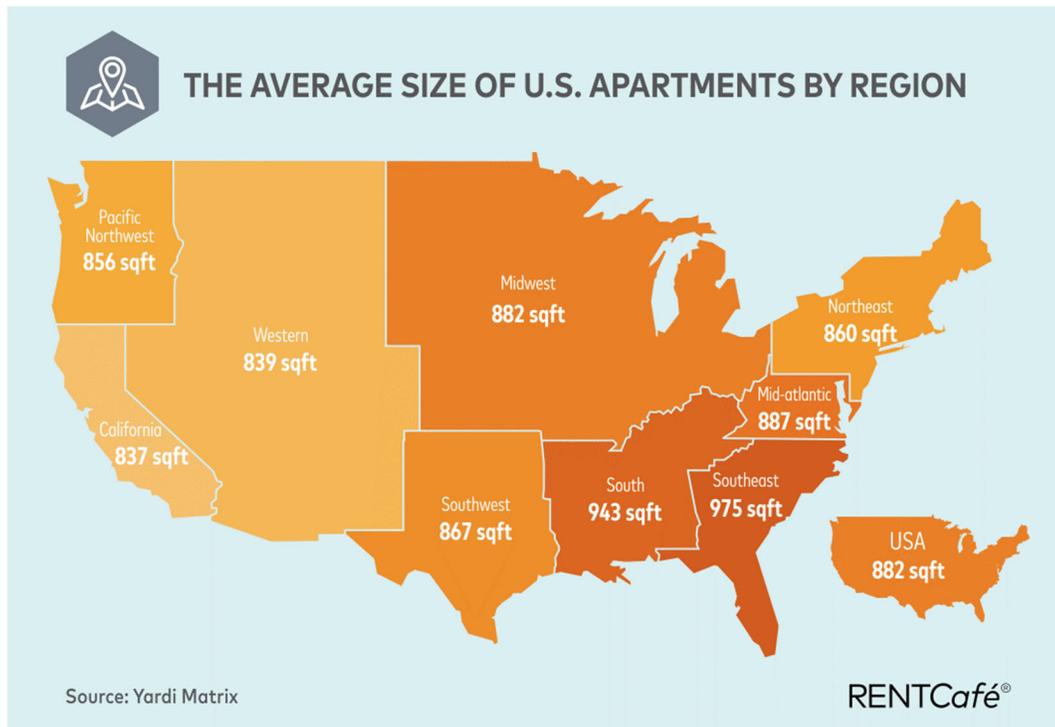


Figure 20 A map showing average size of apartments in the US, (Source: Yardi Matrix, <https://mynorthwest.com/1200062/seattle-tiniest-apartments-us/>), permission pending

A recent Pew study investigating American attitudes toward information privacy found that given the right incentives or rewards, people are more willing to sacrifice

varying levels of their privacy. A parallel can then be drawn to private and public space. Suggesting that if the right amenities, economic drivers, or overall material grandeur were offered, people would be willing to live with less privacy.

Additionally, another study conducted by Clement Bellet found that overall house size and its steady growth could be connected to adjacent home sizes. While larger houses did not necessarily correspond with higher levels of happiness, living next to a neighbor with a more substantial house correlated to higher levels of unhappiness. Therefore, a key to being happy in a given amount of space is dependent upon creating a housing model that doesn't allow for its distinct dwellings to reveal varying levels of socio-economic resident situations.



Figure 21 A chart showing overall house satisfaction over the last 30 years, (Source: LSE, <https://blogs.lse.ac.uk/usappblog/2017/03/18/keeping-up-with-the-joneses-superstar-houses-and-the-us-mortgage-frenzy/>), pending permission

Several sources have attempted to give an actual range of values, like Engineering Toolbox, which states anywhere from 100 to 400 sqft is sufficient space for a person. Another source, the London Plan 2011, gives a table with the corresponding number of beds and people to overall square footage.⁴⁷



Click and Print Guide
Target Internal Areas for Houses and Flats

Property type	No. of Bedrooms	No. of People	Good Area (sq m)	Good Area (sq ft)
 single storey flat or bungalow	studio	1 	37	400
	1	2 	50	540
	2	3  	61	655
	2	4  	70	755
	3	4   	74	795
	3	5    	86	925
	3	6    	95	1020
	4	5    	90	970
	4	6    	99	1065
 two storey house or duplex flat	2	4  	83	895
	3	4   	87	935
	3	5    	93	1035
	4	5    	100	1075
	4	6    	107	1150
 three storey house	3	5   	102	1100
	4	5    	106	1140
	4	6    	113	1215

⁴⁷ Matt Power, “Align Your Space: How Much Room Do You Need to Be Happy?,” *Green Builder*, last modified 2018, <https://www.greenbuildermedia.com/blog/align-your-space-how-much-room-do-you-need-to-be-happy>.

The top ten happiest countries don't include any of the more affluent nations and generally suffer from severe overcrowding. Matt Power suggests that what "places such as Bangladesh," which made the top ten, "have over western cities is that tiny living is simply one of a broader tapestry of lifestyle of shared communal spaces, close community ties and social connection." Therefore, he suggests that it's a problem of behavioral modification and access to ample outdoor amenities and social infrastructure.⁴⁸ Ultimately the success of smaller living is dependent upon a more substantial urban and suburban intervention. It is only with a healthy and functional public space oriented urban plan that more spatially economical dwellings can become feasible.

⁴⁸ Ibid.

Social Housing Typologies

To begin, social housing refers to housing typologies that encourage social interaction and community placemaking using shared spaces. Social housing can also reference housing monitored, funded, or subsidized by the government, most commonly found in Europe. For this thesis, social housing will refer only to the first definition.

Co-housing

Co-housing is commonly found in rural or suburban environments, although there are projects that have adapted it to urban settings. Typically, co-housing is an aggregation of individual housing units connected by a common green with a common house where the community gathers and regularly cooks together. With co-housing the family unit, or individual, still maintains a high level of privacy because of their independent homes but has more opportunities to interact with their community than a typical housing situation. There are different scales to this campus-like typology. Two examples can be seen below, the first a smaller design consisting of two double-height structures, with private and semi-public spaces and an area for the common room, straddling a public court that also includes a community garden plot.

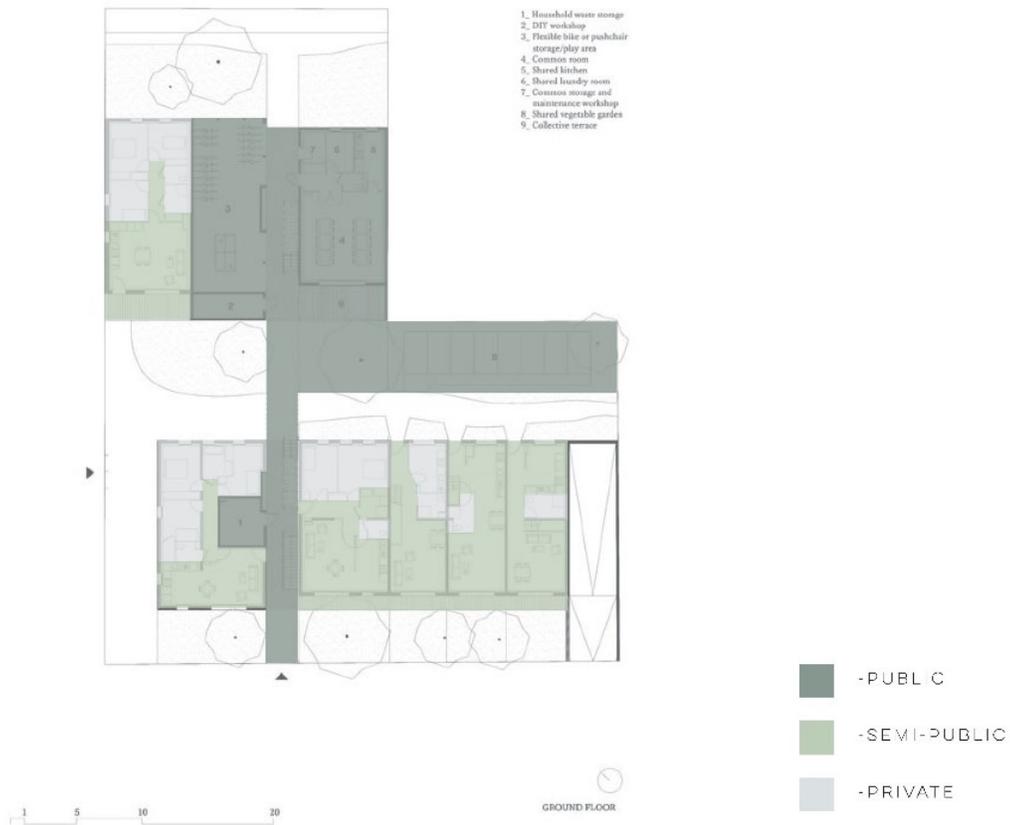


Figure 22 Public space diagram of Nanterre Co-living, (source: Archdaily with overlay by Author, <https://www.archdaily.com/779035/nanterre-co-housing-mao-architectes-plus-tectone/5673712ce58ece85c700006f-nanterre-co-housing-mao-architectes-plus-tectone-second-floor-plan>)

The second, a larger project, is comparable in size to many neighborhood developments. This example uses several greens spread throughout connecting nodes of individual housing units to create an overall network. In this case, most of the semi-public space is found in the form of porches or stoops serving as a transition between the public realm and the private domain.

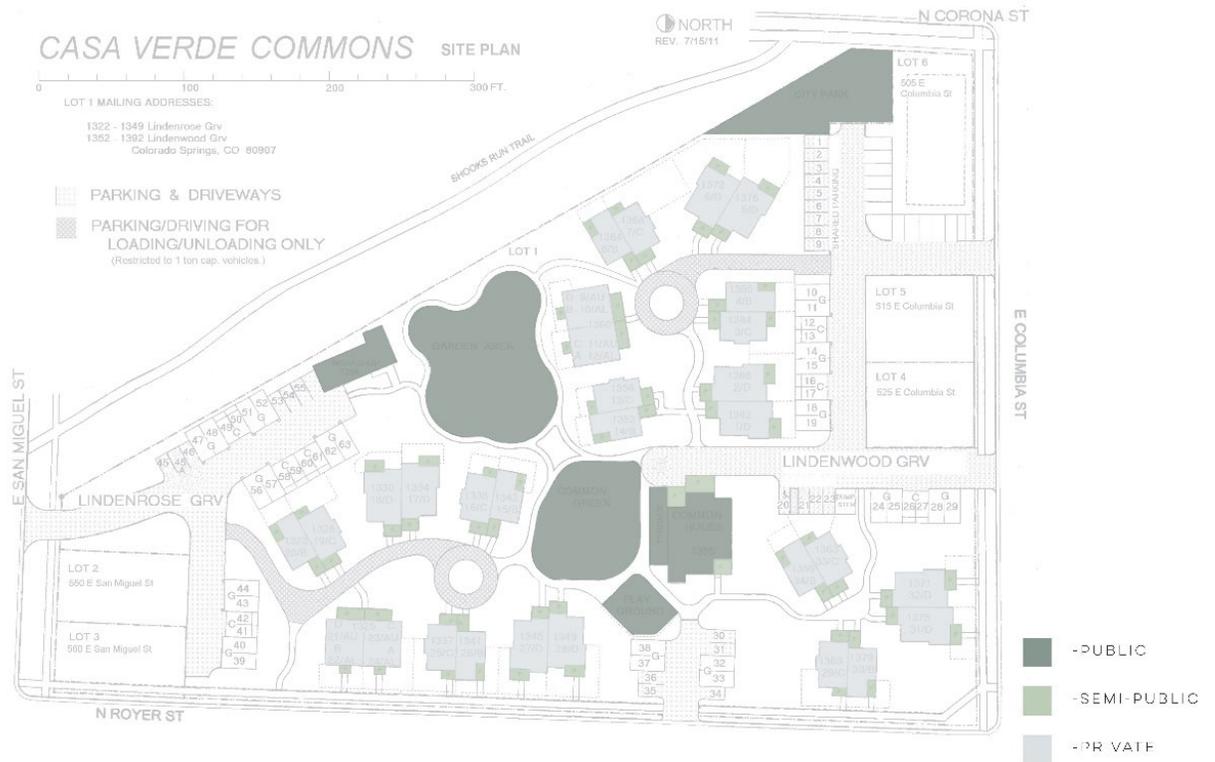


Figure 23 Public space diagram of Casa Verde Co-housing, (source: Archdaily with overlay by Author, https://casaverde.us/floor_plans.html)

One defining characteristic of co-housing typologies is the importance of shared green space, something that is lacking from most of the urban applications of this typology but quite central to the original conceptual proposition. In both cases, the ratio of the public space to private space is about 1:2, which highlights the importance of a large shared social core to this typology.

Manor Houses

An interesting phenomenon occurring in Europe, particularly in Britain, is the conversion of many of their manor estates into apartment buildings. Now unlike many US development projects on or in reclaimed historical sites and buildings,

much of the original form and function of the building is left untouched. The appeal of these estates is the very fact that they were estates, so the appearance and functionality of them must stay true to their original design. This means that the apartments within are unique, stately, and established. For instance, an apartment might be called The Library, because it occupies the wing that the main library of the estate is located. With this there is a unique marketing opportunity, but also the ability to obtain some of the grandeur that the middle-class desires without the monetary commitment and large plots of land required for a manor house.

Co-living

A modern development in the social housing group is the idea of co-living. This typology is most popular with millennials and is still establishing itself. Co-living has a larger scale like co-housing with the use of a very large public space for tenants to interact with each other. Like co-housing people still have their own units with private bedrooms, kitchens, and bathrooms, but there is the option to spend time in the public space to socialize with your neighbors. This public space generally consists of a large commercial kitchen for shared use, a large living room similar to hotel or dorm lounges, gym, and studio spaces, etc. These spaces are similar in function to most amenity spaces in typical apartment buildings, but the design of these spaces and the environment encourages a different kind of social interaction with your neighbors.



Figure 24 Public space diagram of Roam Co-living project, (source: Archdaily with overlay by Author, <https://www.archdaily.com/787696/roam-alexis-dornier>)

This first example is more in line with co-housing with the residential units lining a shared court which houses the outdoor pool. The upper floor contains a large public lounge and gym. Also similar is the use of a wrap-around portico which houses the stoops to each apartment and serves as a transition zone.



Figure 25 Public space diagram of WeLive project, (source: The Atlantic with overlay by Author, <https://www.theatlantic.com/business/archive/2015/11/coliving/414531/>)

The second example above strongly resembles typical apartment buildings today. In this case, the building core has been replaced with the shared kitchen, lounge space, and laundry room. A common issue with the design of co-living projects is that the social values are not as strongly represented in the spaces as is the priority of convenience. Because of this very often, the design still suggests that although spaces for interaction are available, the user might still have a rather isolated daily routine.

Share Housing

Share housing is the typology with the most shared space and the least privacy of all the social housing types. Typically, it is a single dwelling where the occupants have their own bedrooms, but all the common spaces are shared. This generally manifests as shared bathrooms, kitchen, living room, laundry, and patio space. Share houses can be simple layouts where the tenants occupy a typical family home and function in it the same way a family would. Other projects like the one below are designed to accommodate more than an average house would, in this case, 13 people. This project is near the upper limit of the number of people that could comfortably occupy a share house.

ground floor plan

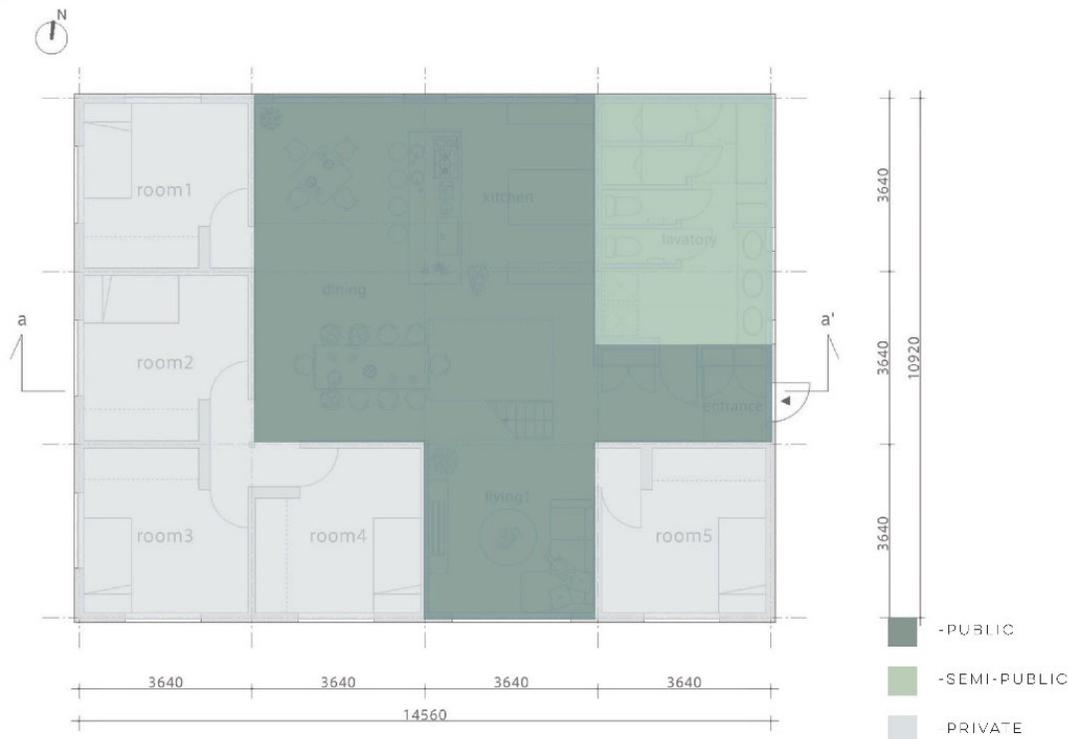


Figure 26 Public space diagram of LT Josai apartment (Source: Archdaily and overlay by Author, <https://www.archdaily.com/497357/lt-josai-naruse-inokuma-architects/534df2adc07a80d19300004f-lt-josai-naruse-inokuma-architects-floor-plan>)

This project features a dorm style bath, and a large shared central space with all the common spaces aggregated together and the private rooms pushed to the exterior. This approach makes it quite legible to the tenants where the boundaries of public and private space begin and end. In theory, this clarity would lead to smoother social interactions surrounding the topics of noise and activity levels adjacent to private spaces, as well as feelings of personal domain.



Figure 27 Public space diagram of Gap House apartment (Source: Archdaily and overlay by Author, <https://www.archdaily.com/771429/gap-house-archihood-wxy/55c2a5e8e58ecedb2e000056-gap-house-archihood-wxy-fourth-floor-plan>)

The second example is more typical of a roommate style share house. This project differentiates itself from normal apartment style rooming because of its low number of units per floor and its relatively high amount of shared space. This type of share

house might be an easier transition for those coming from your everyday roommate style apartment because it only shares spaces with three people. Overall, share housing has a significantly more flexible form that it can manifest itself as, and strongly relies on the function of sharing all the spaces in a residence except the bedroom.

Multi-generational Housing

Multi-generational houses refer to houses with more than two generations living under one roof. This can manifest as grandparents, parents, and children. It can also manifest as a grandparent and children; the one previously mentioned being the more typical situation. Multi-generational housing has been around for centuries and was the typical housing situation for most. This was very popular in Asian countries, and two of these typologies were analyzed and diagrammed below, the Hanok and the Machiya.

The Hanok is the standard multi-generational house of Korea. These houses are usually single level courtyard style and can be found in infill situations in cities. The overall layout consists of private sleeping quarters flanking the courtyard and the common spaces, such as the kitchen and dining area sitting at the head of the courtyard. Another layout that can be seen below are two secondary sleeping quarters flanking the courtyard, with the main master sleeping quarters occupying a position of prominence at the head of the courtyard and the common spaces acting as buffers between the two sleeping hierarchies filling in the corners.

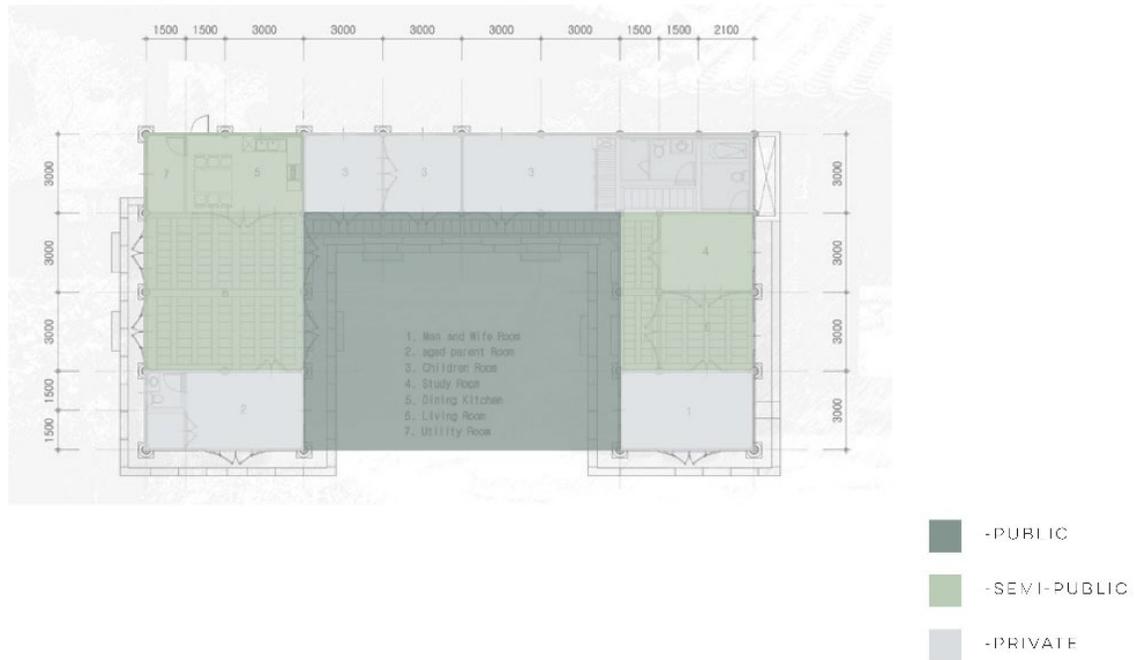


Figure 28 Public space diagram of a historical Hanok (Source: Unknown and overlay by Author, <http://archi.com/data/26/20090118090432.jpg>)

To promote a sense of continuity and connection, the eaves bordering the courtyard are extended. Sometimes this extension is only a few feet to provide shelter and suggest circulation to the rooms via the edges of the courtyard. Sometimes the eaves are extended several feet creating a porch and covering an extended step off the rooms that act as a veranda. Both moves suggesting movement between spaces along the edge of the courtyard and movement through the center is reserved either for group activities or initial entry into the home.

The Machiya is a multi-generational townhouse typology most commonly found in Kyoto, Japan. Like the Hanok, the Machiya is also an infill typology, so well suited to urban centers. Based on the tatami system, the overall layout of the Machiya is quite flexible.

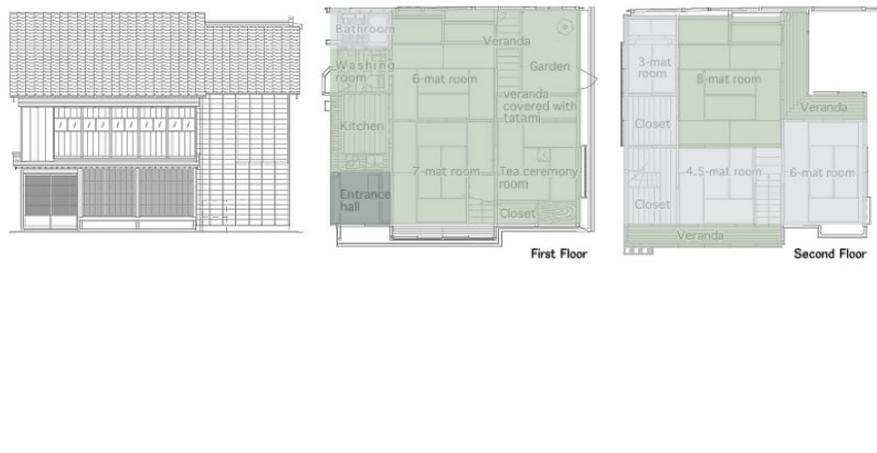


Figure 29 Public space diagram of a historical Machiya (Source: Machiya Kanazawa and overlay by Author, <http://www.machiya-kanazawa.jp/english/pass/card2/index.html>)

The first floor generally consists of the public gathering spaces, a gated entry courtyard, a second private courtyard in the back that serves as a garden, the bathroom, and the kitchen. Moving up to the second floor are semi-public gathering spaces that are also converted to the bedrooms at night. Because of this relatively unprogrammed space upstairs, it makes the house adaptable to most family situations and sleeping arrangements. Something worth noting are the thin verandas wrapping around the courtyards and upper floor, allowing an extension of the interior spaces out into the city when the windows are slid open. This allows for a maximization of space in generally very crowded conditions.

Proposed Typology

The proposed typology for this thesis is a mix between the previously mentioned typologies and for the purposes of this thesis will be called Co-family housing. The core being multigenerational housing typologies but the adaptation of the existing design principles to create an environment suitable for share housing situations as

well, and all of this connected by a central courtyard or green as seen in co-housing. In addition to this with the changing social fabric of family relationships and interpersonal relationships, it's paramount that our coming housing typologies be as versatile and adaptable to individual situations as possible.

Case Studies

Three housing projects, in addition to the ones previously discussed, were analyzed during the course of this thesis to inform overall program size, program spaces, program adjacencies, etc. In addition to this, these projects were also used to identify architectural elements and spaces that successfully and sometimes unsuccessfully communicated the idea of “home,” navigated the boundary of too much or too little public and private space, the issue of personal space, and the overall feeling of equitable ownership of spaces.

Dongsimwon

This first case study is a multigenerational home located in Seoul, South Korea, and

DONGSIMWON, SOSU ARCHITECTS, SEOUL

PRIVATE	
PARENTS	
PROGRAM	SF
BEDROOM	140
CLOSET	60
BATHROOM	59
OLDER DAUGHTER	
BEDROOM	158
BATHROOM	80
PARLOR/GUEST ROOM	162
YOUNGER DAUGHTER	
PARLOR/GUEST ROOM	134
CLOSET	126
BEDROOM	280
BATHROOM	93
TOTAL	1292
PUBLIC	
PARENTS	
PROGRAM	SF
VERANDA	45
KITCHEN	167
LAUNDRY ROOM	26
LIVING ROOM	192
FOYER	21
OLDER DAUGHTER	
VERANDA/LAUNDRY ROOM	47
KITCHEN	261
FOYER	23
YOUNGER DAUGHTER	
LIVING ROOM	230
KITCHEN	73
FOYER	18
BATHROOM	25
LAUNDRY ROOM	39
PATIO	314
COMMERCIAL	
CAFÉ	365
BATHROOM	34
PARKING	
TOTAL	1880
TOTAL	3172
GROSS	4282.2
SQFT PER PERSON	PUBLIC 208.9
	PRIVATE 143.6

Figure 30 Table of programmatic spaces and totals
(Source: Author)

was designed by Sosu Architects.

The house consists of a first-floor retail space and subsequent five floors of residential space housing three generations in the form of 3 related families. Each immediate family is given their own unit of space connected by a stair that runs the entire height of the structure.

While each unit doesn't have the same size spaces, they possess the same functional spaces. Each of the sub-families is slightly different, the parental unit with two seniors, the older daughter with two adults and two children, and the younger

daughter with two adults and two children. The size of the programmatic spaces responding to the needs of the sub-family.

As a way of encouraging feelings of equitability and ease of family activities, units were given one larger programmatic space type than the others, or that space was left

unassigned. For instance, the older daughter’s unit has the main kitchen, which means it’s the largest of the kitchens given to any of the units and it also contains enough space for the whole family to gather for a group meal. Another example is the younger daughter’s unit, which has the main living room. As with the kitchen, this means it’s the largest of the living rooms, but also spatially it’s more accessible. When entering the younger daughter’s unit, the living room is one of the first things a visitor would see, and unlike the other living rooms, it doesn’t have a partition wall or doors.



Figure 31 Public space diagram of LT Josai apartment (Source: Archdaily and overlay by Author, <https://www.archdaily.com/878698/dongsimwon-multi-household-house-sosu-architects/59a6c22db22e38a3030002c4-dongsimwon-multi-household-house-sosu-architects-second-level>)

Another very successful design tactic this project uses to create the feeling of separate sub-family spaces is the foyer at each floor off the stair. While this programmatic space is probably one of the smallest in the project, it’s the most important. This

foyer serves as a transitional zone from a public corridor, but without this space, there wouldn't just be the issue of the public corridor bleeding into the unit but also the question of where does one unit start and the other end? Can they even really be called units anymore if in essence, they are now functioning like a typical house? This foyer also serves as a space for a ritualistic component to a person's day, the mental recognition of coming home, entering your personal domain, scaling down from the city level to the community level to the individual level.

LT Josai Apartments

The second case study is a share house located in Japan designed by Naruse Inokuma Architects. As mentioned previously in the share housing section, this building houses 13 residents who all have their own private bedrooms but share a kitchen, living room, dining room, terraces, and dorm style bathroom. Of the three case studies presented, LT Josai has the smallest amount of public space per person at 115 sqft. Overall though, the impression of the space available is much larger because of its

LT JOSAI, NARUSE INOKUMA ARCHITECTS

PRIVATE	
1ST FLOOR	
PROGRAM	SF
BEDROOM	149
2ND FLOOR	
BEDROOM	149
BEDROOM	149
BEDROOM	149
3RD FLOOR	
BEDROOM	149
TOTAL	1937
PUBLIC	
1ST FLOOR	
PROGRAM	SF
FOYER	34
DORM BATH	223
KITCHEN	186
DINING	143
LIVING ROOM	149
BREAKFAST NOOK	121
2ND FLOOR	
LIVING ROOM	339
3RD FLOOR	
ROOF TERRACE	149
ROOF TERRACE	149
TOTAL	1493

TOTAL 3430
 Figure 32 Table of programmatic spaces and totals
 (Source: Author)

aggregation in the core of the structure. Therefore, the tactic of combining common spaces in one area is ideal if a project has limited space.

One issue that might present itself though is the quality of feeling too wide open and like a “fishbowl” with everyone looking in. This project effectively deals with this possibility by creating a dynamic sectional experience with full and half floors and various breezeways and landings. Because of these various ceiling heights and openings, the space has distinct activity areas and locations that feel more sheltered than others.

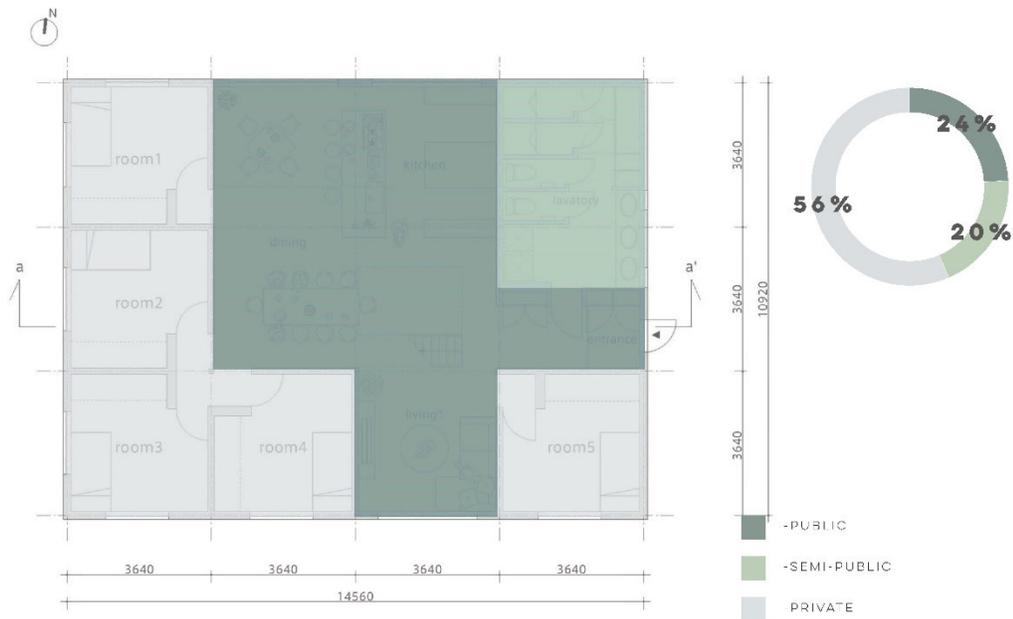


Figure 33 Public space diagram of LT Josai apartment (Source: Archdaily and overlay by Author, <https://www.archdaily.com/497357/lt-josai-naruse-inokuma-architects/534df2adc07a80d19300004f-lt-josai-naruse-inokuma-architects-floor-plan>)

Also mentioned previously, this design has a straightforward approach to the segregation of public and private spaces, placing the private spaces along the exterior

of the building. Because these private spaces are directly against the public spaces, feelings of exposure when approaching the door to a bedroom might make tenants uncomfortable. This project, possibly because space was limited, opted not to create formal transitional zones into each bedroom, like in the previous case study, but instead to create wall insets. These wall insets allow the occupant to enter through a door perpendicular to the main wall, visually shield themselves and the interior of their room from the public space. While the individual rooms don't have this foyer space, the building does, and it's a rather gracious one with storage and evokes a feeling of a mudroom in a typical detached family home. So, the feeling of transition from a busy city to a personal domain is still fulfilled.

Gap House

The final case study is a share house, Gap House, also located in Seoul, South Korea designed by Archihood WXY. This project was also mentioned in the share housing section and its similarity to contemporary roommate style apartments. Surprisingly though, even with its resemblance and the fact that it's a share house, the typical spaces that are shared are undersized or missing entirely. This efficiency of space can be explained by

GAP HOUSE, ARCHIHOOD WXY

PRIVATE	
UNIT 1A	
PROGRAM	SF
BEDROOM	112
BEDROOM	112
BEDROOM	102
SHARED HALF BATH	23
SHARED FULL BATH	37
VERANDA	81
UNIT 1B	
BEDROOM	112
BEDROOM	126
BEDROOM	108
SHARED HALF BATH	28
SHARED FULL BATH	39
UNIT 2A	
BEDROOM	112
BEDROOM	122
BEDROOM	110
SHARED HALF BATH	28
SHARED FULL BATH	37
UNIT 2B	
BEDROOM	112
BEDROOM	108
BEDROOM	112
SHARED HALF BATH	23
SHARED FULL BATH	37
VERANDA	81
UNIT 3A	
BEDROOM	139
BEDROOM	124
SHARED HALF BATH	22
SHARED FULL BATH	38
VERANDA	85
UNIT 3B	
BEDROOM	137
BEDROOM	128

Figure 34 Table of programmatic spaces and totals (Source: Author)

the micro-apartment culture found in many Asian countries, but it's also a statement about the daily life of a young professional which this project is targeting. The private rooms feature a place for a desk, so it's assumed that much of the tenant's productive time would be spent there, and the time taking care of themselves would be spent either in the kitchen and small dining space or the shared bathrooms. What is missing is a living room, the main shared communal space that generally defines a share housing proposition. Two other spaces present make this scheme viable.

One being the three punched veranda openings on every floor which could serve as semi-public introspective spaces for the tenants outside of their rooms, and second the public café and courtyard space on the first floor. These verandas create the feeling of more space because of their extension visually out into the city like the Machiyas in Kyoto. Additionally, because of their strategic placement, they also allow for a visual and spatial relationship with the opposite unit, something that would further encourage interaction with neighbors. In theory, the occupants could also gather in the café or courtyard to socialize with each other or to socialize with the general public or simply interact passively through people watching in the café.

PUBLIC	
UNIT 1A	
FOYER	29
UTILITIES	23
KITCHEN/DINING AREA	143
VERANDA	57
UNIT 1B	
FOYER	28
UTILITIES	20
KITCHEN/DINING AREA	150
VERANDA	57
UNIT 2A	
FOYER	25
UTILITIES	22
KITCHEN/DINING AREA	140
VERANDA	58
UNIT 2B	
FOYER	26
UTILITIES	21
KITCHEN/DINING AREA	140
VERANDA	58
UNIT 3A	
FOYER	29
UTILITIES	22
KITCHEN/DINING AREA	269
VERANDA	61
UNIT 3B	
FOYER	18
UTILITIES	15
KITCHEN/DINING AREA	317
VERANDA	75
VERANDA	58
COMMERCIAL	
CAFÉ	928
BATHROOM	73
GARDEN	436
STORAGE	65
PARKING	971
TOTAL	3383
TOTAL	6059
GROSS	8179.65
SQFT PER PERSON	PUBLIC 199
	PRIVATE 157.5

Figure 35 Table of programmatic spaces and totals (Source: Author)



Figure 36 Public space diagram of Gap House apartment (Source: Archdaily and overlay by Author, <https://www.archdaily.com/771429/gap-house-archihood-wxy/55c2a5e8e58ecedb2e000056-gap-house-archihood-wxy-fourth-floor-plan>)

One rather understated space that does evoke a more typical and less efficient residential feeling is the design of the stair corridor. Sometimes in apartment design stairs can feel very stark and utilitarian. In this project, because there are only two apartment units per floor, the scale of the landing is more intimate and feels like a front stoop instead of a place of refuge on a fire stair. This is further reinforced by the addition of a window and the small setback that allows the tenant to enter their apartment parallel to the path of movement providing physical and visual privacy. This move was seen previously in the wall insets in the LT Josai project. The architects could have easily had the entryway directly off the main landing maximizing more space for the foyer but it's worth noting that the creation of this

inset makes for a more intimate procession for the occupant and a less sterile and purely functional stairwell.

Overall these three case studies have emphasized the importance of transitional zones between public and private spaces, the nuance of scale to create more intimate residential references, and a clear and legible logic to the flow of public and private spaces so that residents can respect each other's personal space.

Part 3: The Architectural Response

Site Selection

The Criteria

When selecting the site for this thesis 11 criteria were considered: low crime rate, high population density neighborhood, 15 min walking distance to school, 15 min walking distance to grocery store, 15 min walking distance to park, accessible mass transit, established neighborhood center within walking distance, diverse socio-economic groups, similar building typologies adjacent, sense of community, and walkable street network (non-primary roads). All of these were selected because of their contribution to creating a well-rounded residential neighborhood. While all the criteria selected are important, there are a few that were pivotal to the scope of this project as well as the overall social responsibility of any new proposed housing project.

This thesis can approach the issue of exurban community degradation by either densifying exurban developments or providing medium density family-oriented housing within urban centers. Due to the nature of a thesis requiring a targeted focus and not wishing to complicate the subject of social housing with an urban planning intervention as well, Baltimore, Maryland was selected as the city of focus. Six criteria played a role in the selection of Baltimore, specifically walking access to schools, grocery stores, parks, access to mass transit, established neighborhood

centers, and in general walkable street networks. While all this infrastructure could be proposed in an exurban project it is simpler to work with a site that already has this infrastructure available.

Another aspect of Baltimore that makes the city ideal is the high vacancy rate. While in many cities any new proposed housing in convenient locations concerning infrastructure would be competitive and desirable real estate displacing current residents, Baltimore is in the process of re-occupying many of these lots. Therefore, Baltimore was chosen because of the existing infrastructural skeleton, the abundant available real estate as well as desire to reinvigorate the city through development, and finally the rich socio-economic diversity.



Figure 37 Close up aerial of the site and its relationship to Patterson Park, (Source: Google Earth)

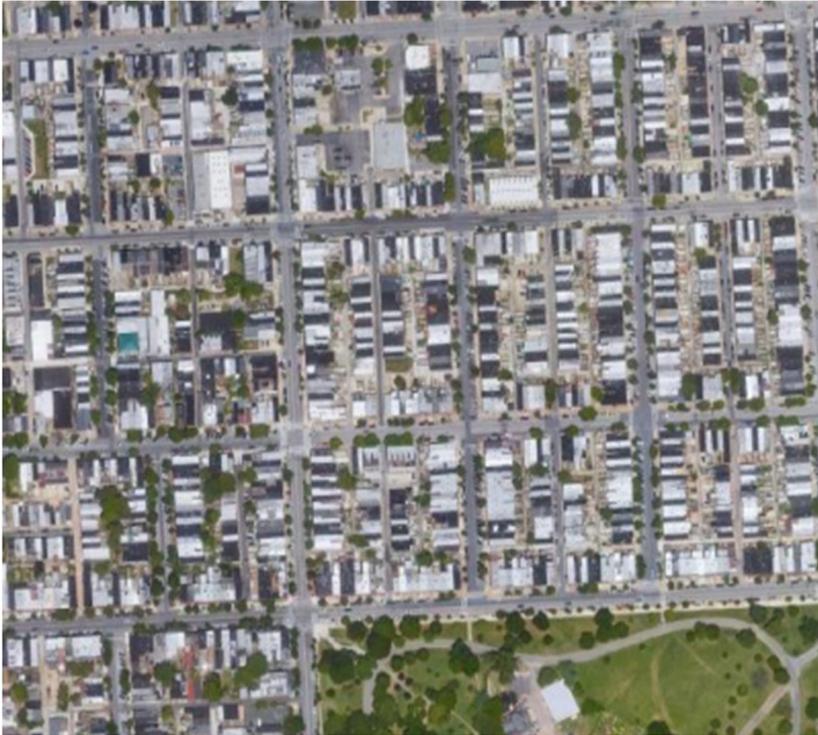


Figure 38 Aerial of the greater context of the chosen site, (Source: Google Earth)

There exists a unique opportunity around Patterson Park, north of the harbor in Baltimore, which possesses a wide array of racial and economic diversity around the relatively small boundary of the park. This last point was the primary driver behind the specific site selection within Baltimore because as mentioned previously, fully understanding our social responsibility as a society and community and the opportunities available is paramount to moving forward.

Site Analysis

In this section, the specific data for the area will be discussed for several of the criteria mentioned above. The two figures below show the racial diversity of the area surrounding Patterson park as well as the specific numbers for the block in which the thesis' site is located. As can be seen, the overall racial diversity is relatively high,

especially when compared to the lower percentages of the homogenous exurbs. Additionally, the site has a median household income of \$50,000, which is a comfortable mid-range, but even more promising is the wide range of incomes occurring to the east, west, and south of the park. This kind of mix is ideal for supporting and encouraging a diverse array of retail and entertainment possibilities in the area, and the maintenance of these areas. This situation is like the dynamic that was found in major cities during the Roman empire, the mixing of income groups which guaranteed better amenity upkeep, safety, and health and sanitation standards, which benefited everyone.

RACIAL DIVERSITY: 60%

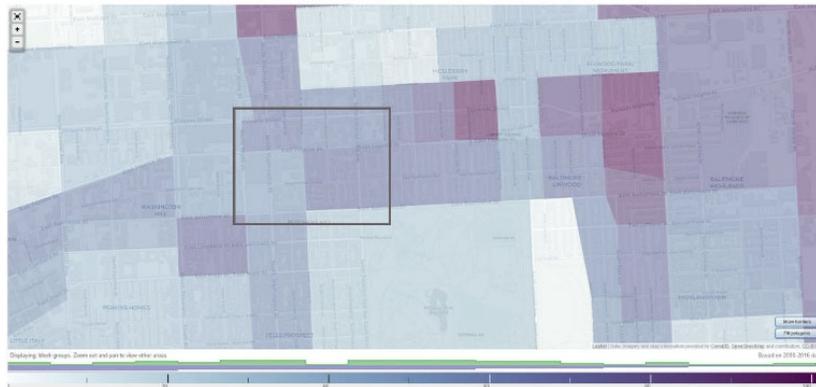


Figure 39 A diagram showing racial diversity around the site, (Source: City-Data.com with overlay by Author, <http://www.city-data.com/city/Baltimore-Maryland.html>)

MEDIAN HOUSEHOLD INCOME: **\$50,000**

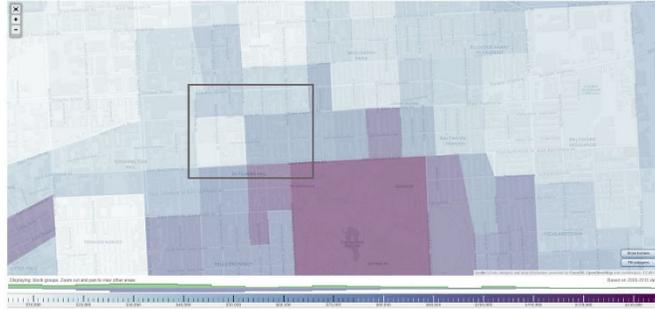


Figure 40 A diagram showing median household income around the site, (Source: City-Data.com with overlay by Author, <http://www.city-data.com/city/Baltimore-Maryland.html>)

The next figure shows the average household size, which is relatively small and appears to be the average around the whole park. This indicates that the community could benefit from a slightly higher density housing option, such as the proposed medium density multigenerational house.

AVERAGE HOUSEHOLD SIZE: **2.3**

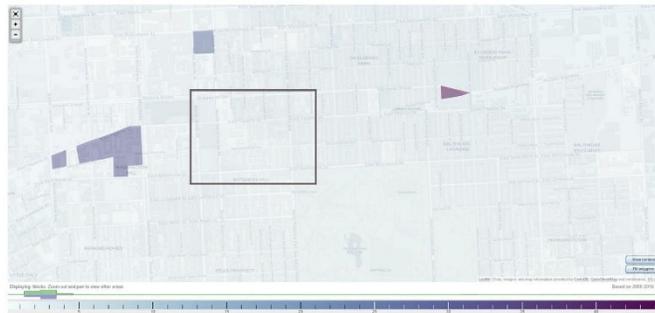


Figure 41 A diagram showing average household size around the site, (Source: City-Data.com with overlay by Author, <http://www.city-data.com/city/Baltimore-Maryland.html>)

The site currently has a median resident age of 27, but the figure also shows that that number fluctuates around the park, between 8 and 60 years of age. This mix is ideal for a multigenerational proposal because there are existing social groups that could

connect and support the various tenants of the new dwelling and possibly offer new housing for existing residents within the community.

MEDIAN RESIDENT AGE: **27**

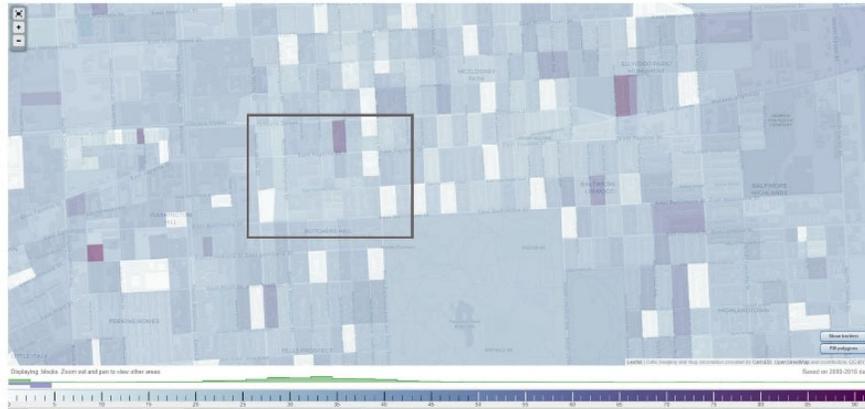


Figure 42 A diagram showing median resident age around the site, (Source: City-Data.com with overlay by Author, <http://www.city-data.com/city/Baltimore-Maryland.html>)

In terms of available mass transit options, there are multiple bus lines and nearby transfer points. Overall the walking score is quite high, and the transit and bike scores quite good as well. Access to mass transit is key to most urban proposals, but especially because this thesis will propose that each housing unit share one car. Moving families into the city is only a feasible option if transport is convenient because of the added complication of dependent parties, whether those be children or seniors.

PUBLIC TRANSPORT

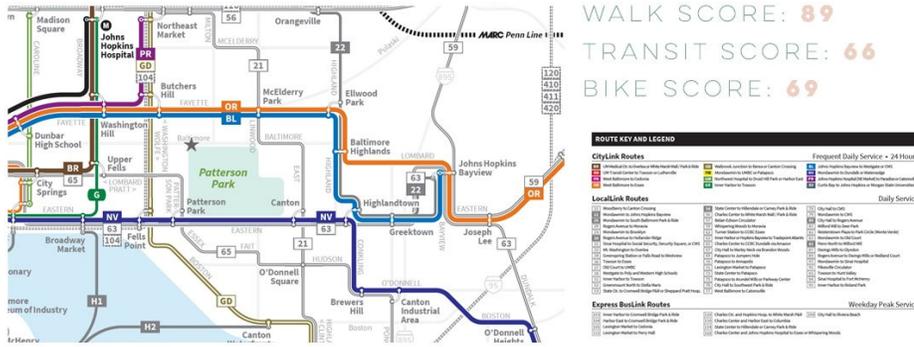


Figure 43 A diagram showing the mass transit routes surrounding Patterson Park, (Source: MTA), pending permission

There are quite a few schools surrounding Patterson Park ranging from elementary to high school. The overall ratings of the schools are average, but the selection is diverse from private academy's to charter schools to public schools.

SCHOOLS

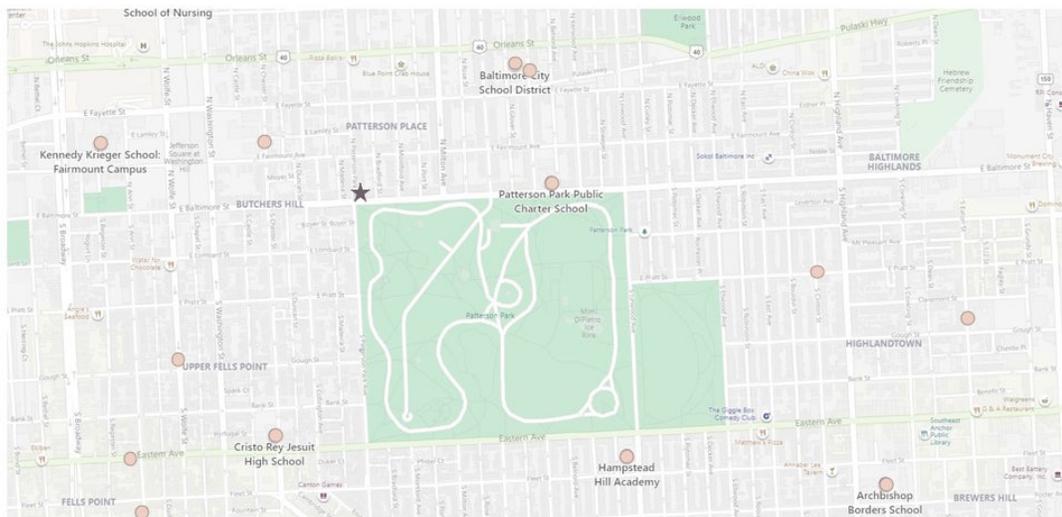


Figure 44 A diagram of schools in the area, (Source: Bing maps with overlay by Author)

GROCERY STORES

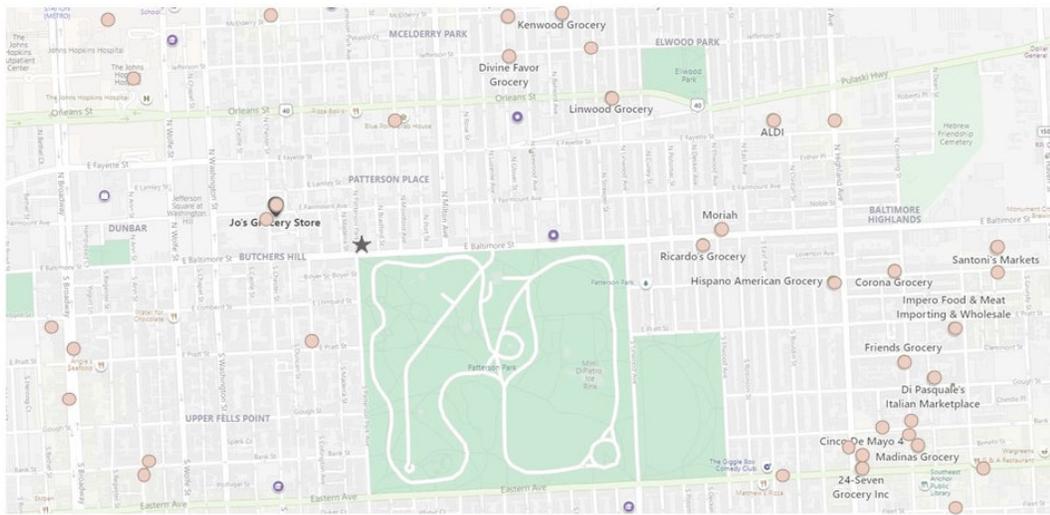


Figure 45 A diagram of overall grocery stores in the area, (Source: Bing Maps with overlay by Author)

Another very important aspect that was considered when looking at sites within Baltimore was access to food. Food deserts are an overwhelming issue for many neighborhoods within Baltimore, so this current site was selected with access to food as a secondary driving factor. As can be seen above, there are a multitude of grocery and market locations around Patterson Park.

The Process

Design Principles

To begin the design process an investigation into the development of a set of design principles was the first step. To help form these design principles, and ultimately the implementation that resulted, user interviews were conducted and the previous research on the history of today's suburban fabric was used. The primary design principles that emerged were the importance of transitioning between public and private spaces, access to light and air, and communal spaces to encourage interaction.

These principles manifested in various ways. For instance, the overall parti selected for this housing typology was a courtyard setup to help support those necessary transitional moments between public and private space. Additionally, because the ideal locations for these houses are in cities the courtyard creates more moments for access to light and air.

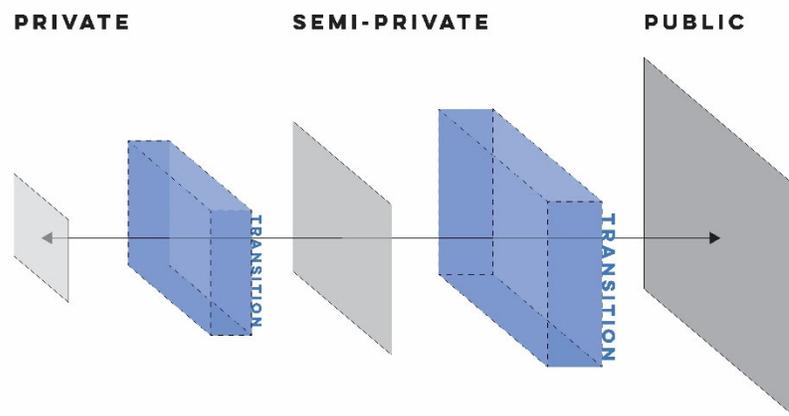


Figure 46 A diagram showing the sequence of spaces transitioning from public to private, (Source: Author)

To help support interaction amongst house occupants and to provide communal spaces various distributions of these spaces were analyzed.

DISTRIBUTION OF COMMON SPACES

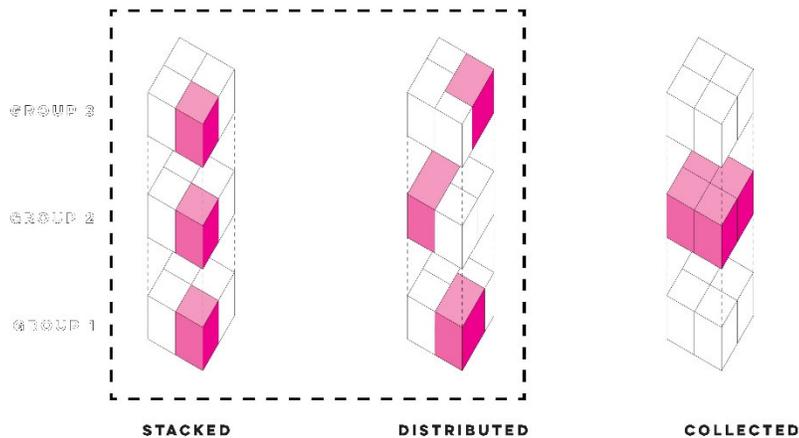


Figure 47 A diagram showing the three methods of distributing common space, (Source: Author)

Ultimately the three methods shown above emerged: stacked where there are equally sized common spaces without hierarchy placed on every floor, distributed where the areas of these common spaces are adjusted to create main rooms distributed vertically, and collected where all the common spaces are placed on one floor creating a main floor. For the purposes of this thesis only stacked and distributed will be used to try and promote as much equality amongst co-family members and vertical circulation.

The Typologies

During this process this thesis was also challenged to become a guide or method for implementation regionally. This new approach resulted in the creation of not one but

three typologies that investigated various courtyard distributions, the functions of those courtyards, and street and lot typology response.

STREET TYPOLOGIES

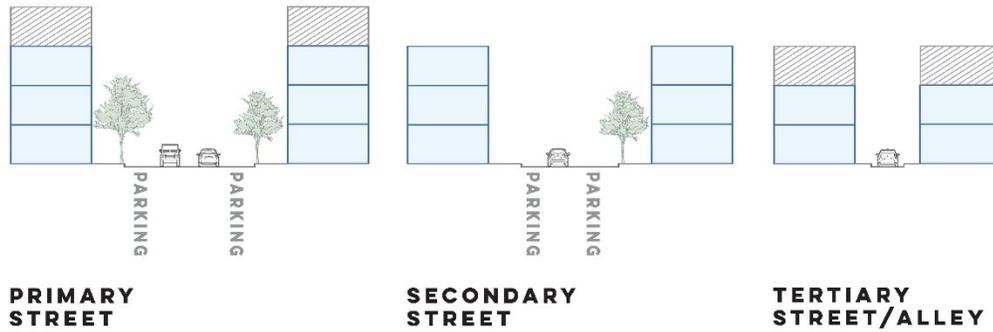


Figure 48 A diagram of the street typologies that this guide will address, (Source: Author)

To create this guide several parameters would need to be developed: first program and size, second the courtyard types, third the overall building footprint and lot dimensions, and fourth basic rules of program adjacencies and spatial sequence.

The program and sizing was developed by taking various typical suburban layouts, from 1,500 sqft to 2,500 sqft, and averaging and analyzing the spaces. Examples of some of the typical layouts can be found in the image below.

RIGHT-SIZING AND PROGRAM

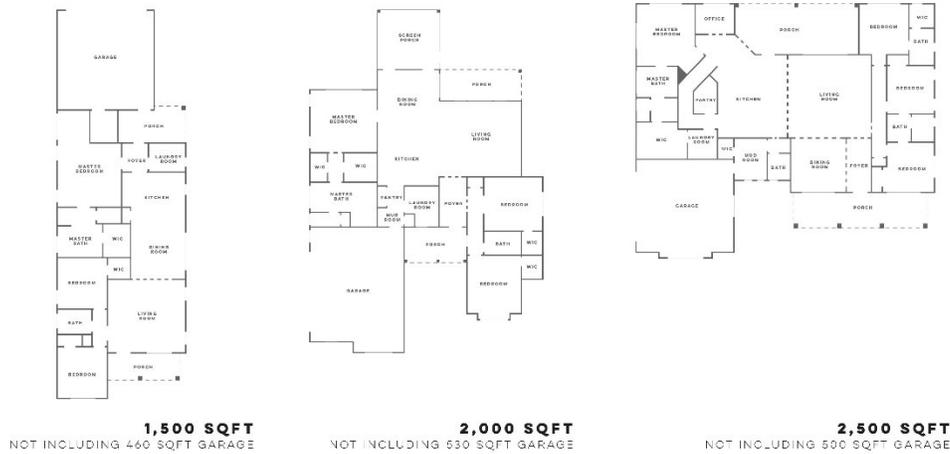


Figure 49 Some of the typical layouts averaged to inform program and size, (Source: Author)

From this exercise the program blocks and average sizes seen below emerged. It was also determined that the basic unit grouping within these houses would be a two bedroom so overall building footprints were tallied including courtyard size dependent on the house aggregations.

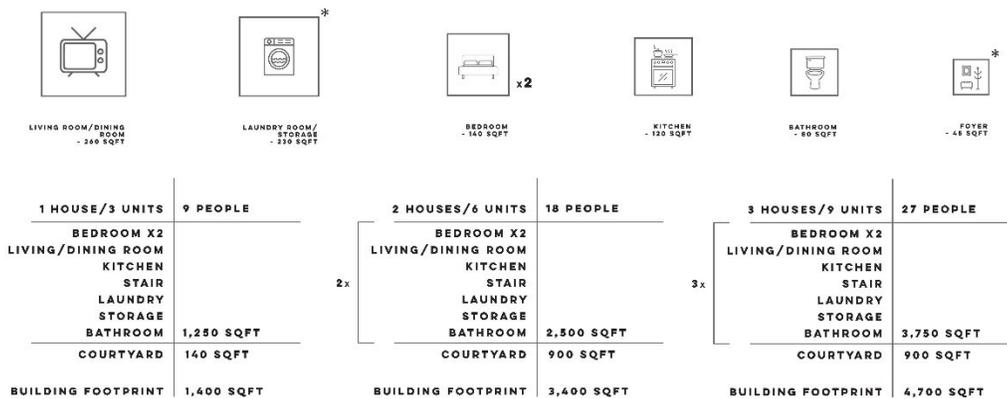


Figure 50 The basic program blocks and their average sizes, (Source: Author)

Next the courtyard types were selected. These typologies were whittled down to a shared courtyard like palazzos in Italy, a private courtyard similar to a townhouse, and a split courtyard like mews seen in England. Using the above building footprints, these three courtyard types, and keeping in mind the necessary building depths required for best access to light and air, minimum lot dimensions and general layouts were created. Each of the typologies are shown below. The yellow line type represents window opportunities, the purple represents stair placement, entry, and egress, and the green blocks courtyard space. Because of the importance of transitional spaces access to all these typologies is gained via a courtyard space from the street edge.

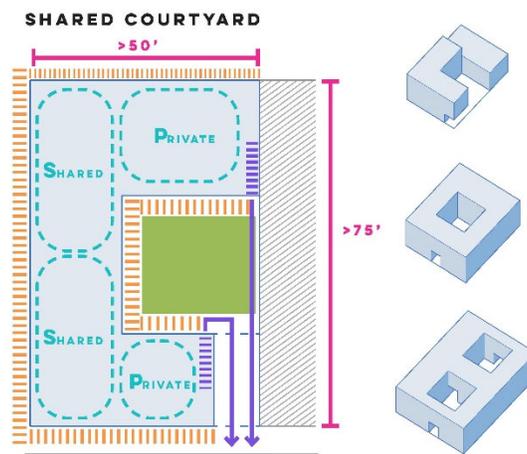


Figure 51 A diagram showing basic lot dimensions and layout for the shared courtyard typology, (Source: Author)

The shared courtyard seen above relies upon a larger courtyard that the houses wrap around. Access is gained to the house via a gate and then an interior door off the courtyard.

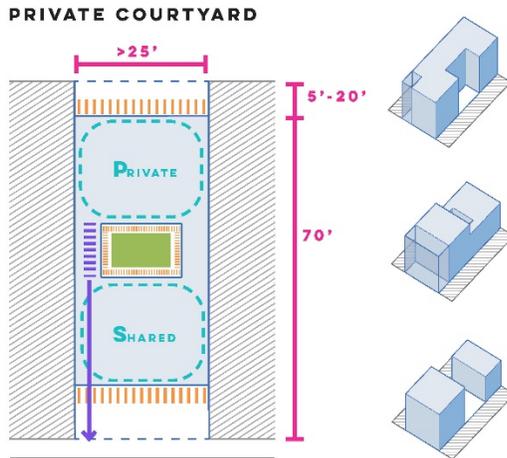


Figure 52 A diagram showing basic lot dimensions and layout for the private courtyard typology, (Source: Author)

The private courtyard relies upon a smaller cutout in the building that functions as an interior garden or lightwell. In most cases this courtyard space will have to be placed more centrally on the lot so another transitional courtyard space will be present at the front of the lot for entry. In this situation that could manifest as a screened in space or semi-enclosed stoop, the important aspect is that the space is somewhat visually and physically protected.

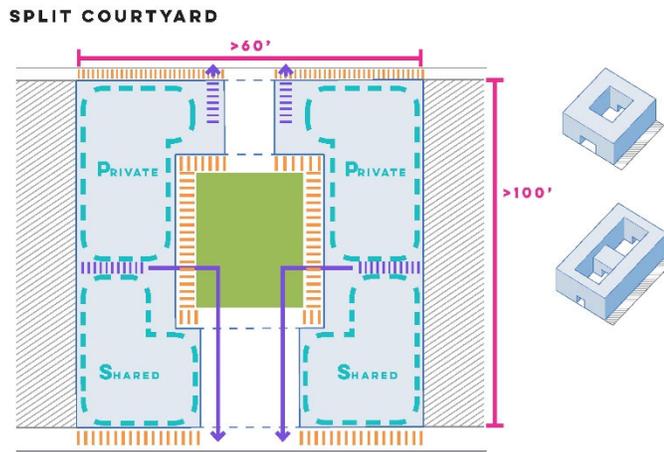


Figure 53 A diagram showing basic lot dimensions and layout for the split courtyard typology, (Source: Author)

The split courtyard features one long bisecting courtyard space that functions as an interior street. While the split courtyard may appear to be like the shared courtyard it differentiates itself by its function as an interior street with linear circulation and length of the lot required.

Finally, the user interviews mentioned previously helped inform basic program adjacencies and spatial sequence. Two main factors emerged from these conversations: privacy and circulation, and the kitchen as the heart of the house.

SEQUENCE AND SEPARATION

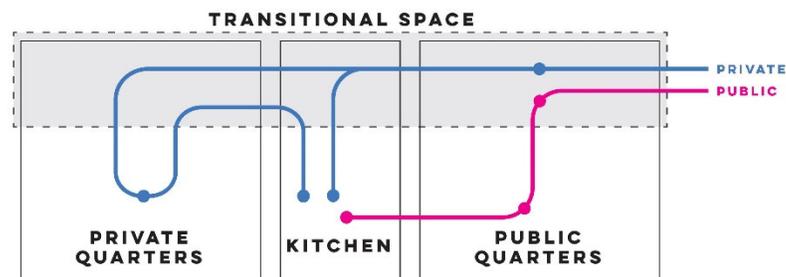


Figure 54 A diagram showing the overall parti of public and private space in relation to kitchen placement (Source: Author)

Ultimately, when considering exposure, it was important to place the public spaces towards the front of the lot nearest to the public street, and the private spaces towards the interior or end of the lot. Also, because of the feedback about the kitchen being the heart of the house and the desire to be able to access it from both public and private paths without necessarily having to interact, it was placed between the public and private quarters. The diagram above of this basic parti emerged which can be applied to any of these typologies. Additionally, for the purpose of maintaining

privacy and flow, the kitchens are closed layout with at least two points of access. If the kitchen is meant to be a part of a main common space or is in a one bedroom, an open layout can be used.

The Implementation

The guide described above was then applied to three specific instances in the Patterson Park neighborhood of Baltimore, Maryland. To keep the scope of this thesis manageable all three of these typologies were developed but one was selected for a more in-depth analysis. Three sites were selected, seen below, to optimize response to the three street typologies and to lot availability.

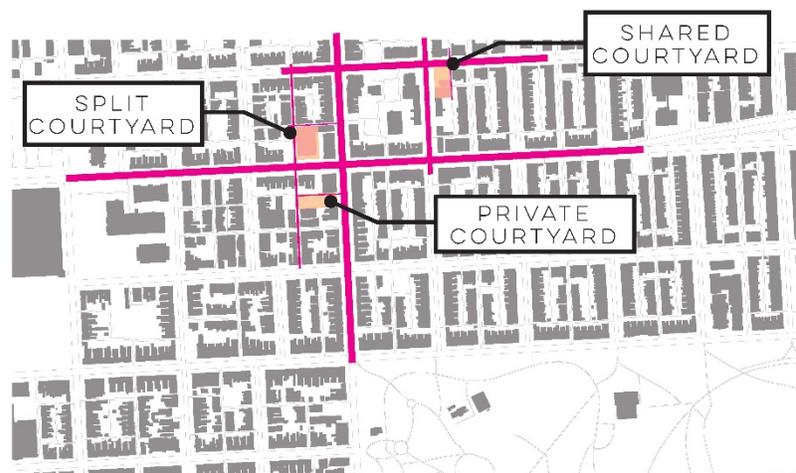


Figure 55 The placement of the three courtyard typologies north of Patterson Park, (Source: Author)



Figure 56 Existing site conditions for the private courtyard, shared courtyard, and split courtyard, (Source: Google Maps)

Looking closer at the density of these three lots and the surrounding area, these interventions would significantly increase much needed density and activity in previously unprogrammed and vacant lots as seen below.



Figure 57 Existing population density and vacancies in the Patterson park area, (Source: Author)



Figure 58 Before and after occupant totals for the proposed housing blocks, (Source: Author)

The Private Courtyard

To begin, the private courtyard, the typology selected for analysis seen below, will be introduced to set a base line for how the other two typologies were also designed.

This lot is 8,350 sqft, the total area of the two houses is 13,000 sqft, and the total number of occupants is 32.

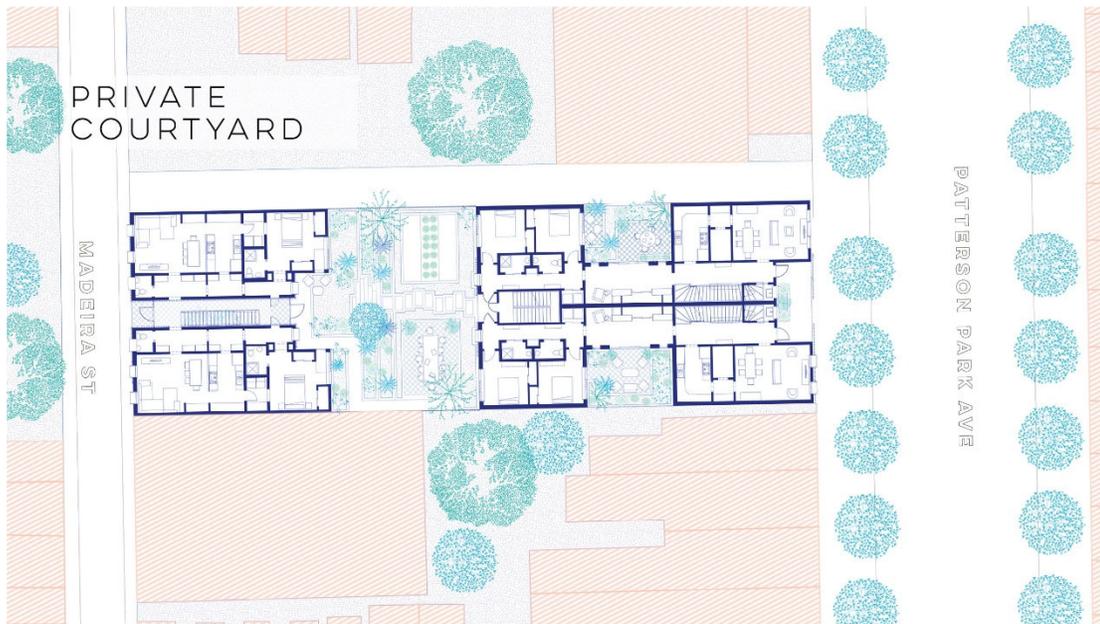


Figure 59 The base plan of the private courtyard typology, (Source: Author)

The diagram below shows the basic house layout on the site and the corresponding house occupancies. On the east side of the lot there are two houses, each three floors with two bedrooms. Each floor will house one group of the co-family in that house, for a total of 6-12 people living in that house. On the west side of the lot there is one

house with two floors, each floor comprising of four bedrooms. Each floor will contain two groups of the co-family occupying this house, for a total of 6-8 people.

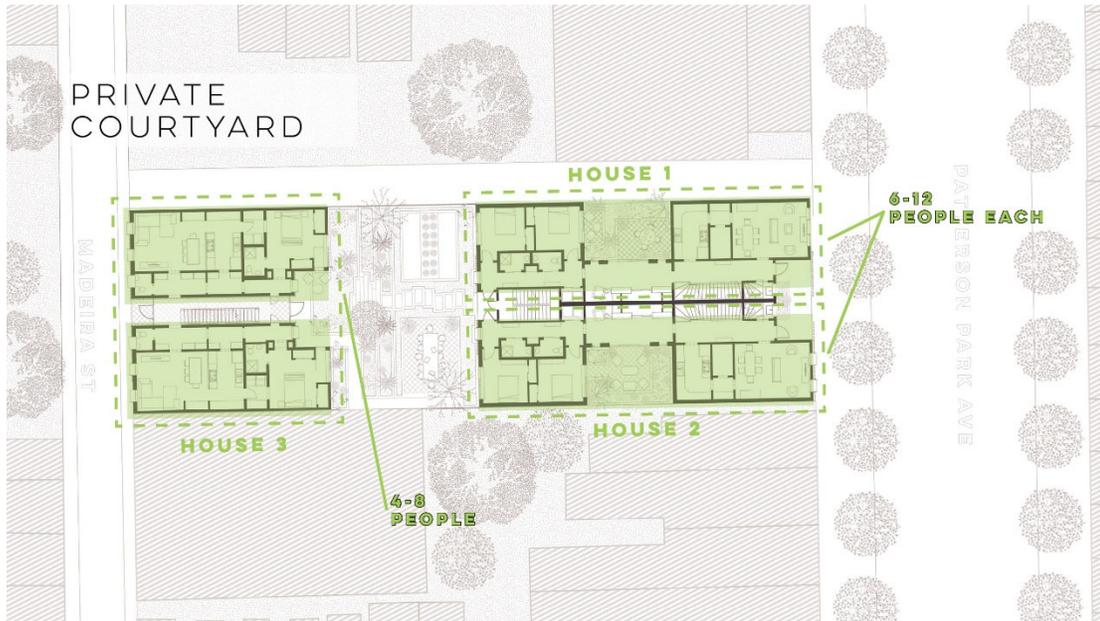


Figure 60 The house layout of the private courtyard lot and their respective occupancies, (Source: Author)

To give an idea of who could occupy these houses, three possible scenarios for each of the houses has been presented below.

CO-FAMILY SCENARIOS
PATTERSON PARK AVE, HOUSE 1

THIRD FLOOR
YOUNGER SIBLING, SPOUSE,
TWO CHILDREN



SECOND FLOOR
OLDER SIBLING, SPOUSE,
ONE CHILD



FIRST FLOOR
GRANDPARENTS

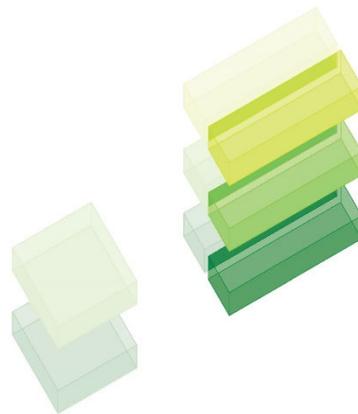


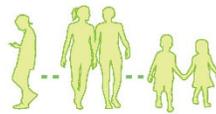
Figure 61 Family scenario #1 for the Patterson Park Ave houses, (Source: Author)

Living in the first of the two Patterson Park Ave houses there could be a typical multi-generational family. Making sure to always reserve the first floor for any physically disabled or elderly occupants, the grandparents could be placed on the first floor with the older sibling, their spouse, and one child on the second floor, and the younger sibling with their spouse and two children on the third floor.

CO-FAMILY SCENARIOS
PATTERSON PARK AVE, HOUSE 2

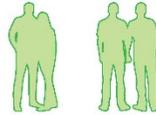
THIRD FLOOR

REMARRIED COUPLE,
2 YOUNG STEP SIBLINGS,
OLDER STEP SIBLING



SECOND FLOOR

2 COUPLES



FIRST FLOOR

PARENTS,
COLLEGE GRAD CHILD

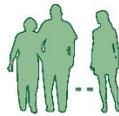


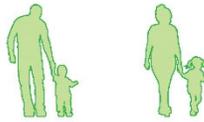
Figure 62 Family scenario #2 for the Patterson Park Ave houses, (Source: Author)

In the second of the three scenarios, living on the first floor two parents and their college graduate child, the second floor two unrelated couples who are friends, and on the third floor a remarried couple, with two younger step siblings from a prior marriage, and an older step sibling from the other marriage.

CO-FAMILY SCENARIOS
MADEIRA ST, HOUSE 3

SECOND FLOOR

2 SINGLE PARENTS,
2 CHILDREN



FIRST FLOOR

60+ COUPLE,
60+ COUPLE

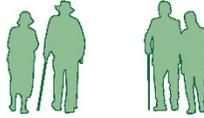


Figure 63 Family scenario #3 for the Madeira St house, (Source: Author)

In the final scenario, in the Madeira St house, there could be two retired couples on the first floor, and two single parents and two children on the second floor.

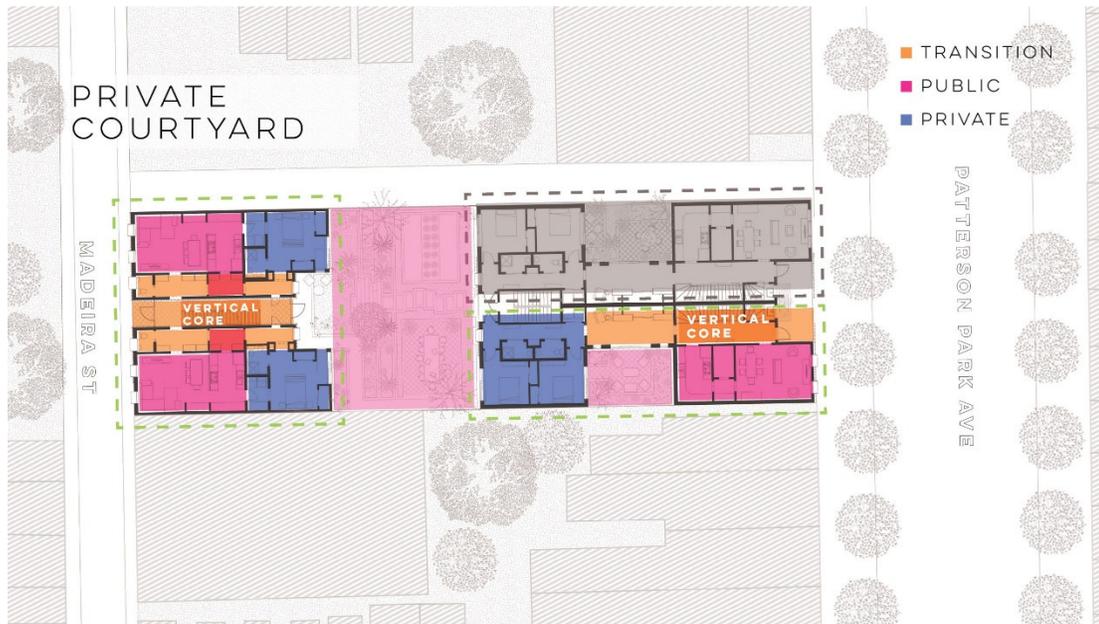


Figure 64 A diagram breaking down the spatial types for the private courtyard typology, (Source: Author)

Shown in the diagram above is the overall organization of spatial types. As outlined earlier there is a clear separation of public and private space via transitional spaces,

and the public spaces are reserved for the exteriors of the lot and private spaces for the interiors. The entry point of both houses is also a transitional semi-enclosed stoop or atrium space.

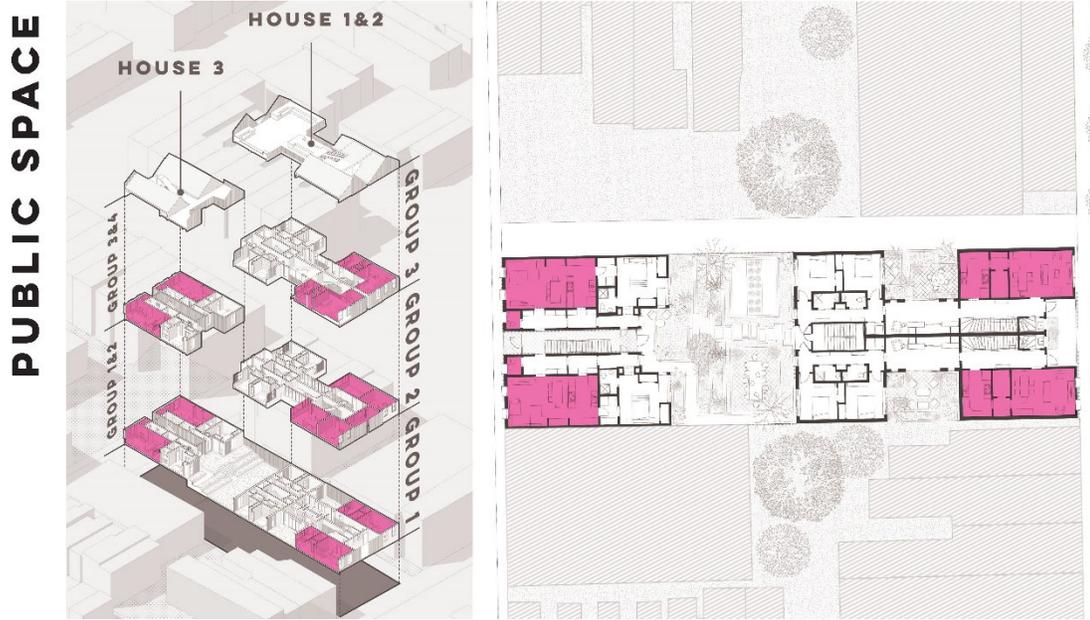


Figure 65 A diagram showing the vertical loading of public space, (Source: Author)

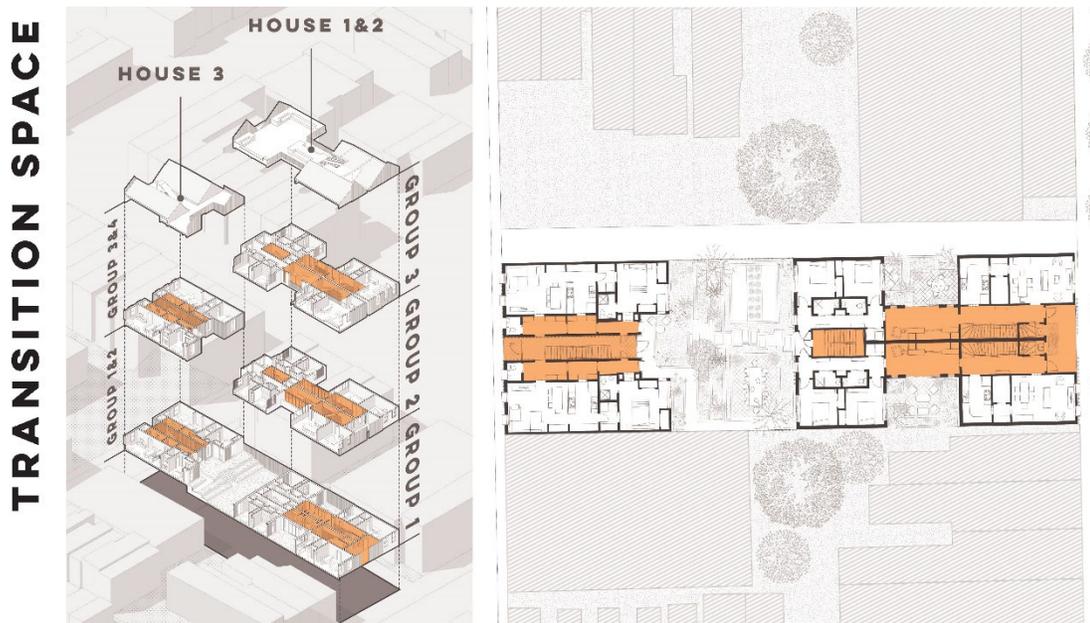


Figure 66 A diagram showing the vertical loading of transitional space, (Source: Author)

PRIVATE SPACE

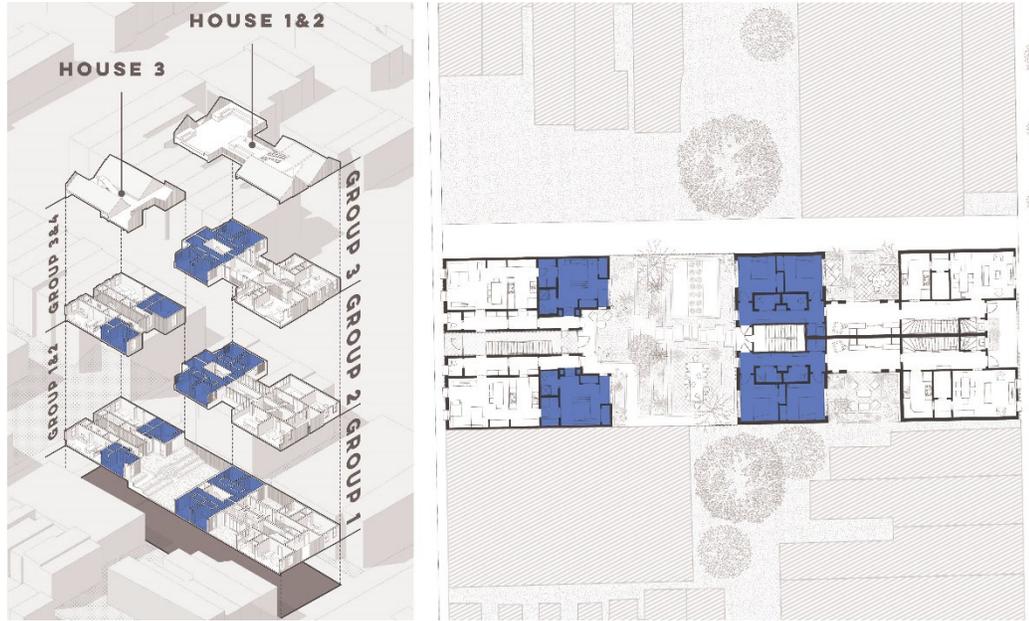


Figure 67 A diagram showing the vertical loading of private space, (Source: Author)

The three figures above show the vertical loading of public, transitional, and private spaces. To promote ease of navigation by guests, and to help enforce boundaries and etiquette amongst occupants of the house the location of each of these spatial types was maintained vertically.

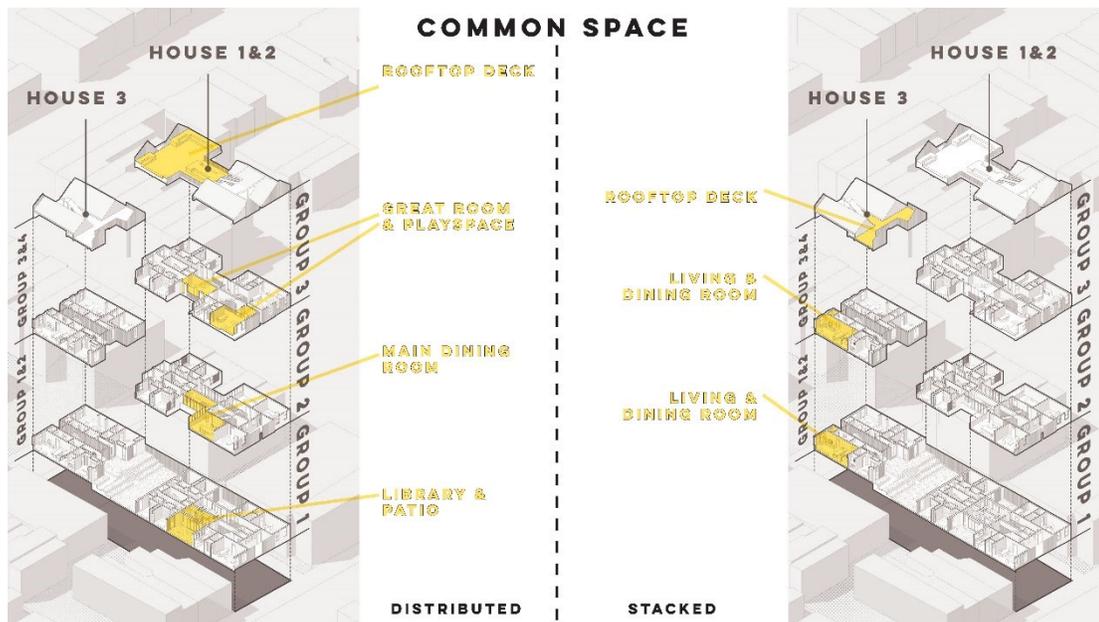


Figure 68 A diagram showing the distributed and stacked spaces of the private courtyard, (Source: Author)

Diagrammed below is the vertical distribution of communal spaces. As mentioned previously, there were two kinds of vertical distributions that were going to be used in this thesis: stacked and distributed. The houses on Patterson Park Ave utilize the distributed approach, on each of the floors the basic floorplan was manipulated to create main rooms, such as the main dining room, the library, and the great room. This kind of vertical stacking encourages a high degree of interaction and vertical circulation which may be more ideal for a co-family looking to buy or build outright.

Looking at the right side of the diagram is the Madeira St house which utilizes the stacked method, each floor has the same living and dining room spaces. This method encourages a medium degree of interaction or visitation, which may be more ideal for a developer looking to rent out the house to curated occupants. Below are some of the perspectives of the private courtyard.



Figure 69 From left to right, perspectives of the east approach, the main dining room, the great room, and the backyard, (Source: Author)



Figure 70 Elevations of the East and West facades, (Source: Author)

The Shared Courtyard

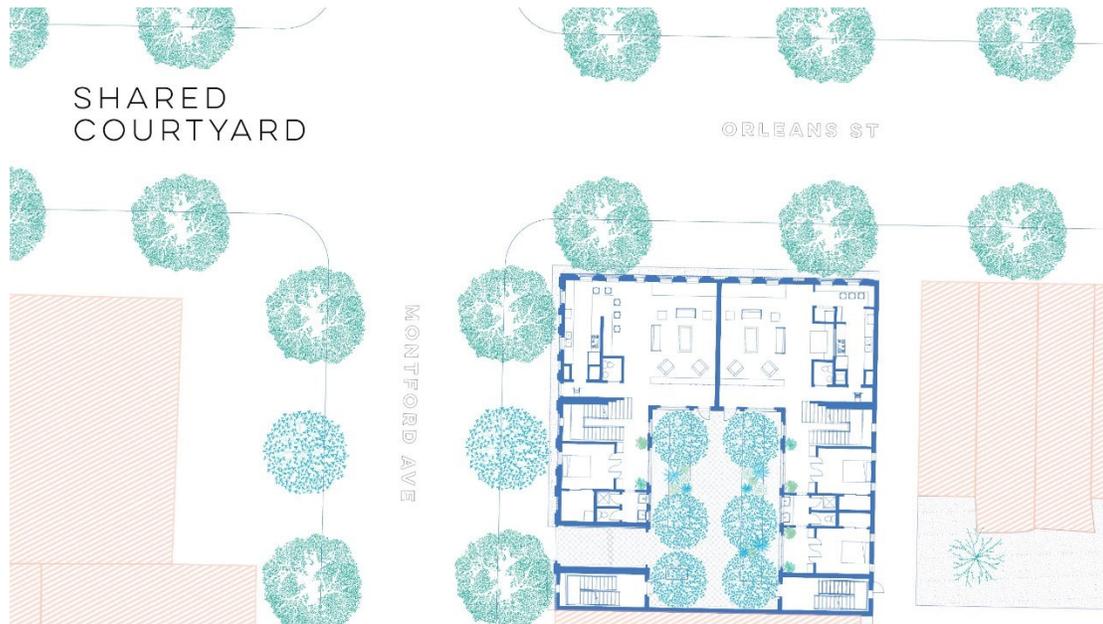


Figure 71 The base plan of the shared courtyard typology, (Source: Author)

Seen above is the base plan for the shared courtyard typology. This lot is 5,775 sqft, the total area of the house is 10,500 sqft, the total number of occupants is 22, and the overall public spacer per person is 150 ft. Below is the house placement on the selected site. This typology has two houses which are each 3 floors, except the first floor of house one, which gives over to the gate, each floor has two bedrooms. Overall each house can sleep 5-12 people, and each floor contains one group of the co-family of that house.

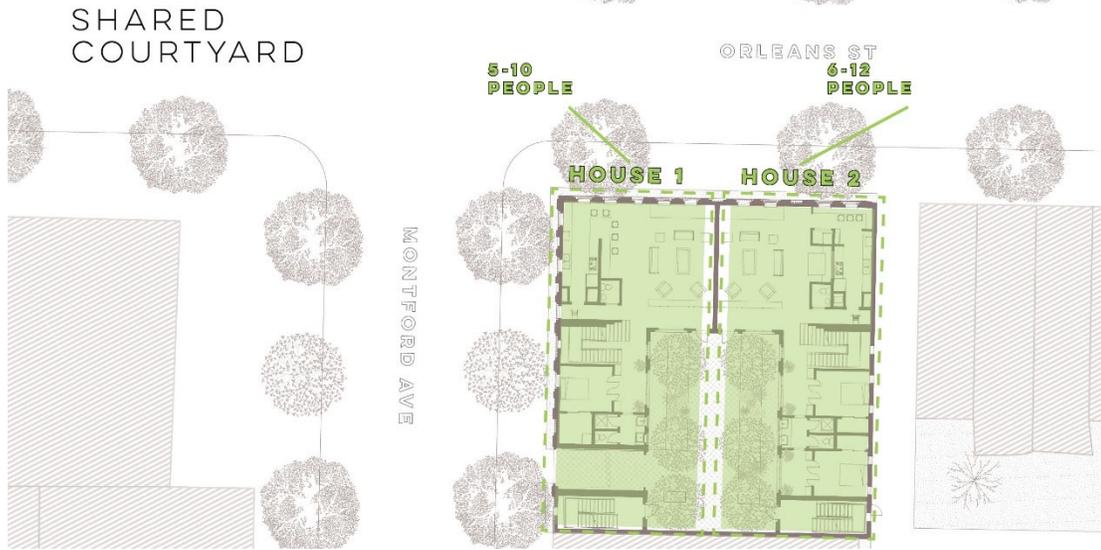


Figure 72 The house layout of the shared courtyard lot and their respective occupancies, (Source: Author)

Below is the spatial type layout. Like the previous typology, the same adjacencies and spatial sequence are maintained. The position of these spatial types is maintained vertically through each floor.

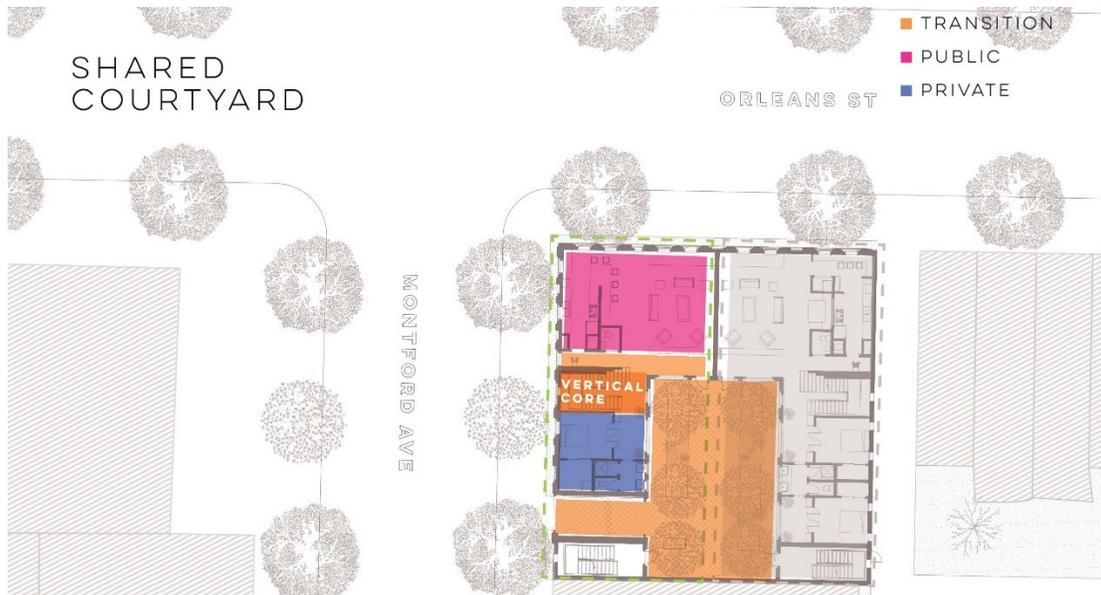


Figure 73 A diagram breaking down the spatial types for the shared courtyard typology, (Source: Author)

Below is the overall exploded axon for this typology. Like the houses facing Patterson Park Ave, this typology uses the distributed method for its common spaces. The first floor focuses on patio spaces along the courtyard, the second floor has the main dining room and kitchen for entertaining, the third floor has the main living room and access to the roof deck. Of the three typologies this one has the grandest common spaces with an overall 250 sqft of public space per person.

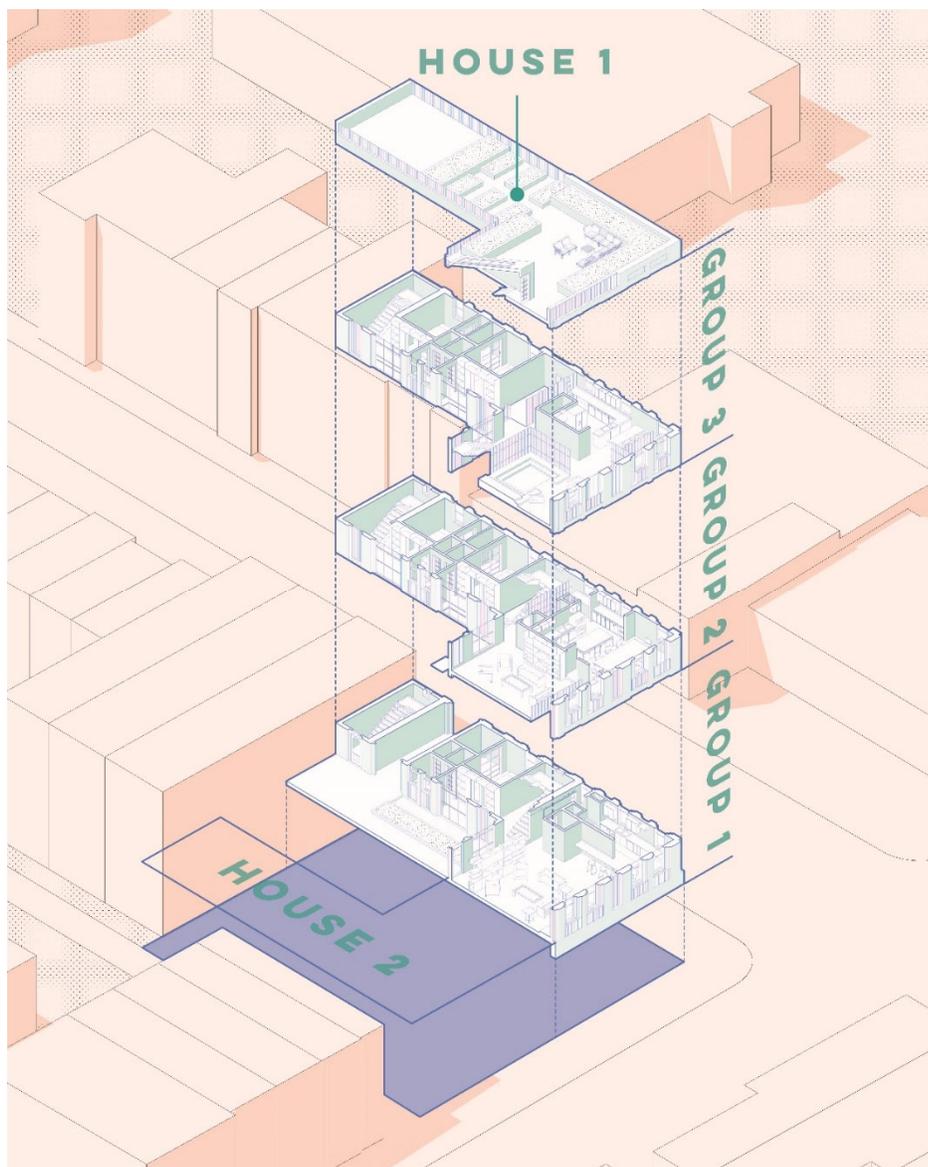


Figure 74 An exploded axon of the shared courtyard typology, (Source: Author)



Figure 75 Perspectives of the front approach, courtyard, and foyer of the shared courtyard, (Source: Author)



Figure 76 Elevations of the North and West facades, (Source: Author)

The Split Courtyard

Finally, seen below is the base plan of the split courtyard, the last typology. This lot is the largest at 11,250 sqft; the overall building area is 19,300 sqft, total number of occupants 48 people, and overall public space per person 170 sqft.

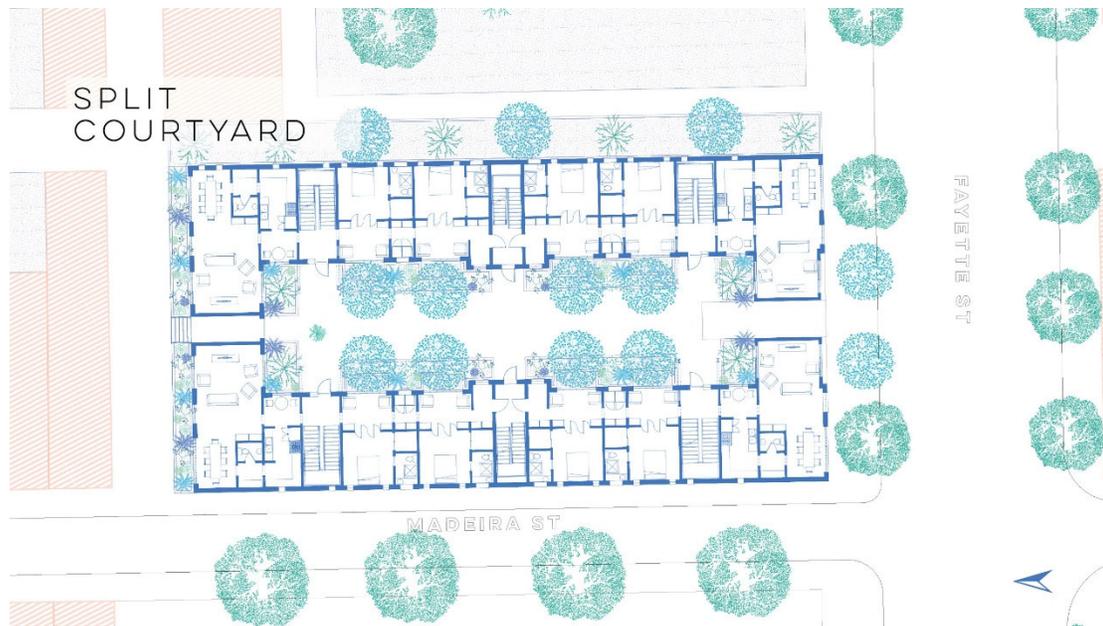


Figure 77 The base plan of the split courtyard typology, (Source: Author)

The house placement is shown below with a total of 4 houses on the lot, each with three floors containing two bedrooms. Each house can sleep 6-12 people, with one group of the co-family on each floor.

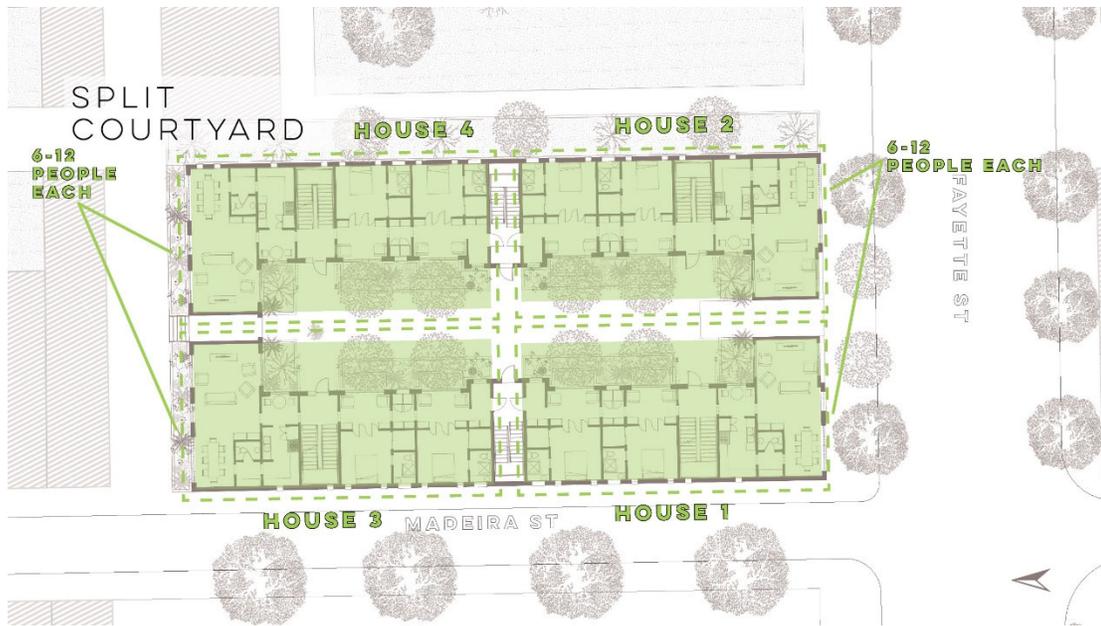


Figure 78 The house layout of the split courtyard lot and their respective occupancies, (Source: Author)

Below is the spatial type layout which continues to maintain the same principles as the previous two typologies.



Figure 79 A diagram breaking down the spatial types for the split courtyard typology, (Source: Author)

Of the three typologies this house is closest on the spectrum of social housing to co-housing. Shown below is the exploded axon of the split courtyard typology which utilizes the stacked method. Every floor possesses essentially the same programmatic spaces at equal sizes. Additionally, in this scheme each bedroom has their own private bath, whereas the prior two typologies used shared bath amenity areas collected in hallways. The only aspect that fluctuates is the outdoor access which manifests as patios, sunrooms, or terraces of comparable sizes. This house would be most ideal to a developer looking to rent out to curated occupants.

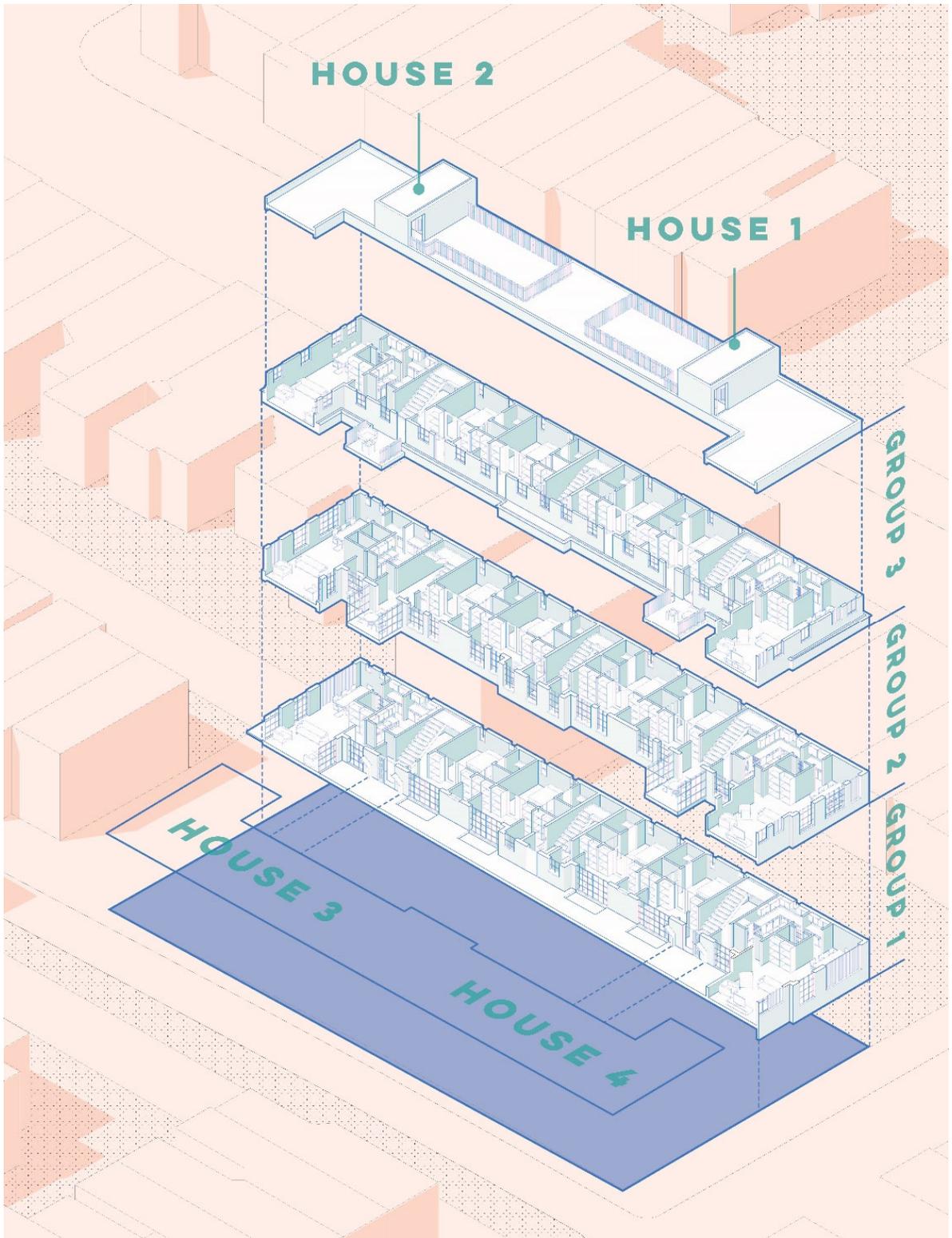


Figure 80 An exploded axon of the split courtyard typology, (Source: Author)



Figure 81 Perspectives of the south approach, the interior street, and the first floor living room, (Source: Author)



Figure 82 Elevations of the interior street and South facade, (Source: Author)

Conclusion

These co-family typologies, when used appropriately, can help address changing generational trends but also present an opportunity to encourage the engagement and integration of previous generations and different demographic groups. Altogether, this promotes more heterogeneity within the housing market, more density within the neighborhood, and more diversity within the community.

With our rapidly growing population, dwindling natural resources and environmental concerns, and mixing cultural traditions, it's paramount that we continue to revisit and improve one of the largest sectors in the built environment: Homes.

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