

ABSTRACT

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This thesis examines Wilmington, Delaware's low-income urban community and explores through innovative programming and design propositions the potential for future housing to facilitate healthy, responsive living, thereby better empowering the community and the residents it serves. All too often, this disadvantaged demographic lacks access to the most basic of human needs, let alone the more diverse opportunities of upward mobility, self-empowerment, and healthy social and cultural lives. Among the community's most pressing concerns is the limited availability of fresh produce – a vital ingredient for healthy living. This thesis hypothesizes that the pairing of housing with a farmers' market and some basic community amenities in a mixed-use project will yield a result that is greater than the sum of its parts. The primary agenda is to design homes which encourage healthy lifestyles while simultaneously engaging a variety of stakeholders in order to benefit not only residents living in the housing but the greater community. The resulting positive ripple effects will allow the region to reknit itself through these newly formed relationships, creating a stronger empowered community.

EMPOWER HOUSING

By

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Dedication

I dedicate this thesis to my family. Thank you for all of your love and support.

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I thank professors Garth Rockcastle, Matt Bell, and Isabelle Gournay for sharing your knowledge and providing guidance throughout this process. Your insights have proven invaluable.

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Chapter 1: Introduction

Why This Thesis is Relevant

The primary relevance of this thesis can best be explained as a creative and heartfelt response to a disconcerting national trend, which has been noted and documented by many. Harvard sociologist, William Julius Wilson, describes it well when he explains that, “rising inequality is beginning to produce a two-tiered society in America in which the more affluent citizens live lives fundamentally different from the middle- and lower-income groups. This divide decreases a sense of community.”¹

As if in confirmation, this issue was recognized as a major problem at the local level on January 8, 2013, when the Wilmington, Delaware City Council held its inauguration and first organization meeting of the year. The issue of income inequality resonated throughout the duration of the session. Wilmington’s lower-middle class is in need of revitalization as the city’s economic and social segregation continues to grow.

The nature of the place a family calls home is, perhaps the most conspicuous aspect of the problem. Residents born in a poverty-stricken area generally remain in that area or one of similar social and economic status. Lacking the means and, all too often, the motivation to break the cycle, the trend continues for generations.

¹ Tavernise, Sabrina. “Middle-Class Areas Shrink as Income Gap Grows, New Report Finds.” New York Times, November 15, 2011. Accessed February 27, 2013.
<http://www.nytimes.com/2011/11/16/us/middle-class-areas-shrink-as-income-gap-grows-report-finds.html>

Wilmington's existing affordable housing efforts are shortsighted and serve only as quick fixes, ultimately allowing the problem to persist, broaden and strengthen. While the primary purpose for housing is, of course, to provide basic shelter, it can deliver so much more. The potential for remedying this issue continues to be a source of inspiration driving this thesis forward.

After spending the summer working at the Wilmington Housing Partnership, a non-profit organization that focuses on the rehabilitation and new construction of housing stock, I came to see the real issues and goals of the community much more clearly. This paved the way for my thesis to become as relevant as possible and to maximize its positive impact. While the initial aim of this thesis was and continues to be to provide residents and the greater community with a sense of empowerment, the means of achieving that empowerment has shifted.

The lower tier of Wilmington, Delaware residents do not share the same access to fresh produce and other healthy food choices that the upper tier enjoys. Additionally, the city's people and local economy are suffering needlessly as surrounding areas have many assets that remain untapped. This lack of such basic ingredients essential for healthy living coupled with the area's unrealized potentials provide an opportunity to profoundly and positively change the existing situation.

What Goals This Thesis Aspires to Achieve

This thesis aspires to achieve two fundamental goals. First, on the micro scale, it will serve as a catalyst for resident empowerment through providing them the opportunity to achieve upward mobility. Second, on the macro scale of the greater

community, empowerment will occur through the linking of community assets resulting in economic stimulation. Architecture can serve as a powerful tool in achieving these goals. This project proposes that affordable housing be constructed in conjunction with a farmers market. The mixed-use development will create a symbiotic relationship between the two that will prove invaluable in achieving both goals.

Micro Scale

On the micro scale, upward mobility will be achieved through the creation of housing that encourages healthy lifestyles and prioritizes safety, affordability and flexibility in response to shifting demographic needs. If residents are provided with the opportunity to live healthfully and in homes that accommodate their families' changing needs, they will be prideful of where they live. This thesis hypothesizes that, through improved health and lifestyles, residents will be enabled to excel in other aspects of life and assimilate into the larger community.

Macro Scale

On the macro scale, economic stimulation will be achieved through the engagement of a broad range of stakeholders. Great potential lies within currently untapped assets both in the city of Wilmington and far beyond its bounds.

In Wilmington, the inclusion of a farmer's market will not only bring healthy foods to the residents living in the homes and surrounding areas, but the project's relationship with the community will be much more significant than that of traditional

market/patron product exchange. The market component will also serve as a provider of fresh ingredients to local restaurants, hospitals, and schools. Relationships cultivated between these entities, specifically schools and hospitals, will also include an educational component on nutritional, providing members of the community with the knowledge necessary to make healthy choices

Outside of Wilmington, farmers in southern Delaware, and bordering states, New Jersey, Maryland, and Pennsylvania, will have the opportunity to sell their product at the market, ultimately increasing their product turnover. This stimulation of the agricultural industry will not only allow farmers to prosper, but it will result in job creation on all scales.

Chapter 2: Relevant Existing Conditions

Wilmington's Lower Income Community

Economic Conditions

Wilmington's income distribution is varied, with some sections of the city enjoying extreme wealth while larger portions struggle to make ends meet as expressed in Figure 1. This substantial financial discrepancy causes poorer residents to live fundamentally different lives than the more economically fortunate population. While income distribution specifically refers to money, there are a vast number of secondary conditions dictated by this one statistic. Typically these lower income families live in homes that are not large enough or flexible enough to accommodate the shifting family form. Even the most basic of human needs, such as access to healthy foods, are not met for a large portion of Wilmington's population.



Figure 1. Wilmington's Median Income Distribution

Source: Data from <http://www.city-data.com/city/Wilmington-Delaware.html>
overlaid and manipulated on images from Google Maps

Food Desert

According to the U.S. Department of Agriculture, a food desert can be defined as, “a low-income census tract where either a substantial number or share of residents has low access to a supermarket or large grocery store.”² The organization goes on to state that, “ ‘low income’ tracts are defined as those where at least 20 percent of the people have income at or below the federal poverty levels for family size or where median family income for the tract is at or below 80% of the surrounding area’s median family income.”³ Furthermore, an urban census tract can be considered “low access” if, “at least 500 persons or 33 percent of their population live more than a mile from a supermarket or large grocery store.”⁴ Unfortunately, a very high percentage of Wilmington’s census tracts meet these qualifications. While the State of Delaware has fifteen food deserts in total, they are not distributed evenly. Sussex County has only one food desert, Kent County has three, and New Castle County, where Wilmington is located, has the much higher instance of eleven.⁵ Moreover, the presence of these food deserts in Wilmington correlates to the lower income communities and causes what already may be a difficult life to be even more so.

In reality, ironically, Wilmington’s food desert problem is causing residents to suffer needlessly. There is certainly no shortage of fruits and vegetables in Delaware. The Delaware Department of Agriculture records that the state ranks #1 in the

² United States Department of Agriculture, "USDA Introduces Online Tool for Locating 'Food Deserts'." Last modified 02 05, 2011. Accessed November 15, 2013.
<http://www.usda.gov/wps/portal/usda/usdahome?contentid=2011/05/0191.xml>.

³ Ibid.

⁴ Ibid.

⁵ Ibid.

country in “agricultural production value per farm and per acre.”⁶ The Delaware Food Bank points out that 42% of Delaware’s land is being used for farming purposes. The organization goes on to emphasize this disconnect by noting that bordering states, Pennsylvania and Maryland, also provide an abundance of agricultural resources. Produce is literally surrounding Wilmington.⁷ Therefore, this thesis strives to connect the abundance of dots, creating a mutually beneficial and ultimately vital relationship, linking resources the surrounding regions have to offer with those so desperately in need of them.

Demographics

The design of this project strives to appropriately respond to the needs of the target demographic. As seen in figure 2, the city’s dominant race is African American with well over half of its residents within this group.⁸ The Caucasian population is the second largest category making up just over one quarter of the total population. The Hispanic population is the third most common racial group. In virtually all areas of Wilmington where the median household income data would suggest this thesis could apply, the most prevalent race is African-American. Furthermore, the target population is made up of diverse family compositions, ranging from single men and women to large families. One common family type in

⁶ Reyes, Dan. Food Bank of Delaware, "Veggies, Veggies, Everywhere, But Not a Bite to Eat." Last modified 07/08, 2013. Accessed November 15, 2013. <http://foodbankofde.wordpress.com/2013/07/08/part-one-veggies-veggies-everywhere-but-not-a-bite-to-eat/>.

⁷ Ibid.

⁸ City-Data.com. “Wilmington, Delaware.” Accessed March 24, 2013. <http://www.city-data.com/city/Wilmington-Delaware.html>

Wilmington is the single mother living with her children.⁹ The ever-shifting family form in this city requires that this thesis be adaptable in order to accommodate changing needs.

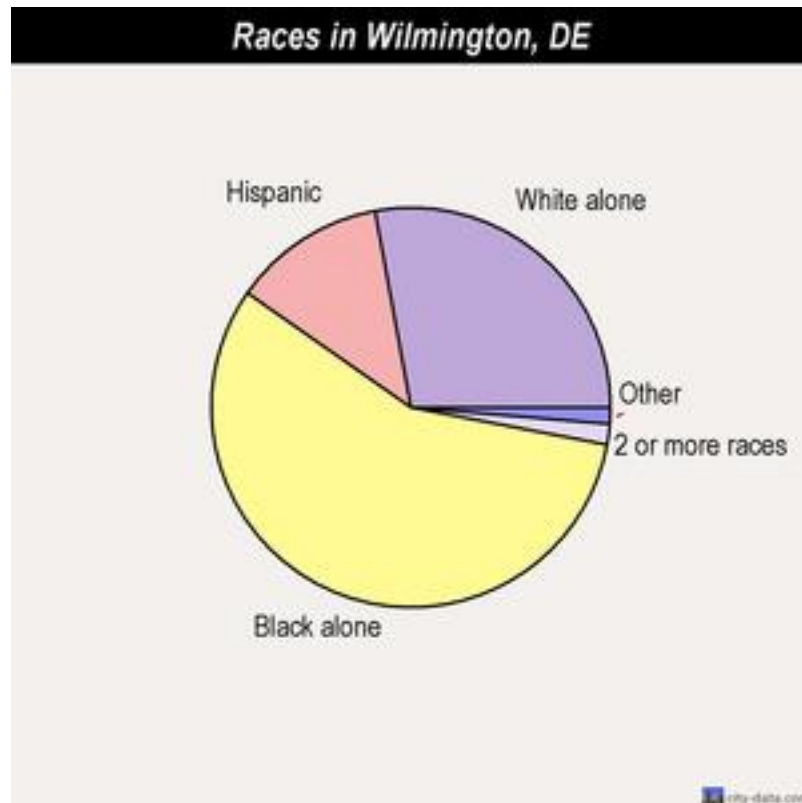


Figure 2. Races in Wilmington, DE

Source: <http://www.city-data.com/city/Wilmington-Delaware.html>

⁹ Ibid.

Chapter 3: Site

The notion of income inequality becomes a critical point of departure from which site selection for this thesis proposal stems. Since an area's wealth has a direct correlation with its stability, understanding the city's income levels in relation to geography is essential. Three areas of Wilmington that are most fertile for new housing strategies have been identified through a study of median household income across the city, as seen in Figure 3.



Figure 3. Wilmington's Median Income Distribution

Source: Data from <http://www.city-data.com/city/Wilmington-Delaware.html> overlaid and manipulated on images from Google Maps

Three Potential Sites

This thesis examines the three potential sites, analyzing the ability of each to accommodate the project's intentions. Two of the sites were chosen because they were bordering more prosperous regions on one side and more impoverished areas on the other sides. Therefore, the sites could potentially shift more easily in a positive or negative direction. The implementation of the right type of housing program could have a crucial effect on the future of these areas. A third site was selected because its access to natural amenities posed a potential value.

Site 1

A zoomed in examination of the median household income data for Site 1 (Figure 4) reflects the area's potential for change. Site 1 was primarily selected because it may be considered "at risk" in terms of income levels. The area's median household income is \$41,000 per year for an average family of three people, and the median home value is \$100,050.¹⁰ The population is 79.5% African American and 16.1% White, and the majority of potential residents of this housing project would provide for are African American single mothers.¹¹ With more affluent areas to the northwest and impoverished areas to the southeast, the site sits within an in between zone that could shift toward either demographic over time. This thesis strives to catalyze an upward momentum in terms of income levels, so that the region may trend toward the northwest stabilization.

¹⁰Ibid.

¹¹Ibid.

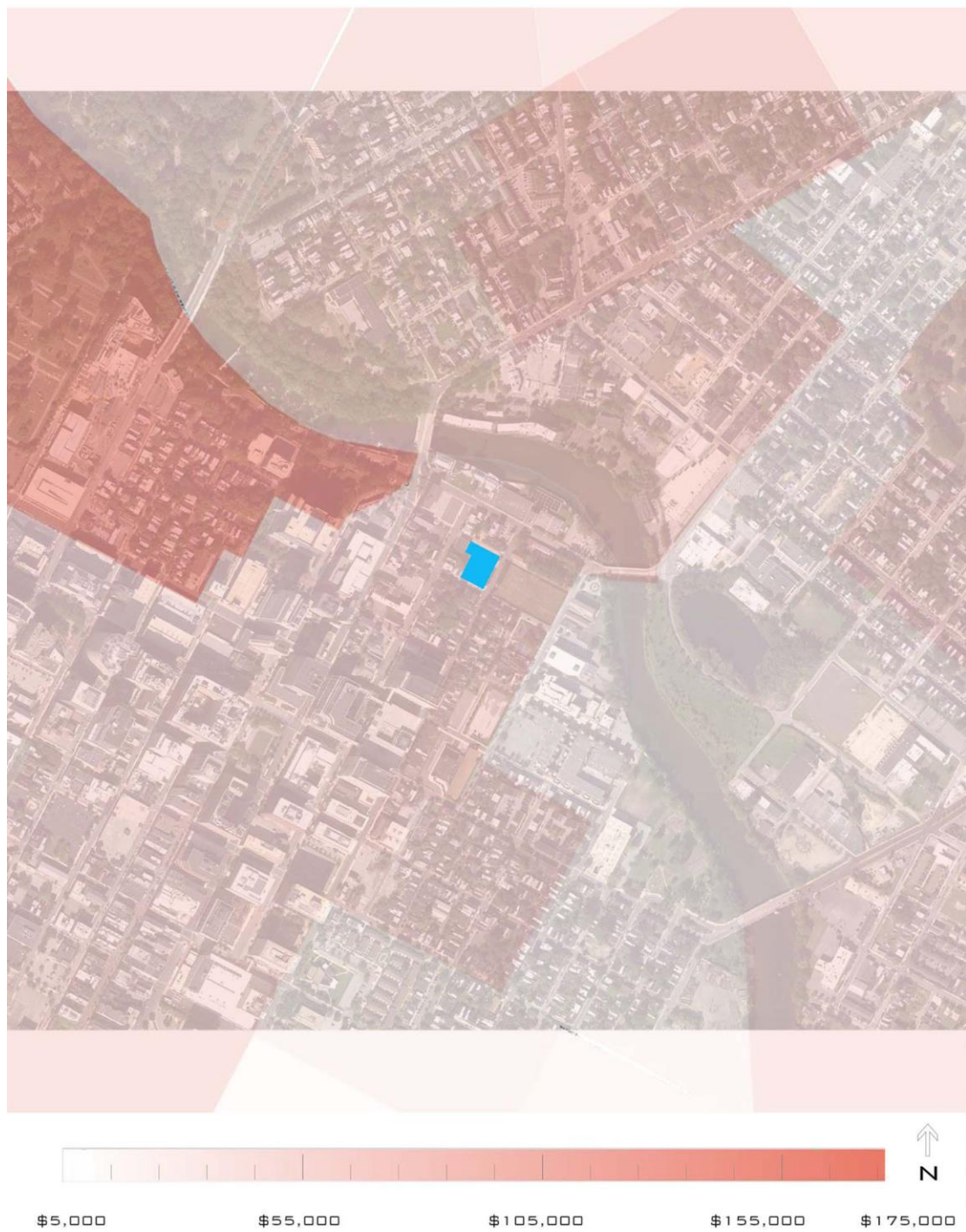


Figure 4. Wilmington's Median Income Distribution Surrounding Site 1
Source: Data from <http://www.city-data.com/city/Wilmington-Delaware.html>
overlaid and manipulated on images from Google Maps

Site 1 is the most “urban” site selection located only a few short blocks from the center of the city. French Street to the northwest, E. 15th Street to the northeast, N. Walnut Street to the southeast, and E. 14th Street to the southwest define the site. The total area within these bounds is .71 acres as seen in Figure 5. However, as seen in Figure 6 and 7, it could potentially expand to two blocks totaling 2.63 acres, or to three blocks totaling 4.15 acres.

SITE_1



Figure 5. Site 1 Possibility 1 Source: Google Maps

SITE_1



Figure 6. Site 1 Possibility 2 Source: Google Maps underlay

SITE_1



Figure 7. Site 1 Possibility 3 Source: Google Maps underlay

While Site 1 was initially chosen for its potential in terms of median household income data, the secondary reasoning for the selection is its accessibility to a variety of amenities. The site is optimally located for access to public transportation with three bus stops within a two-minute walk. Several public schools are located within ten-minute walking distance, and a variety of churches of several different denominations— a critical factor since the demographic is generally religious – are located within this range as well (Figure 8). It should be noted that each figure documenting each site’s access to public transportation, public schools, and churches was intended to include large grocery stores/fresh produce sources as well. In each of the three sites, data indicates there is no access to this fundamental resource.

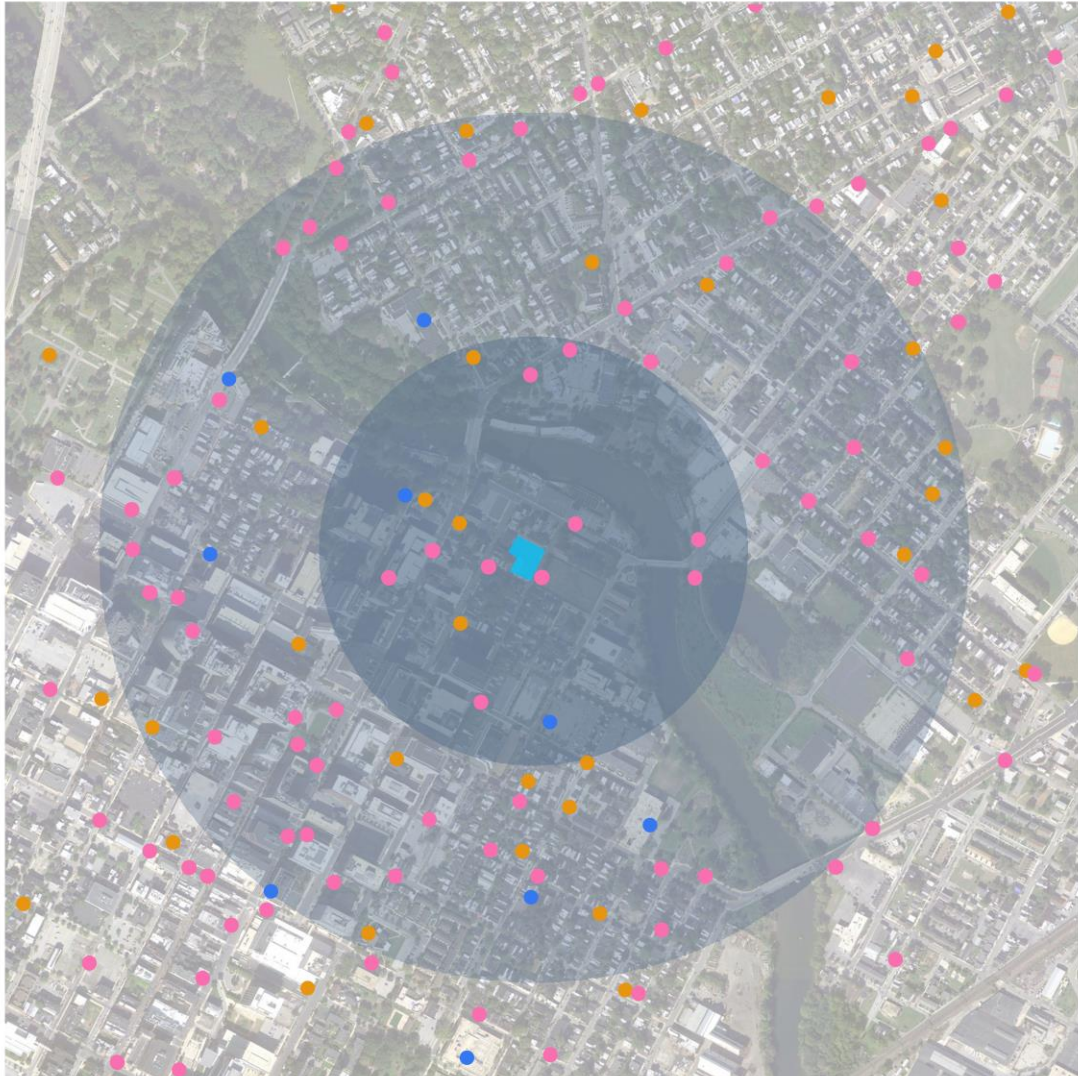


Figure 8. Site 1 – Bus Stops in Pink, Schools in Blue, Churches in Orange

Source: Google Maps underlay

Site 2

Upon a closer analysis of Site 2, a somewhat more dire income situation is uncovered (Figure 9). Unlike Site 1, Site 2 does not border an area of stabilization, and is located in an area that would require a more self-supporting intervention.



Figure 9. Wilmington's Median Income Distribution Surrounding Site 2
Source: Data from <http://www.city-data.com/city/Wilmington-Delaware.html>
overlaid and manipulated on images from Google Maps

Despite a median household income of \$19,167, significantly lower than that of Site 1, there are several mitigating features, which allow the site to have the potential for stabilization.¹² Site 2 may be considered the least “urban” of all three sites as the Christina River separates the land from the center of the city. Population density is the lowest for Site 2 as well. Residents living in the area surrounding the site are 81% African American and 19% White, and the average resident age is only 23.¹³ Defined by the Christina River to the northwest, S. Heald Street to the southeast, and A Street to the southwest, the site is triangular in shape. The total area within these bounds is 20.98 acres (Figure 10), making it very much larger than the other sites.

SITE_2

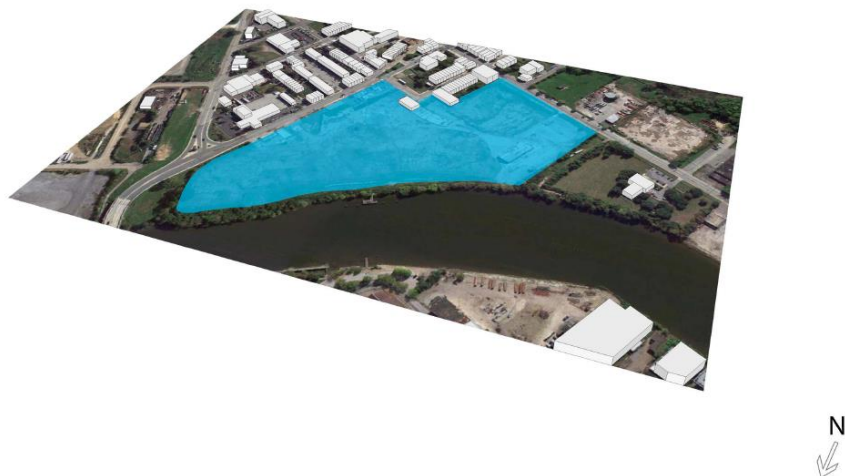


Figure 10. Site 2 Source: Google Maps underlay

¹² Ibid.

¹³ Ibid.

Site 2 borders the waterfront, which offers its own appeal. Its large size provides the opportunity for the design of a more comprehensive master plan. However, it is more isolated as is reflected in Figure 11.

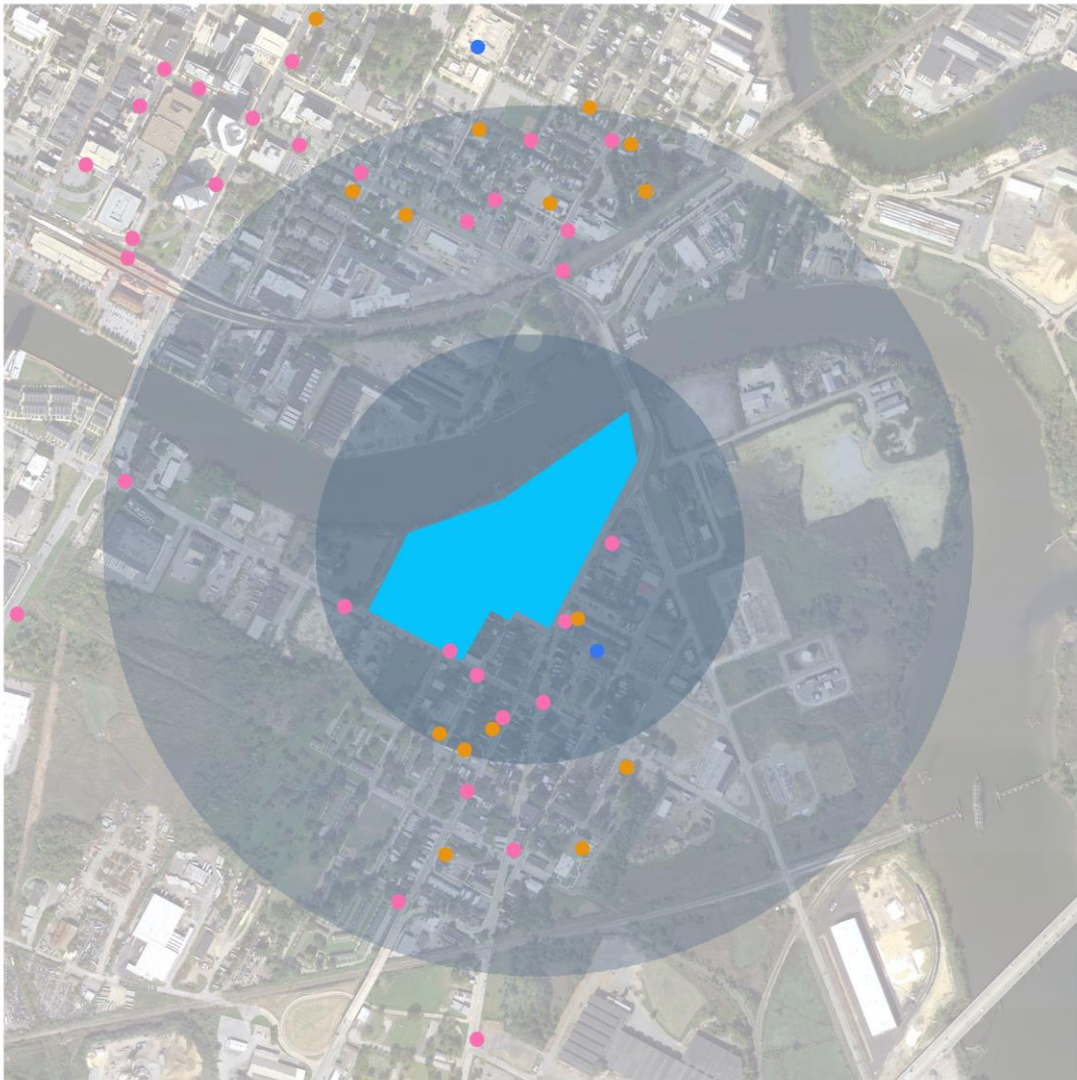


Figure 11. Site 2 – Bus Stops in Pink, Schools in Blue, Churches in Orange
Source: Google Maps underlay

Site 3

Site 3 has income conditions very similar to those of Site 1 as seen in Figure 12. It may also be considered, “at risk”, however, with a median household income of \$46,181, the site has the most wealth of all three.¹⁴ The population is 67% African American and 26% White.¹⁵

¹⁴ Ibid.

¹⁵ Ibid.

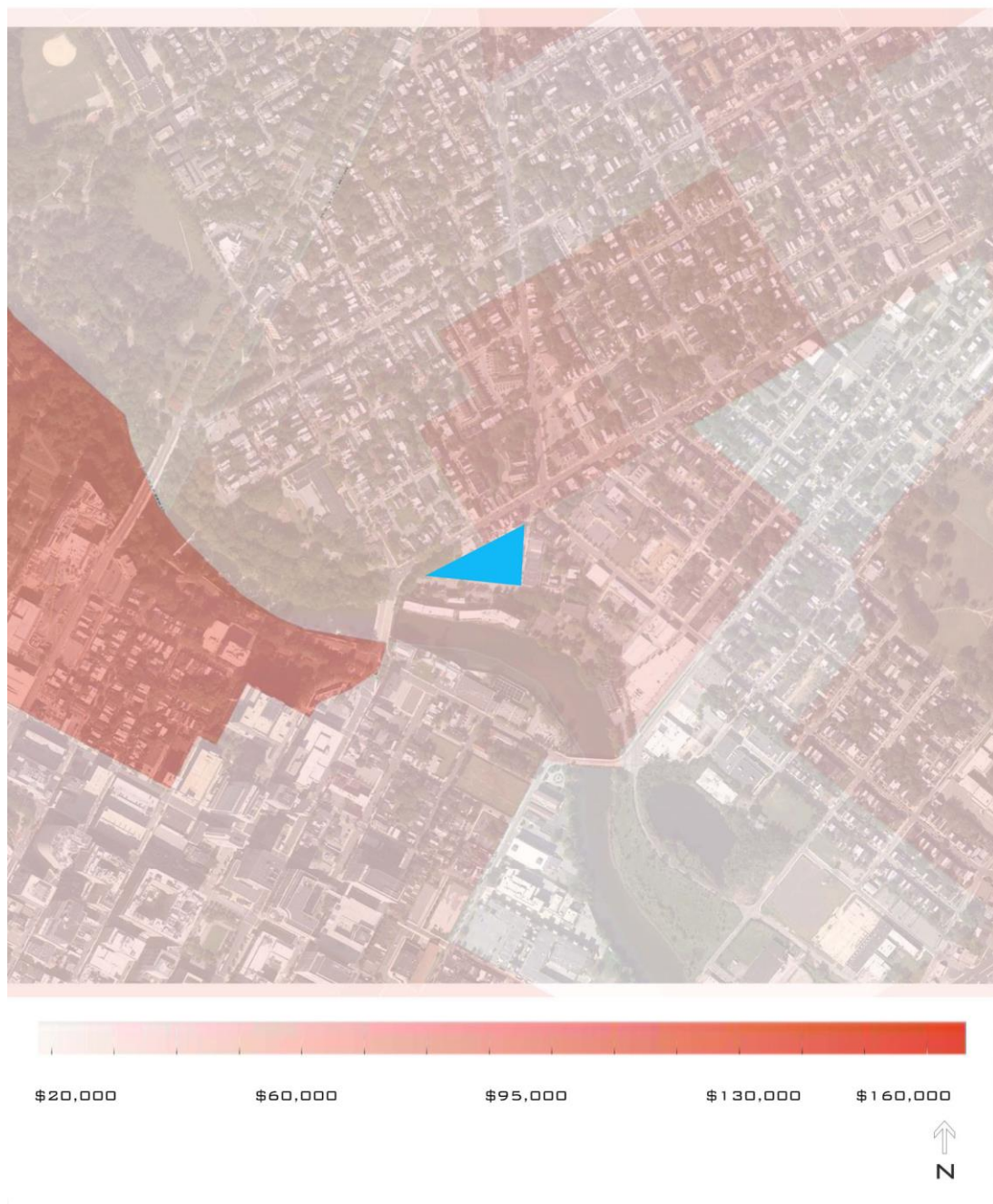


Figure 12. Wilmington's Median Income Distribution Surrounding Site 3
Source: Data from <http://www.city-data.com/city/Wilmington-Delaware.html>
overlaid and manipulated on images from Google Maps

Located just opposite the Brandywine River from Site 1, Site 3 is bound by N. Market Street to the northwest, Hutton Street to the east, and Race Street to the south, and is triangular in shape encompassing 2.7 acres (Figure 13). A portion of the site is occupied by actively used buildings and building shells. However, many of them appear to be in poor condition. With the selective demolition of certain buildings, site with great potential is present.

SITE_3

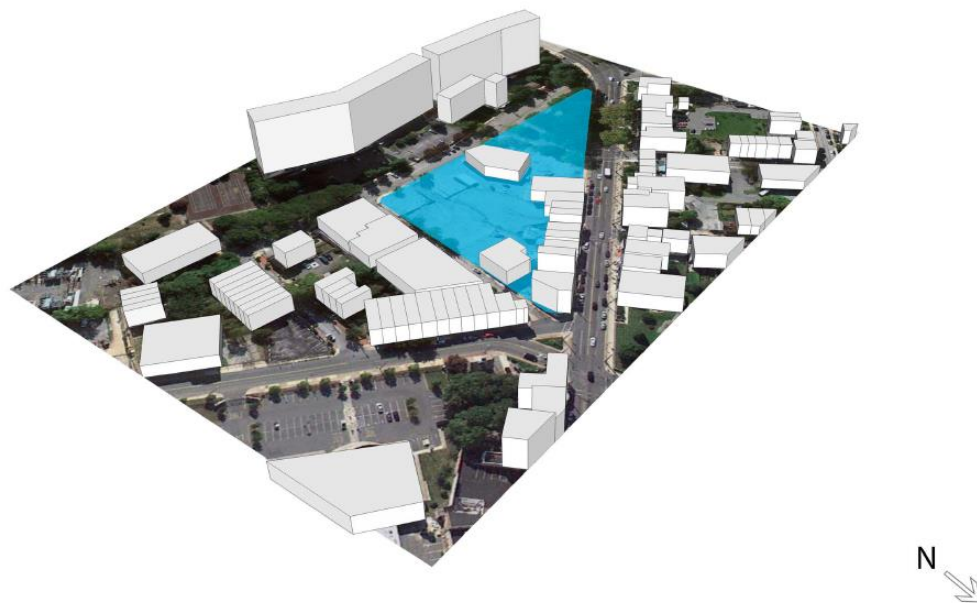


Figure 13. Site 3 Source: Google Maps Underlay

Site 3 has excellent access to key amenities with the exception of fresh produce (Figure 14).

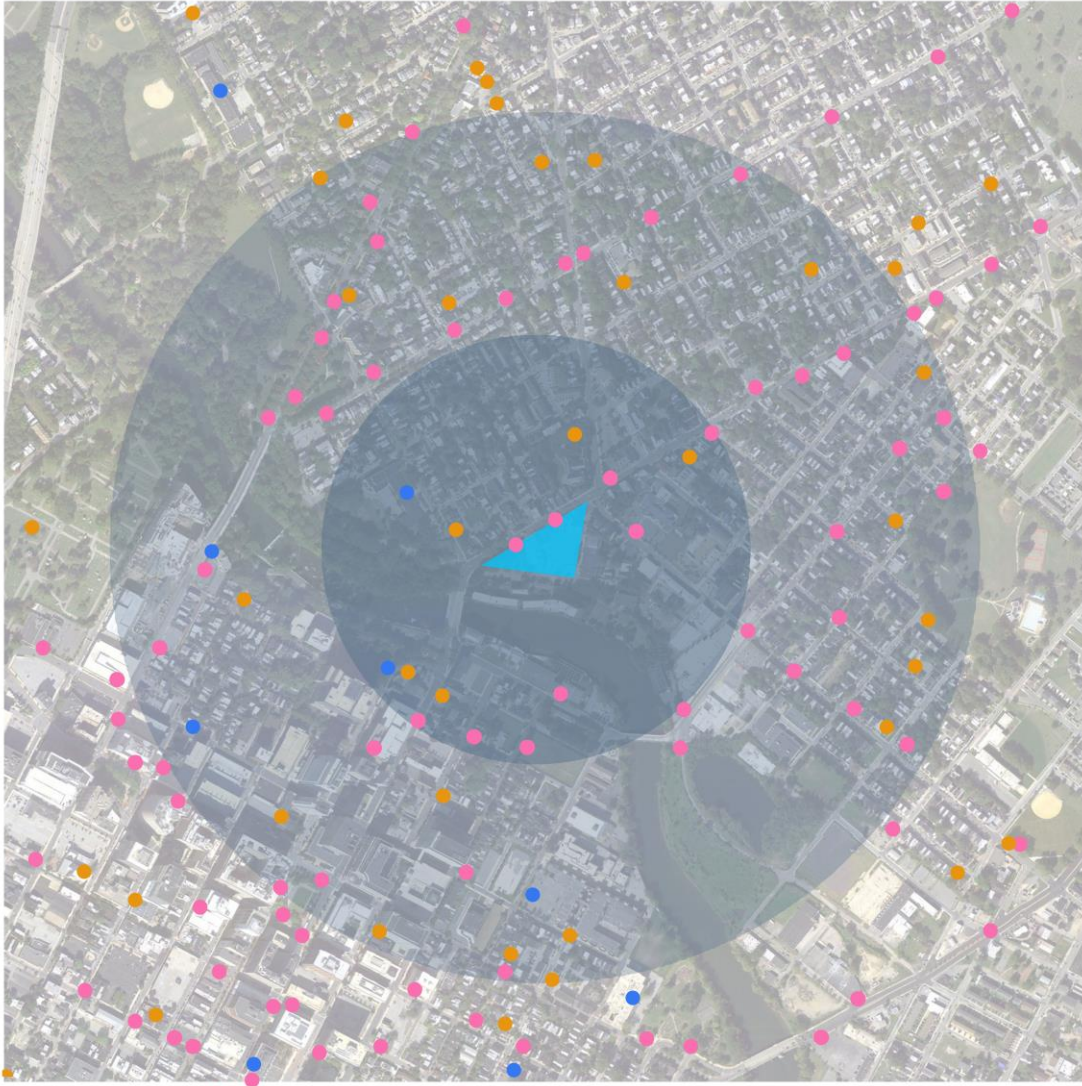


Figure 14. Site 3 – Bus Stops in Pink, Schools in Blue, Churches in Orange
Source: Google Maps underlay

Final Site Selection

After weighing the pros and cons of each site, I chose Site 3 because of its greater potential for a positive outcome. Its location along the major Market Street thoroughfare makes for an excellent site for the development of a mixed-use project as well as live-work housing proposed by this thesis. The site's triangular shape provides opportunities for interesting outdoor spaces as well as the necessary space for a protected courtyard for resident use. The Brandywine Village site not only has access to most essential needs, but it also has a rich historic value. Furthermore, the community has already developed initiatives to help improve the area, thereby reflecting an enthusiasm that could support this proposal. Potential relationships between the market element of the project and the surrounding community are articulated in Figure 15. These include who might provide and receive the fresh produce that comes through the market as well as potential opportunities to educate community members about nutrition and healthy eating. The map represents the market's potential to serve various entities within the community in the form of fresh food as well as education.

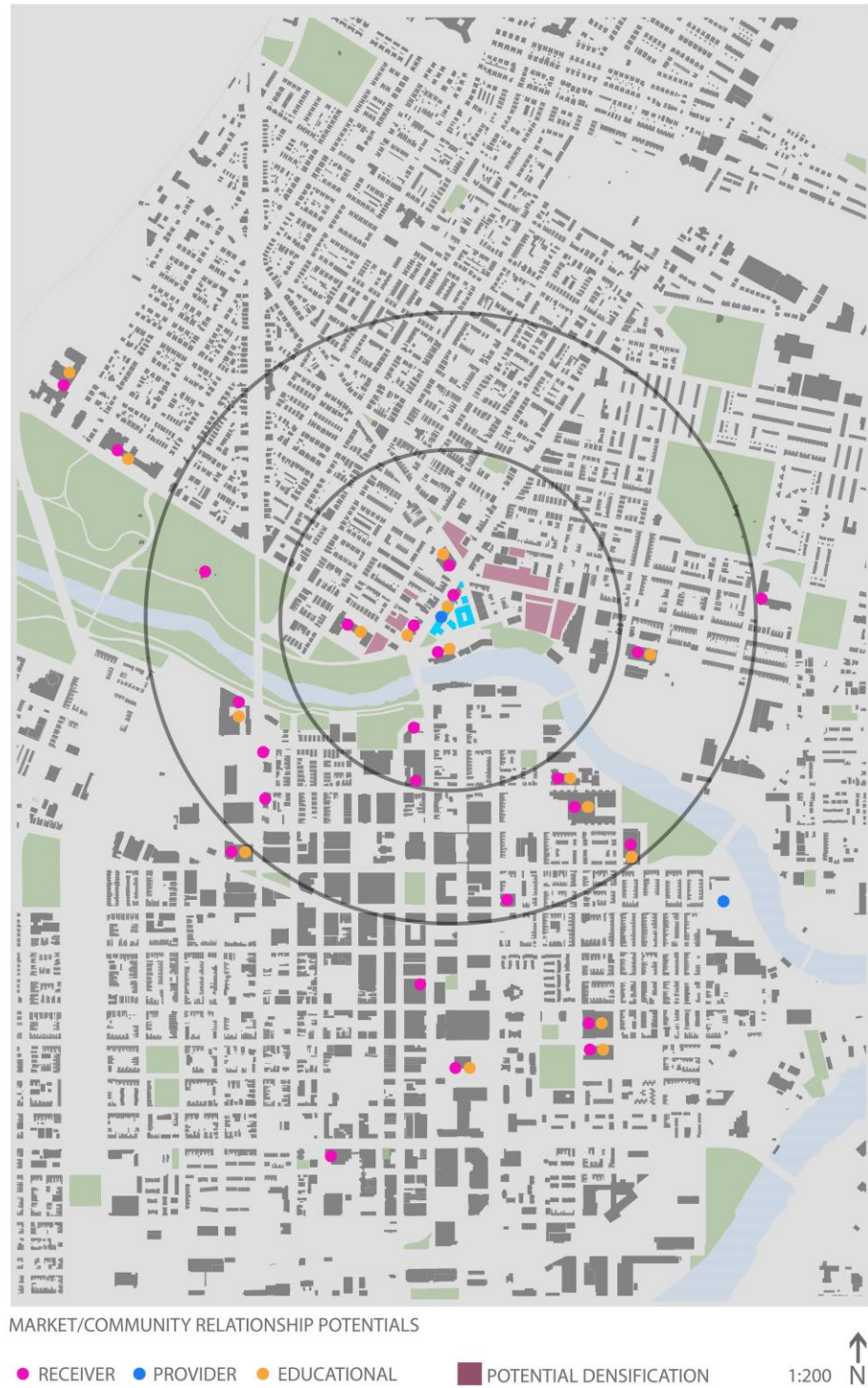


Figure 15. Market/Community Relationship Potentials
Source: Author

Historic Value

The tremendous historic value and heritage tied to Brandywine Village contributes greatly to the potential of the site, which originated as its own microcosm due north of the developing Wilmington city center and the Brandywine River (Figure 16). The village's initial creation was a result of Oliver Canby's construction of the first merchant mill in 1742. The new development evolved to become one of the most important industrial communities in the country.¹⁶

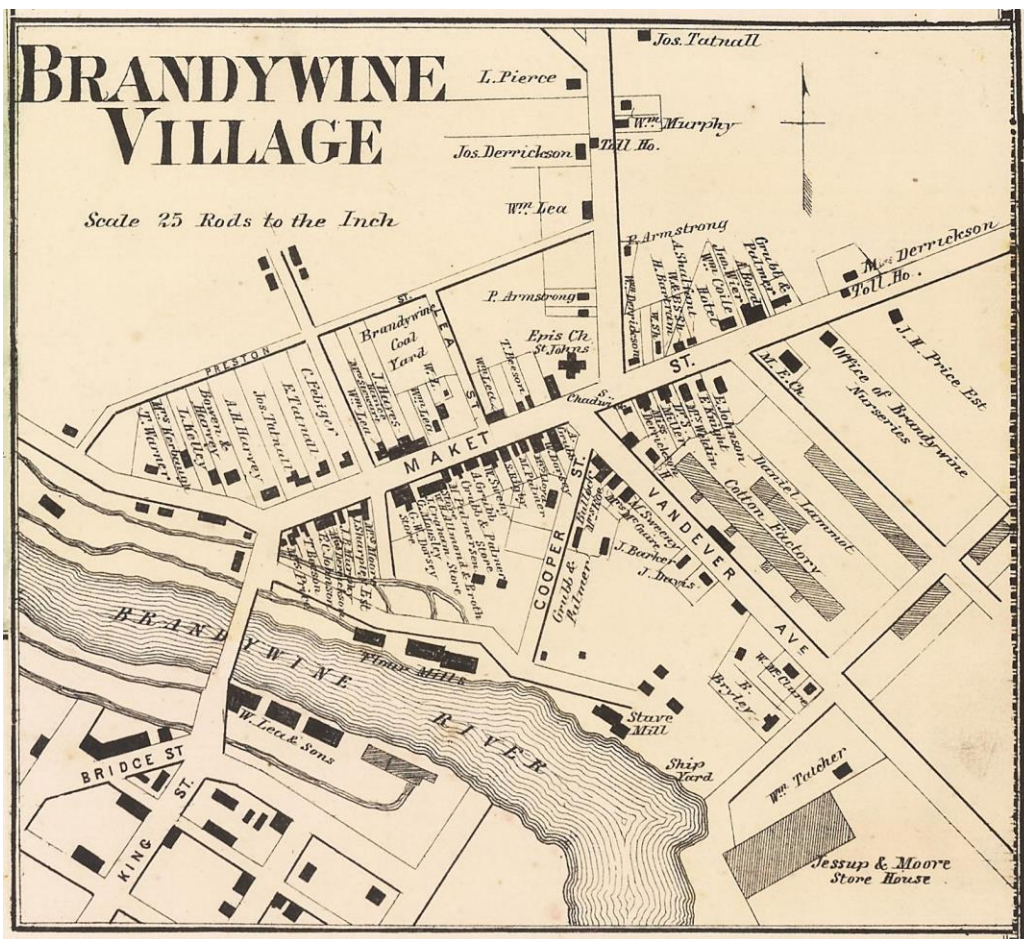


Figure 16. 1868 Brandywine Village Map (Pomeroy and Beers Atlas of Delaware)
Source: <http://www.oldwilmington.net/maps/brandywine-village.jpg>

¹⁶ Greater Brandywine Village Revitalization, "History: A Brief History of Brandywine Village." Accessed November 15, 2013. http://brandywinevillage.org/wp/?page_id=12.

Therefore, this proposed site is located at what once was a hub of commercial exchange and activity. For this reason, it is a significant location worth resurrecting, this time with its new, contemporary purpose.

Characterized by these surrounding historic buildings including mills, factories, and homes of owners of the old industries, there is potential to integrate some of the existing historic buildings with the proposed housing. Additionally, there is potential to capitalize on its immediate adjacency to both Habitat for Humanity and a Job Core Center that offers vocational training and GED education.

Existing Initiatives

Site 3 fits within existing initiatives created by various organizations within the community. This indication of enthusiasm, support, and value placed on the site further substantiates the proposal.

Eastside Rising

Eastside Rising is a three-phase revitalization effort in the poverty-stricken, primarily residential area of Wilmington known as the East Side. The initiative was spearheaded by the Wilmington Housing Partnership in conjunction with several collaborators including: Habitat for Humanity of New Castle County (HFHNCC), Inter-Neighborhood Foundation (INF), Central Baptist Community Development Corporation, Delaware Community Investment Corporation (DCIC), Woodlawn Trustees, Inc., and various other local community organizations. The primary goals of

Eastside Rising are as follows: to improve the neighborhood's housing stock through the rehabilitation of existing structures as well as limited new construction; to improve facades and streetscapes; to engage East Side residents in life skills training programs ultimately preparing them for full-time employment; and, in the final phase, to implementation of an aquaponics center to provide area residents with access to fresh produce.¹⁷

The aquaponics center is a very important existing agenda relating to this thesis proposal. Eastside Rising is beginning to address the food desert by creating a source of fresh fruits and vegetables, among other things, in the heart of one of the most impoverished areas of Wilmington – located less than one half mile from the proposed site. This thesis could reinforce Eastside Rising's agenda by providing an additional place of product cultivation and exchange.

Greater Brandywine Village Revitalization, Inc.

Greater Brandywine Village Revitalization, Inc. (GBVR) is an existing initiative centered on the site this thesis proposes to develop. The organization describes itself as, “a not-for-profit community development corporation committed to rebuilding historic Brandywine Village in northeast Wilmington”.¹⁸ GBVR envisions Brandywine Village to be a friendly place with a strong sense of identity. The organization strives to reestablish the neighborhood as a place that encourages people of all walks of life to come together and live harmoniously. The inclusion of

¹⁷ Wilmington Housing Partnership. “What is the Wilmington Housing Partnership.” Accessed March 23, 2013. <http://www.wilmingtonhousingpartnership.com/>

¹⁸ Greater Brandywine Village Revitalization, "Welcome." Accessed November 15, 2013. http://brandywinevillage.org/wp/?page_id=12.

residents with diverse economic situations, cultures, and ages will a foster a friendly and welcoming place to live.¹⁹

Additionally, the organization emphasizes the architectural and site improvements they wish to achieve, specifically mentioning the adaptive reuse of certain buildings with some new construction in varying architectural styles to maintain the eclectic aesthetic the neighborhood is known for. Also, the lining of streets with trees and creation of paths connecting to the Brandywine River is part of the initiative. In theory, these improvements would not only encourage people to call Brandywine Village home, but they would also bring businesses to the resulting more desirable area.

Therefore, this thesis thoughtfully responds to, strengthens the relevance of, and ultimately ties together the agendas of these pre-existing initiatives. Cooperative support could move all agendas forward.

¹⁹ Ibid.

Chapter 4: Precedent Studies

Key Principles

This portion of the thesis document outlines several key design principles that I found to be a source of inspiration in precedent projects. These principles include: response to history, defensible space design²⁰, kid friendliness, economically implemented green design features, successful live-work features, innovative incorporation of mixed-use program, and communal living with an emphasis on cohousing.

Sugar Hill Housing



Figure 17. Sugar Hill Housing

Source: <http://inhabitat.com/nyc/affordable-sugar-hill-housing-complex-aims-to-be-a-model-of-urban-renewal-in-harlem/>

²⁰ Newman, Oscar. 1996. *Creating defensible space*. Washington, D.C.: U.S. Dept. of Housing and Urban Development, Office of Policy Development and Research.

Adjaye Associate's Sugar Hill Housing project is currently under construction in Harlem, New York. Once complete, the project will stand 13 stories tall and include 124 affordable housing units, an early education center, and a Children's Museum of Art & Storytelling. The project's inclusion of the museum is intended to enhance local creativity and enliven the sense of community. The museum will share the rich history and anecdotes from the Harlem Renaissance during the 1920s and 1930s.²¹

The Sugar Hill project has been designed to incorporate several principles that are of prime relevance to this thesis proposal. First, David Adjaye believes that his project should be very responsive to the area's social and cultural concerns, which is an objective of this thesis. The creation of the Children's Museum responds to current community needs while shining light upon Harlem's history.²² Similarly, the market component of this thesis proposal strives to respond to current community needs while reviving the historic Brandywine Village neighborhood, returning it to its function as an industrial and commercial hub. The type of industry will shift to the production/promotion of healthy food in response to present day needs, as opposed to those of the 18th and 19th centuries.

Another feature of Sugar Hill Housing is its rooftop farm. Fresh produce will be grown at the farm and the income generated will help support the building. The plaza space included at ground level will serve as a farmer's market venue.²³

²¹ Goodwin, Andrew. Inhabitat New York City, "Affordable Sugar Hill Housing Complex Aims to Be a Model of Urban Renewal in Harlem." Last modified 07 02, 2013. Accessed

²² Ibid.

²³ Kaysen, Ronda. Architectural Record, "A Role Model for New York City's Affordable Housing." Last modified 02 14, 2013. Accessed November 15, 2013.

Similarly, this thesis proposes to take advantage of rooftop growing methods not only to provide additional fresh produce for residents and community members, but also to supplement the project maintenance costs.

Seven Directions



Figure 18. Seven Directions

Source: <http://www.pyatok.com/portfolio/sevendirections.html>

Michael Pyatok's Seven Directions is a mixed-use development located in the Fruitvale neighborhood of Oakland California. The project combines 36 affordable housing units with a Native American health center, which offers dental, medical, and nutritional care to women, children, and infants living in the housing and surrounding

area. Native American ceremonial outdoor spaces have been incorporated into the design as well.²⁴

Pyatok's combination of housing with a universal service that will positively impact the lives of not only the residents, but also the greater community, exemplifies the great potential for a mixed-use project to create positive ripple effects. The power of combining another piece of program with housing broadens the scope of impact. This principle is of critical important to my thesis proposal as it strives to achieve similar resounding effects. The market component will formulate relationships within the community and serve in a similar manner as the medical facility in Pyatok's project.

Additionally, Seven Directions is a project that thoughtfully responds to and incorporates the heritage of the local demographic. Both the housing and medical facility are heavily influenced by the predominant Native American culture.²⁵ This consideration is reflected in the project's form, function, and aesthetic. This thesis proposes to incorporate the heritage of the Brandywine Village and its demographic in a similar way, which will strengthen the relevance of the proposed project.

²⁴ Pyatok, Michael. Pyatok Architects Inc., "Seven Directions Affordable Housing and Health Clinic." Accessed October, 14, 2013. <http://www.pyatok.com/portfolio/sevendirections.html>.

²⁵ Ibid.

Kentlands



Figure 19. Kentlands

Source: <http://www.kentlandsdowntown.com/page/about-1>.

Kentlands is a planned community located in Gaithersburg, Maryland. Conceived by DPZ Designs, it is commonly referred to as an example of “New Urbanism”²⁶. The community’s downtown Main Street strip emits a quaint, charming small-town aura.²⁷ Kentlands has 69 live-work units, almost all of which are located along Main Street. Although not a model of “affordability” needed for my project, the design accomplishes the creations of an active downtown retail center, which

²⁶ Kentlands Downtown: Official Web site of the Kentlands Downtown Partnership, "About Kentlandsdowntown.com." Accessed November 15, 2013.
<http://www.kentlandsdowntown.com/page/about-1>.

²⁷ Ibid.

make its insights useful. These units also provide a wide array of services including: restaurants, shops, hair and nail salons, karate and ballet schools, law offices, mortgage brokers, insurance offices, a dentist, etc.²⁸

Kentlands' employment of live-work units, coupled with the fact that it is used to establish a commercial main street, make the project an appropriate precedent to draw from for this thesis. This thesis proposes the rehabilitation of select existing structures along the Market Street edge of the site, and the infill of remaining voids with newly constructed live-work units. Incorporating a wide variety of functions in these ground level commercial zones will better serve the broad range of clientele.

Communal Features

The cohousing community movement serves as a particularly pertinent precedent type, whose characteristics provide vital contributions to this thesis and are depicted in Figure 20. The cohousing movement began in the late 1960s in Denmark. Here it is referred to as Bofællesskaber, or 'living communities'. Originally conceived to lessen the burden of housework, childcare, and meal preparation on the workingwoman, the shared communal services offered by the cohousing lifestyle have proven beneficial.²⁹

²⁸ Live/Work World, "Kentlands Live/Work." Last modified 07 11, 2009. Accessed November 15, 2013. <http://www.liveworkworld.com/news/kentlands-livework.html>.

²⁹ Awan, Nishat, Tatjana Schneider, and Jeremy Till. 2011. *Spatial agency: other ways of doing architecture*. Abingdon, Oxon [England]: Routledge p. 122

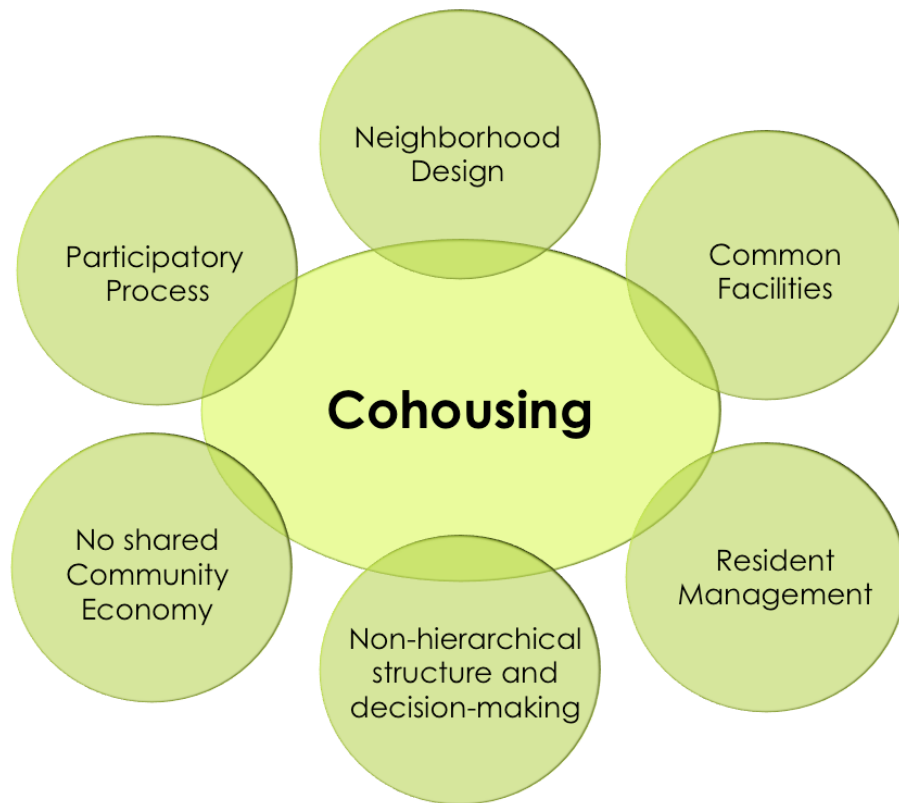


Figure 20. The Six Principles of Cohousing

Source: http://www.cohousing.org/six_characteristics

While, its preliminary intent was to ease the plight of the workingwoman, the benefits have been, and continue to be, myriad and far-reaching. Cohousing has proven to enhance social relations and provide an atmosphere in which communities can flourish.³⁰ Although it began as a housing solution for the middle-class, it has come to be a well-established housing model for every social group.³¹ Cohousing is common throughout Northern Europe, partially due to the encouragement of governmental funding and policy.³² Its popularity has also spread to the US, Canada and New Zealand, however, the concept of cohousing in these countries is generally

³⁰ Ibid.

³¹ Ibid.

³² Ibid.

rooted in a desire to reduce environmental impact and live sustainably, similar to the ecovillage.³³

Cohousing is characterized by neighborhoods comprised of private homes with shared facilities. Residents typically own their individual unit but also make use of communal spaces. They manage themselves democratically, through regular community meetings where decisions are made by establishing a general consensus.³⁴ While there are key elements incorporated into each community, they do vary in size, generally ranging from 10-40 units.³⁵ Additionally, the ratio of common to private space varies among developments.³⁶

Daybreak Cohousing



Figure 21. Daybreak Cohousing

Source: <http://www.daybreakcohousing.org/SiteandDesign.html>

³³ Ibid.

³⁴ Ibid.

³⁵ Ibid.

³⁶ Ibid.

Daybreak Cohousing is located in Portland, Oregon and was designed by Schemata Workshop in 2009. Situated in the dense, urban community of Overlook, it covers a two-thirds acre site. The private residential zone is comprised of 30 individual, sustainably designed units including compact one, two and three bedroom flats and townhouses.³⁷ The residences line the site's periphery creating a communal courtyard space at the center. The communal amenities that provide cohousing with its name are many. Two of the most prominent shared spaces are the kids' playroom, and a large, commercial, communal kitchen where shared meals occur several times weekly.³⁸

Daybreak Cohousing is an important precedent for this thesis primarily because of its incorporation of shared spaces, which contribute to a highly social and interactive lifestyle. The idea of coordinating responsibilities such as cooking and childcare is integral to my design since the demographic served by this thesis is predominantly families with many children cared for by single mothers. Ideally, the integration of these principles will not only lessen the burdens of the single mother, but also foster friendships between community members, which will result in a more harmonious environment.

³⁷ Daybreak Cohousing. "Welcome to Daybreak Cohousing: An Intentional Community Committed to sustainable living." Accessed April 2, 2013. <http://www.daybreakcohousing.org/>

³⁸ Ibid.

Chapter 5: Proposal

Five Design Principles

Five key design principles have been identified as having great potential for achieving the goals of this thesis. Throughout this proposal description, it will become evident that these five principles are inextricably linked. The resulting site plan, sample third floor plan, and building massing that reflect these principles are shown in Figures 22, 23 and 24 respectively.



Figure 22. Site Plan
 Source: Author



Figure 23. Third Floor Plan
Source: Author



Figure 24. Building Massing
Source: Author

1) Strengthen the Market Street Edge and Site Centrality

The selected site has a longstanding tradition for street interaction. Years ago it was once a significant hub of commercial and social activity. Since the location has a deep history and importance in its metropolitan context, it holds value to the community and should be restored. Along Market Street, the proposal includes a farmer's market building with housing above, newly constructed live-work structures, and renovated existing structures to help strengthen the edge in an attempt to reactivate the streetscape into the energetic, charged thoroughfare it once was. The site design incorporates a secondary street bisecting the superblock in order to allow pedestrian activity to infiltrate into the site and residents to access housing behind the street front buildings.

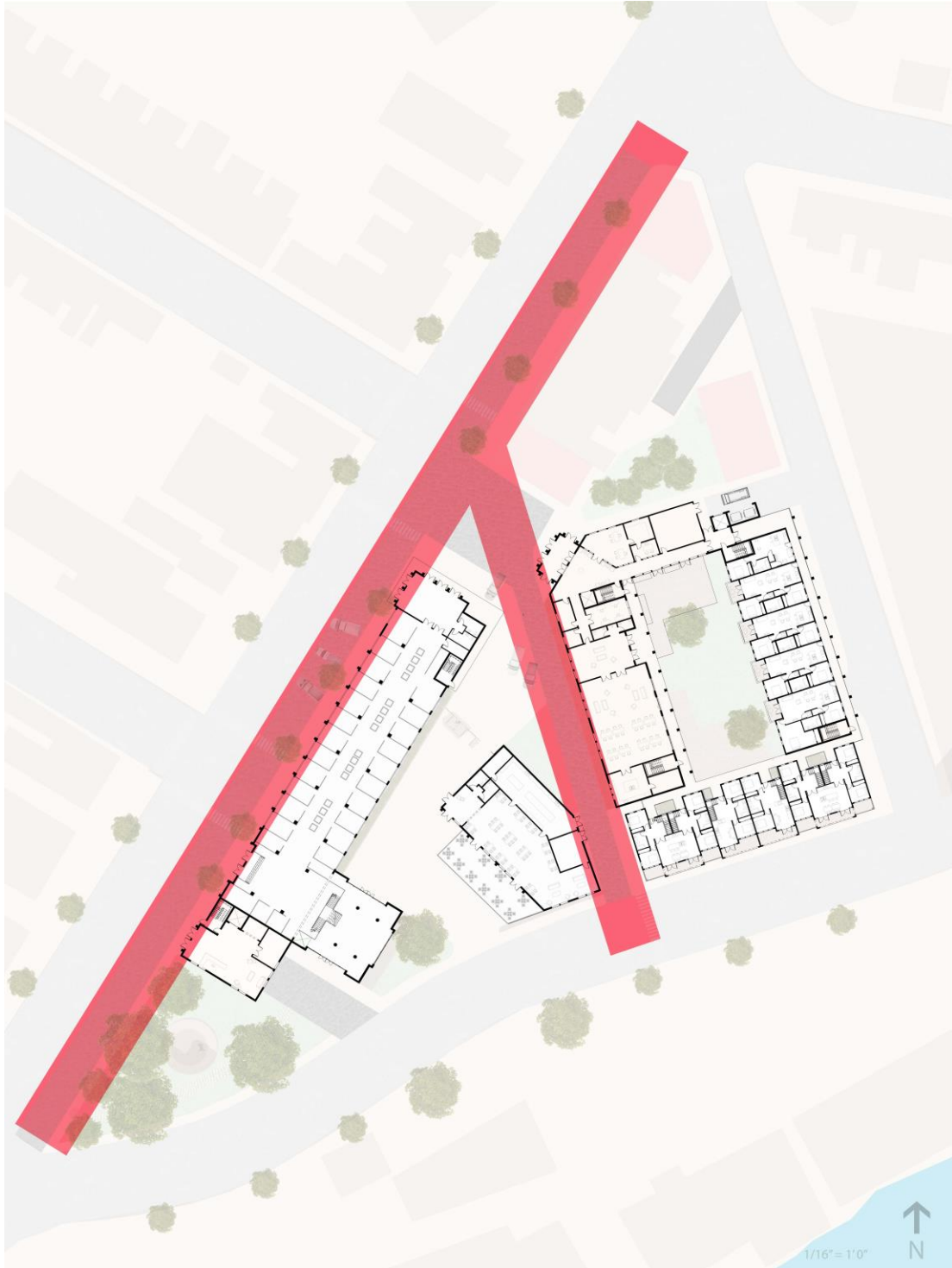


Figure 25. Strengthening of the Market Street Edge and Site Centrality
Source: Author



Figure 26. Northwest Elevation
Source: Author

2) Block and First Floor Porosity

The design proposal is porous in nature so as to draw movement through the site thereby encouraging user engagement. The mergence of market function with housing function is a goal of this thesis and the creation of connecting corridors strives to accomplish this objective. In addition to the market building internal corridor and transient exterior corridor formed when the market is in full force, a third corridor is formed through the center of the site linking park space, market elements, and housing.

Operable garage doors are placed along the Market Street market façade in order to create an indoor/outdoor space for market function in good weather. Furthermore, the large windows create a visual connectivity through the building to the plaza behind.

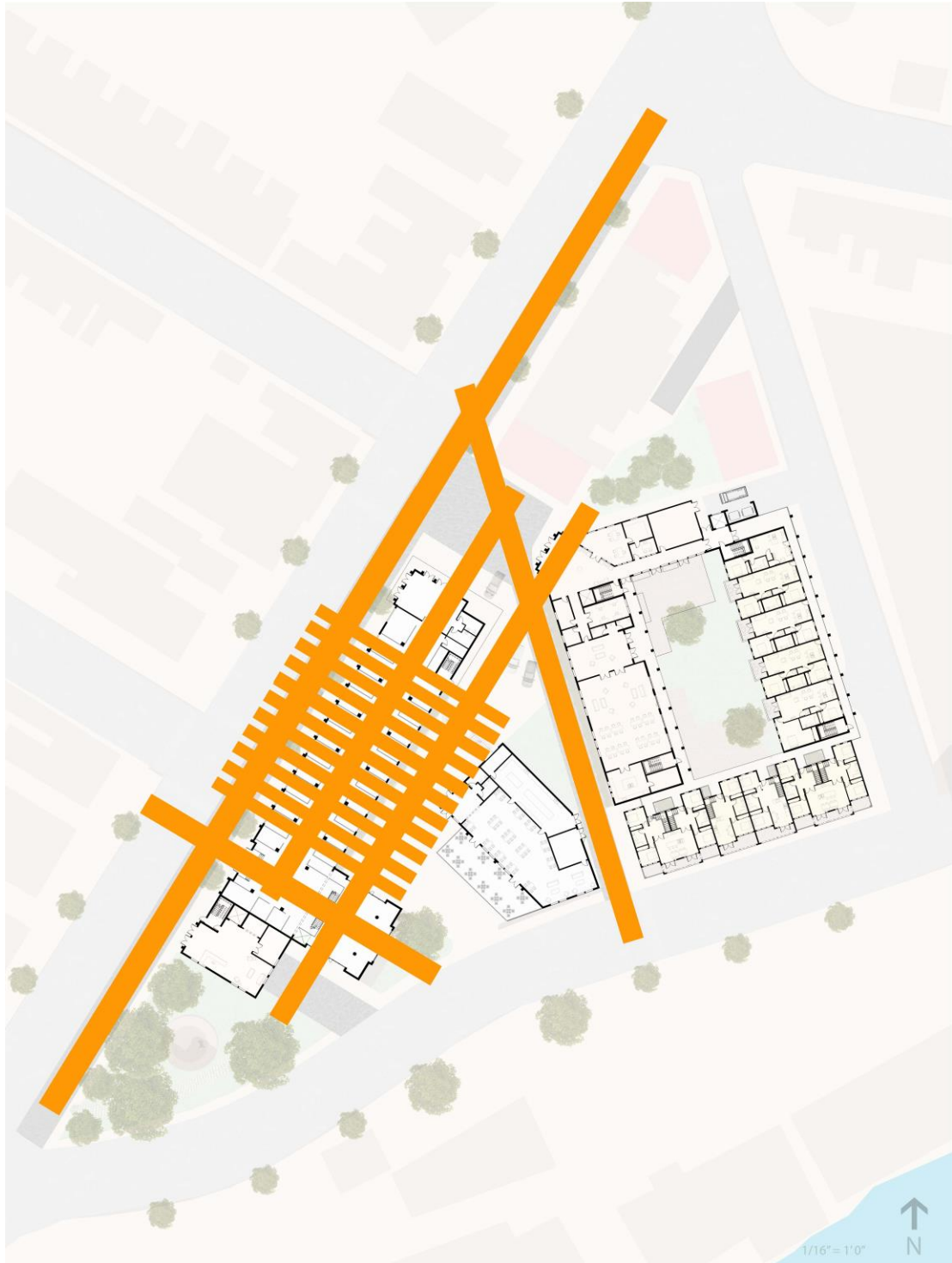


Figure 27. Block and First Floor Porosity
Source: Author

3) Layers of Progressive Privacy

In order to create the appropriate spaces to accommodate a variety of different users, careful consideration of public, semi-private, and private spaces is important. For instance, the user ranges from the occasional market patron to the resident living in the housing full-time. Therefore, the spaces must respond to each type of user.

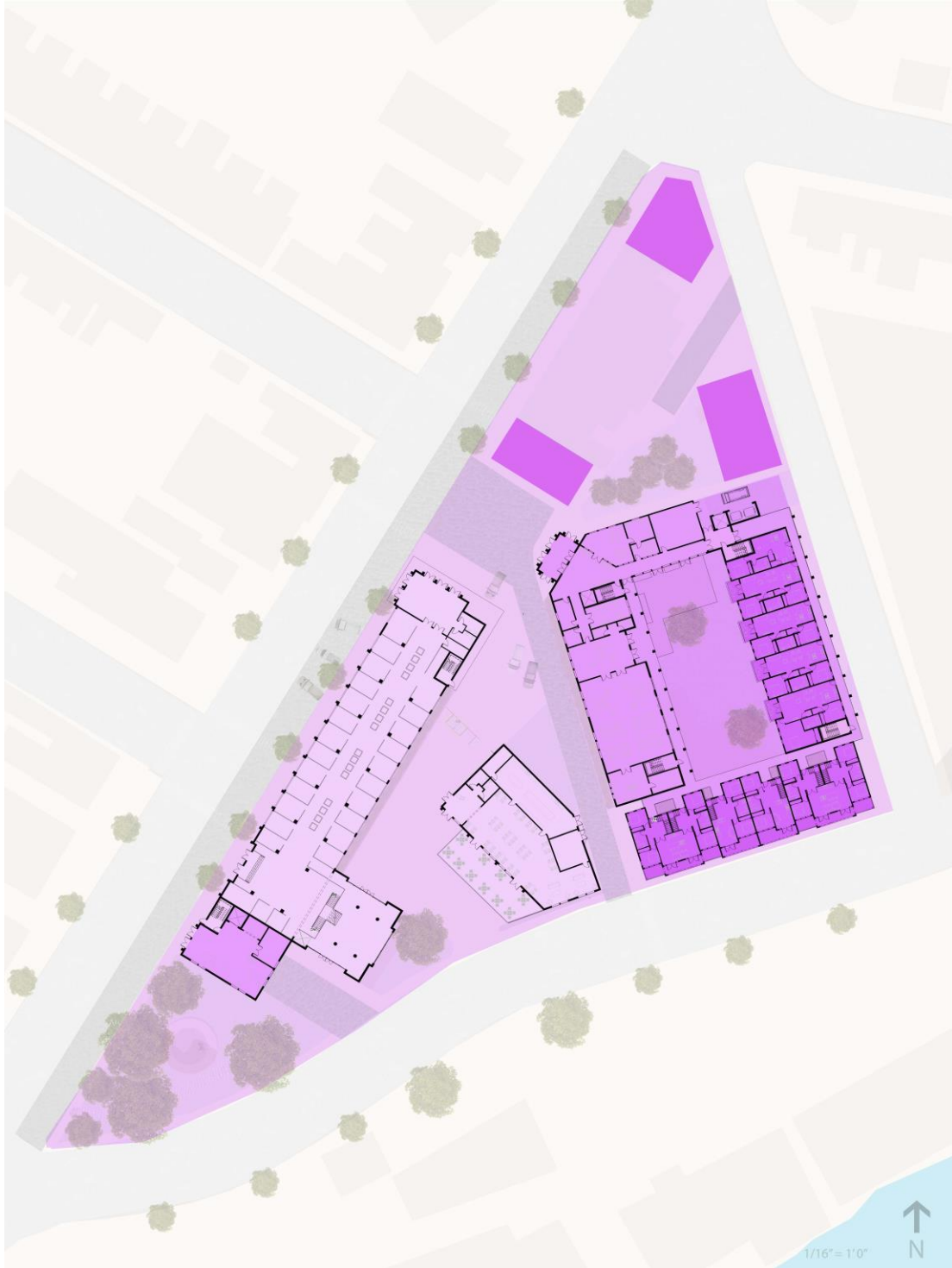


Figure 28. Layers of Progressive Privacy
Source: Author



Figure 29. Courtyard Section Perspective
Source: Author

4) Public and Semi-Public Outside Spaces

Strategic placement of outside open spaces allows for user interaction in a several different conditions. The courtyard space enclosed by housing and the amenities building provides residents with a semi-private place where children can safely play. Users can enjoy the space in several different ways. It can serve as a communal yard, but also as an extension of the communal kitchen, dining, and living spaces located in the amenities building.

Two public plaza spaces provide the opportunity for a different type of user interaction. The first space is located where Market Street and the newly imposed street bisecting the site intersect. This plaza serves as an extension of the bustling market street activity and is fronted by the main entrances to the market and amenities building (Figure 31). The second plaza is located between the multi-purpose space and the café directly behind the market. This plaza provides a slightly more subdued space where patrons of both the market and café can sit outside.

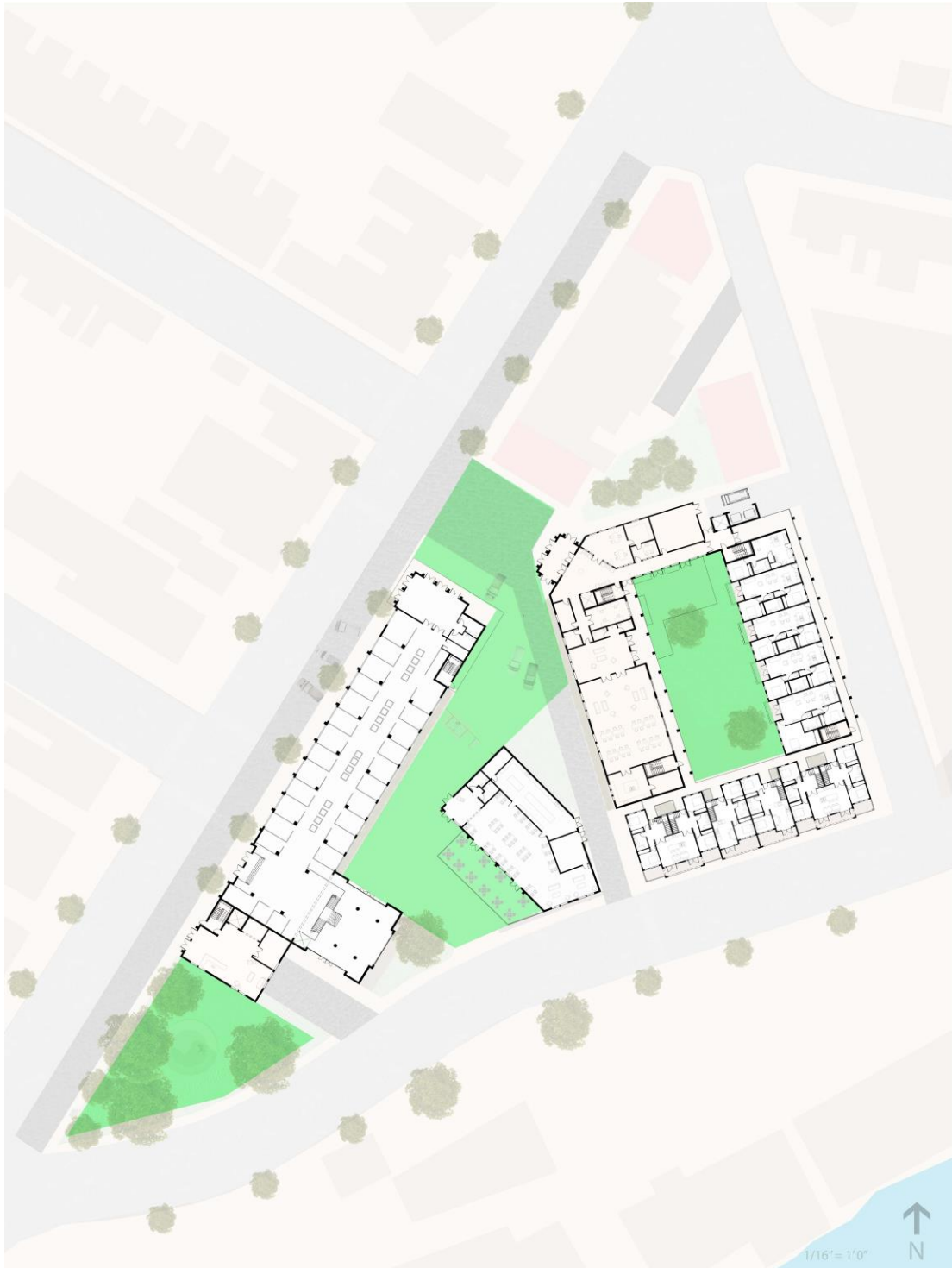


Figure 30. Public and Semi-Public Outside Spaces
Source: Author



Figure 31. Active Street View
Source: Author

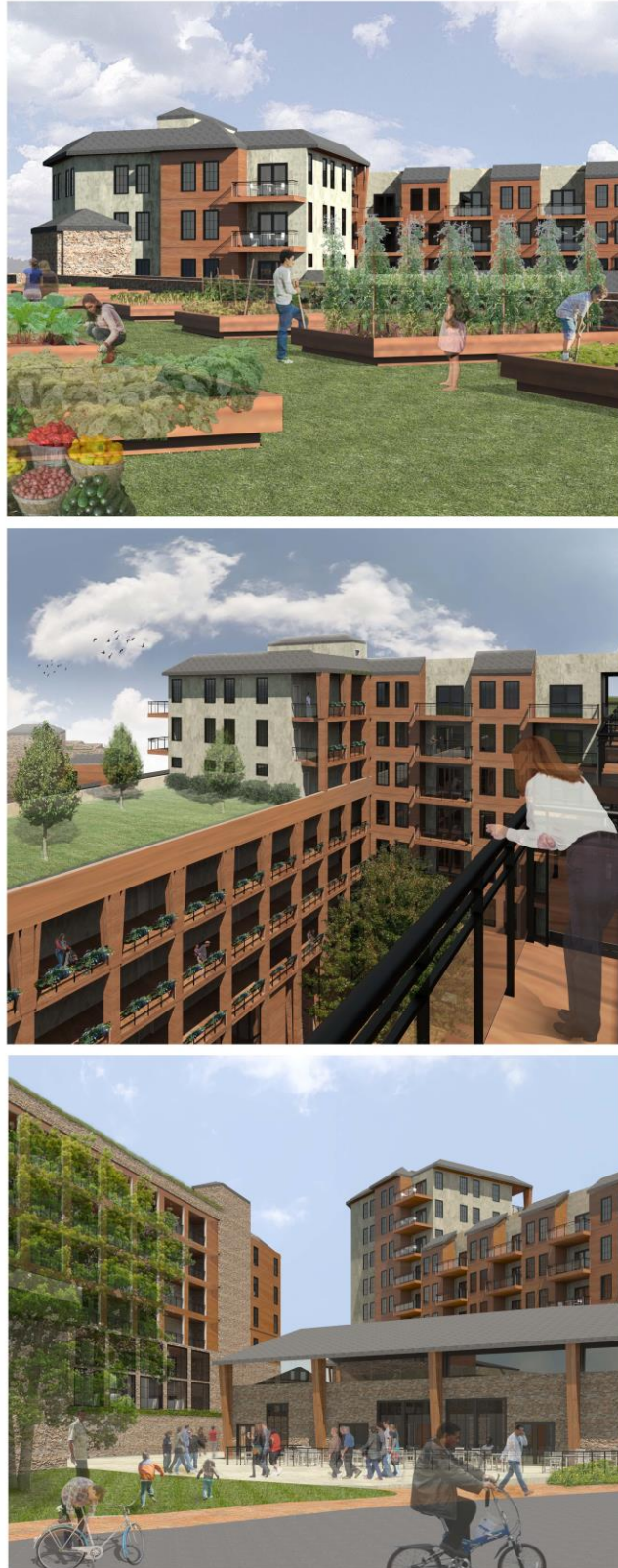


Figure 32. Green Roof (top), Courtyard View (middle), Lower Plaza View (bottom)
Source: Author

5) Flexibility

The notion of flexibility is arguably the most important of all five principles. This project has been design so as to adapt to a variety of conditions. Flexibility has been incorporated into the project at three main scales: the farmer's market design, the arrangement of residential units, and the spaces within the units themselves.

It is essential for the farmer's market to have the ability to expand and contract with season and product availability. To respond to this need, the market is not considered as one single space, but rather as an incremental or linked series of spaces. During the slower winter months, the market can shrink to its smallest scale, occupying the market building and adjacent café only (Figure 33). These two structures provide conditioned spaces to be used all year round. During months that are neither peak season nor off-season, the market can expand into the plaza space residing between the market and café buildings, providing a more casual improvisational zone where vendors can visit temporarily. When product turnover is high, engagement of a distinctively paved street lane running parallel along the front of the market building will serve as a zone for visiting vendors to park and sell out of the back of their trucks. This creates another highly charged pedestrian corridor. However, for the market's most celebrated days, it is proposed that Market Street close and the entire street be used for festive market function (Figure 34).



Figure 33. Market at its Lowest Capacity
Source: Author



Figure 34. Market at its Highest Capacity
Source: Author



Figure 35. Section Perspective Through Market
Source: Author

In order to accommodate varying family types, at the scale of the unit, the housing must be configured to permit dynamic responses to the dynamic families in a variety of locations. For instance, a young single college student may wish to live in one of the units above the farmer's market since he/she may not appreciate overlooking the courtyard and might enjoy an apartment overlooking the bustling Market Street below. On the other hand, a young single mother of two children might prefer an apartment that fronts the more protected courtyard space. This situation provides a place where her children can safely play and she can keep an eye on them.

It is critical that the units themselves serve the dynamic families living in them well. The demographic is ever evolving in terms of both family number and age range. The standard modular unit size in this project is 800 sq. ft. (Figure 36). However, the square footage can shrink to just over 500 sq. ft., and be expanded to over 2000 sq. ft. through connecting several of the 800 sq. ft. modules. This shifting is accomplished by the addition or subtraction of individual rooms of roughly 110 sq.

ft. Common unit sizes and sample families that might live in the units can be seen in figure 37. In order for this modular method of expansion and contraction to meet building code requirements, a 2-hour fire-rated wall must be constructed to provide the appropriate barrier between any two units regardless of configuration (Figure 37). The walls will have been constructed in anticipation of this need to adapt by including inset doorframes for ease of conjoining units.

UNIT DEVELOPMENT

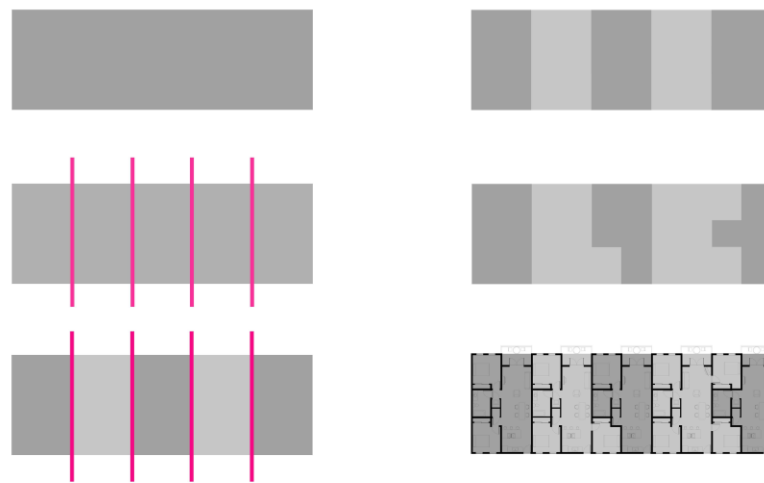


Figure 36. Unit Development
Source: Author



UNIT TYPE 1

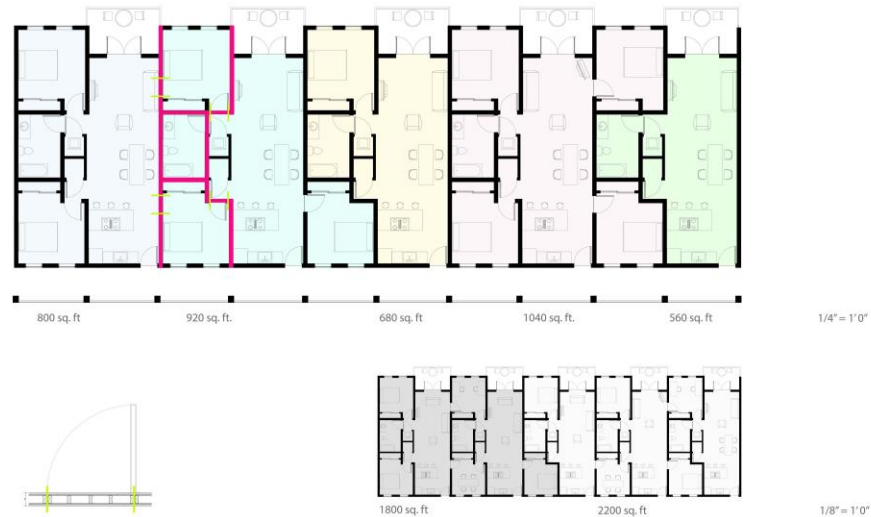


Figure 37. Unit Type 1
 Source: Author

A secondary unit type has been incorporated to provide an option for families who wish to share a kitchen and dining space (Figure 38). The units are two levels with the lower level including private space to be used by one family only, and an upper level with a combination of private space and shared space. This unit type was designed to facilitate communal living to ease the plight of the single mother. For instance, if one mother with two children were to share communal space with another mother with two children, the cooking, feeding, and other caretaking responsibilities could be shared and therefore split in half between the two providers.

UNIT TYPE 2



1/4" = 1'0"

Figure 38. Unit Type 2
Source: Author

Chapter 6: Concluding Reflections

While Wilmington's income inequality is significant and the social divide it has created is great, this thesis can serve as a catalyst for change. Its thoughtful and strategic consideration of the city's context and the demographic it accommodates should serve as a prototype for future renewal planning. The project intends to initiate the rebuilding of Wilmington's middle class as a result of innovative architecture, which empowers its users and connects community assets. The social and economic goals of this thesis are far-reaching, however it does not propose to be a complete solution. Instead, it proposes a viable start to achievement of its goals.

This project's pairing of strategically designed housing with a much-needed farmers' market and other amenities should create an environment supportive of middle class growth. Wilmington's Brandywine Village locale provides great potential for success. Through the thoughtful application of the five key design principles described in the body of this thesis, this proposal intends to create an environment conducive to empowerment resulting in an improvement of lifestyle on both the micro scale of the individual family unit and on the macro scale of the greater community.

Bibliography

- Awan, Nishat, Tatjana Schneider, and Jeremy Till. 2011. *Spatial agency: other ways of doing architecture*. Abingdon, Oxon [England]: Routledge.
- Bristol, Katharine G. 1991. "The Pruitt-Igoe Myth". *Journal of Architectural Education* (1984-). 44 (3): 163.
- City-Data.com. "Wilmington, Delaware." Accessed March 24, 2013. <http://www.city-data.com/city/Wilmington-Delaware.html>
- "City Life Courtyard Housing." Accessed on March 24, 2013.
http://wall.aa.uic.edu:62730/ahc/catalog/idc_htx_files/project_page.idc?projectId=303
- Cohousing: Building a Better Society, One Neighborhood at a Time, "What are the 6 Defining Characteristics of Cohousing?." Accessed November 15, 2013.
http://www.cohousing.org/six_characteristics.
- Corbett, John. "Alice Coleman: Design Disadvantage, 1985." Center for Spatially Integrated Social Science. Accessed March 12, 2013.
<http://www.csiss.org/classics/content/41>
- Daybreak Cohousing. "Welcome to Daybreak Cohousing: An Intentional Community Committed to sustainable living." Accessed April 2, 2013.
<http://www.daybreakcohousing.org/>
- Design Advisor: Gallery of High Quality Affordable Housing. "Daybreak Grove, Escondido, California." Accessed March 24, 2013.
<http://www.designadvisor.org/gallery/daybreak.html>
- Design Out Crime Research Centre. "What is Surveillance (overview)?" Accessed March 12, 2013. <http://www.designoutcrime.org/index.php/docfaqs/15-surveillance-overview>
- Graves, Erin. 2011. "Mixed Outcome Developments". *Journal of the American Planning Association*. 77 (2): 143-153.
- Greater Brandywine Village Revitalization, "History: A Brief History of Brandywine Village." Accessed November 15, 2013.
http://brandywinevillage.org/wp/?page_id=12.

- Greater Brandywine Village Revitalization, "Welcome." Accessed November 15, 2013. http://brandywinevillage.org/wp/?page_id=12
- Goodwin, Andrew. Inhabitat New York City, "Affordable Sugar Hill Housing Complex Aims to Be a Model of Urban Renewal in Harlem." Last modified 07 02, 2013. Accessed November 15, 2013. <http://inhabitat.com/nyc/affordable-sugar-hill-housing-complex-aims-to-be-a-model-of-urban-renewal-in-harlem/>.
- Kaysen, Ronda. Architectural Record, "A Role Model for New York Cit'ys Affordable Housing." Last modified 02 14, 2013. Accessed November 15, 2013. <http://archrecord.construction.com/news/2013/02/130214-A-Role-Model-for-New-York-Citys-Affordable-Housing.asp>.
- Kentlands Downtown: Official Web site of the Kentlands Downtown Partnership, "About Kentlandsdowntown.com." Accessed November 15, 2013. <http://www.kentlandsdowntown.com/page/about-1>.
- Live/Work World, "Kentlands Live/Work." Last modified 07 11, 2009. Accessed November 15, 2013. <http://www.liveworkworld.com/news/kentlands-livework.html>.
- Newman, Oscar. 1996. *Creating defensible space*. Washington, D.C.: U.S. Dept. of Housing and Urban Development, Office of Policy Development and Research.
- Newton, James E. University of Delaware. "Black Americans in Delaware: An Overview" last modified June 7, 1997. Accessed March 23, 20013. <http://www.udel.edu/BlackHistory/overview.html>
- Pyatok, Michael. Pyatok Architects Inc., "Seven Directions Affordable Housing and Health Clinic." Accessed October, 15, 2013. <http://www.pyatok.com/portfolio/sevendirections.html>.
- Old Wilmington.net, "1868 Brandywine Village Map (Pomeroy and Beers Atlas of Delaware)." Last modified 09 12, 2009. Accessed November, 18, 2013. <http://www.oldwilmington.net/maps/brandywine-village.jpg>.
- Rainwater, Lee. 1970. *Behind ghetto walls; Black families in a federal slum*. Chicago: Aldine Pub. Co.
- Reyes, Dan. Food Bank of Delaware, "Veggies, Veggies, Everywhere, But Not a Bite to Eat." Last modified 07 08, 2013. Accessed November 15, 2013. <http://foodbankofde.wordpress.com/2013/07/08/part-one-veggies-veggies-everywhere-but-not-a-bite-to-eat/>.

Tavernise, Sabrina. "Middle-Class Areas Shrink as Income Gap Grows, New Report Finds." New York Times, November 15, 2011. Accessed February 27, 2013. <http://www.nytimes.com/2011/11/16/us/middle-class-areas-shrink-as-income-gap-grows-report-finds.html>

United States Department of Agriculture, "USDA Introduces Online Tool for Locating 'Food Deserts'." Last modified 02 05, 2011. Accessed November 15, 2013. <http://www.usda.gov/wps/portal/usda/usdahome?contentid=2011/05/0191.xml>

"Wilmington (city), Delaware". *State & County QuickFacts*. U.S. Census Bureau. Accessed May 14, 2012. <http://quickfacts.census.gov/qfd/states/10/1077580.html>

Wilmington Housing Authority. "Wilmington Housing Authority." Accessed March 23, 2013. <http://www.whadelaware.org/index.php>

Wilmington Housing Partnership. "What is the Wilmington Housing Partnership." Accessed March 23, 2013. <http://www.wilmingtonhousingpartnership.com/>

Zhou, Jingmin, and Ian Colquhoun. 2005. *Urban housing forms*. Amsterdam: Architectural Press.

