

This Thesis Report titled

REGENERATING THE "MODEL CITY"

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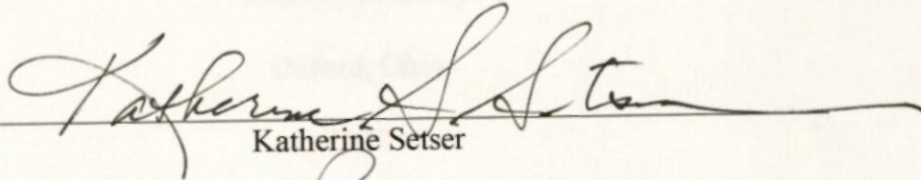
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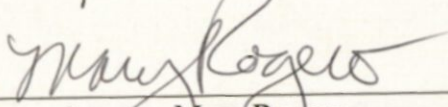
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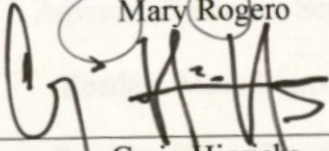
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REGENERATING THE “MODEL CITY”

Thesis Report

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by

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Miami University

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ABSTRACT

REGENERATING THE "MODEL CITY"

by Kari Kruse

The post World War II era is famous for the Baby Boomer generation and the birth of suburbia, both of which caused a major demographic shift at the time. The impact of these shifts is still felt today as the population is becoming increasingly older, making living at home safely and affordably a concern for seniors and their families while these once bright and shiny new neighborhoods are lacking their luster. This proposal incorporates strategies similar to those of postwar developers by equipping residents with valuable resources and amenities in their neighborhoods. Placing aging focused services within the neighborhood will encourage social interaction between residents and across generations as well as promote healthy living for seniors. Slight densification through the incorporation of Attached Dwelling Units will increase affordability for existing and new residents who may be on a limited or fixed income. The goal of this proposal is to develop a precedent to inspire other postwar suburban neighborhoods to break from their existing, tired forms so that all residents, especially the elderly, might be able to live safely and affordably in their existing homes and neighborhoods.

Acknowledgements

This thesis may have my name on the cover page, but it would not have been possible without the support and guidance of so many.

First, I would like to thank the Lincoln Village Residents' Association for welcoming me to the neighborhood and helping me connect with residents. Thank you to the residents, past and present, who invited me into their homes for interviews and field measurements and for giving me a glimpse of what life in Lincoln Village was, and is, like. I wasn't sure how many people would want to participate, especially with Covid, but so many of you shared stories, photo albums, drawings, and newspaper articles with me. Your love for Lincoln Village is heartwarming and I hope I was able to capture some of that in my project.

Next, I would like to thank my Thesis Committee members, Kat Setser, Mary Rogero, Craig Hinrichs, and J. E. Elliott. You all are the reason I decided to come back to Miami for Grad School. Thank you for working with review schedule changes, squeezing me into your busy days to look over drawings, and for pushing me to do better at each pin up. Thank you also, not just for being on my committee this last year, but for the last seven years that I have been calling this department home. This goes for so many members of this staff, but I could only have a few committee members. I wouldn't be the designer or the person I am today without each of you.

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Finally, I want to thank my classmates. This whole last semester we kept watching the paper chain grow smaller and smaller until it reached Presentation Day, and now soon Graduation, but now I'm realizing that each day that we tear off is one less day we have with each other. Sorry for being sappy, but I'm going to miss you guys. I'm so proud of what we have accomplished in our little group and can't wait to see what our next adventures hold. Bread!

Dedication

Who else do you dedicate your Master's Thesis to but your family? I have thanked a lot of people and am extremely grateful for them, but we all know who ranks first. The stress of Grad School and the Thesis process is like no other and there's no one like my parents and Quin who know how to keep me in check.

Quin, thank you for being my research assistant and my reality check. Thank you for putting up with me and understanding that yes, even on vacation, I still have homework to do. Thank you

Mom and Dad, I told you about 14 years ago that I wanted to be an architect and you have helped me in every way you could to get to this point. You've been my rock and absolutely none of this would've been possible without you. Thank you for teaching me to work hard and to follow my dreams.

If it were easy, it wouldn't be worth doing.

Table of Contents

1. Project Description & Key Terms	1
1.1 Addendum - Project Description & Key Terms	4
2. Literature Review	6
2.1 Addendum - Literature Review	9
3. Precedents	10
3.1 Addendum – Precedents	14
4. Methodology	16
4.1 Addendum – Methodology	17
5. Contribution & Significance	18
5.1 Addendum - Contribution & Significance	19
6. Context	20
6.1 Addendum – Context	22
7. Program	24
7.1 Addendum – Program	25
8. Bibliography	28
8.1 Addendum – Additional Sources	32
9. Appendix – Final Design	33
9.1 Historical Site Information	34
9.2 General Demographics	36
9.3 Climate	37
9.4 Site Analysis	38
9.5 Aging in Place	41
9.6 Program	43
9.7 “A Day in the Life”	44
9.8 Community Center	47
9.9 Accessory Dwelling Units	58

List of Figures

Figure 1.1	Central City Versus Other Locations by Year Built	1
Figure 1.2	Types of Homes by Year Built	1
Figure 3.1	House of Freedom	10
Figure 3.2	House of Freedom – Floor Plan	11
Figure 3.3	The Green House Project	11
Figure 3.4	The Herman Residence	12
Figure 3.4	The Herman Residence – Floor Plan	12
Figure 3.5	Rowe Hill Enerphit	13
Figure 3.6	Rowe Hill Enerphit – Under Construction	13
Figure 9.0.1	View from Malden Way	34
Figure 9.1.1	Historical Advertisements	35
Figure 9.1.2	Aerial Drawing	36
Figure 9.1.3	Approximate Phasing of Original Development	36
Figure 9.1.4	Single Family Homes by Year Built	36
Figure 9.2.1	Median Home Values,	37
Figure 9.2.2	Median Gross Rent	37
Figure 9.2.3	Median Household Income	37
Figure 9.2.4	Monthly Housing Costs	37
Figure 9.2.5	Those with Bachelor’s Degree or Higher by 25 Years Old	37
Figure 9.2.6	Persons in Poverty	37
Figure 9.2.7	Lincoln Village by Race	37
Figure 9.3.1	Average Temperature and Precipitation	38
Figure 9.3.2	Max Temperatures	38
Figure 9.3.3	Cloudy, Sunny, and Precipitation Days	38
Figure 9.3.4	Wind Speed	38
Figure 9.4.1	Lincoln Village North in Lincoln Village	39
Figure 9.4.2	Distance to OSU and Downtown Columbus	39
Figure 9.4.3	Lincoln Village North	39
Figure 9.4.4	Miami University – Oxford Campus	39
Figure 9.4.5	Lincoln Village North Amenities	40
Figure 9.4.6	Zoning and Housing Types	41
Figure 9.5.1	By 2030	42
Figure 9.5.2	65+ Population Projections	42
Figure 9.5.3	90% of those 65 and older	42
Figure 9.5.4	65+ Population	42
Figure 9.5.5	Lincoln Village by Age	42
Figure 9.5.6	Prevention over Reaction	43
Figure 9.5.7	Kitchen Design	43
Figure 9.5.8	Bedroom and Bathroom Layout	43
Figure 9.6.1	Amenities Distribution Program	44
Figure 9.7.1	“A Day in the Life” Site Plan	45
Figure 9.8.1	Community Center First Floor Plan	48
Figure 9.8.2	Community Center Basement Floor Plan	49
Figure 9.8.3	Floor Plan Process Work	50

Figure 9.8.4	Roof Line Process Work	50
Figure 9.8.5	Existing Homes with Proposed New Construction	51
Figure 9.8.6	Existing Homes vs. New Construction	51
Figure 9.0.1	View from Malden Way	52
Figure 9.8.7	Community Center Patio	52
Figure 9.8.8	Dining Area and Café Window	53
Figure 9.8.9	Living and Dining Area	53
Figure 9.8.10	Community Center Roof Plan	54
Figure 9.8.11	Flat Roof to Clerestory Wall	55
Figure 9.8.12	Flat Roof to Existing Pitched Roof	56
Figure 9.8.13	Storefront Plan Detail	56
Figure 9.8.14	Section 1: Street to Woods	57
Figure 9.8.15	East Elevation	58
Figure 9.8.16	West Elevation	58
Figure 9.8.17	Section 2: Existing House to Existing House	58
Figure 9.8.18	Section 3: Existing House to Commercial Kitchen	58
Figure 9.9.1	Central Block Site Plan	59
Figure 9.9.2	ADU Strip Site Plan	60
Figure 9.9.3	Photos of Existing Site	61
Figure 9.9.4	One Bedroom ADU Floor Plan	62
Figure 9.9.5	One Bedroom ADU Front Elevation	62
Figure 9.9.6	One Bedroom ADU Section 1	62
Figure 9.9.7	Two Bedroom ADU Floor Plan	63
Figure 9.9.8	Two Bedroom ADU Front Elevation	63
Figure 9.9.9	Two Bedroom ADU Section 1	63
Figure 9.9.10	ADUnits from Path	64
Figure 9.9.11	ADU Strip from Woods	64

Project Description and Key Terms

The following provides definitions and background information on three key terms relating to this project. Suburban neighborhoods are a common concept but understanding the origin of these neighborhoods may require explanation. Retrofit and Aging in Place are terms that may not be as common as the ideas behind them, and it is important to “put a name to a face” in order to follow along as these terms will be used quite frequently to describe the solutions this project is seeking. Household dynamics is a term used to describe scenarios that do not fit the nuclear family.

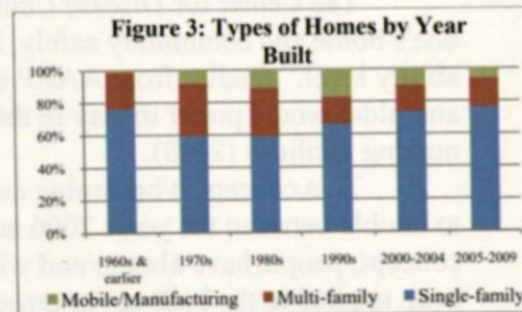
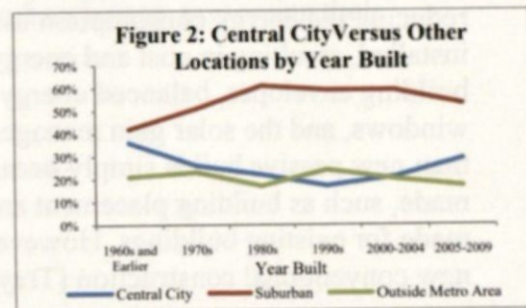
Suburban Neighborhoods

According to the 2017 American Housing Survey, conducted by the U.S Department of Housing and Urban Development (HUD USER, 2017) and the Census Bureau, 52% of people describe the area they live in as suburban while still only 27% describe the area they live in as urban. Several other national surveys have resulted in nearly identical statistics. Despite these findings, the United States government currently only has true definitions for “urban” and rural” areas, classifying two types of urban areas with those not meeting the requirements for “urban” deemed “rural” (HUD USER, 2017). The two urban categories are urbanized clusters having 50,000 or more people and urban areas having between 2,500 and 49,999 people (Bureau, 2020).

These categories were developed in 1950 to improve the separation between urban and rural areas as more people were leaving the cities and rural areas for what became known as the suburbs (Bureau, 2020). During the postwar era of World War II, 18 of the largest 25 cities in the nation saw drops in their populations between 1950 and 1970 while the suburban population nearly doubled (Jackson, 1985). This population shift is a result of a combination of factors including the postwar affluence, government interference, and technological advances.

Looking at “Figure 2: Central City vs. Other Locations by Year Built”, it is clear that the number of suburban homes was on the rise during this post war era (Sarkar, 2011, 2). This means much of the housing stock is older now and because of its age, is not anywhere near as efficient as modern-day homes. This inefficiency in the residential sector accounts for a 5% increase in energy consumption. The residential sector accounts for 16% of the United States’ energy consumption as of 2019 (EIA, 2019). Being that most people consider themselves living in suburban neighborhoods and, based on “Figure 3: Types of Homes by Year Built”, most homes in these areas are single family homes (Sarkar, 2011, 3) it is inferred that most of the energy consumed by the residential sector is consumed by single family homes in suburban neighborhoods.

Currently there is a push towards urbanization and increasing density because it is considered more sustainable but suburban neighborhoods are such a large portion of the existing building stock and should not be ignored. This once innovative and aging part of the housing stock could regain its innovation and become sustainable through a deep energy retrofit.



Retrofit

In the sustainability timeline, arguably one of the most well-known and influential pieces is “Ten Shades of Green” by Peter Buchanan. The fourth shade is titled “Embodied Energy” and describes how while buildings constantly use energy, it also takes energy to build them. New buildings are becoming more and more efficient everyday which makes the energy used to build them a larger portion of the total embodied energy. Existing buildings have embodied energy as well and through working with them as opposed to always building new, this embodied energy can be preserved (Buchanan, 2005).

Several popular rating systems and building science organizations have taken this concept into account and have added retrofit standards to their programs. In his book “Enerphit”, James Traynor explains the difference between a retrofit and a refurbishment or a repair. Refurbishments and repairs describe home maintenance or aesthetic improvements while a retrofit has a goal to reduce a building’s energy consumption and improve the overall thermal comfort. Compared to demolishing a building and constructing new, retrofits have also proven to be more cost effective. Traynor also acknowledges the importance of retrofitting buildings to help reach goals like the Climate Change Act of 2008, a goal set in the UK to reduce their greenhouse gas emissions by 80% by 2050 based on 1990 data (Traynor, 2019, 2-10).

The term “enerphit” comes from the European Passive House Institute which is a separate organization from Passive House Institute US (PHIUS). Passive building principles began in the United States and were written about as early as the 1980’s. However, the concepts gained more popularity in Europe, especially Germany, and the Passive House Institute was established there in 1996; PHIUS was later established in 2003. While these are separate organizations, their core concepts and beliefs are relatively similar, focusing on using passive strategies before active ones to reduce the energy consumption of the built environment. By reducing the energy consumption using passive strategies, smaller active systems may be installed, resulting in cost and energy savings. Strategies include superinsulation, airtight building envelopes, balanced energy recovery ventilation, installation of high-performance windows, and the solar gain management (PHIUS). Standards for retrofit projects may be lower than new passive builds simply because new builds allow for certain design decisions to be made, such as building placement and orientation on the site, whereas those decisions are already made for existing buildings. However, retrofitted passive buildings still exceed the standards for new conventional construction (Traynor, 2019, 2-10).

Aging in Place

The Center for Disease Control (CDC) defines Aging in Place as “the ability to live in one’s home and community safely, independently, and comfortably, regardless of age, income, or ability level.” Studies from AARP show that this concept is popular as 90% of those 65 years old and older would prefer to stay in their own home as opposed to living in assisted living or nursing facilities (2018).

This concept is becoming ever more important as the 65 and over population is expected to double between the years 2006 and 2030 (AARP Livable). However, aging is not a new concept, people have always and will continue to age yet these principles have only recently been applied to the built environment. Universal Design principles, which are very similar to Aging in Place, have been around since the 1960’s but were not officially developed until 1997. The House of Freedom, included in the Precedents section of this paper, is a prime example of

how the relationship between aging and the built environment was being considered as early as the late 1950's but was not adopted by industry professionals.

With this large percentage of the population soon to be over the age of 65, it is important to consider where they will live and their safety within their own home. The National Association of Home Builders (NAHB) has developed a list of features for remodeling with aging in mind. The list is broken down by areas of the home such as the exterior and entry, all the way down to plumbing fixtures. Guidelines range from broader suggestions for things like styles of appliances to actual dimensions of clear spaces for wheelchair turns.

Household Dynamics

Some of the Aging in Place Remodeling Guidelines incorporate sustainable strategies and provide flexibility in the functionality of the home. One of the suggestions is to have a separate apartment for rental income or a future caregiver. This idea, or a version of this idea, will be included in the project solution to incorporate another "shade of green", Long Life, Loose Fit. This concept looks at the long term for the building and how it can be reused. While a single family home may not necessarily be reused for another purpose, it can be designed, or redesigned, to fit varying household dynamics (Buchanan, 2005). Less than 20% of households fit the nuclear family description and according to "Making Room" from AARP, the largest demographic in the 2010's consisted of adults living alone or with other adult roommates or family members.

Overall this project aims to combine the concept of the retrofit with the principles of Aging in Place and apply them to one of the most prominent sources of housing stock. Interior renovation following Aging-in-Place Remodeling guidelines and building envelope and systems retrofit are opportunities to revive these postwar suburban homes, preserving their embodied energy and loosening their fit.

Addendum - Project Description and Key Terms

My original idea involved renovating homes to better accommodate aging residents and households that did not fall under the nuclear family description. I was also looking at retrofitting these existing homes while already under interior renovation to make them more energy efficient. When writing the original Dossier, I defined four key terms for my project, but as I continued on with the project and needed to narrow my focus, I decided to focus more on "Aging in Place" in "Suburban Neighborhoods" than I did with the "Retrofit" and "Household Dynamics". Through my research and design work, I found that many aspects of Aging in Place housing also worked well for those who weren't yet Aging in Place.

However, Aging in Place isn't just about remaining in your own home as you age, but also your community. I then shifted my focus to work more with the masterplan of the neighborhood and design community scale spaces. I decided to add amenities into the neighborhood, much like the postwar developers, but with a focus on the senior population. Another part of my design included the addition of Accessory Dwelling Units to create a slightly higher density as a way to make the suburbs more sustainable, provide a source of affordable housing in a popular area, and to provide seniors with the potential for another source of income.

Looking back on my original paper, and after completing the Thesis process, I feel as though my research was spread a little thin trying to cover the history of the postwar era, Aging in Place, building sciences, and modern household dynamics. If I had continued down that path, I'm not sure I would have been able to wrap everything together in the end and my project would not have had such a strong focus.

Literature Review

The end of World War II brought many changes to the landscape of the United States. In the twenty years after the war ended more than 13 million “tract” homes were built in newly developed communities on over 3 million acres of land outside of city centers and older suburban rings. This outward expansion was largely made possible by President Eisenhower signing the Interstate Highway System into law in 1956 which helped connect these new residential communities to the cities where people worked. The new wide availability of the automobile also played a large part in this as the commute to work could not only be done relatively quickly but was also inexpensive. Low interest government loans, continuing on from the Great Depression and given to veterans returning home from war, made the housing affordable as well. The nation was riding on a high of national pride after their success in the war and was also a time of prosperity for the working class after the extraordinary wartime production. The American Dream of owning your own home was now in reach for those of the working class. By 1970, more than 20% of the population was living in this new form of “suburban” housing (Lane, 2015, 4-6).

Three famous suburbs that were developed during the postwar era include Levittown, New York; Park Forest, Illinois; and Willingboro, New Jersey (Dunham-Jones, 2009, 46).

Levittown, New York is credited with being the first large-scale planned communities, was built in 1947 and is considered to be completely built out with 17,500 homes on 4,000 acres. The homes averaged 750 square feet with two bedrooms, were priced at just \$7,000, and made affordable through the Federal Housing Association (FHA) as well as the Veterans’ Affairs (VA). The community also boasted walkable shopping opportunities and its own schools. By 1951, the founder, William Levitt, was credited with successfully producing a model for mass production housing; at its peak, 30 Levittown houses were being constructed each day (Dunham-Jones, 2009, 46-47).

Also built in 1947 was Park Forest, Illinois. The housing type at Park Forest was a bit different from that of Levittown as about one quarter of the housing consisted of rental garden apartments. This community plan was to include a commuter train to get residents to and from the city but was never installed. The leaders of Park Forest focused on the “Greenbelt Approach” and advocated for clusters of low-density housing with shared open spaces, including a forest preserve and large park as opposed to Levitt’s approach of completely building out the land (Dunham-Jones, 2009, 46-49).

Willingboro, New was also designed by Levitt and began in 1958. This community was originally named Levittown but was changed by the residents to set themselves apart. Levitt designed this community differently than the original Levittown, having learned from his mistakes. The houses here were much larger than their predecessors with three or four bedrooms and cost between \$11,500 and \$14,500. Willingboro is now considered to be one of the premier suburbs of Philadelphia (Dunham-Jones, 2009, 46-49).

The homes built in developing neighborhoods like these were much different than the homes built earlier in the 20th century. Typical tract housing was generally much smaller and usually only one or one and one half stories. They were designed and arranged on the site according to the site and were also placed much closer together. From some angles, it may appear as if the homes were connected. The front lawns of these properties were much smaller in order to make room for a larger backyard where the residents would have more privacy and forming a continuous grassy plane in the front (Lane, 2015, 6).

Many formal elements of the “polite floorplan” of the 1920’s were gone and any historical references were eliminated from these new houses. The front entrance to the homes led right into the living rooms with large picture windows which were used to create a connection between the indoors and outdoors instead of a series of porches and foyers separating them. The kitchen was no longer considered a service space and became part of the main living space. Built-in furniture also became popular in the main living spaces. The only separation between the bedrooms and the main living space was a hallway (Lane, 2015, 6-9).

“Houses for a New World” identifies five different types of tract housing: the Levitt “Cape” or Cape Cod Cottage, the Ranch, the Lakewood Houses, the Mature Ranch, and the Split Level. As mentioned above, the houses at Levittown were usually 2 bedroom and about 750 square feet in a simple box shape. Sometimes there was a partial attic that could be renovated into another living space. The Ranch style was seen as a more sophisticated version of the Cape, but the plan was rotated 90 degrees. This was the first style of house built to sell in Levittown while the Cape was used mostly as a rental unit. William Levitt designed this house himself and even built and tore down a prototype several times before deciding on the final plan. The Ranch became extremely popular during the 1950’s. The book also discusses the Lakewood Houses in Los Angeles which were very similar to the Cape. A detached garage was included in many of the original homes but an attached one was added on later by popular demand. The Mature Ranch style deviated from the original style in that it took more of an L shape than the typical box and usually incorporated a two-car garage. This form required a larger lot than its predecessors and commonly had a low sloped gable or ship shaped roof. Different styles depending on location were woven into the Mature Ranch, ranging from a rustic look on the west coast to a bungalow in the Midwest to a more colonial style on the east coast. The Mature Ranch soon became the preferred style of builders and homeowners. The largest of the five types is the Split-Level house. These normally had three levels, including a garage on the ground floor, a half level up to the kitchen and then another half level up to the bedrooms and bathrooms. In this case, the stairways acted as the hallways creating the separation between the public and private spaces. While more focused on the indoors than a connection to the outdoors, the Split Levels became very popular because they allowed for the same amount of space but on a 50% smaller footprint and could fit on a smaller site. These homes worked well on hilly ground with the garage cutting into the hill but because of their popularity, hills were soon formed around the houses to create the look homeowners were looking for (Lane, 2015, 15-18).

Whatever the style, the homes in the postwar neighborhoods are now nearing 75 years old and while the communities have made efforts to update the communities, those efforts have been largely focused at the community scale. While there may be sustainable downfalls to the suburbs, they exist, and short of a corporation buying a large number of homes and completely redeveloping the area, they are here to stay for the foreseeable future. Over 75% of construction in the United States lies in suburbs (Dunham-Jones, 2009, 3) and with the urgency to reduce greenhouse gases, suburbs have become a target for retrofitting. The Levittown Historical Society has reported that all of the homes have been altered in some way, all deviating from the original design (Dunham-Jones, 2009, 47) but this does not necessarily indicate retrofitting or sustainable upgrades.

During an interview, Josh Salinger of Birdsmouth Design-Build said that in most cases of a deep retrofit homeowners will also choose to do an interior renovation at the same time as the home is quite literally already opened up for work. This opportunity would give homeowners the

chance to reconfigure their homes and make them more functional for their lifestyles and abilities as they age.

Many people stay relatively healthy for most of their life but it is no surprise that advanced age is associated with poorer health. From 1900 to 2000, the average age jumped 30 years and the effects of the aging population are expected to be felt most strongly between 2010 and 2030 as those from the postwar Baby Boomer generation age. Advanced medical treatment is allowing people to live longer with chronic conditions and later develop age related conditions (Brawley, 2006,4).

As elderly adults continue to age, it is important for them to retain a sense of control and as AARP reported, most adults over the age of 65 would prefer to stay in their own homes. The NAHB's Aging in Place Remodeling Checklist provides suggestions for how to remodel one's home to make it more accessible, functional, and safe for elderly adults. For those who cannot remain in their own homes and must live in assisted living or nursing care, the type of facility is crucial to their psychological wellbeing. The most common cause of admittance to a nursing care facility is cognitive impairment, incontinence, and a decrease in ability to perform everyday tasks. Traditional nursing care facilities are structured more like an institution than a residence and are focused on medical treatment even though studies have found that elders only receive five minutes of care from a medical professional everyday (Brawley, 2006,4).

A relatively new model of nursing care, The Green House Project, has revolutionized nursing care. This model focuses on keeping residents in a more residential environment and focuses on the everyday care of the elders in addition to medical treatment. Staff are encouraged to engage residents in as many or as few task as they would like (Green House Project)

Addendum - Literature Review

I originally chose the suburbs of the postwar era because this was also known as the era of standardization. Homes in pre-planned neighborhoods were being built with new standardized construction methods and were going up much faster than ever before. I thought a major retrofit of a large portion of the homes in a neighborhood would be convincing under the assumption that most, if not all, of the homes were constructed using the same methods and materials. The idea that many of these developments repeated styles and layouts was supportive of my argument as well.

When my project shifted focus and I was looking at the neighborhood as a whole, I was still able to pull from my postwar research. Through research I learned more about Levittowns and similar residential neighborhoods that had been designed to include shopping, schools, churches and more. These amenities were meant to entice young families and provide all they might need on an everyday basis. It was this concept that gave me the idea to incorporate aging focused services into the neighborhood to support the senior population.

Research on the senior population and nursing care/assisted living models showed that one of the biggest issues seniors have when moving into a facility is the lack of control and independence in their daily activities. Very little of their day is actually spent with medical professionals and a majority of people would rather age at home anyways. Much of my research on the senior population came from AARP, which is also where I learned more about Accessory Dwelling Units. AARP is working on global initiatives to adapt housing to better fit the needs of older adults and to make housing more affordable for those on limited and fixed incomes.

Precedents

This collection of precedents encompasses the topics of Aging in Place in regard to the built environment and retrofitting building envelopes, but each one has its own perspective on the topic it covers. For example, the House of Freedom introduces the idea of Aging in Place whereas The Green House Project addresses the concept of aging and the importance of aging in the most beneficial setting. If the House of Freedom had been better received and supported when it was new, The Green House Project may not have been necessary or seen as such a revolutionary new model in elder care. The Herman Residence is both an example for an Aging in Place remodel and a building retrofit, and it addresses questions of the feasibility of this proposal. The home purchased for this project was much older and larger than the proposed postwar suburban homes in a much denser context. Also addressing feasibility issues is the Rowe Hill Enerphit house in Maine. Initial costs of Passive House strategies can be more expensive than traditional methods but can also be incorporated in phases, allowing owners time to save money in between phases.

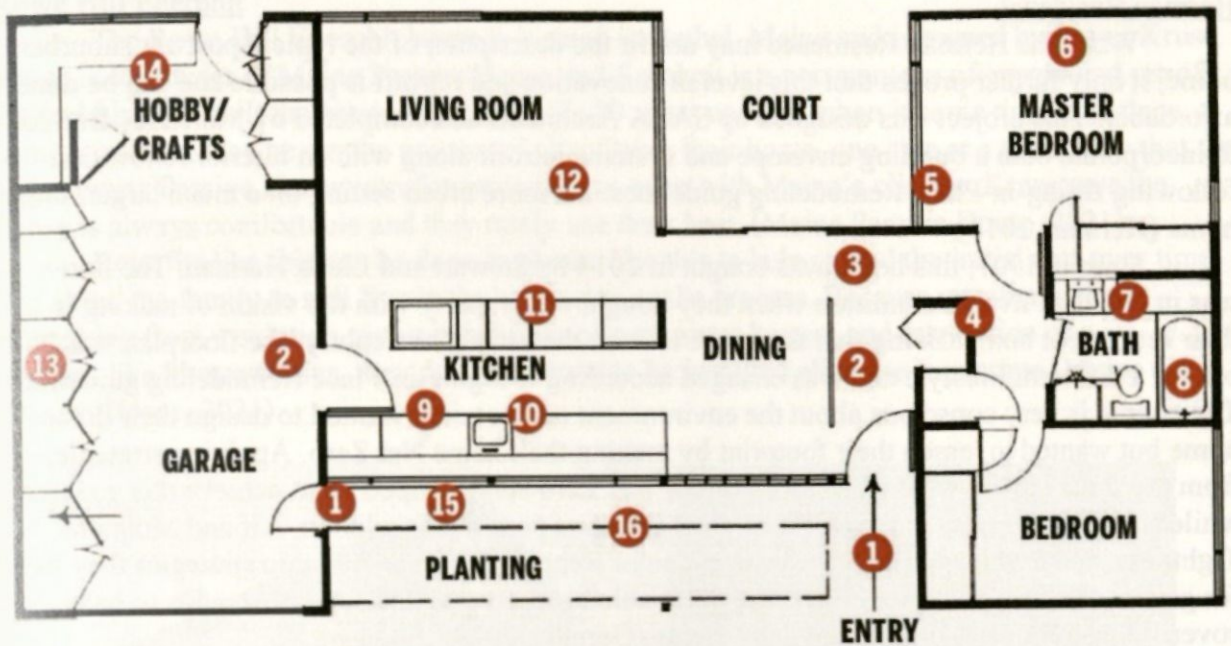
All of these projects are important to the proposed project because they address questions that might arise as the project continues. This project is significant because it addresses the concept of aging people, which has always existed but has been ignored, along with the concept of aging buildings and the need for a sustainable built environment

The House of Freedom

The House of Freedom was an early prototype house for what are now Aging in Place Concepts. In the early 1960's AARP and Douglas Fir Plywood Association sponsored the design and construction of this house as a way to show industry professionals and the government that there was a need for suitable housing for the aging population. The home was a single-story home free of any stairs and boasted features like 3' wide doorways and an open floor plan for increased mobility. Other thoughtful features included non-skid floors, outlet and light switch placement, grab bars and seats in the bathrooms, pull down light fixtures, and lower cabinets and sink. Though this was before the Principles of Universal Design, this project brought the concept of designing for all kinds of people at all stages of life (AARP, House, 2019).

Both the Eisenhower and Kennedy administrations supposedly supported the concept and JFK was invited by the founder of AARP to tour the home (located in Washington D.C.) (AARP, House, 2019).; it is unclear if he ever did but no progress was really made past this one prototype. Official Universal Design Principles were not outlined until 1997.





The Green House Project

Dr. William Thomas began The Green House Project in 2001 with The Robert Wood Johnson Foundation as an attempt to humanize elder care. The first four homes were built in Tupelo, Mississippi in 2003 and today there are over 170 in 27 states housing more than 2,000 elders. This model focuses on the elders' quality of life and aims to promote elder independence as well as dignity and choice. Green Home houses are set up more like a residence than a care facility and do not operate on a fixed schedule because research has shown a connection between personal control and psychological wellbeing of elders. Elders have private bedrooms, can bring their own furniture, and are encouraged to have guests, just as they would in their own homes.

There is no central nurses station like in a traditional care facility, but more like a home office. The traditional elder care model is focused on medical care but in reality, each elder only receives about five minutes of attention from a medical professional. While medical treatment is a primary aspect of living in one of these residences, The Green House Project draws a line between treatment and care, describing care as helping the elder to achieve their highest quality of life (The Green House Project).



Herman Residence

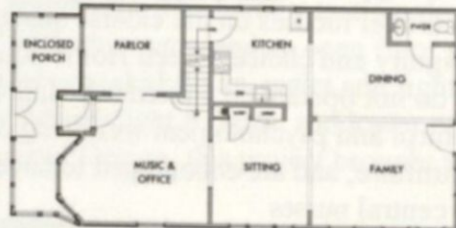
While the Herman Residence may not fit the description of the typical postwar suburban home, it only further proves that this level of renovation and retrofit is possible and can be done affordably. This project was designed by SALA Architects and completed by Morrissey Builder to incorporate both a building envelope and systems retrofit along with an interior renovation following Aging-in-Place Remodeling guidelines in a more urban setting on a much larger, older home (Herman, 2018).

Built in 1907, this home was bought in 2014 by Stewart and Linda Herman. The home was in less than livable condition when they bought the property with the vision of making it their retirement home. Being that the house is from the early 20th century, the floorplan was laid out for a different lifestyle and was changed according to Aging-in-Place Remodeling guidelines. The couple is very conscious about the environment and not only wanted to design their dream home but wanted to lessen their footprint by making their home Net Zero. Applying strategies from the three legs of what Herman calls the “Net Zero stool” helped them achieve this goal while still preserving as much of the original house as possible. Insulation, Air and Moisture Tightness, and Reduced Consumption and Use of Renewables were the main strategies they used for getting their home to Net Zero. They were able to receive government tax credits to help cover the upfront costs of some of the systems (Herman, 2018)

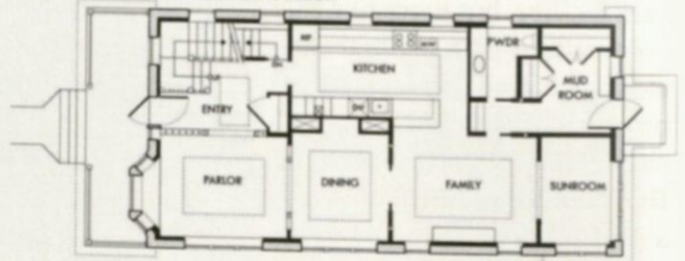
In following the Aging-in-Place Remodeling Guidelines, essentially the entire house was gutted and the floor plan redone to accommodate a wider stairway in case the need for a stairlift would arise. The new floor plan also eliminated any hallways or tight spaces that would make it difficult to maneuver in a wheelchair (Herman 2018).



MAIN FLOOR BEFORE RENOVATION



MAIN FLOOR AFTER RENOVATION



Rowe Hill Enerphit

The Rowe Hill Enerphit house is located in Bethel, Maine and is owned by Jesper Kruse. Kruse is the owner of Maine Passive House and Enerphit is a portmanteau of energy and retrofit. He and his wife built the house approximately 20 years ago and when it came time to replace some windows, they began the process of retrofitting their home, one side at a time. Now that the home meets Passive House retrofit requirements, even with Maine's climate, Kruse says the house is always comfortable and they rarely use their heat (Maine Passive House, 2021).

Retrofits like this can be done in phases like this to help spread the initial cost over time and allow the family to still live in the house during the process. Because retrofits include everything from insulation to the installation of new water heaters and integration of new systems like Photovoltaics, they do not all have to be installed all at the same time (Maine Passive House, 2021).



Addendum - Precedents

While my project scope may have changed and the focus narrowed, the main idea, to help seniors age in place safely and affordably, never did. The precedents included in my original paper were not necessarily precedents for design, but rather as supporting evidence for my reasoning behind pursuing this project.

All but one of these projects involves some version of Universal Design, Aging in Place, or nursing care models. I find these three projects inspiring and see them as validation that safe and accessible housing for seniors has been, and is increasingly becoming, an issue as the population continues to grow older. The project that does not involve any of these concepts was still important to my project because of my use of existing buildings.

If I had known how my project would evolve, I would've looked more into the senior living facilities that had developed in postwar neighborhoods like Levittown. As shopping centers emptied and other amenities closed, buildings were being torn down or adapted for other uses, including nursing care. These facilities had briefly been mentioned in research but were not necessarily part of my focus at the time.

Some later research did involve looking at communities that utilized ADU's as an additional source of housing and some that were solely designed with ADU type housing. These precedents were more situated around the idea of co living and community owned land so while they didn't exactly fit what I had in mind for my site, they also worked with the idea of shared community amenities, similar to my neighborhood intervention.

Looking back at the research I did for this original document, the research I continued to do as the project changed, and the ideas I am still considering now, it is very fair to say that research never ends. There is always some way to continue working on a project like this and while I might take a break for the time being, I look forward to seeing what the residents of Lincoln Village have to say and seeing how the project could evolve from there.

Methodology

In order to stay focused and bring this project to life, several methods for continued research as well as ways in which these methods will be used have been identified. This project does not involve much theoretical research but is very much on an intimate level. With a focus on peoples' homes and lifestyles, much of the research gathered from willing participants may be very personal to them and while it needs to be thorough, it should not be invasive.

After researching postwar suburban neighborhoods and using that information to choose a site, preferably one with a well-documented history including maps and photos, floor plans, and construction information, visiting that site would be the ideal way to gather more information. The site visit would include walking the neighborhood, taking photos, and speaking with as many residents as possible. Talking with residents of different generations and who have been there for different lengths of time would provide a variety of perspectives on the neighborhood itself and maybe even the housing. Information and photos gathered would then be used, along with previous research, to create maps or drawings of the neighborhood in order to truly understand the layout, the relationship within, and its connections to the surrounding area. Comparing maps and diagrams created from the site visit to current maps will be essential to ensuring no important connections are missing. Once the neighborhood is mapped, connections can be made about the built environment regarding the age, type, style, condition, etc. Depending on what information is available on the neighborhood, maps would be made to depict the area before the neighborhood was built, when the neighborhood was new, and the current state.

The results of this step and really the whole process up to now would look much like Richard Misrach and Kate Orff's book titled "Petrochemical America". Visiting the site, taking photos, and interacting with the people would largely mimic the research methods of Misrach while using this information to create maps and diagrams would resemble Orff's method of making and presenting the connections found within the research.

Once the research on the neighborhood and its residents is completed and relationships between homes and the neighborhoods are made, the neighborhood and target homes would be drawn in modeling software. Homes that have been field measured will be built in detail and then run through energy modeling software to show where or how improvements can be made to increase the efficiency. The home would then be redrawn with changes made to the interior following Aging in Place guidelines or to fit a particular narrative and with improvements made to the building envelope. The home would then be run through the energy modeling software again to show how the retrofitted building envelope is more efficient.

Construction information of the original home will hopefully be gathered from library research or from further investigation in the field. For the design process, it would be ideal to connect with a builder who is currently doing retrofit projects to gain perspective from the party who is making this concept a reality. While the job of the architect is to design the project and understand building practices, there is sometimes a disconnect between the design on paper and what is happening on the site. Design decisions for the interior space as well as the building envelope will be based on perspective gathered from resident interviews, research and guidelines, as well as industry professional experience. Working with a builder would also help with the cost analysis as pricing on materials is not always available to those not associated with a real project.

In following this process, the hope is to create a project that appeals to the general public and to produce something that could realistically be achieved.

Addendum - Methodology

As time went on and my project focus changed, so did my research and design methods. Some of the earlier methods were completed before the project changed but were still valuable steps in the process that helped me to better understand my site and ended up being useful later on.

I chose Lincoln Village as my site after doing some site visits and gathering some historical information from the local library. The Lincoln Village Resident Association was very helpful in connecting me with residents who were willing to participate in my interviews and some opened their homes for field measuring. In the interviews, I asked residents questions about their experiences living in Lincoln Village, if they had considered Aging in Place and the logistics of doing so, and their interest in sustainability efforts. Residents shared stories and reminisced as many of the people I interviewed grew up in the neighborhood before buying their own home in the neighborhood. Doing the interviews helped me to connect with the residents and to really take them into consideration when making design decisions. The field measuring was not as pertinent once I shifted my focus but was still helpful in understanding the scale of the homes.

I will admit, there was not as much sketching and diagramming on site as I had hoped but I did conduct quite a bit of site analysis in the fall. This was helpful later on in the project when I did switch to the larger scale because I had already looked at the forms and paths of the neighborhood. Once I decided what I was designing, picking my actual building site was easy as I already knew I wanted to utilize the woods and create a connection with the school.

Energy modeling software was not used for this project. I very quickly discovered that the scope of the original project I had outlined was quite large and cut this aspect when I decided to focus on Aging in Place. Unfortunately, I was also not able to make contact with a builder for this project for the same reason. One year seems like a lot of time to work on a project but in reality, it goes very fast, and I had to accept that I am only one person and can only do so much.

Once I changed my project, I continued doing diagram after diagram trying to figure out how to include existing homes in my design and how I would integrate aging focused services into an existing neighborhood. These two things went hand in hand for a while. I made lists of the amenities I wanted to include and drew paths around the neighborhood to see how I could connect them. I wanted to provide a community space within short walking distance for all residents and once I decided to design a main community space with satellite locations throughout the neighborhood, I was able to pick locations for these by creating an Amenities Distribution Diagram.

The Central Block of my site features this long grassy strip off of the woods which had nothing on it and so, wanting to address affordable housing in some manner, this area became the ADU Strip. In this area, I played with the relationship between the ADU's, the existing homes, and the public space, to find the fine line between giving residents the privacy they needed while still encouraging them to get out of their comfort zone and interact and share spaces with their neighbors.

From the very beginning one of my main goals was to make this project as real as possible. Originally I had wanted to include financial analysis, work with a builder, and use energy modeling but timing just would not allow for all of this to happen. Even without all of this, I still feel as though this project could be real. The logistics behind this type of project may be a little tricky, if something like this was worked out, it would create a whole new form of senior living while using mostly existing buildings.

Contribution and Significance

Postwar suburban single-family homes are nearing 75 years old and because of their age are largely inefficient. This is a prominent source of housing stock and should not be ignored as the inefficiencies will only become worse. Retrofitting these homes for energy efficiency through sustainable strategies would help revive these homes

Older homes can also be more difficult for older people to maneuver; entry stairs, narrow halls and doors, and tight spaces in bathrooms are just a few examples. In making changes to homes, aligning with Aging in Place Guidelines, aging in one's home can become easier and safer for the individual.

Research shows that it is not just older people who want more functional, safer homes and neighborhoods; younger families want the same things (AARP). The homes of the postwar era were revolutionary not just because of the neighborhoods they were in, but also because of their floor plans. They were no longer the "polite floor plan" of the 1920's. Now, 75 years later, we are seeing that these once innovative layouts are not working the way we need them to. But building completely new should not always be the answer.

In renovating and retrofitting existing homes, we are preserving the embodied energy of the homes, an idea discussed in "Ten Shades of Green". Buchanan suggests that architects must be able to work with what is available and new structures are not always a sustainable option. It is possible to make these homes more functional and efficient with renovating and retrofitting.

Addendum - Contribution and Significance

The main goal of my thesis is to bring the concept of Aging in Place to the attention of others and to provide a solution for a common neighborhood typology. Many are not aware that Aging is a formally defined concept with guidelines and that there is assistance and resources available as senior living, and nursing care can be expensive and aren't always the best solution for each situation.

I hope that by working with this concept on the masterplan scale, that I will encourage communities, organizations, and individuals to make a changes in their community to better accommodate the aging population. In this instance, I intentionally use the term "aging population" because I feel that it refers to everyone. We are all getting older, whether we like it or not, and investing in our built environment now will only continue to benefit more people as we age.

Affordable housing for seniors was also one of my project goals and while I may not have focused on this at the level of the individual home, I addressed this through the incorporation of ADU's and the idea of providing seniors with the potential for an additional source of income. This not only financially benefits the homeowner but also provides an affordable form of housing for others and, because of the scale of my design, still respects the suburban scale. I hope that by including ADU's in my design, people will think about their own living situation. Does their property have the potential to support another dwelling? What are they willing to share with others? Or is an ADU a viable housing option for them?

Another aspect of my project may seem a little "Leave it to Beaver" but the idea of knowing your neighbors and looking out for each other can be beneficial for everyone. This concept is one that really came out in the resident interviews, especially with those who grew up in the neighborhood and have continued living there as an adult. Many shared that they used to know their neighbors but as people move and new residents come to the neighborhood that those new relationships aren't forming. Some felt they didn't know their neighbors well or at all and that they didn't know how to meet their neighbors but through the integration of these social spaces into the neighborhood, it would be natural and easy for neighbors to meet.

Along with encouraging interaction between neighbors, I am also promoting interaction between generations and encouraging younger generations to be aware of their older neighbors and the role they play in our world. I addressed this through my narratives in "A Day in the Life" by pairing a child and young adult with residents from older generations. Writing the narratives for "A Day in the Life" brought back many memories of spending time with my grandparents and I think they will do the same for those who read them.

Context

Based on previously mentioned research methods, the site for this project would ideally be located in the state of Ohio or even within the tri-state area of Ohio, Indiana, and Kentucky. Visiting the site and interacting with the residents is essential to understanding typical household and neighborhood dynamics.

In researching postwar suburban neighborhoods, Lincoln Village just outside of Columbus, Ohio is a viable option. The village of Green Hills on the outskirts of Cincinnati, Ohio has been suggested and while the neighborhood began as part of the New Deal, the area continued to expand well into the postwar era. The idea of not selecting an actual neighborhood and designing a new neighborhood around sustainability strategies has also been suggested and would allow for endless possibilities but omit some of the historical research as well as the idea of preservation of embodied energy.

Lincoln Village began in 1955 and is named after its founder, Murray Lincoln. Lincoln was the President of the Ohio Farm Bureau which eventually became Nationwide Insurance. The area consists of 1,270 acres and was designed for 10,000 inhabitants. Amenities such as churches, a school, a civic center, and shopping were included in the original design. Lincoln Village is a good option for this project because it is a true postwar, pre planned neighborhood and will be easily accessible for research. The Lincoln Village Resident Association is very active and is excited to potentially participate in this project and assist with research. Some of the original residents and children who grew up here are still living in the neighborhood and the population is aging. Lincoln Village is also only a few minutes away from downtown Columbus with access to US 40 and I-270. Access to transportation will be important to implement some Aging in Place requirements at the community level as well as sustainable strategies. The average price of detached homes is lower than the possible Cincinnati site and would make this project seem more financially feasible.

Greenhills began under President Franklin Delano Roosevelt and the New Deal, one of three "Greenbelt Towns", as an effort to create jobs for those employed by the WPA (Works Progress Administration), the CCC (Civilian Conservation Corps), and the NYA (National Youth Administration). The need for local building materials also helped stimulate the economy. The requirements for a "Greenbelt Town" included being near a major city for jobs, having village shops, schools, community centers, government offices and a Village Center, and a physical greenbelt of land to use for farming and livestock. The overall goal of building this community was to provide lower income families with affordable housing in a place where their children could play safely outside. Contact has not been made with anyone living here but the area would be accessible to walk and take in the neighborhood. It is much further from downtown Cincinnati and public transportation would be much more difficult to design or incorporate. At first, this site did not seem to be a reasonable choice because it was part of the New Deal and is not a completely pre planned neighborhood as expansion well into the postwar era. The average price of a single family home here is also more expensive and may hurt the financial feasibility of the proposed project.

The idea of not choosing an existing neighborhood and designing a whole "new" suburbia from scratch has also been suggested. In this case, the layout of individual homes and the overall neighborhood would be completely based on Aging in Place and sustainable strategies. For example, the orientation of the homes would be designed to use solar radiation and power more efficiently instead of following curvilinear streets like the existing neighborhoods. The neighborhood could be placed on a site that has previously been developed

but is no longer in use, preventing the need for new utilities and preserving green space. However, this could possibly omit some of the historical research and would potentially ignore the once viable reasoning for the design of these pre planned neighborhoods. Also, part of the argument for this project is the idea of limiting the need to build new and preserve the embodied energy of what buildings we already have. Designing a completely new neighborhood from scratch is tempting but could possibly lead the project down the same road as the developers whom I am attempting to critique.

This project will consist of renovating and retrofitting the homes of a postwar suburban neighborhood for Aging in Place and sustainability. Whatever strategies I employ will be based on the original construction of the individual homes and community master plan as well the existing condition of the homes and the community overall. To keep up with the demand for affordable housing during the postwar era, construction was "Fordized" and the individual homes are expected to primarily be standard light wood construction. Any updates, renovations, or disrepair over the approximately 75 years since these homes have been built may play into the strategies used. As for the community level, the amenities of the surrounding environment will be extremely important in how public transportation and ways to help create or strengthen a sense of community will be designed.

Addendum - Context

Lincoln Village is a Post-World War II suburban development founded by Murray Lincoln in 1953. I chose this neighborhood as my site largely because of its location just outside of Columbus, Ohio. The original development covered over 1,200 acres of farmland and was the perfect location for Lincoln's idea for a "totally independent, completely planned community" because of its proximity to the city and access to rail and highways. Built in several phases, the plans included industry, shopping, a school, a library, and places of worship as well as single family and multifamily housing. Lincoln Village received national attention soon after groundbreaking for being one of the first of its kind and soon became known as a model city.

In building his neighborhood from scratch, Lincoln was hoping to correct the mistakes he had seen other developers make. One of his main priorities was safety. In the residential areas he designed King Sized blocks with wide, curving streets to reduce the number of intersections and houses on corner lots were pulled away from the street for increased visibility. The two residential areas on either side of Route 40, known as Lincoln Village North and Lincoln Village South, are separated from the highway by commercial spaces. This separation also helped to keep the neighborhoods quiet as Route 40 was one of the "most heavily traveled of all transcontinental highways" at the time.

Lincoln wanted this development to be a place "for executives and their employees alike" and included a range of styles of homes. There were several original models and prices ranged from \$9,500 to \$20,000. Lincoln Village North was the first housing phase to be built and includes over 800 single family homes as well as multifamily housing. The homes being built in Lincoln Village were advertised to be fashionable, innovative, and of good quality with the added bonus of having everyday essentials easily accessible in the community.

Through the years, the industries have come and gone along with several other amenities original to the development but today, nearly 70 years later, Lincoln Village is still a popular neighborhood, largely for the same reasons as 70 years ago. Proximity to the city paired with reasonable housing prices for quality built homes helped Lincoln Village win a spot on Realtor.com's list of "The Hottest Zip Codes in America" in 2021. While the identity of the entire original development may have faded over the years, the residents of Lincoln Village are proud of their home and its history.

Program

Programming can be seen as a list of amenities or spaces to be included in a project. With this project, for example, a family might need a home with a kitchen, living space, 3 bedrooms, 2 bathrooms, an office, laundry, and a garage. The function of these rooms depends on how they are arranged in the home and how appliances or furniture are arranged within the space itself. This idea of program and function can also be applied to the scale of a neighborhood, including the homes, businesses, schools, parks, etc. are the program list and their arrangement determines how the neighborhood functions. This project is very much focused on the single-family home and would involve an appropriate program. However, the hope for this project is to reach out into the community and involve more than just nuclear families and individual homes.

AARP largely discussed how Aging in Place not only involves the home but also the community. As adults age, driving is not always safe so having places like grocery stores and pharmacies within walking distance or providing public transportation is essential. Open green spaces and places to gather are also important to build a sense of community and comradery. Creating a sense of community through amenities like these can make the overall community safer and it is important for neighbors to look out for each other, no matter their age. Research has also shown that younger people and families appreciate these amenities as well.

The single-family home was designed and built for just that, one single nuclear family. Statistics show that this nuclear family is not as common as it was during the postwar housing boom and not every family dynamic functions well in this type of home. According to AARP's publication "Making Room", the nuclear family represented 43% of American households in 1950. This percentage has dropped to just 20% by 2018. In order to show how different family dynamics or living arrangements could work in what was a single-family home, several alternative narratives may be included in the project, potentially in addition to the nuclear family. Possible narratives include multiple single young professionals living together or an older couple renting an attached dwelling unit.

Programming in a house is generally the same across the board, especially in lower- and middle-class housing. Many homes have a Master Bedroom with an en suite and another bathroom to serve the extra bedrooms. In the scenario with multiple single young professionals, this is not an ideal situation as someone gets a larger bedroom and the privacy of an ensuite while the others have a smaller bedroom and must share a bathroom.

Zoning laws can also cause issues for those who would like to incorporate an attached dwelling unit. In the scenario with an older couple who would like to have a rental unit for additional income, this would be impossible. With more modern, updated and accommodating zoning codes, a rental property could be an influential source of income for those who may not use their space to the fullest extent.

Currently, these alternative narratives are just suggestions. Once the actual site is determined and the site visit has been completed, narratives may be developed based on the people living there and their neighborhood conditions like zoning laws.

Addendum - Program

The program I had in mind for my project when writing this original document is much different than what I ended up designing with as the program of a single-family home no longer worked for designing on the masterplan scale. While developing relationships and creating connections throughout the community was something I wanted to incorporate, it did not become my focus until later on in the project.

The amenities I chose to include in my program are largely based on amenities offered in senior living and nursing care and aim to promote social interaction among seniors and between generations, physical activity, and healthy living.

Once I began focusing on the community scale, I knew that some sort of space was needed for people to gather and socialize but it also needed to be flexible to accommodate different events and the needs of the community. Community Centers have the same basic amenities but vary from community to community based on users' needs. The Community Center that I designed features space for the necessary administrative services but the main space is the Living and Dining Room. Here, residents can come and share meals and stories, play games, and interact with their neighbors outside of their home.

From the beginning, I knew that some sort of medical service was needed to eliminate the need for residents to have to source their own care, relying on family members, or potentially going without care. In addition to the In Home Healthcare service, where nurses disperse into the neighborhood to tend to residents as they need, I also provided spaces for a visiting physician to hold appointments. Combining these services would give residents the opportunity to get to know those who are providing their care and feel more at ease when receiving it.

I decided to place this part of the program within the main Community Center hoping that it would destigmatize the idea of going to the doctor. Having this service in the Community Center also makes it convenient for residents who utilize the space and eliminates trip outside of the neighborhood.

Programs featured in the satellite locations include a Beauty and Barbershop, a Recreation/Therapy Center, Garden Center, as well as assistance with housing and ADU's and home maintenance. In addition to these services, each satellite location would feature a smaller version of the Living and Dining Room at the main Community Center.

The Beauty and Barbershop serves to help residents maintain their style, beauty routine, and confidence as certain actions become more difficult with age. The Recreation and Therapy Center to encourage seniors to stay active and to really take injury prevention and recovery seriously. A Garden Center has also been included in the program to encourage seniors to get outside and be active. This also provides an opportunity for different generations to come together and make something beautiful. Urban farming is becoming popular, and any food grown here would be used in either the school or the Community Center.

The Housing Assistance Office would assist homeowners with the logistics of the ADU's, such as financing, design and construction, and finding suitable tenants. They would also help those who need to make aging related changes to their homes with finding funding through grants and other resources in addition to the design and construction. The Home and Yard Maintenance Office would serve residents who can no longer maintain their yards on their own or need help with seasonal work like leaf and snow removal. This office would also help residents with general home maintenance tasks like changing lightbulbs and fixing plumbing.

While these services are spread throughout the neighborhood to make services accessible to all residents, the main focus was on the Central Block. Here, the woods behind the school is

used to create a connection between the school and the Community Center to foster interaction between the two groups. By using the woods to connect the school and Community Center and including the Pollinator Prairie, my goal was to provide an educational space for users to learn about and enjoy an environment that they otherwise might not experience living in the city. Programming along the ADU strip includes the playground, basketball court, and soccer field as well as space for a Pollinator Prairie adds to connection and creates a park like atmosphere. There is another park in the neighborhood but there is only small playground and no sports courts or fields and by placing these elements here allows them to be used by the school.

As previously mentioned, ADU's would be placed along this existing grassy strip on the Central Block and their "front yards" would look out onto the new programming mentioned above. Landscaping elements similar to the Pollinator Prairie would be used to help create separation between the ADU's and public space to provide residents with some privacy.

The range of programming and list of amenities may seem a little chaotic, but I feel as though I was able to achieve a cohesive design that further develops the existing connections within the community.

Bibliography

- AARP Livable Communities. "The Center for Aging in Place Website." AARP. Accessed May 15, 2021. <https://www.aarp.org/livable-communities/learn/civic-community/info-12-2012/the-center-for-aging-in-place-website.html>.
- AARP, and National Building Museum. "Making Room: Housing for a Changing America," 2019.
- AARP. "'The House of Freedom' Vision for Aging in Place," 2019. <https://www.aarp.org/livable-communities/housing/info-2018/making-room-looking-back-the-freedom-house.html>.
- AARP. "What Are the Costs of Aging in Place?," 2018. <https://www.aarp.org/money/budgeting-saving/info-2017/costs-of-aging-in-place.html>.
- "Aging-In-Place Remodeling Checklist - NAHB." Accessed May 13, 2021. <https://www.nahb.org/Education-and-Events/Education/Designations/Certified-Aging-in-Place-Specialist-CAPS/Additional-Resources/Aging-In-Place-Remodeling-Checklist>.
- Brawley, Elizabeth C. *Design Innovations for Aging and Alzheimer's : Creating Caring Environments*. J. Wiley, 2006. <https://proxy.lib.miamioh.edu/login?url=https://search.ebscohost.com/login.aspx?direct=true&AuthType=cookie.ip&db=cat00344a&AN=mucap.b4102786&site=eds-live&scope=site>.
- Browner, Seth. "The Post-World War II Suburb in the United States," n.d., 6.
- Buchanan, Peter. *Ten Shades of Green : Architecture and the Natural World*. Architectural League of New York, 2005. <https://proxy.lib.miamioh.edu/login?url=https://search.ebscohost.com/login.aspx?direct=true&AuthType=cookie.ip&db=cat00344a&AN=mucap.b3502129&site=eds-live&scope=site>.

Bureau, US Census. "How Do Households Describe Where They Live?" The United States Census Bureau. Accessed May 13, 2021.

<https://www.census.gov/library/video/2020/how-do-households-describe-where-they-live.html>.

Dunham-Jones, Ellen, and June Williamson. 2009. *Retrofitting Suburbia : Urban Design Solutions for Redesigning Suburbs*. John Wiley & Sons. https://search-ebSCOhost-com.proxy.lib.miamioh.edu/login.aspx?direct=true&AuthType=cookie_ip&db=cat00344a&AN=mucat.b4020417&site=eds-live&scope=site.

"Enerphit: A Traditional Home Turned Passive House — Maine Passive House: Western Maine Green Builder in Bethel." Accessed May 15, 2021.

<https://www.mainepassivehouse.com/rowe-hill-enerphit>.

Gans, Herbert J. *The Levittowners: Ways of Life and Politics in a New Suburban Community*. Alfred A. Knopf, 1967.

Golant, Stephen M. *Aging in the Right Place*. Health Professions Press, 2015.

Health, National Center for Environmental. "CDC - Healthy Places - Healthy Places Terminology," December 11, 2017.

<https://www.cdc.gov/healthyplaces/terminology.htm>.

Herman, Stewart. "Decarbonizing Your Retirement as You 'Age in Place.'" Zero Energy Project, February 21, 2018. <https://zeroenergyproject.org/2018/02/21/decarbonizing-retirement-age-place/>.

Herman, Stewart. "Innovations in a 107-Year-Old Net Positive Victorian Retrofit." Zero Energy Project, March 19, 2018. <https://zeroenergyproject.org/2018/03/19/innovations-107-year-old-net-positive-victorian-retrofit/>.

"History — The Green House Project." Accessed May 13, 2021.

<https://thegreenhouseproject.org/about/history>.

- “How Is PHIUS Different?: Passive House Institute U.S.” Accessed May 15, 2021.
<https://www.phius.org/about-passive-house-institute-us/phi-us-and-passive-building-in-the-united-states>.
- Jackson, Kenneth T. *Crabgrass Frontier: The Suburbanization of the United States*. New York: Oxford University Press, 1985.
- Jacobs, James A. *Detached America: Building Houses in Postwar Suburbia*. University of Virginia Press, 2015.
- Kneifel, Joshua, and Eric O’Rear. *Sustainability Performance of the NIST Net-Zero Energy Residential Test Facility Relative to a Maryland Code-Compliant Design*. [Electronic Resource]. NIST Special Publication: 1187. U.S. Department of Commerce, National Institute of Standards and Technology, 2015.
http://proxy.lib.miamioh.edu/login?url=https://search.ebscohost.com/login.aspx?direct=true&AuthType=cookie_ip_url_uid_cpuid&custid=s9002934&db=cat00344a&AN=mucat_b4435219&site=eds-live&scope=site&profile=eds_cat.
- Lane, Barbara Miller. *Houses for a New World: Builders and Buyers in American Suburbs, 1945-1965*. Princeton University Press, 2015.
- Lawlor, Drue, and Michael A. Thomas. *Residential Design for Aging in Place*. John Wiley & Sons, 2008.
- Luka, Nik. “Building Suburbia: Green Fields and Urban Growth, 1820-2000.” *International Journal of Urban and Regional Research* 29, no. 4 (December 2005): 998–1000.
https://doi.org/10.1111/j.1468-2427.2005.00635_2.x.
- McDonough, William, and Michael Braungart. *Cradle to Cradle: Remaking the Way We Make Things*. North Point Press, 2002.
- Salinger, Josh. Questions for Salinger, Birdsmouth Design-Build, November 20, 2020.
- Sarkar, Mousumi. “How American Homes Vary By the Year They Were Built,” n.d., 7.

“Snapshot.” Accessed May 13, 2021. <https://www.cdc.gov/healthyplaces/terminology.htm>.

“Snapshot.” Accessed May 13, 2021. <https://www.eia.gov/tools/faqs/faq.php?id=86>.

Traynor, James. *Enerphit: A Step-by-Step Guide to Low-Energy Retrofit*. RIBA Publishing, 2019.

“Urban. Suburban. Rural. How Do Households Describe Where They Live? | HUD USER.” Accessed May 13, 2021. <https://www.huduser.gov/portal/pdredge/pdr-edge-frm-asst-sec-080320.html>.

Watson, Donald. *The Energy Design Handbook*. The American Institute of Architects, 1993.

Additional Sources

Another influential source I would like to mention is Lisa M. Cini, an Interior Designer in Columbus, Ohio. With over 20 years of experience, Lisa is considered to be the leading Alzheimer's and long-term care design expert and has made it her mission to "improve quality of life through design".

I was able to meet Lisa at an event where she was going to be speaking about her recent work dealing with Aging and Technology. Little did I know that this event was in a historic mansion that Lisa, as well as several other generations of her family, called home. In her speech, Lisa told us the story behind this house and how she felt called to buy it and turn it into a home for her and her family as well as her parents and her grandmother.

Lisa was inspired by her late grandmother to design for the senior population and has turned her home into a "test home" for aging strategies, materials, and technologies. She has worked with sponsors to have these pieces installed and has opened her home to show people how they work and how they can be applied in a residential setting. Examples range from simple things like textured tiles to help prevent falls, adjustable kitchen surfaces and storage to promote healthy eating habits as mobility changes, and room layout and lighting design to prevent disorientation, all the way to new technologies like Smart Floors that track movement. While it may seem that these topics fall back to the idea of what can be done within the single family home, I could see the community spaces I have designed functioning as test sites, much like Lisa's home does, for seniors to test out different strategies and technologies to see what best fits them and their budget.

Another point that Lisa discussed was the idea of Prevention over Reaction. She talked about professional athletes and the technologies they use to prevent injuries, so if and when they do become injured, recovery time is shorter, and they are able to bounce back easier. Older adults are much like these professional athletes in this sense and staying physically active and mentally stimulated can promote a longer, healthier life. In my project, I address this same issue through encouraging seniors to come out of their home and walk to the different spaces throughout the community. In addition, one of the satellite locations I describe is a Rec Center/Physical Therapy type space so that, in the case of injury, therapy is more accessible and seniors will be more likely to participate.

I did not learn about Lisa and her work until later into the project timeline, but if I were to continue, I would want to read her books and learn more about her work, so that I might implement more of her strategies and technologies into my project.

REGENERATING THE “MODEL CITY”

How can a focus on Aging in Place regenerate the community values of postwar suburbia in the 21st century?



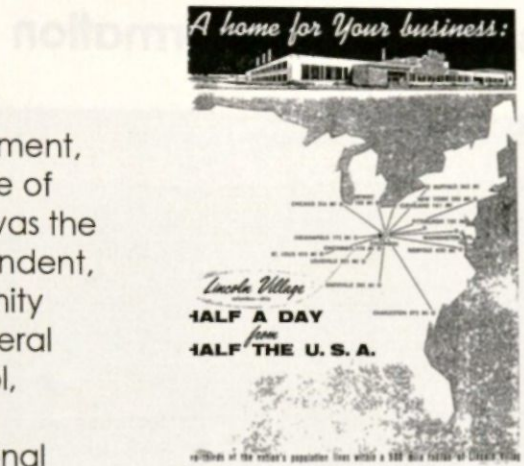
Historical Site Information

Lincoln Village is a Post World War II suburban development, founded by Murray Lincoln in 1953. Located just outside of Columbus, Ohio on over 1,100 acres of farmland, this was the perfect location for Lincoln's idea for a "totally independent, completely planned community" because of its proximity to the city and access to rail and highways. Built in several phases, the plans included industry, shopping, a school, a library, and places of worship as well as single family and multifamily housing. Lincoln Village received national attention soon after groundbreaking for being one of the first communities of its kind and soon became known as a "model city".

In building his neighborhood from scratch, Lincoln was hoping to correct the mistakes he had seen other developers make. One of his main priorities was safety. In the residential areas he designed King Sized blocks with wide, curving streets to reduce the number of intersections and houses on corner lots were pulled away from the street for increased visibility. The two residential areas on either side of Route 40, known as Lincoln Village North and Lincoln Village South, are separated from the highway by commercial spaces. This separation also helped to keep the neighborhoods quiet as Route 40 was one of the "most heavily traveled of all transcontinental highways" at the time.

Lincoln wanted this development to be a place "for executives and their employees alike" and included a range of styles of homes. There were several original models and prices ranged from \$9,500 to \$20,000. Lincoln Village North was the first housing phase to be built and includes over 800 single family homes as well as multi family housing. The homes being built in Lincoln Village were advertised to be fashionable, innovative, and of good quality with the added bonus of having everyday essentials easily accessible within the community.

Through the years, the industries have come and gone along with several other amenities original to the development but today, nearly 70 years later, Lincoln Village is still a popular neighborhood, largely for the same reasons as 70 years ago. Proximity to the city paired with reasonable housing prices for quality built homes helped Lincoln Village win a spot on Realtor.com's list of "The Hottest Zip Codes in America" in 2021. While the identity of the entire original development may have faded over the years, the residents of Lincoln Village are proud of their home and its history.



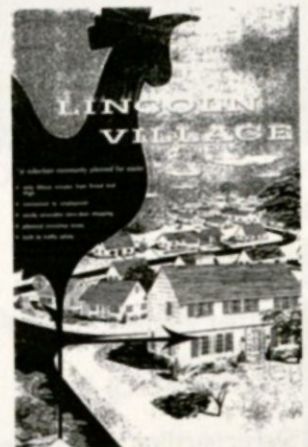
LINCOLN VILLAGE
The Ideal Family
Community



Lincoln Village is a perfect example of a community designed with the young home owner in mind — the growing family still looking for its "dream home."

We feel that at Lincoln Village you'll find a dream come true. We urge you to see and compare the advantages of this planned development with any other.

**COLUMBUS STEEL
SUPPLY CO.**



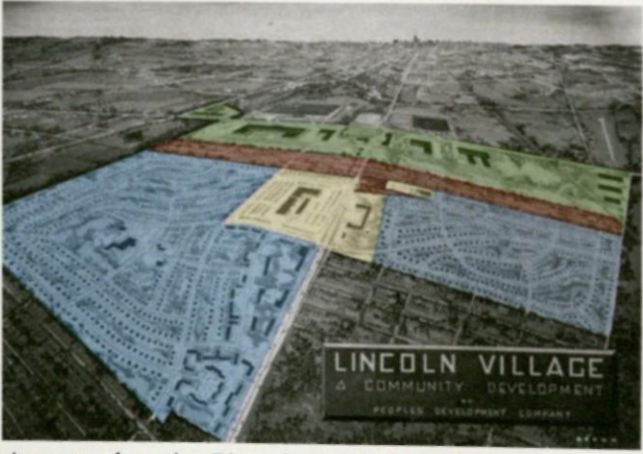
Historical Advertisements,
Westland Area Library

Historical Site Information

Historical Site Information



Aerial Drawing, Lincoln Village Residents' Association Facebook



Approximate Phasing of Original Development

- Industrial Area
- Buffer Zone - Future 270
- Commercial Area
- Residential Neighborhood



Single Family Homes by Year Built, Franklin County Auditor

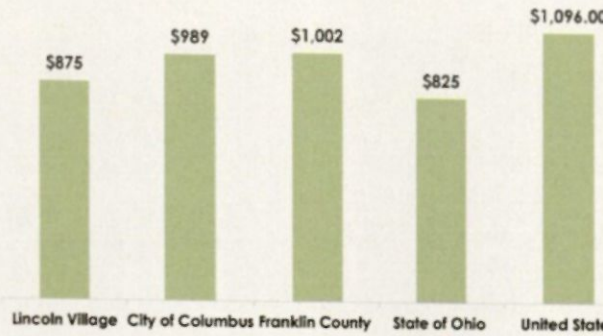
General Demographics

etomil

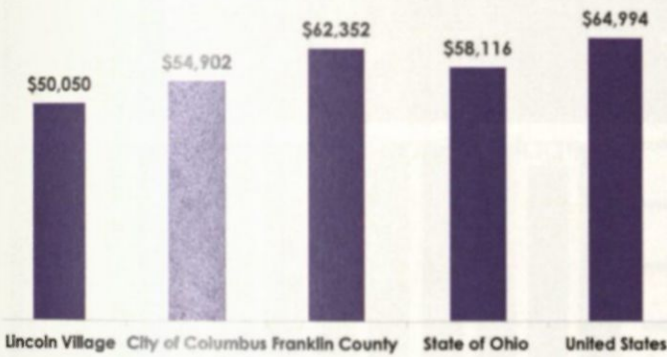
Median Home Values, 2020



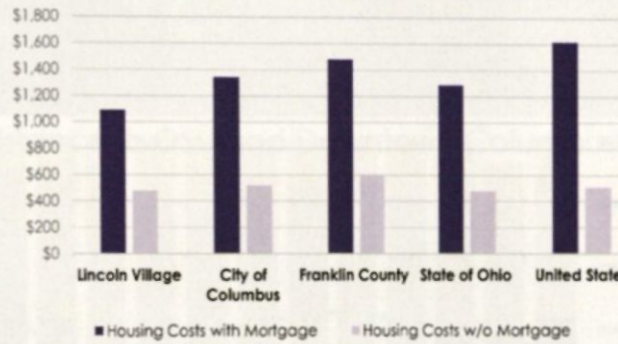
Median Gross Rent, 2020



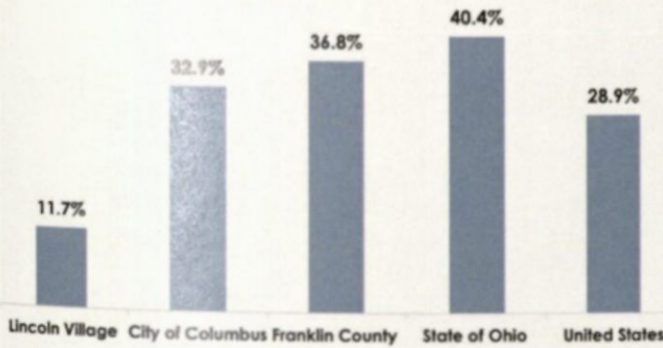
Median Household Income, 2020



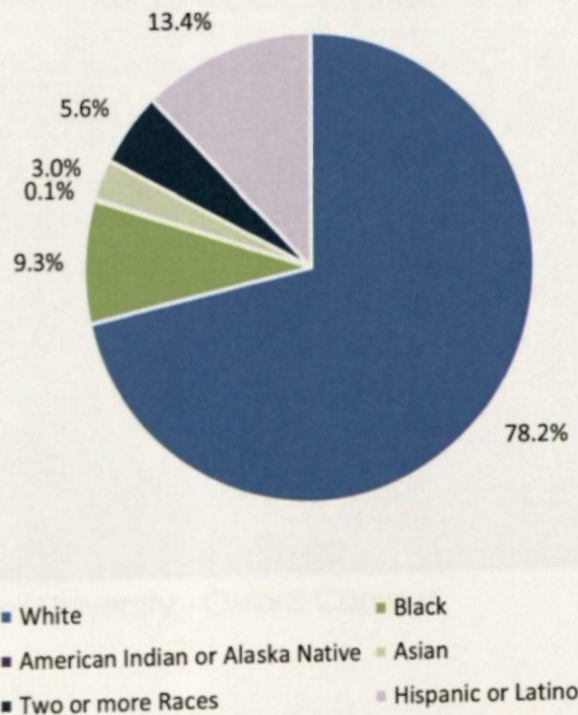
Monthly Housing Costs With vs. Without Mortgage Payments, 2020



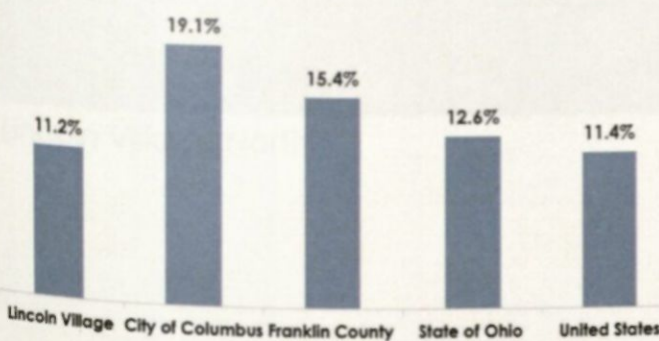
Those with Bachelor's Degree or Higher by 25 years old



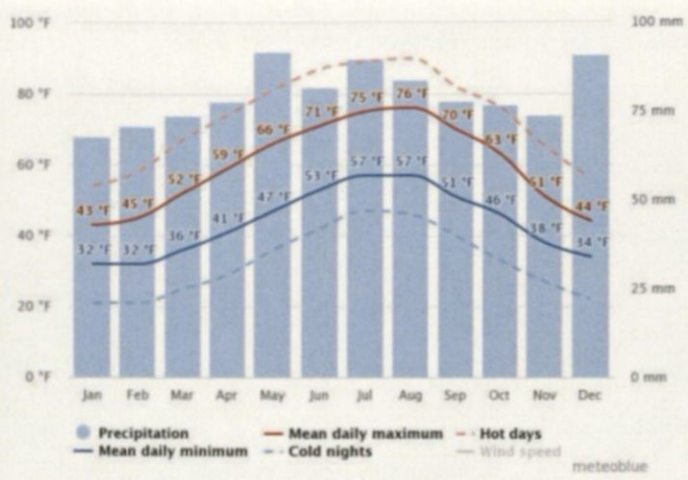
Lincoln Village by Race, 2020



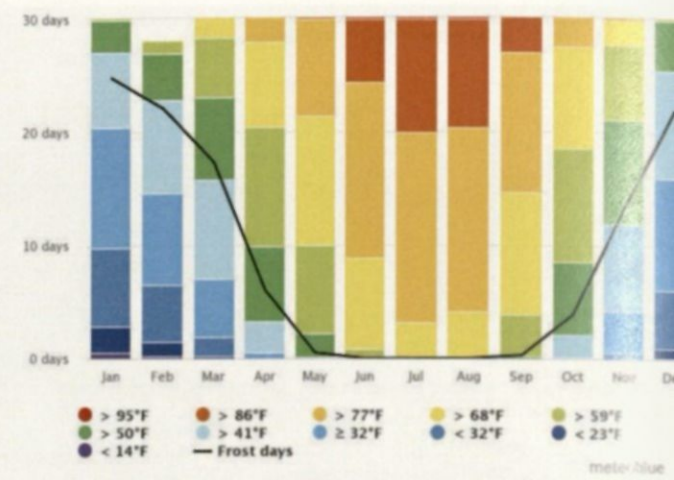
Persons in Poverty, 2020



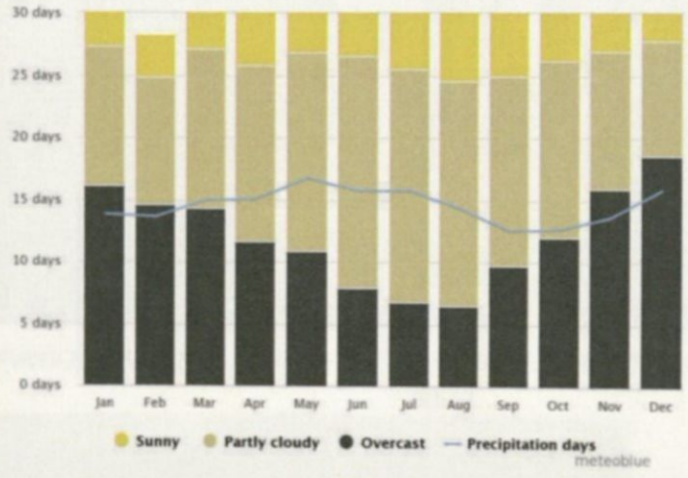
Climate



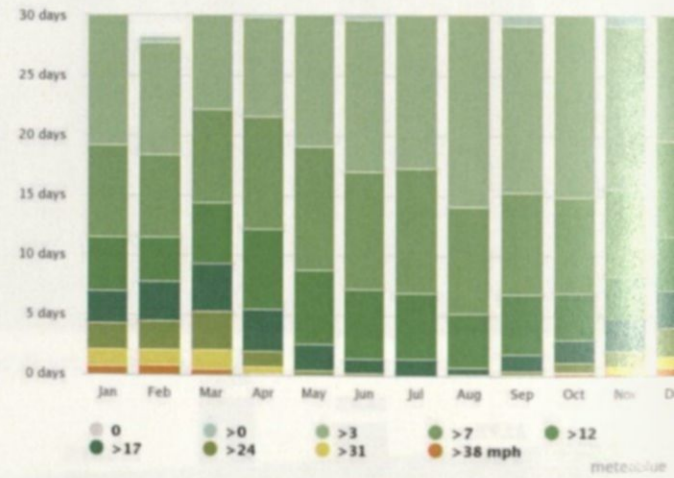
Average Temperatures and Precipitation



Max Temperatures



Cloudy, Sunny, and Precipitation Days



Wind Speed

Site Analysis

Site Analysis



Lincoln Village North in Lincoln Village



Distance to OSU and Downtown Columbus



Lincoln Village North



Miami University - Oxford Campus

Case Cod

Site Analysis

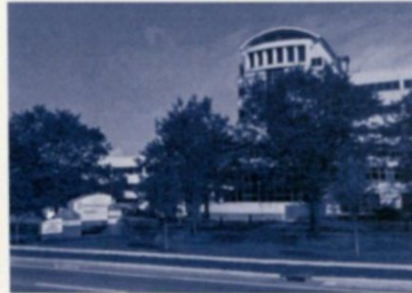
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Lincoln Village North Amenities



Prairie Lincoln Elementary School



Doctors Hospital



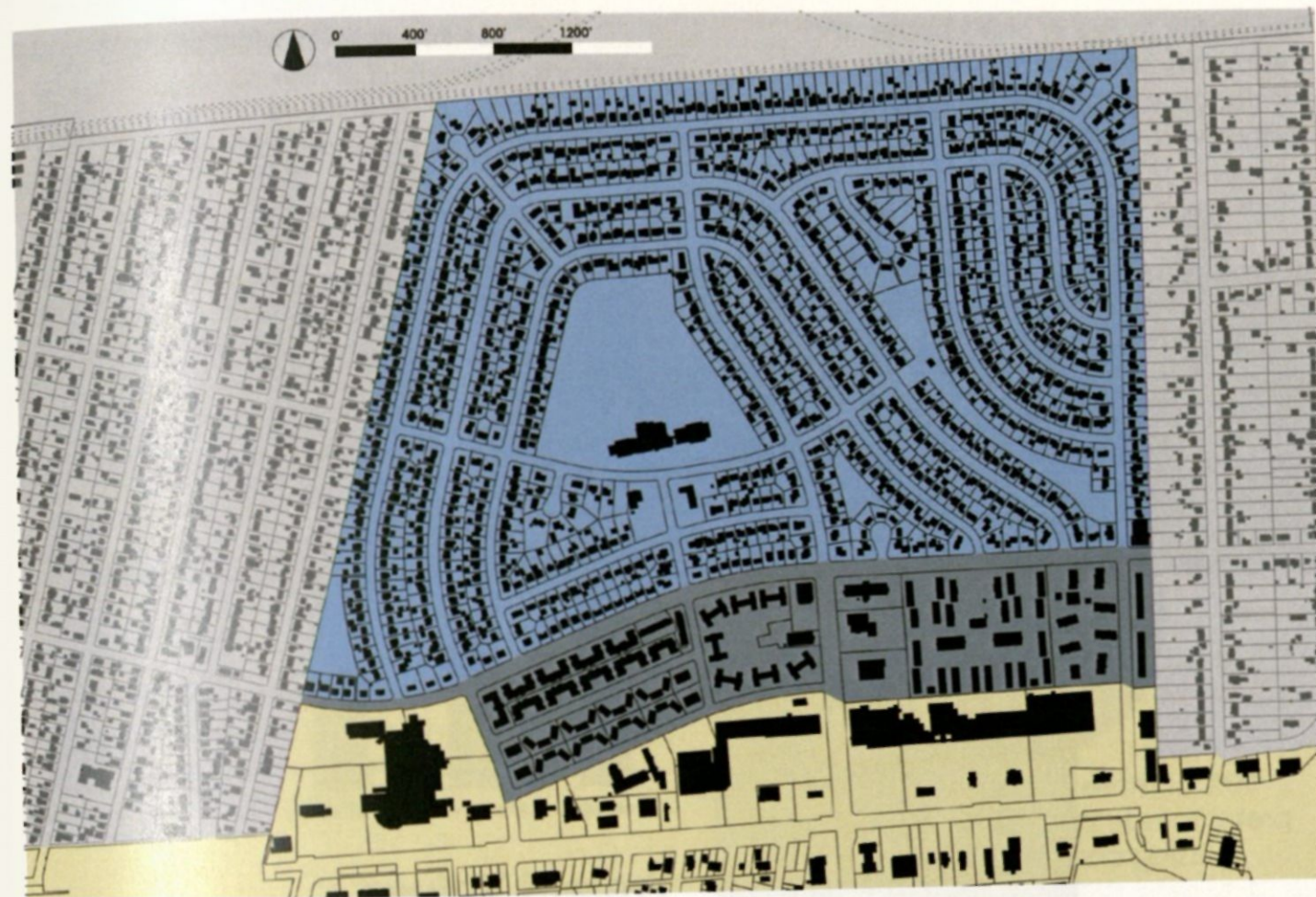
Churches



Grocery Store and Shopping



Westland Area Library



Zoning and Housing Types

- Single Family Homes
- Multi Family Complexes
- Commercial Area



Two Story



Split Level



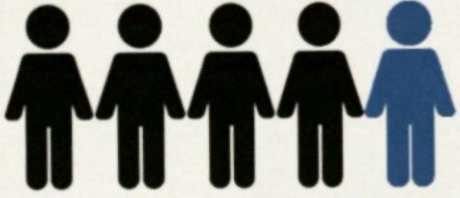
Cape Cod



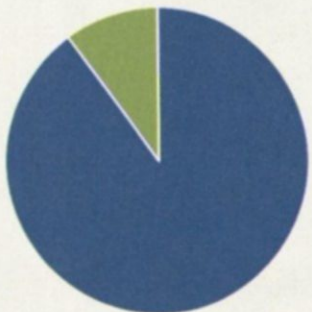
Ranch

Aging in Place

"The ability to live in one's home and community safely, independently, and comfortably, regardless of age, income, or ability level."

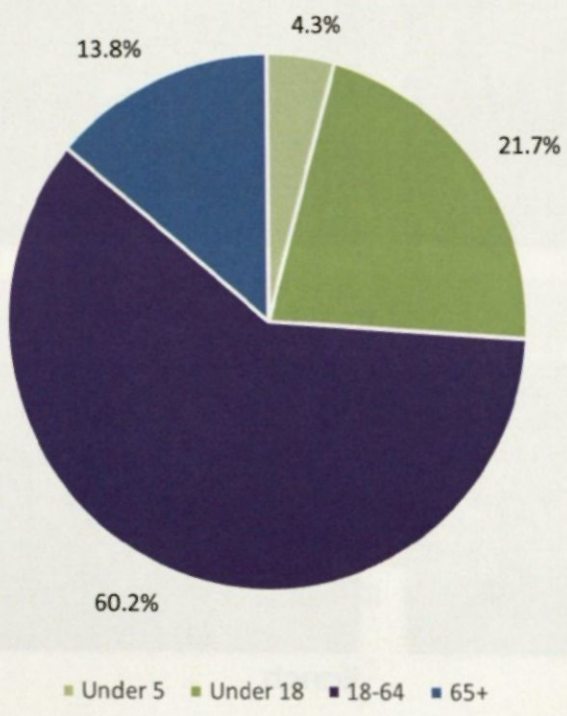


By 2030, 1 in 5 people will be 65 or older

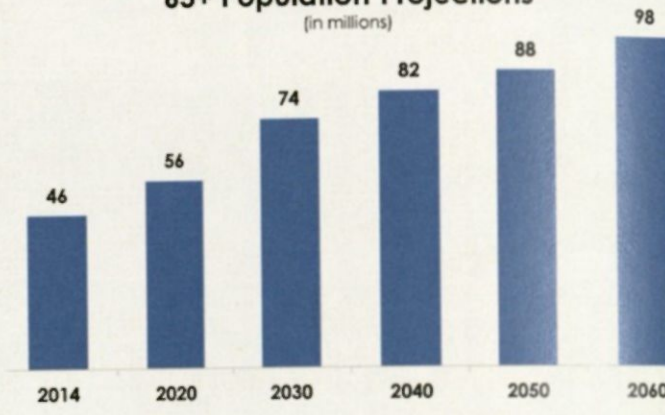


90% of those 65 and older would prefer to age at home as opposed to nursing care or assisted living

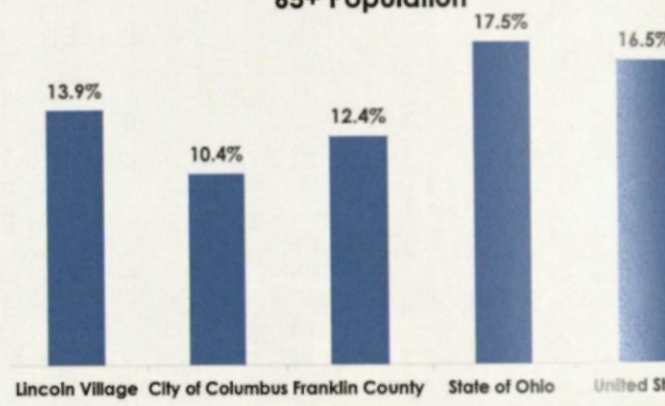
Lincoln Village by Age, 2020



65+ Population Projections (in millions)



65+ Population



Project Values

- Safety
- Accessibility
- Affordability
- Adaptability
- Independence
- Resiliency

Project Goals

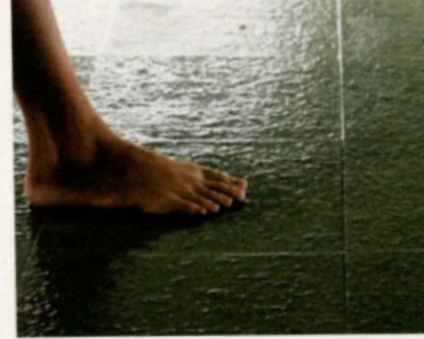
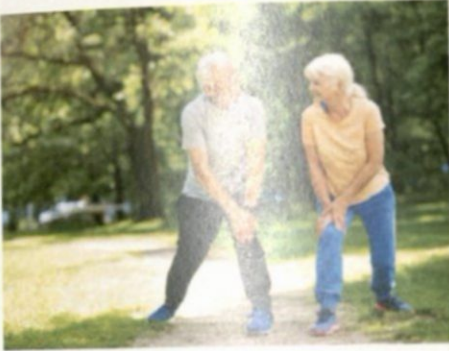
- Help** seniors remain in their homes and communities, safely and affordably, as they age
- Promote** socialization and stimulation for seniors
- Provide** seniors with convenient services within walking distance
- Inspire** individuals and communities to consider the effects the built environment has on the aging population

Aging Friendly Technologies and Design

MOJO

Prevention over Reaction

- Staying active, in both mind and body
- Tracking movement using technology like Smart Floors
- Decreasing falls with textured, non-slip flooring



Kitchen Design

- Installing height adjustable cooking surfaces and wheelchair accessible storage to promote cooking as mobility changes



Bedroom and Bathroom Layout

- Arranging spaces and designing night lighting to prevent disorientation, especially at night
- Including adjustable fixtures that disguise grab bars and safety features to promote "normalcy"
- Incorporating bidets for independence and comfort





Amenities Distribution Diagram

Community Amenities

- Community Involvement
- Intergenerational Interaction
- Medical Attention
- Transportation

Main Community Center:

- Living and Dining Area that doubles as Large Event Space
- Full Commercial Kitchen for Dining In and "Meals on Wheels" program
- Outdoor Patio Space
- Administrative Services and Meeting Rooms
- Doctor's Office and In Home Healthcare Center



Housing Assistance

- Aging Focused Renovations
- Neighborhood Densification and Cost Effective Strategies

Satellite Locations:

All Satellite Locations have Living and Dining Areas in addition to Special Programming

Beauty and Barber Shop

Recreation Center

Garden Center

Housing Assistance Office

Home Maintenance Office



"A Day in the Life"



"A Day in the Life"

Doug and Kate



Doug and Kate moved into the neighborhood in the 70's when they were young and just starting out. Back then, Doug had no problem with the upkeep but now he is having a harder time getting around and doing the yard work. Kate is also having a harder time but they make it through with each other by their sides. They aren't ready to give up their home just yet but have admitted they do need some assistance around the house.

Together they help watch the neighbor girl, Julia, after school on the days when her mom works late at the hospital. She's a handful but they have loved watching her grow up and she helps keep them active.

Path:

1. Taking the shuttle to Doctors Hospital for Doug's doctor appointment.
2. Enjoying lunch and an afternoon of playing cards with another retired couple at the clubhouse.
3. Picking Julia up from school and stopping at the park to play before heading home for dinner and homework.
4. Cleaning up after Julia has gone home and before Nursing Staff arrives for nightly check in.

Julia



Julia is 7 years old and is a 2nd grader at Prairie Lincoln Elementary School. She lives at home with her mom and her many stuffed animals. When she grows up, she wants to be a nurse just like her mom.

Unfortunately, her mom works long hours at Doctors Hospital and isn't able to pick her up from school everyday. On the days her mom can't pick her up, Doug and Kate fill in. She loves spending time with them because they get to do things like bake cookies and dance to funny old music.

Path:

1. Walking to school from her house with her friends and waving Doug and Kate who are waiting for the shuttle.
2. Spending science class outside in the woods behind the school learning about ecosystems.
3. Playing at the park after school on the way back to Doug and Kate's house for dinner and homework time.
4. Heading home with her mom to take a bath and read stories before bedtime.

"A Day in the Life"

Rose



Rose has lived on her own since her husband Norm passed away a few years ago. Since his passing, Rose has become lonely and has had trouble affording her home and other bills. She is a long time resident and remembers the days when there were different social groups within the neighborhood and when everyone knew their neighbors.

Thanks to the Lincoln Village Housing Assistance Program, she was able to build an apartment in her backyard and is renting to a nice young man Ben. He has been great company for her and having the ADU helps make ends meet.

Path:

1. Working in her garden in the morning and waving to Ben as he leaves for work.
2. Meeting a group of women at the Gardening Clubhouse to discuss a new project for the park.
3. Walking to the library and grocery store and taking the shuttle back home instead of walking with all of her groceries.
4. Making dinner in time for Ben to come home for their weekly dinner.

Ben



Ben is a recent graduate from the Ohio State University and works downtown. He tried to get an apartment within walking distance to work but, with his student debt, he couldn't afford downtown rent.

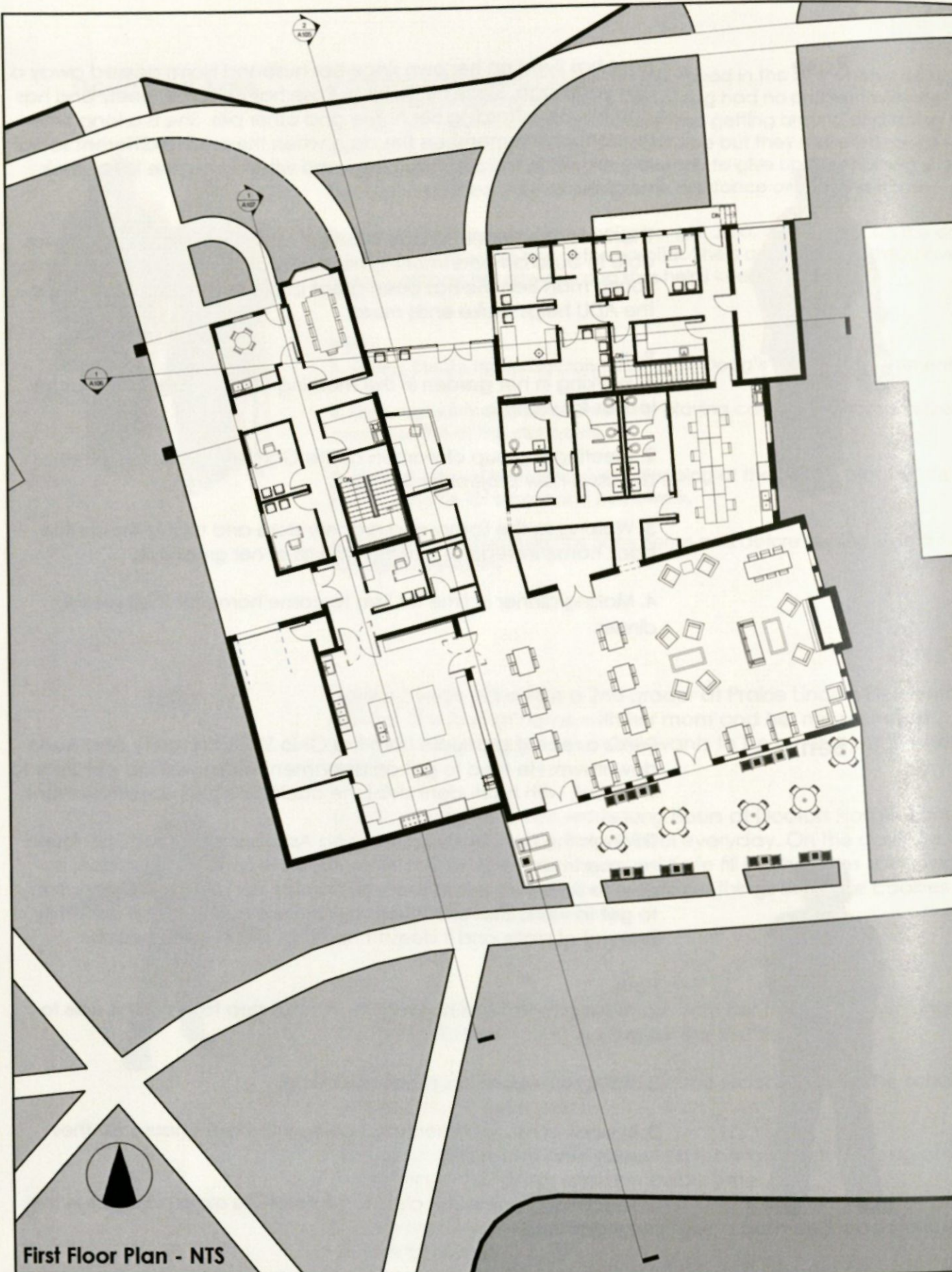
Through the Lincoln Village Housing Assistance program, he found an apartment that he rents from Rose. He has his own space, is able to save for his future, and is able to use public transportation to get to work. Ben also loves having Rose nearby since his family lives out of state and it doesn't hurt that she's a good cook.

Path

1. Waving to Rose as he walks to the bus stop to catch his ride to work.
2. Riding the same bus home after work.
3. Bypassing his apartment and going into Rose's house for their weekly dinner together.
4. Teaching a computer class to some of the older residents in the neighborhood.

Community Center

"A Day in the Life"

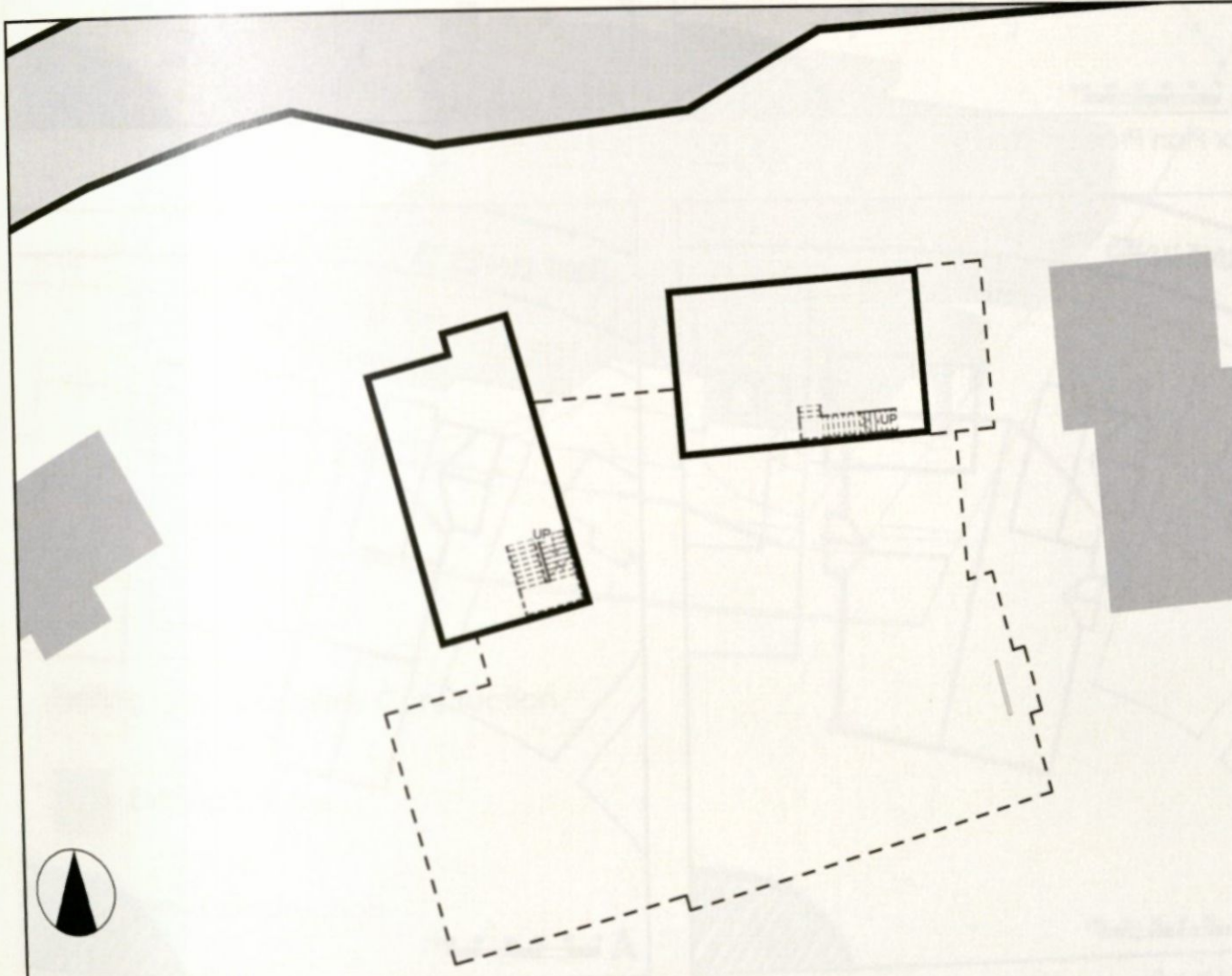


First Floor Plan - NTS

Community Center

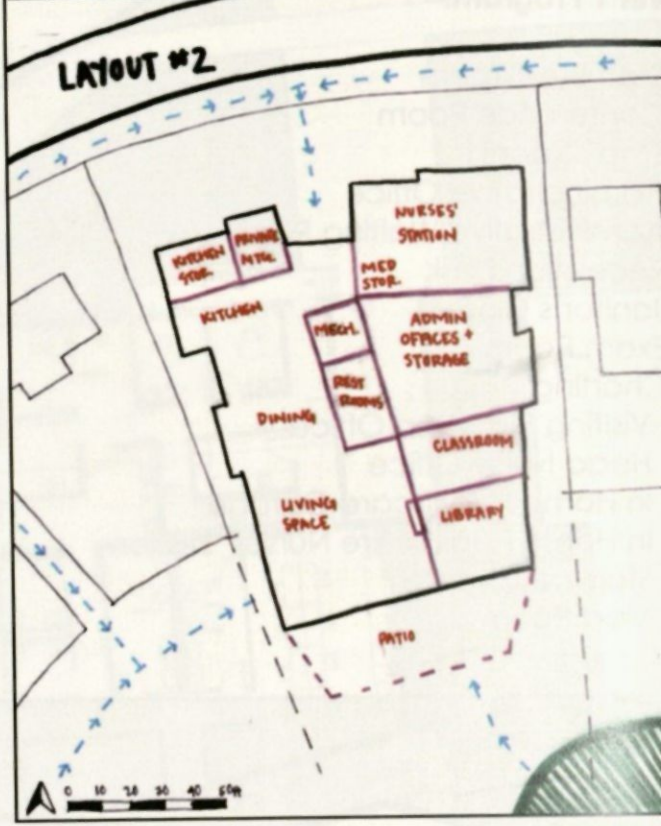
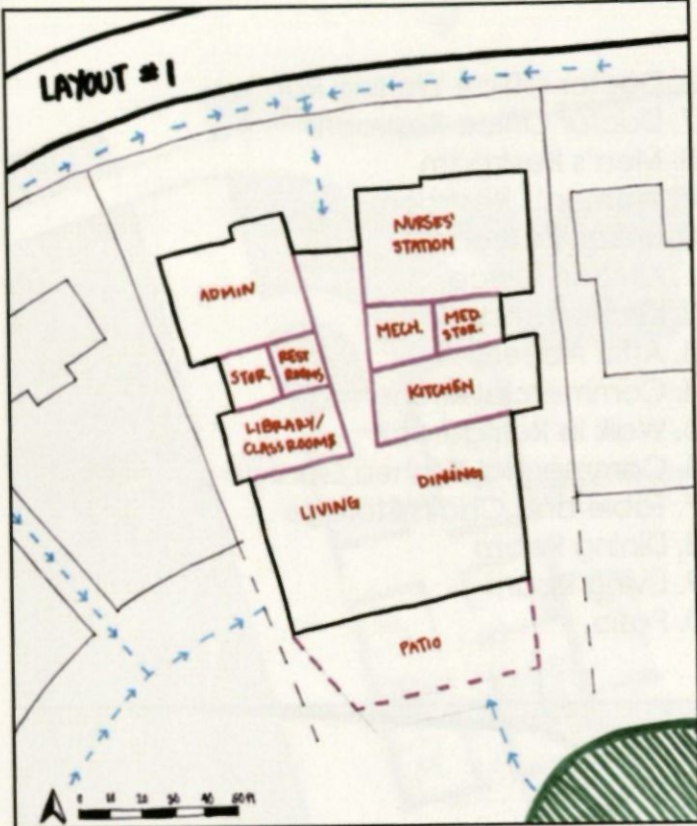
Level 1 Program:

- 1. Staff Breakroom
- 2. Conference Room
- 3. Copy Room
- 4. Administrative Office
- 5. Administrative Waiting Room
- 6. Reception Desk
- 7. Janitor's Closet
- 8. Exam Room
- 9. Charting
- 10. Visiting Physician Office
- 11. Head Nurse Office
- 12. In Home Healthcare Garage
- 13. In Home Healthcare Nurses' Station
- 14. Storage Closet
- 15. Med Room
- 16. Doctor Office Waiting Room
- 17. Doctor Office Restroom
- 18. Men's Restroom
- 19. Women's Restroom
- 20. Unisex Restroom
- 21. Kitchen Office
- 22. Kitchen Restroom
- 23. Attic Access
- 24. Commercial Kitchen
- 25. Walk In Refrigerator
- 26. Commercial Kitchen Garage
- 27. Table and Chairs Storage
- 28. Dining Room
- 29. Living Room
- 30. Patio

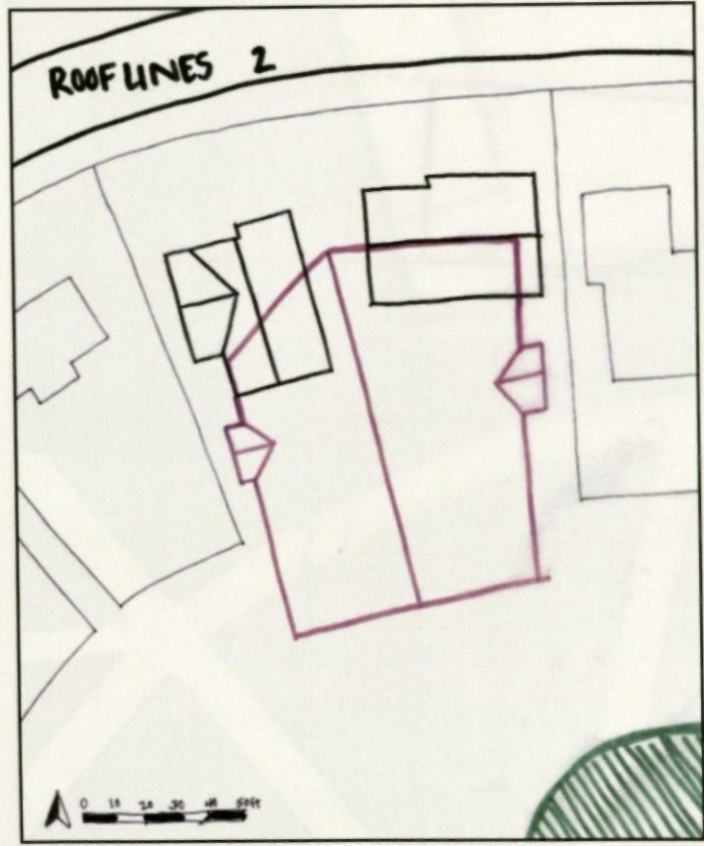


Basement Floor Plan - NTS

Community Center



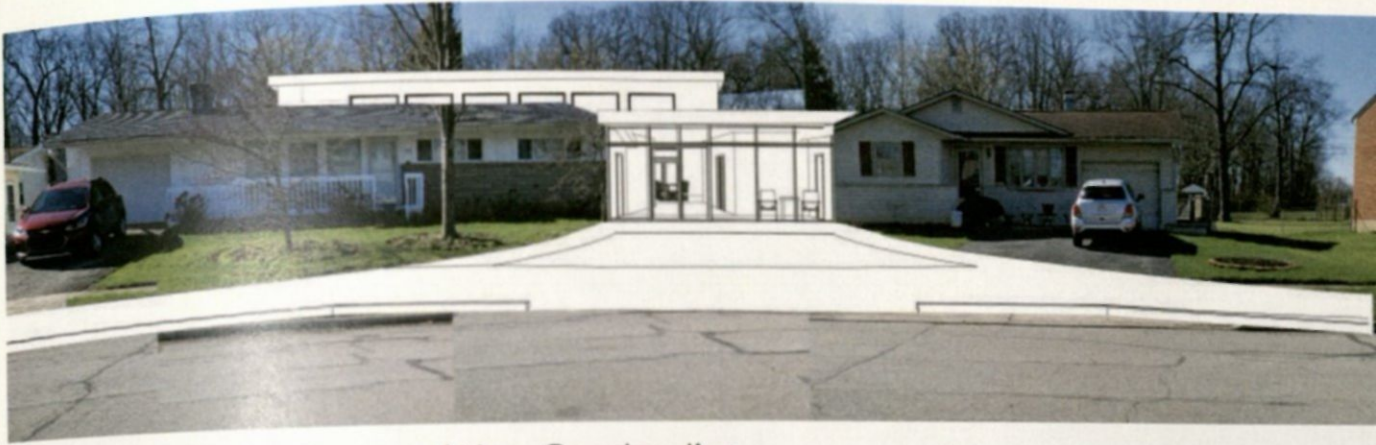
Floor Plan Process Work



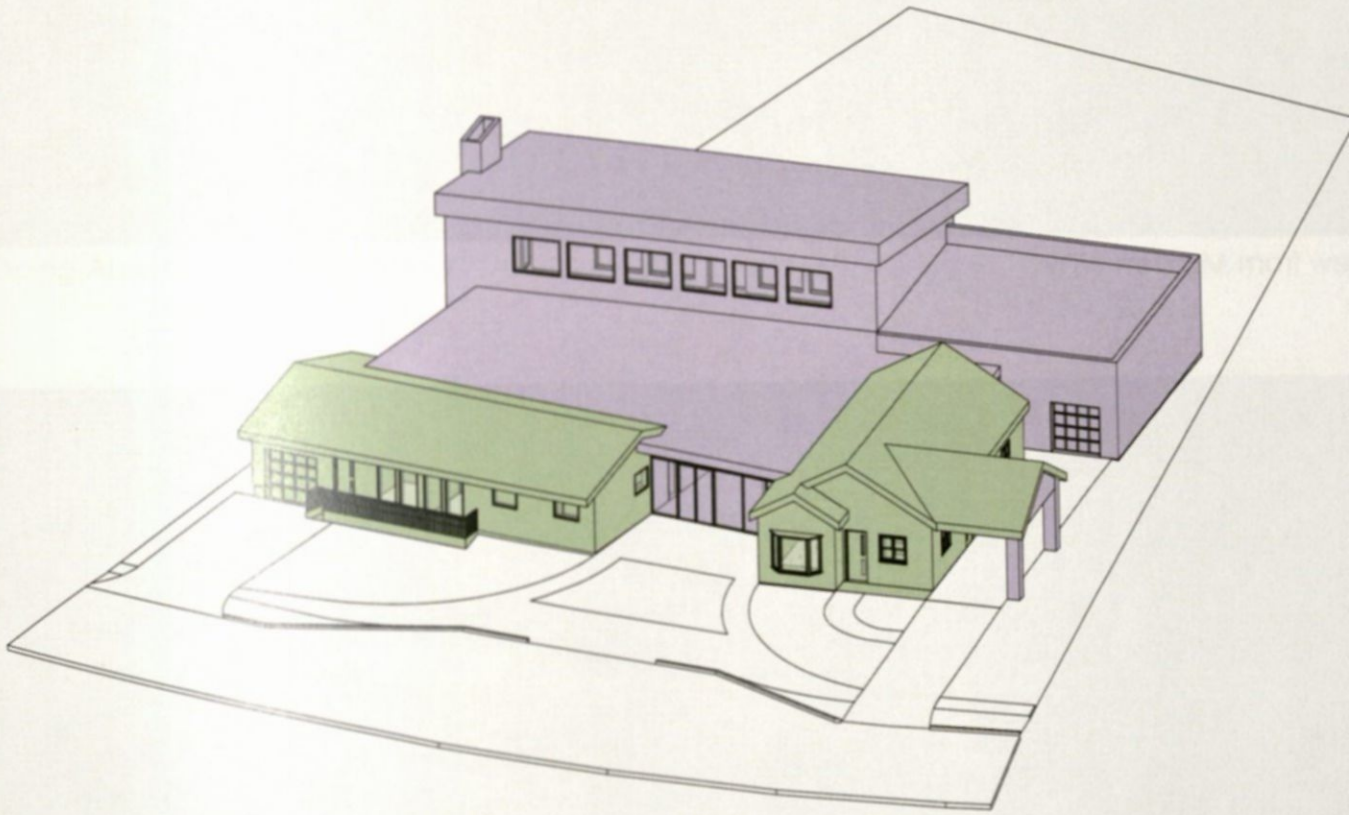
Roof Line Process Work

Community Center

Community Center



Existing Homes with Proposed New Construction



Existing Homes vs. New Construction



Existing Homes



New Construction

Community Center

Community Center

Community Center



View from Malden Way



Community Center Patio

Community Center

Community Center



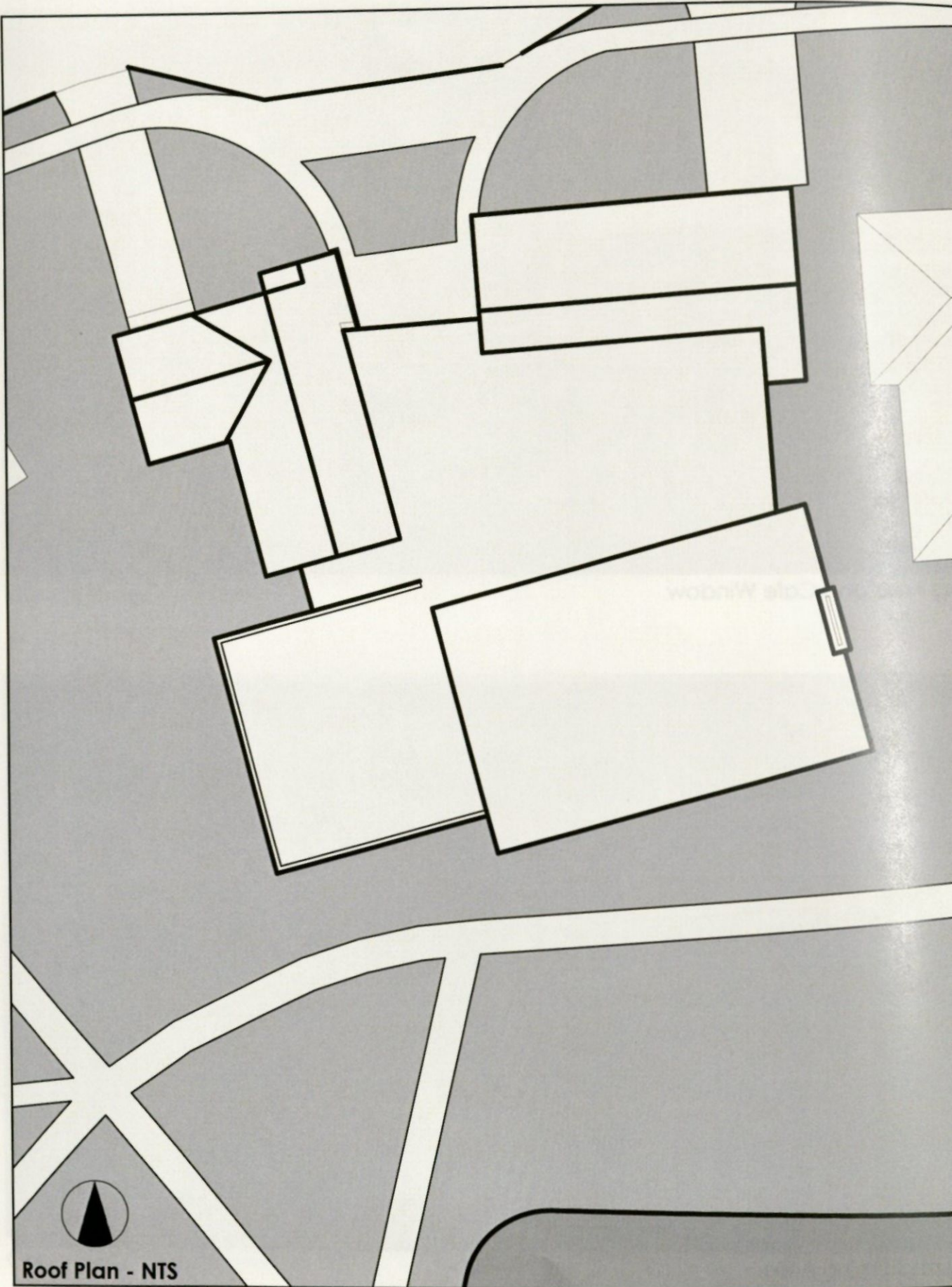
Dining Area and Cafe Window



Living and Dining Area

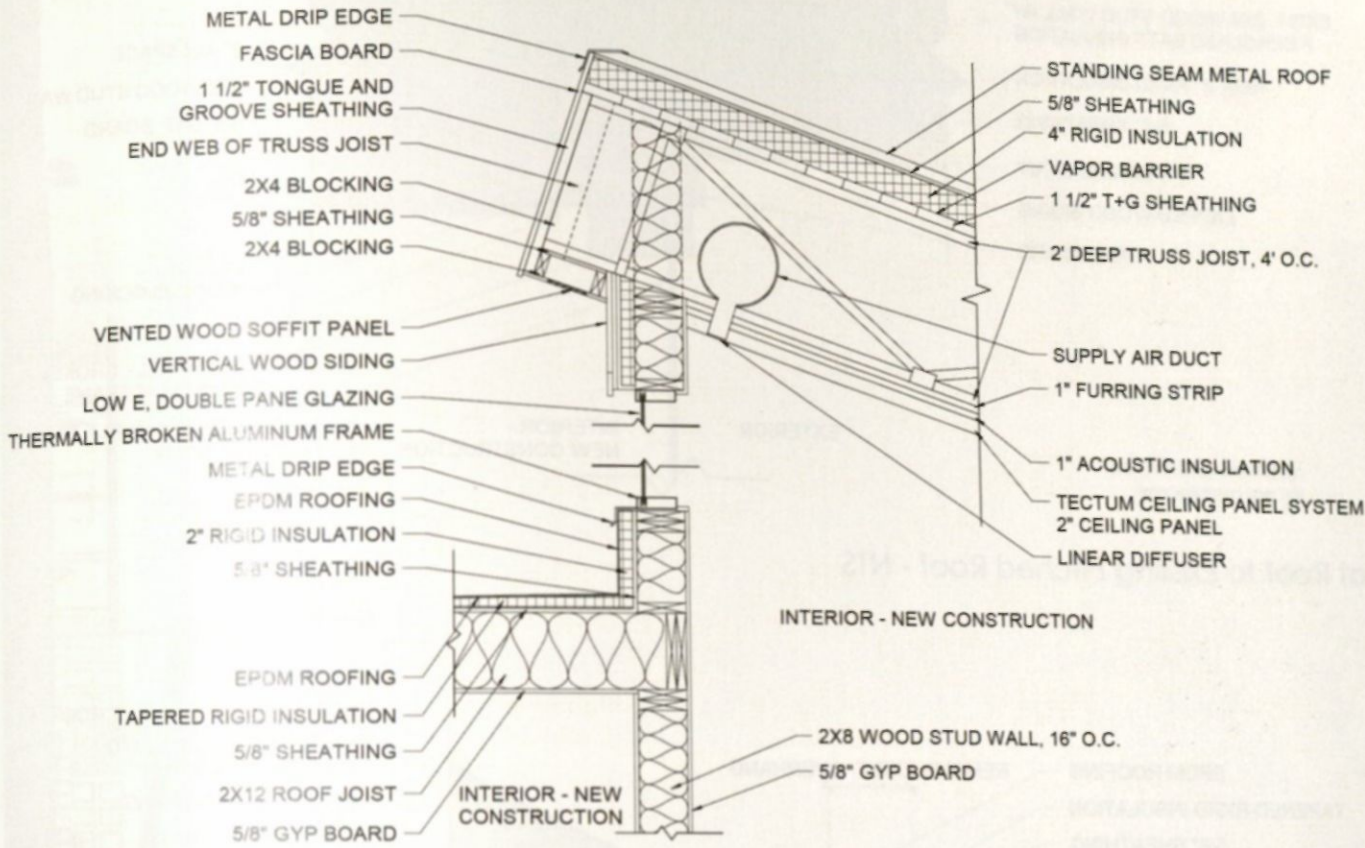
Community Center

Community Center



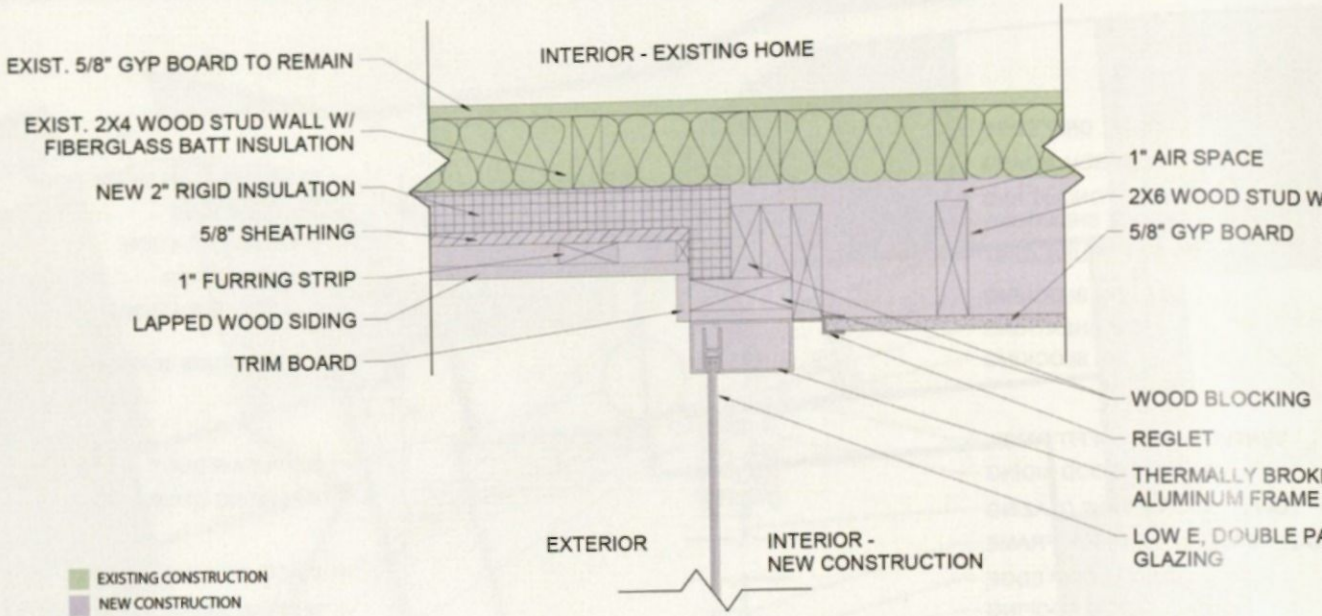
Roof Plan - NTS

Community Center

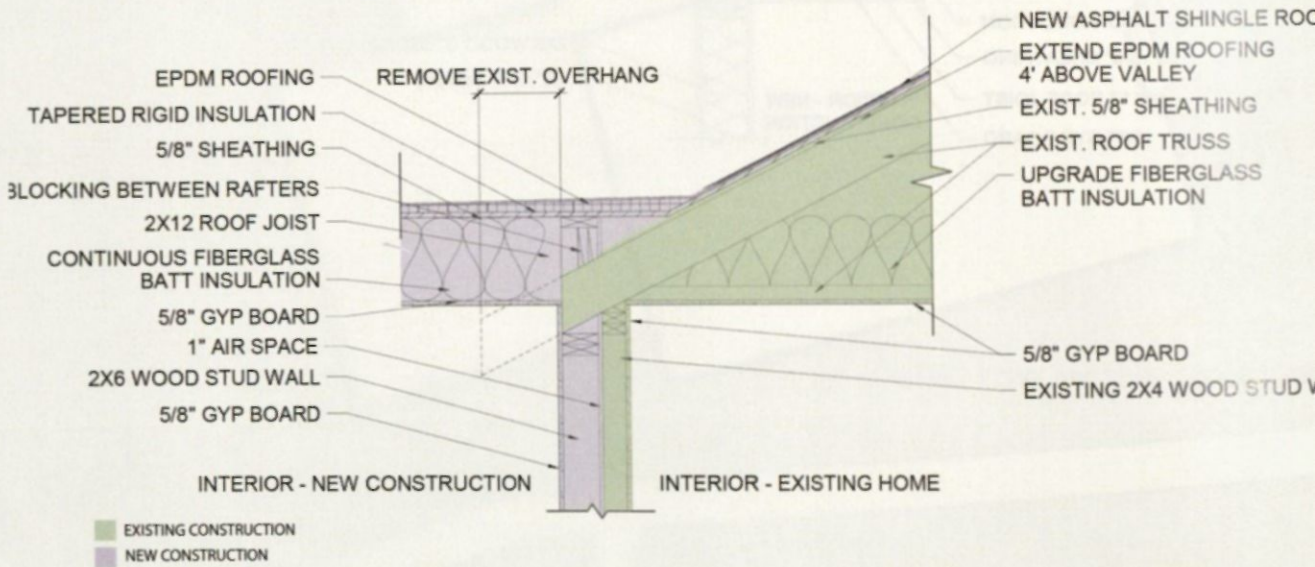


Flat Roof to Clerestory Wall - NTS

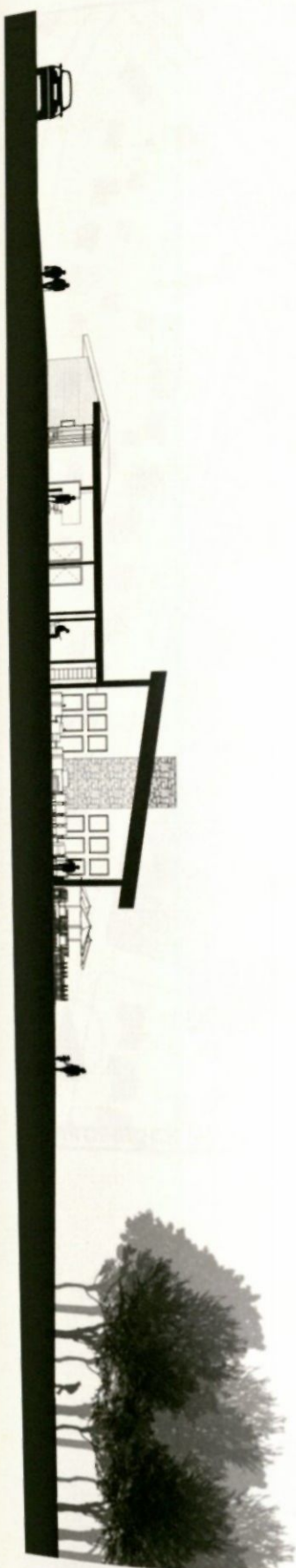
Community Center



Flat Roof to Existing Pitched Roof - NTS

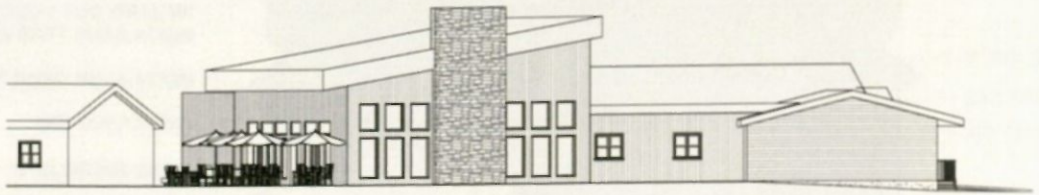


Storefront Plan Detail - NTS

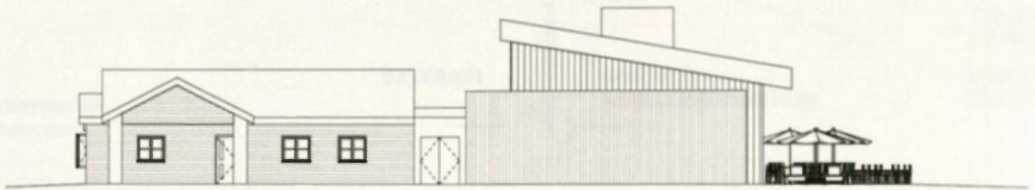


Section 1: Street to Woods - NTS

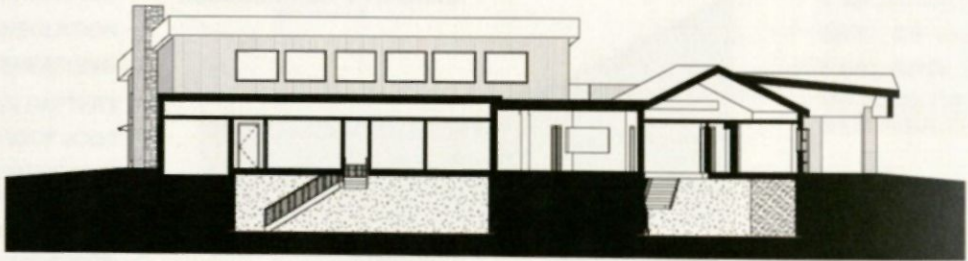
Community Center



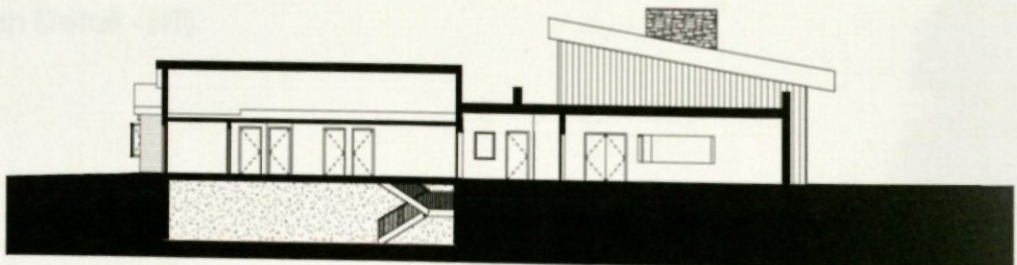
East Elevation - NTS



West Elevation @ 1/8"=1'

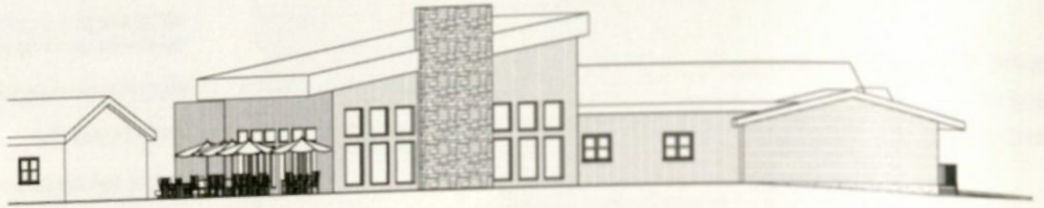


Section 2: Existing House to Existing House - NTS

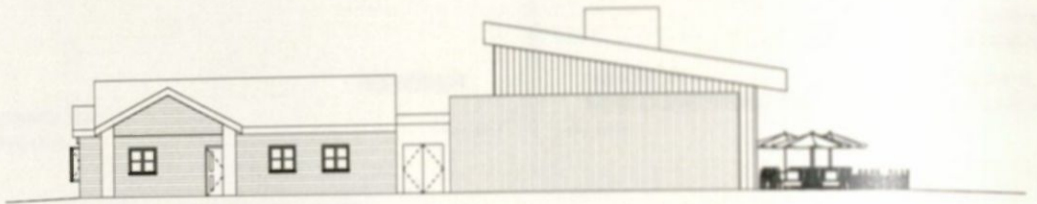


Section 3: Existing House to Commercial Kitchen - NTS

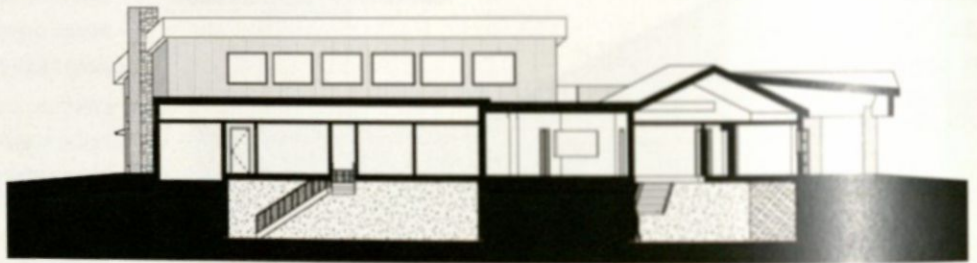
Community Center



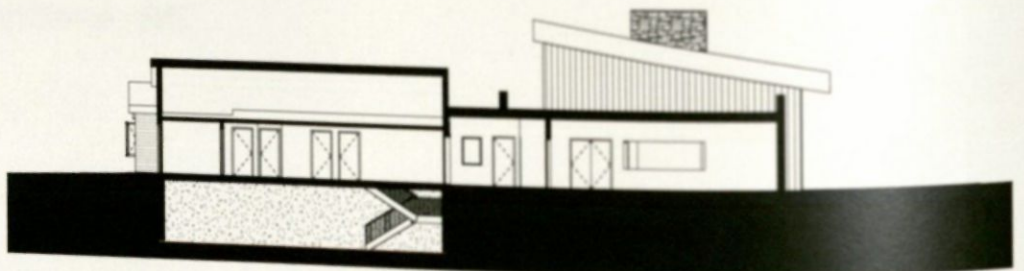
East Elevation - NTS



West Elevation @ 1/8"=1'



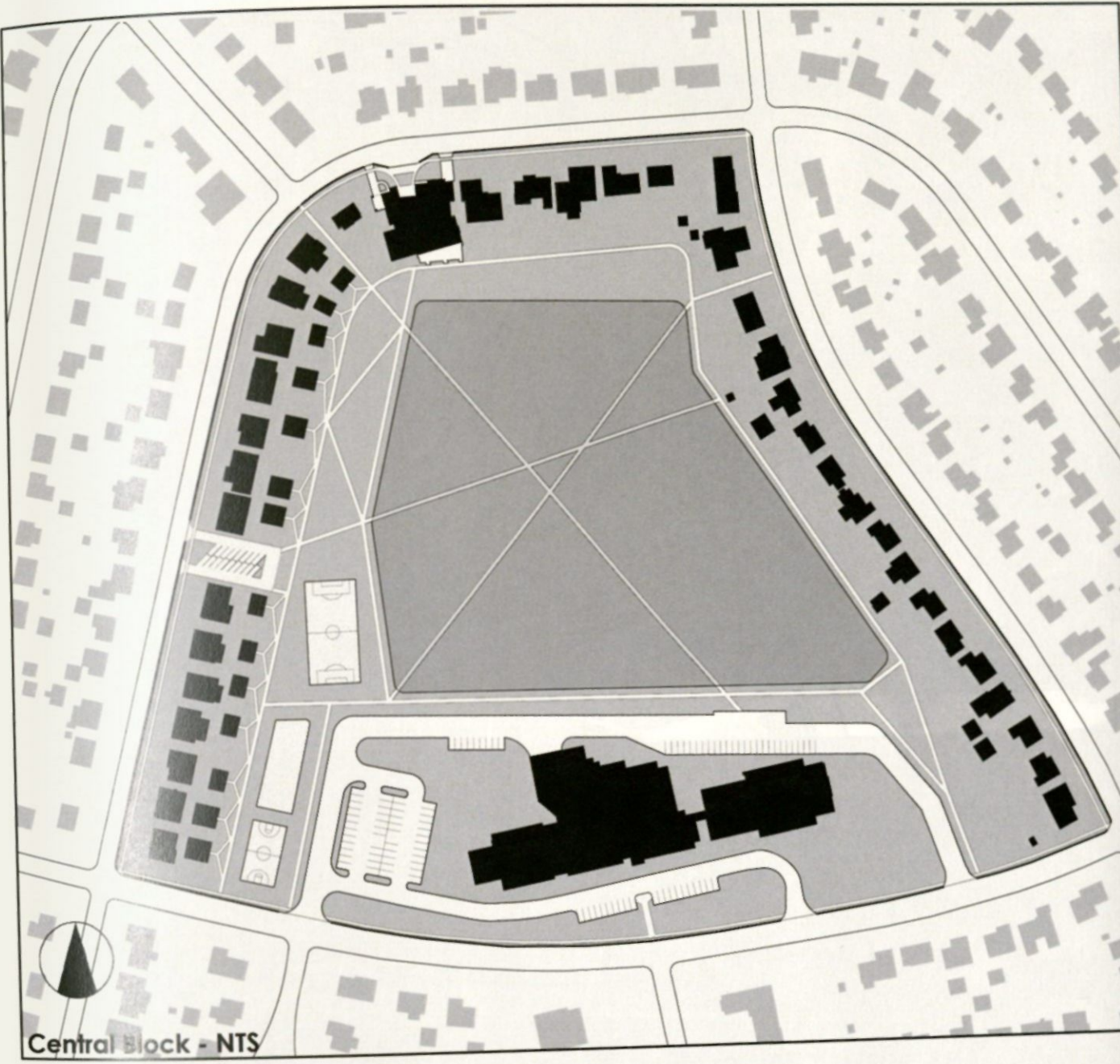
Section 2: Existing House to Existing House - NTS



Section 3: Existing House to Commercial Kitchen - NTS

Accessory Dwelling Units

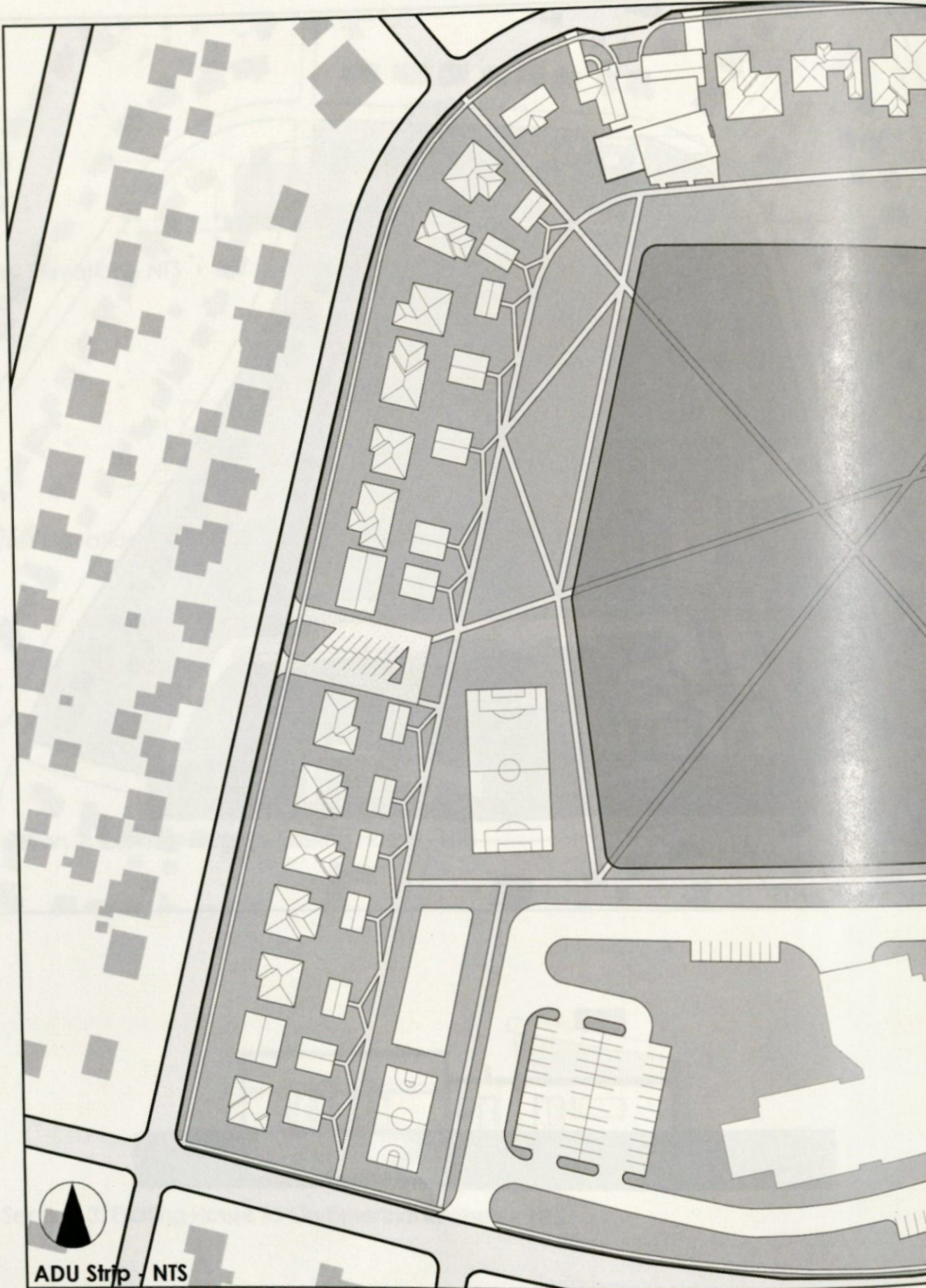
Accessory Dwelling Units



Central Block - NTS

Accessory Dwelling Units

Accessory Dwelling Units

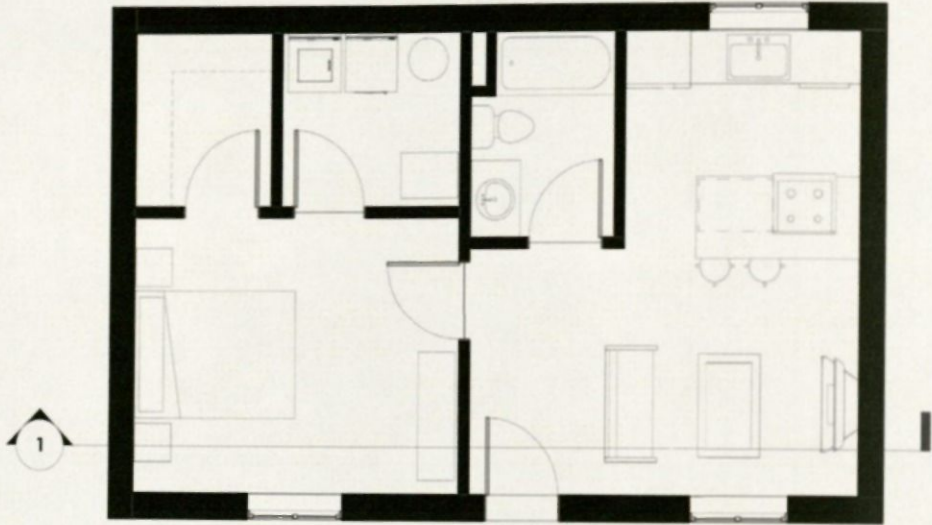


ADU Strip - NTS

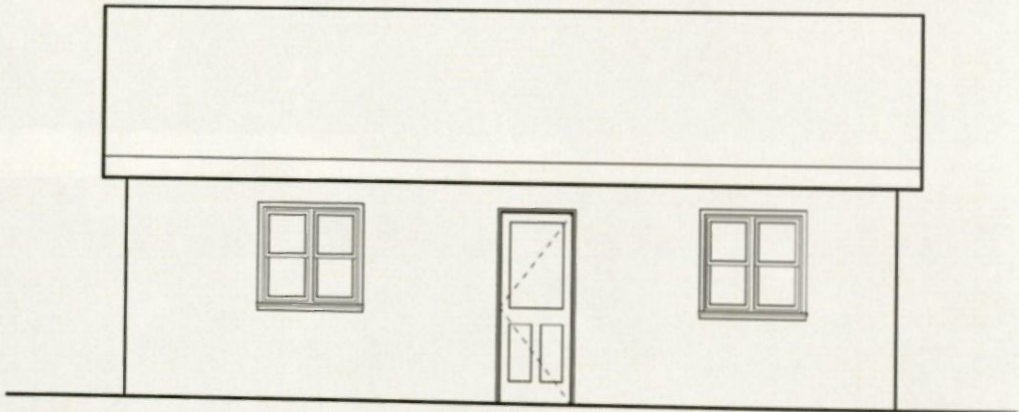
Photos of Existing Site



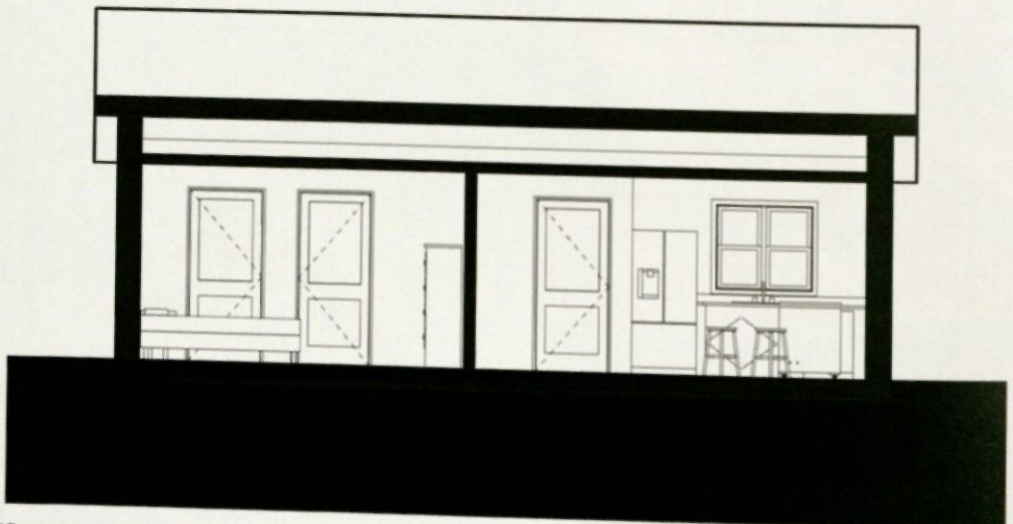
Accessory Dwelling Units



1 Bedroom ADU - NTS
32' x 20' = 640 SF

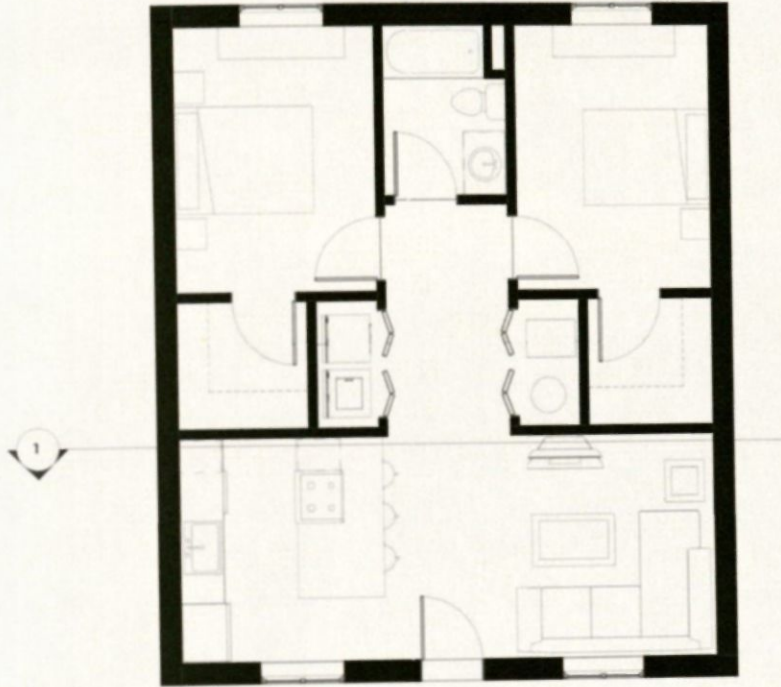


Front Elevation - NTS

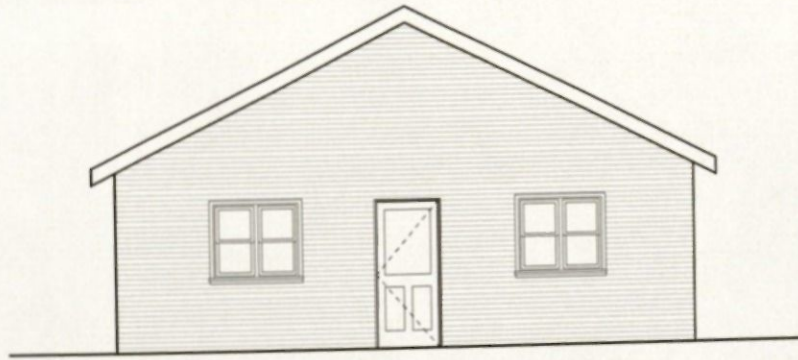


Section 1 - NTS

Accessory Dwelling Units



2 Bedroom ADU - NTS
28' x 32' = 896 SF



Front Elevation - NTS



Section 1 - NTS

Accessory Dwelling Units

Accessory Dwelling Units



ADUnits from Path



ADU Strip from Woods