



CUTTING THE **RED** TAPE

A Design Thesis Submitted to the
Department of Architecture, North Dakota State University

By
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In Partial Fulfillment of the Requirements
for the Degree of
Master of Architecture

North Dakota State University Libraries Addendum

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May 2021
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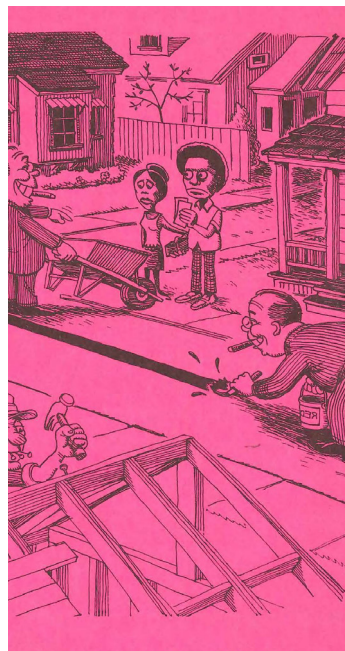
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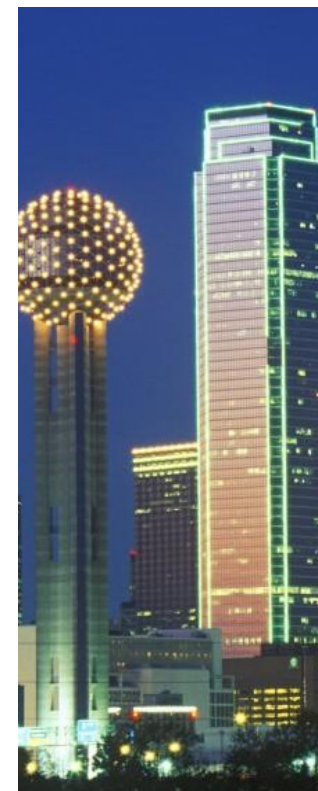


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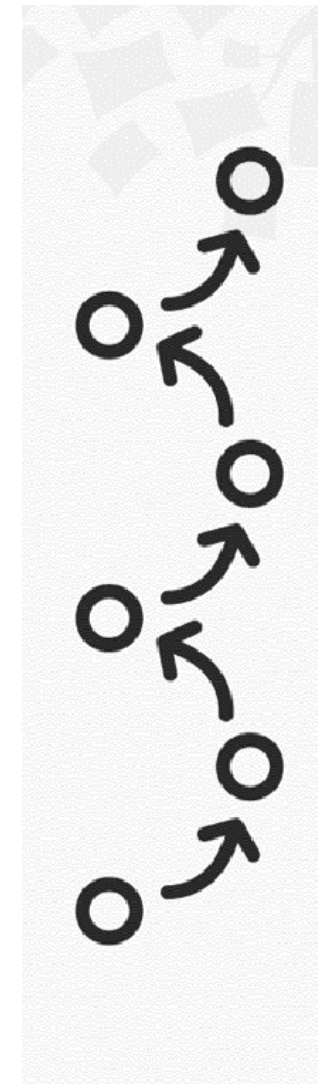


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ON THE COVER

Artwork done by the amazing French artists Aline + Celia (Sacree Frangine)

Cover represents the people behind the housing crisis who are overlooked and often not heard.

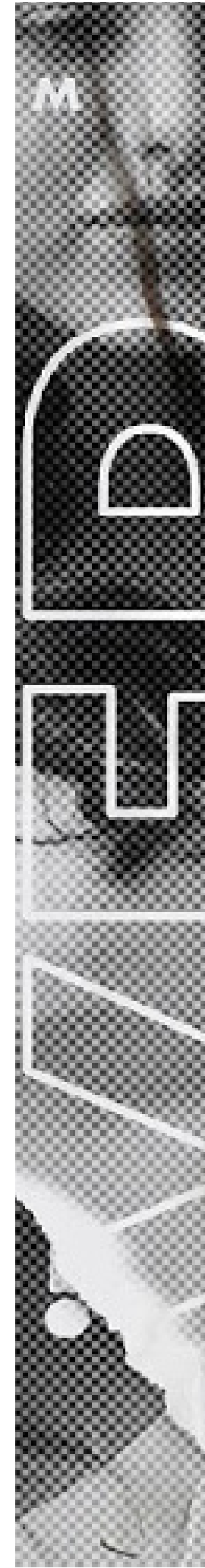


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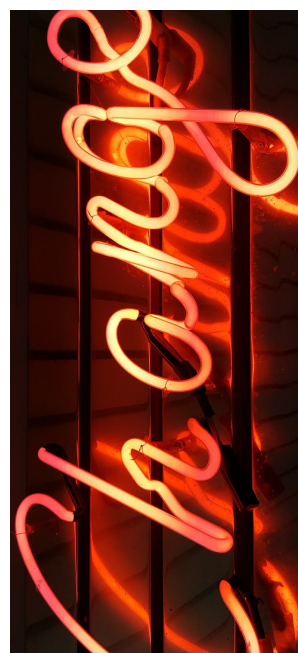
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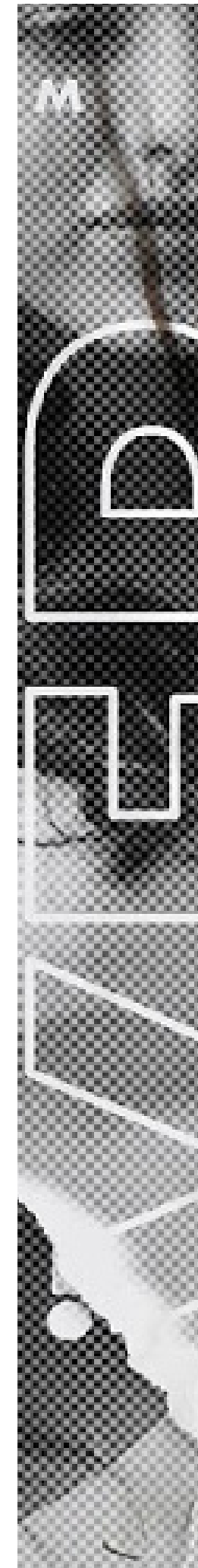


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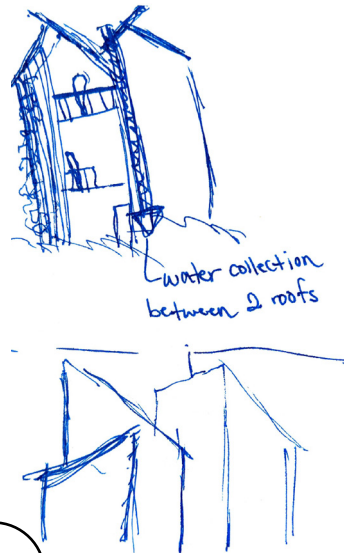
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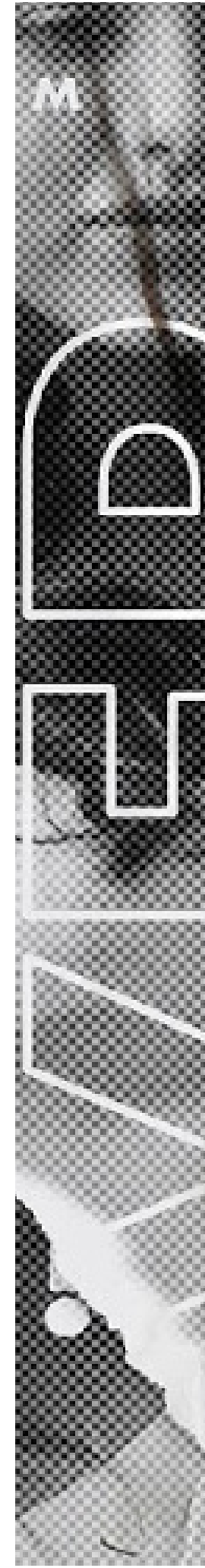
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PROPOSAL



**THESIS
DESIGN
QUESTION
+ PREMISE**



THESIS

ABSTRACT

red lining
low income districts
inclusionary zoning
covenants

The Big Picture

In a lot of cities, there seems to be districts that appeared to be struggling financially and there is a stigma around those areas that no one would want to live there. The housing usually looks subpar and does not fit in with the other “higher up” neighborhoods. These districts are usually located in what we call Red Line Districts and not many people know exactly what this is and how it started. Red lining is from back in the 1950s and is a major contributor to the reason why nonwhites (mainly African Americans) struggle to obtain permanent housing that increases their wealth.

There is a dramatic divide shown between the wealth of whites and nonwhites and this stems back to the was (what is this?) of housing in American cities. With such a big divide and negligence of higher up interference, I question how can the lives of the people in districts like these move up in America? My thesis will educate readers on the housing crisis in the U.S. in efforts to open the eyes of everyone on the silent killer of a primary demographic. A solution will be provided that creates affordable housing that is seamlessly integrated within more developed districts by focusing on sustainable resources for the houses to use.

The idea behind Red Lining will be reconstructed for not only 20 years down the line but in the immediate future proving that neighborhoods can be lifted from the downward spiral they were put in by the government all too many years ago.

THESIS NARRATIVE



WHAT CAN I DO WITH ARCHITECTURE TO HELP PEOPLE COME OUT OF THE PIT OF DISPARITIES THAT HAS BEEN HERE?

PROBLEM THAT STEMS DEEP IN OUR SOCIETY IS WEALTH DISPARITIES IN OUR PEOPLE OF COLOR HERE.

TAKING AWAY THE STIGMA THAT IS HELD WITH AFFORDABLE HOMES

When I was around 16 years old, my family had moved homes at least six times in three different states at this point. With all this adjusting to new neighborhoods and groups of people, I kept running over the same questions in my head as to why we must keep jumping from apartment to apartment? Why is it the same the kind of people in each neighborhood? How come all my Caucasian friends have houses and I do not? All these questions brought to me to college to study architecture so I may fix this unbalanced demographic of homeowners and be a part of the solution and not a contributor to the problem.

Laws back from the 1920s to 60s have prevented families of color from either purchasing a home and only sold to Caucasians. This roadblock is the source of the struggling neighborhoods today and not many people have stepped to correct the governments wrongs. Does society not realize that housing is an issue? Are people not aware that laws like this existed before? Will the government today help and compensate for the hardship nonwhites were put through early on so they could never prosper as much as the Caucasians have?



Premise for Investigation

The burning question that is running through the mind and what drives this thesis is how can architecture and urban planning help solve the issue of wealth disparities and housing inequality amongst the colored demographic in the US?

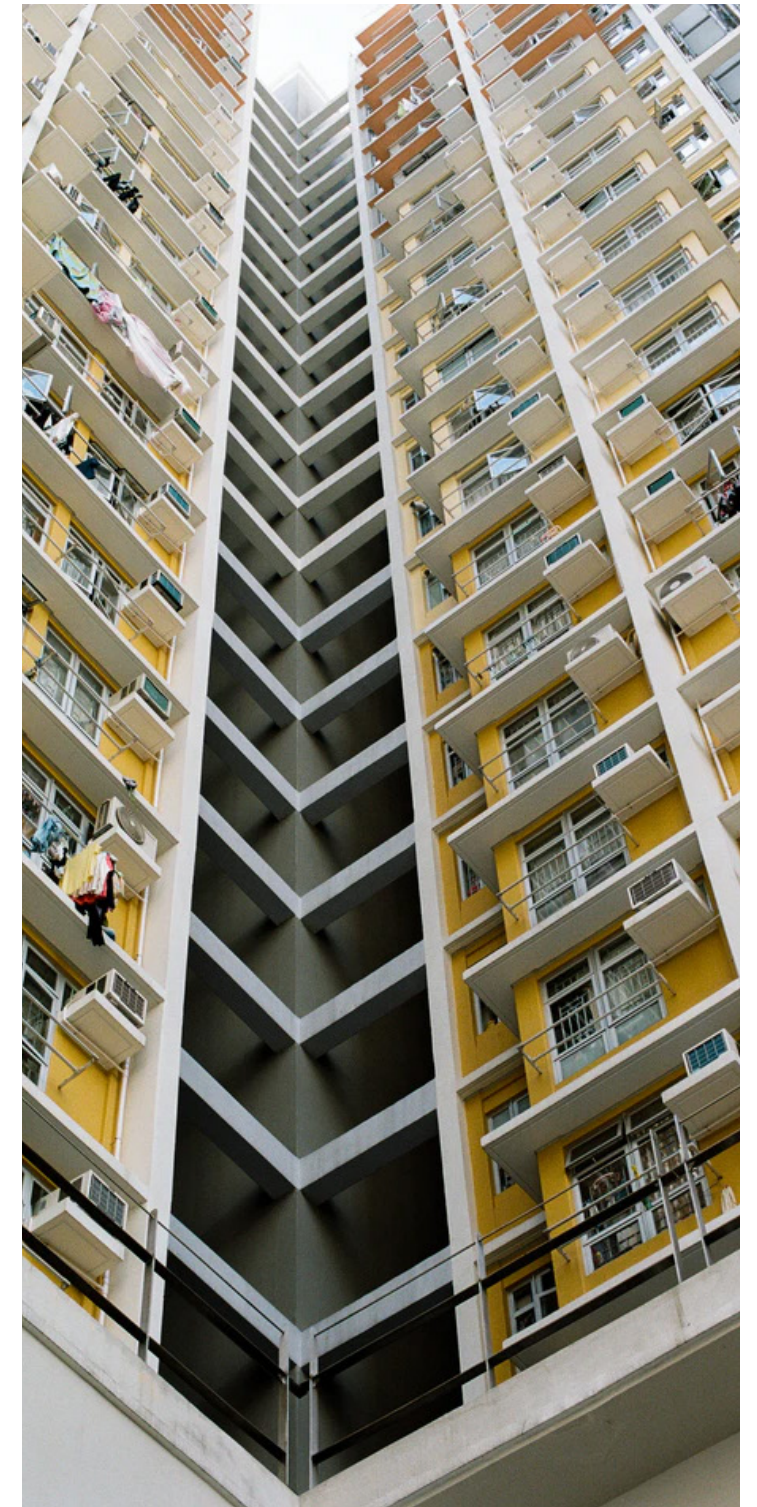
It may seem like just a political issue or simply something that doesn't or shouldn't involve architecture but it is exactly the opposite. These key disparities like health issues and social issues and lack of assets all stem back to housing. In America, it is clear that our assets and wealth derive from our houses and if we don't start there, growth is not going to happen. That brings this thesis and to discover how and why this inequality started, what made it stick around today, and figure out the key to jumpstarting a more equitable Life for our minorities.

Contex

My thesis is titled Cutting the Red Tape because this is sort of a metaphorical standpoint stemming from the previously stated redlining in our nation and is taking away the invisible barrier and stigma that is held with affordable homes and working to retrain and educate people on their understanding of what an affordable or lower income housing development could be.

Now this thesis focuses heavily on the housing inequality and wealth distribution in the US, so it is important to paint the picture on what drove me get into this topic. So, the problem that stems deep in the fabric of our society, in the fabric of our communities is those wealth disparities. Rather than it being a matter of laziness or lack of drive, the real matter is the housing restrictions or what we will come to call covenants that divided our cities by race. That residential segregation underlines contemporary racial disparities today. These covenants stated a variety of sentences all relating to who of what race or ethnic dissent could rent or own a property in cities and was prominent in just about every state.

Although the supreme court made covenants unenforceable in 1948, the Congress did not end up banning racial restrictions like these until 20 years after in 1968 as part of the Fair Housing Act and by that point, the damage had already been done. Colored residents were pushed into neighborhoods that were claimed lower value and it was nearly impossible to receive loans to own a house because interest rates were spiked based on your skin tone and the "red line" around your neighborhood. This is where architecture needed to be a saving grace that makes the issue identifiable to everyone rather than being hidden a issue that was supposedly buried in the past. The most effective applications that we will see here is what the architecture can do for a community oh this demographic was taking care of their specific needs.

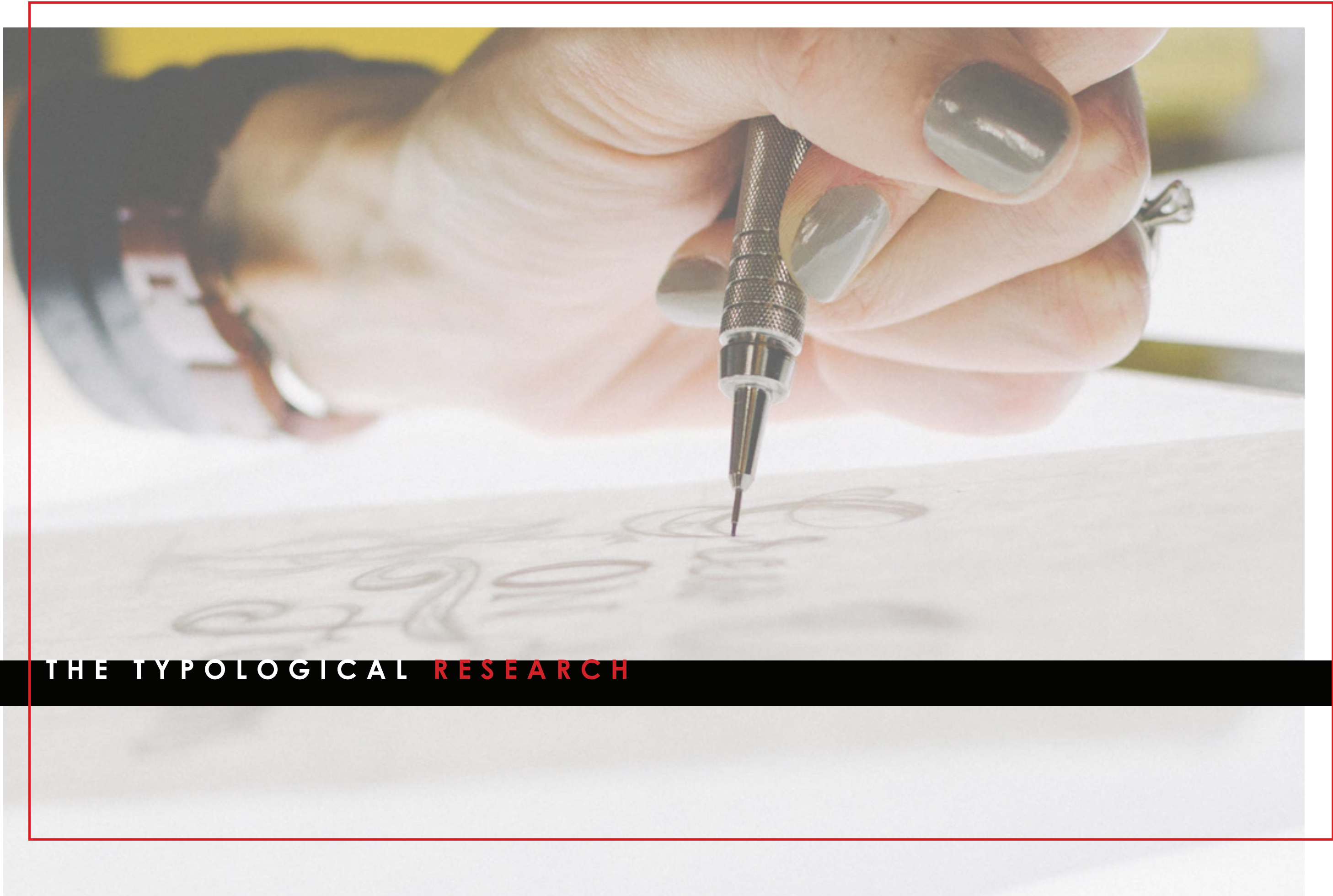


The current context of the low-income homes is surrounded by other low-income homes and the diversity of the demographic is small. Due to this issue, other onlookers into this area see it as a slum or “the ghettos”. To change this view of a certain area being associated as being poor, we must integrate the housing with developed and successful neighborhoods.

This thesis will be focusing on creating an affordable housing community and there will be some key aspects to these that set them apart from previous attempts of low-income/ affordable homes in the past. The homes will be a series of small and space conscious spaces that can be rented and owned with the inclusion of housing choice vouchers.

THESIS PROJECT TYPOLOGY





THE TYPOLOGICAL RESEARCH

PRECEDENT RESEARCH



TESORO GROVE - SAN DIEGO, CA

TESORO GROVE - SAN DIEGO, CA

This apartment complex falls under the category of affordable multifamily housing. Tesoro is located in San Diego, CA between a highway and a wastewater pumping station and is designed by Studio E Architects. This development ranges from 1-, 2-, and 3-bedroom units that are apartments and townhomes. What drives and sets this design apart is the exceptional response to the site. The parcel of land is a unique shape and not exactly square, but Studio E had to focus on the inner community to combat any external noise or factors from the highway and from the treatment station. Housing units are arranged in such a way that there is a sense of privacy on the porch but not entirely private giving the sense of togetherness but having your own space to enjoy. Association with the carefully play see Eunice, comes with ample space on the interior for community lawn space and plazas.

Every square footage is thought of carefully. The buildings are oriented so that residents can have a walkable and enjoyable path and also draw in filtering out any noise.

These homes are affordable because of the modularity of the homes musing simple 'fiber-cement board, MDF, and painted steel'. The Low-Income Housing Tax Credit Program is being used in parallel with the other sustainable features like photovoltaics that produce enough energy to run the office and laundry rooms.





INTERSTATE 5



TESORO GROVE - SAN DIEGO, CA

There are some major key takeaways from this development in San Diego that make them successful. Create a design for housing units that are cheap and efficient in construction MDF and painted steel is smart solution to keeping the units at a cheap price.

Site designing is always a challenge for affordable homes because in a lot of cases the site selection is not the best pick, but Studio E was able to take their location and maximize the occupants experience by angling the houses at such angle to combat any noise from those exterior factors.





THE FLOW HOUSE - NEW ORLEANS, LA

WILLIAM MCDONOUGH + PARTNERS

ROOSEVELT ZERO ENERGY HOME

The flow house is currently an unbuilt design project proposed to take place in New Orleans, LA designed by William McDonough + Partners. The need for this project arose right after the state was hit with Hurricane Katrina and homes needed to be rebuilt. Classified as a duplex with emphasis on sustainability, this new design was created with some modularity so the home could be adaptable to the occupant however they chose fit. Although this home has 1,900 square feet, it is equipped with 2 units that call upon a symbiotic connection between indoor and outdoor space making the living space feel bigger. Breaking down the home into units, the first one comes with generous 3 bedrooms, 2.5 baths, and a staggering number of 4 decks. This space is not shy of the indoor-outdoor flow. The second unit is a more modest size equipped with 1 bedroom, 1 bath, and just a single deck totaling at 5 decks for the entire home.

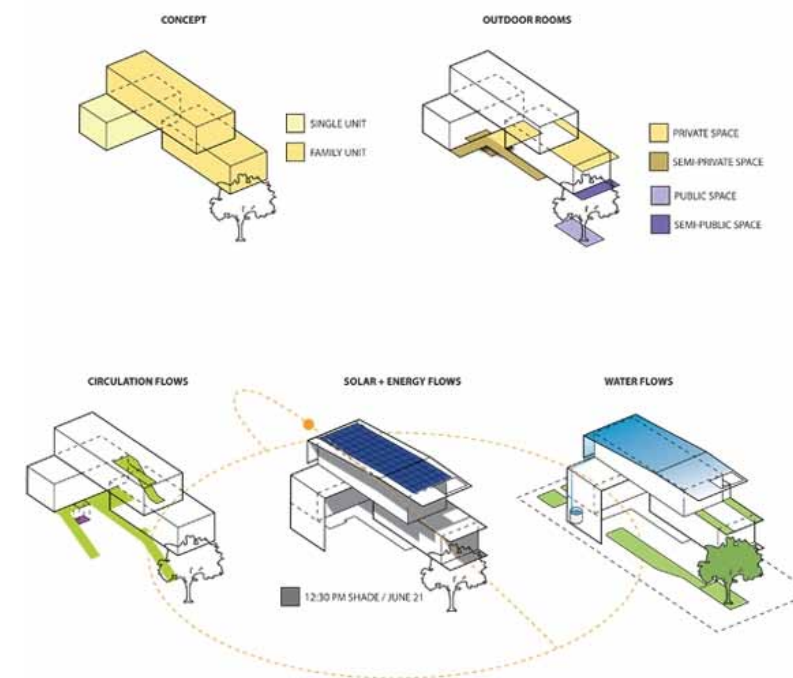
A quote from an article in Architecture in Times of Need written by Kristin Feireiss states, "Flow House celebrates Earth's abundance, promoting and nurturing connections between human and natural communities. The design looks to natural systems for inspiration and relies on the belief that all design decisions should support the creation of community and family. Embodying the ideas and ideals of the Lower Ninth Ward and New Orleans, through the Flow House the office strives to create a safe and healthy environment, both natural and built, with all material nutrients returning safely to biological or technical cycles- manifesting a true Cradle to Cradle residential icon."



The human and natural connections are prevalent all throughout the design as the living room stretches linearly straight to the deck allowing for better air flow and a straight view of the community. There is a sense of semi-privacy through this design whilst still feeling connected to the community through your neighbor and through the multiple outdoor spaces.

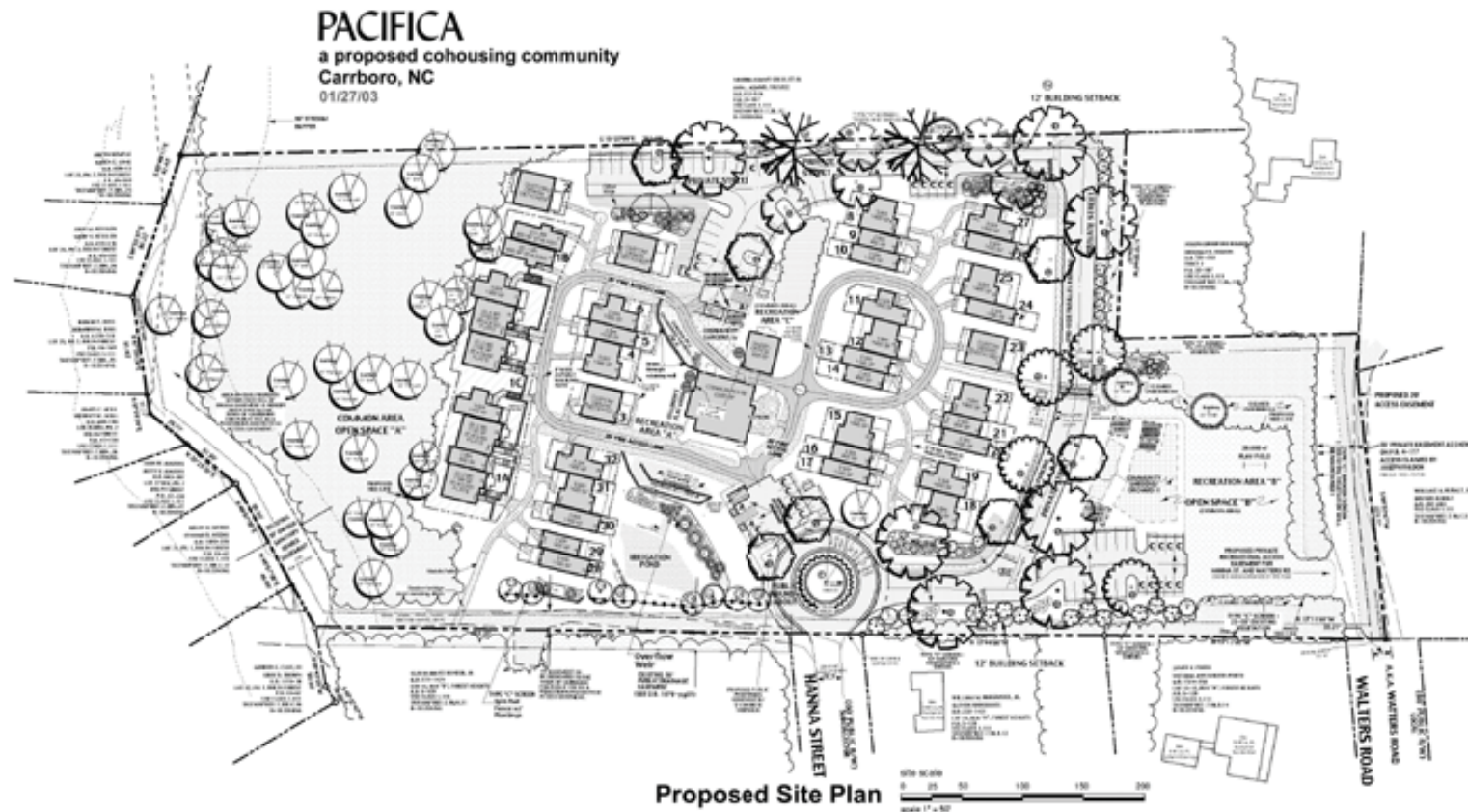
Some important takeaways from this design work are the materiality and the sustainability aspects of the units. Each unit is constructed off site with the intention having easy assembly and disassembly when needed. Constructing this way allows for reuse of that material being disassembled as it does not have to be demolished if a natural disaster takes place again. The walls and roof are made of metal SIPs (structural insulated panels) and everything else will be constructed of wood. The sustainable strategies this design takes on is a wide variety, but they are also what set it apart. There are long overhangs from each side of the roof allowing for better shade throughout the outdoor spaces and PV panels also taking place on the roof system. Water collection is also a sustainability aspect in the Flow House as there are water cisterns on site to capture rainwater and special gardens that take in the stormwater runoff.

Even though this Flow House is currently a proposal, it exemplifies key aspects to design that this design follows. Being connected to nature and your community is the semi-private balance needed to thrive. The rain collection is a feature typically underestimated but is a strong element to a design that allows for self-sustainability.





Pcifica Cohousing | Carrboro, NC



PACIFICA COHOUSING

This cohousing residence consists of 46 homes split into two neighborhoods on an eight-acre lot. The way this community works is, in a sense, a resident-owned place. It is essentially a sustainable affordable housing community in which the occupants put in a certain amount of work to get back to the community. There are about six units on each acre of land, making it a very dense area, but in doing so allows for more revenue to come not back to the developer but to the community itself. The community uses that money to go towards the community center's needs and the playgrounds on site. Each unit is equipped with solar access which is located on the South side of each building and passive solar design to keep cool with less energy in the North Carolina heat.

The model for the community that was stated is an emphasis on home ownership but allowing for rentals because "the median cost per unit of owner-occupied housing is \$143,242. The median household income is \$35,273 while the per capita income is \$22,303. Most of the jobs are in retail and service industries." The residents currently cannot afford to own the homes but through membership of paying rent, they are able to save towards the goal of owning that unit.

The way this community works sustainably is doing a little bit to go a long way. There is a minimum number of streetlights to lessen the effect of light pollution at night. The houses are all modular design to allow for easy building both quickly and efficiently. Inside those houses are concrete floors or tile floors working to keep the house cool and allowing for cheap flooring.

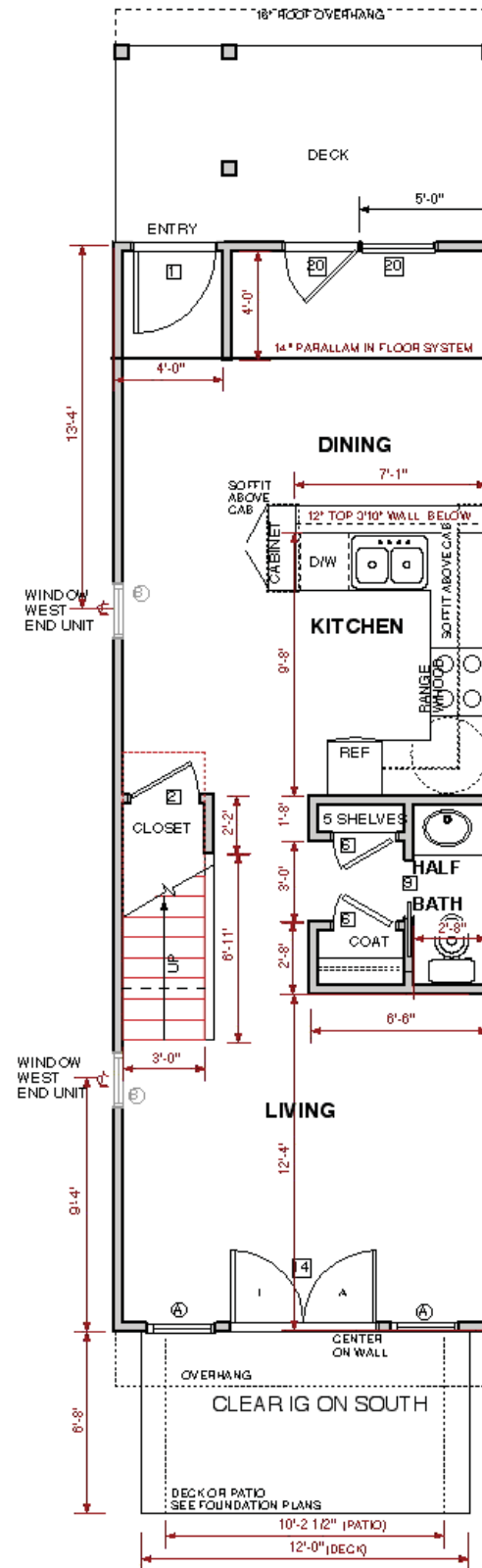


affordable housing
low income districts
sustainable
resident managed

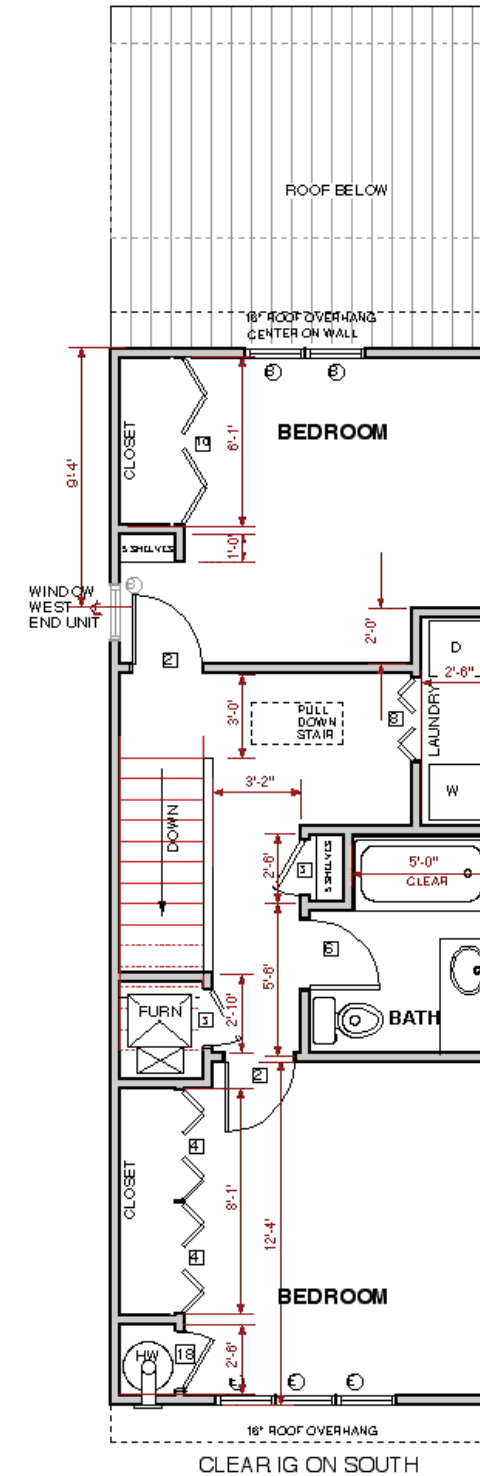
PACIFICA COHOUSING

What sets this development apart is the fact that each resident is a part of the board of directors meaning that they make the rules for the community on the goals that they should be setting for sustainability. They all hold each other accountable for community involvement and taking away the individualistic aspect of communities we see today.

This study has a great impact on my premise as it aligns with many of my goals. This residential community has created a self sustainable way of living governed by themselves. Not only is the housing simplistic but it contains so many factors that are not seen with the eye without analysis. From the flooring to the passive solar design, the housing is more than it looks. What has been created here is a community that gives back to itself and that is very important to establish when a designer is making affordable homes.



**1100 TOWNHOUSE PLAN
FIRST FLOOR
scale: 1/4" = 1'0"**



**1100 TOWNHOUSE PLAN
SECOND FLOOR
scale: 1/4" = 1'0"**



**WHO
AND WHAT
IS INVOLVED**

Creating small transitional homes that are sustainable and a community that is inclusive require some important components. For one, there would need to be valuable community space on the site because if you are taking the people out of a community that they are familiar with, we should create a community within the complex itself. The homes need a connection to outdoor spaces and a shared walkway around the site where the homeowners and renters can mingle among themselves in a private yet public manner. Key elements of the community design include a shared kitchen and teaching spaces in the center allow growth of connections and knowledge. This thesis will be centered off growth and providing spaces for all kinds of that manner is essential from pergolas for pop up markets to meeting rooms for teaching about financial literacy.

MAJOR PROJECT ELEMENTS

USER

DESCRIPTION



Houston low-income family helped by the non-profit organization AVANCE

When assessing who is impacted by the housing crisis in many cities, my research brings me to nonwhites like African Americans and Hispanics. This demographic will be coming from a background that is not wealthy and most likely will not be able to take up big loans, so my design must be built simplistically that will not cause the developer to charge high rent.

A study was done by the Center on Budget and Policy Priorities to determine how some of these lower-income families afford the rent that they are responsible for now and it was determined that “more than 5 million people in 2.2 million low-income households use vouchers”. With this in mind, I now know what role this development should take for the lower-income families that this project provides for. The place must be a transitional space for families to use their housing vouchers achieve cheaper rent but also allow them to grow their savings and in close time on the home they are residing in.

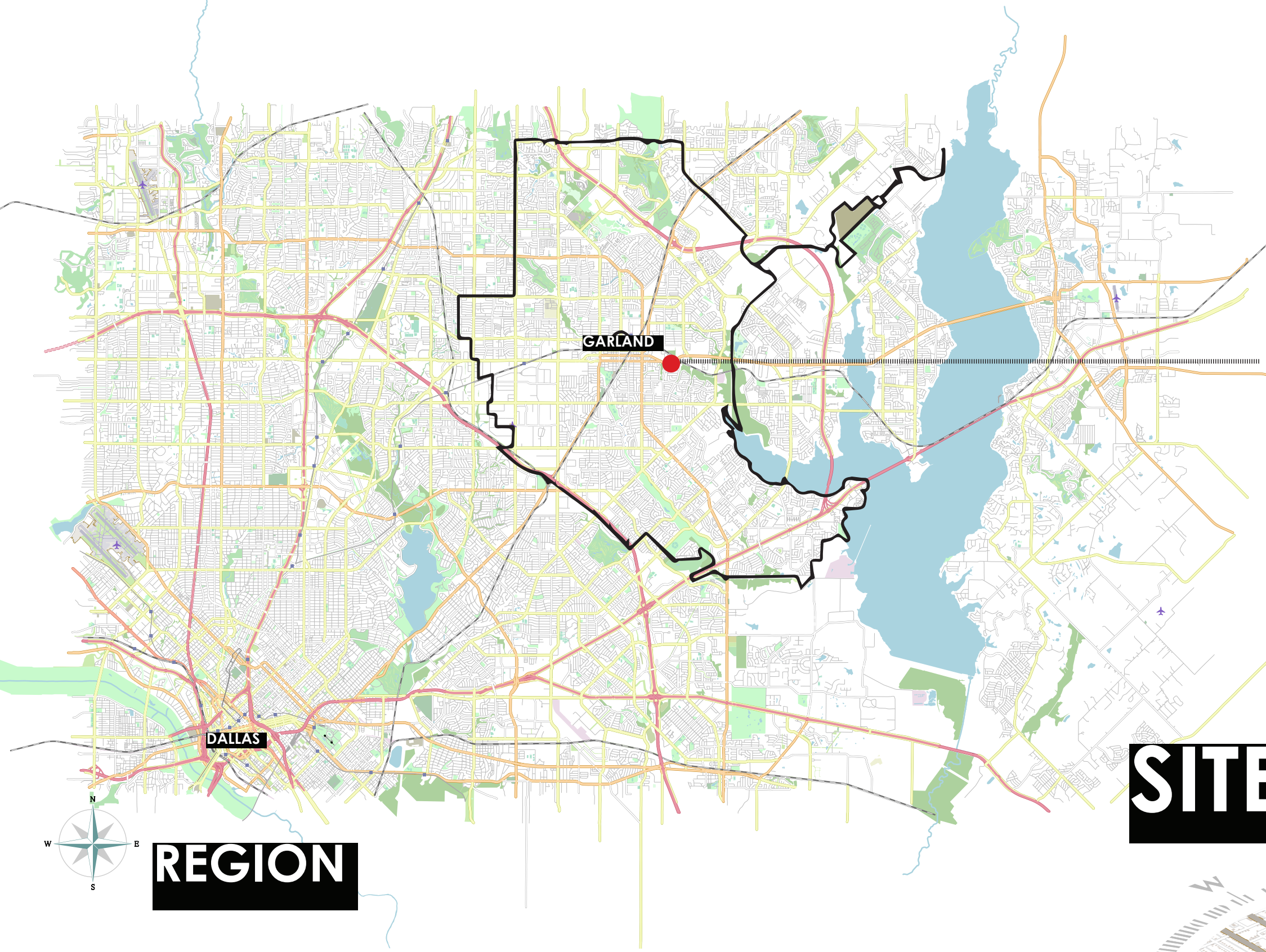
Because this project will be combining different demographics of people together, I must be careful on a location that I choose to make sure the families feel welcome to start building their assets there.

LOCATION

+

DIRECTION

PASSION LED US HERE



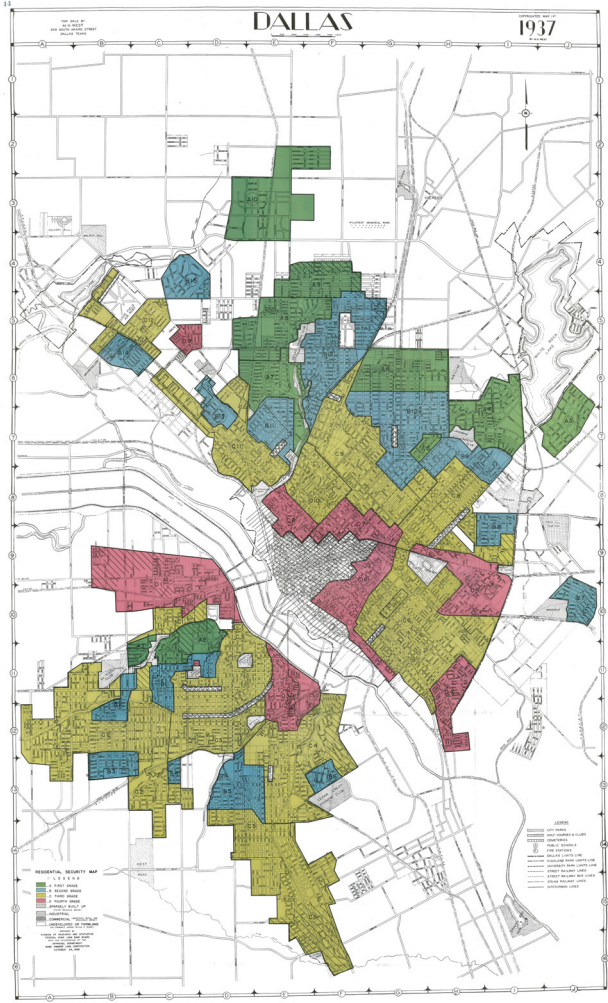
My site selection is in the city Garland, Texas which is a little bit Northeast of Dallas. There were two strategic reasons as to why this site for affordable homes and the first comes from me living near here when I was younger. I was in the city just 20 minutes below Garland in Mesquite, Texas so I know the area and community environment firsthand and with that comes a better sense of what the needs are for those people. The 2nd reason comes from a bit of research done on what was considered the “best neighborhoods” in Dallas to live in.

REGION

Garland, Texas is another suburb of the Dallas County. The city has a population of 238,418 residents according to the U.S. Census Bureau

SITE

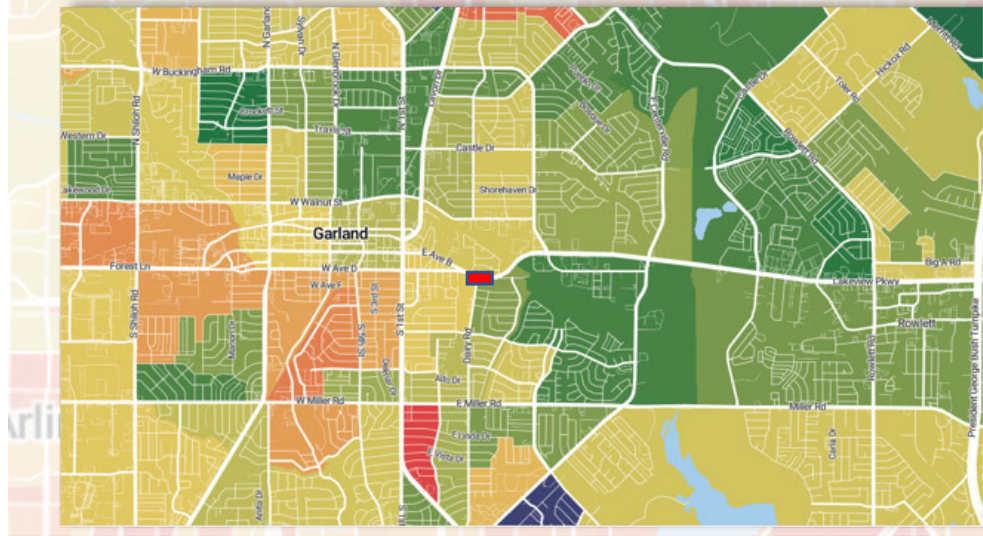
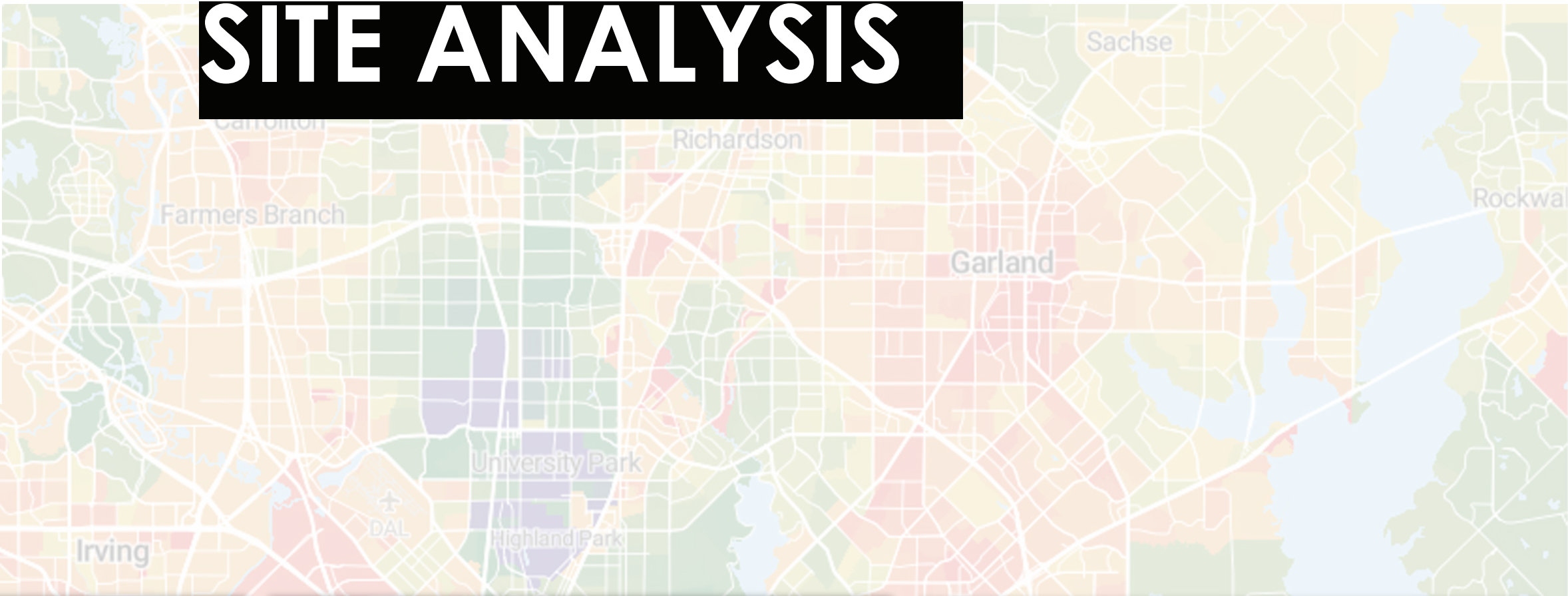




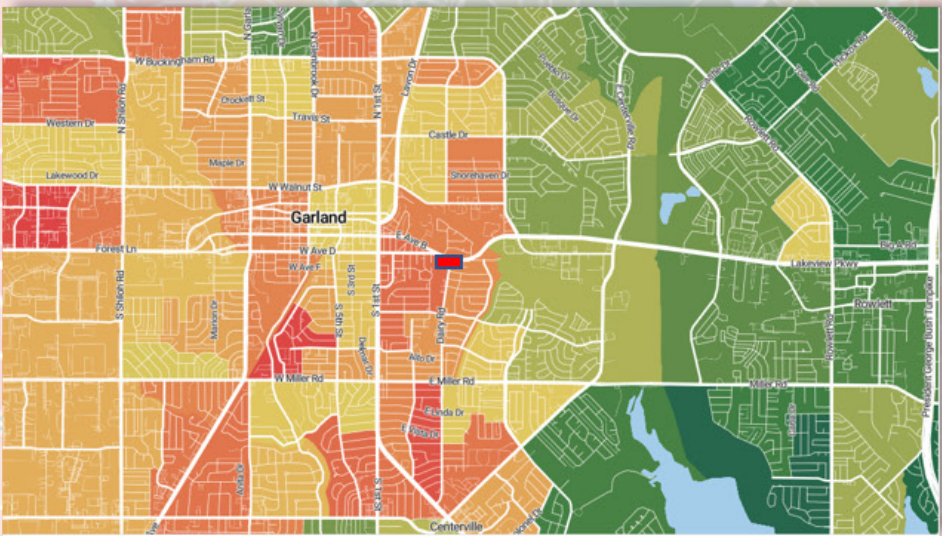
One of those factors comes from the listed home value. I looked at map of Dallas County and decided to compare that to a map that I found of the downtown area values in 1937 and the images only cemented the statements made of how neighborhoods are still affected today from actions back in the early 1900s.

I decided to dive in a little deeper and study aspects like rental costs in the area, household incomes, and them zooming in a little further for home value where my site is. With my site boxed in red, it was clear this a prime area to work in because for one the rent prices averaged around \$1,000 and two it was considered an area of lower income families which is my target group.

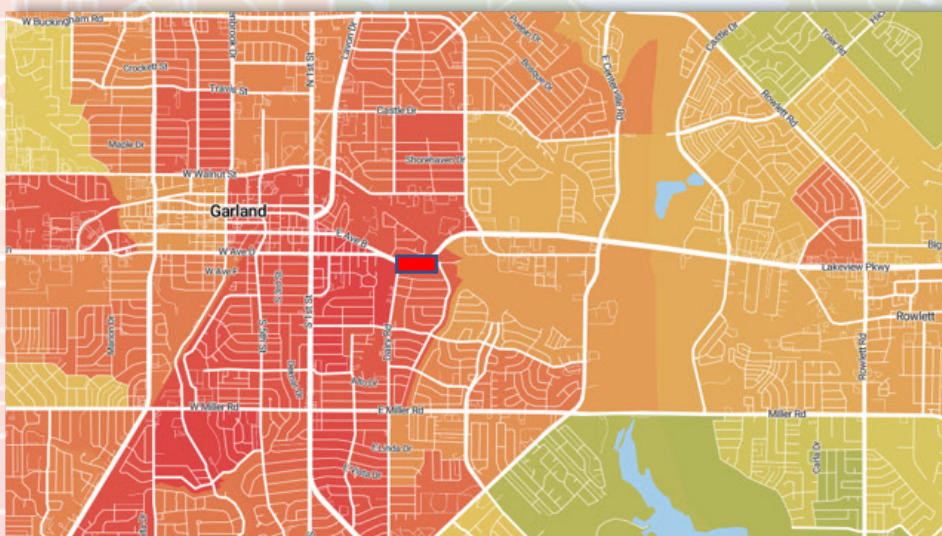
SITE ANALYSIS



Rental Price Key



Household Income Key



Home Value Key



<https://bestneighborhood.org/best-neighborhoods-dallas-tx/>



COMMUNITY CULTURE

- *SCHOOLS
- *CHURCHES

BUS ROUTES

- * There is a stop right on the site

With my area carefully selected, I move even deeper into site analysis to figure out how my lot relates to the area around it. We can take a closer look as to where my site is and what is around it.

Currently it is surrounded by other residential districts, parks to the north, south, and east sides, and a downtown area that is just a mile away.

Another thing I wanted to make sure was included in my site was a means of public transportation and this location already had a bus stop that ran on the corner to downtown which was perfect.

Then lastly, I wanted to discover what community culture was currently around and there are two schools to the north of the site, two churches nearby, and one directly west of the site. During this research, I came to find out that that was a church I went to when I was younger and am still apart of here in Minnesota so the site selection could not be more perfect. This not just because of the religious aspect but that means there is currently an established sense of community here already and my job is to simply build off that.

SITE ANALYSIS

PROJECT EMPHASIS

This thesis will have a strong emphasis on the route of making nicer homes affordable for the owner by making them compact and using local material. Using sustainable resources is going to save the owners in the long run from high energy bills and allow more amenities to be available because the cost to obtain them will not be that high. This will also include local companies into the project that can support the cause.

There will also be an emphasis on the means of water collection. I chose to focus on this type of sustainable living because water collection is strongly encouraged in the state of Texas and being able to capitalize on that opportunity in this new development will not only help the community be self sustainable but will help teach an aspect of living that is not commonly used in most single-family or lower-income homes to the residents.

The last key aspect to my design this thesis will essentially be a master plan for a community development. There will be local partners got this project teams up with to help with materials and to help with the teaching groups in the Community Center. As I have learned through my research, knowledge is a key factor to growth and when my premise focuses on the growth of the color demographic, it is key to make the community center for learning.





THE EXECUTION



GOALS

OF

THESIS

THEORETICAL, PHYSICAL, AND SOCIAL

ACADEMIC

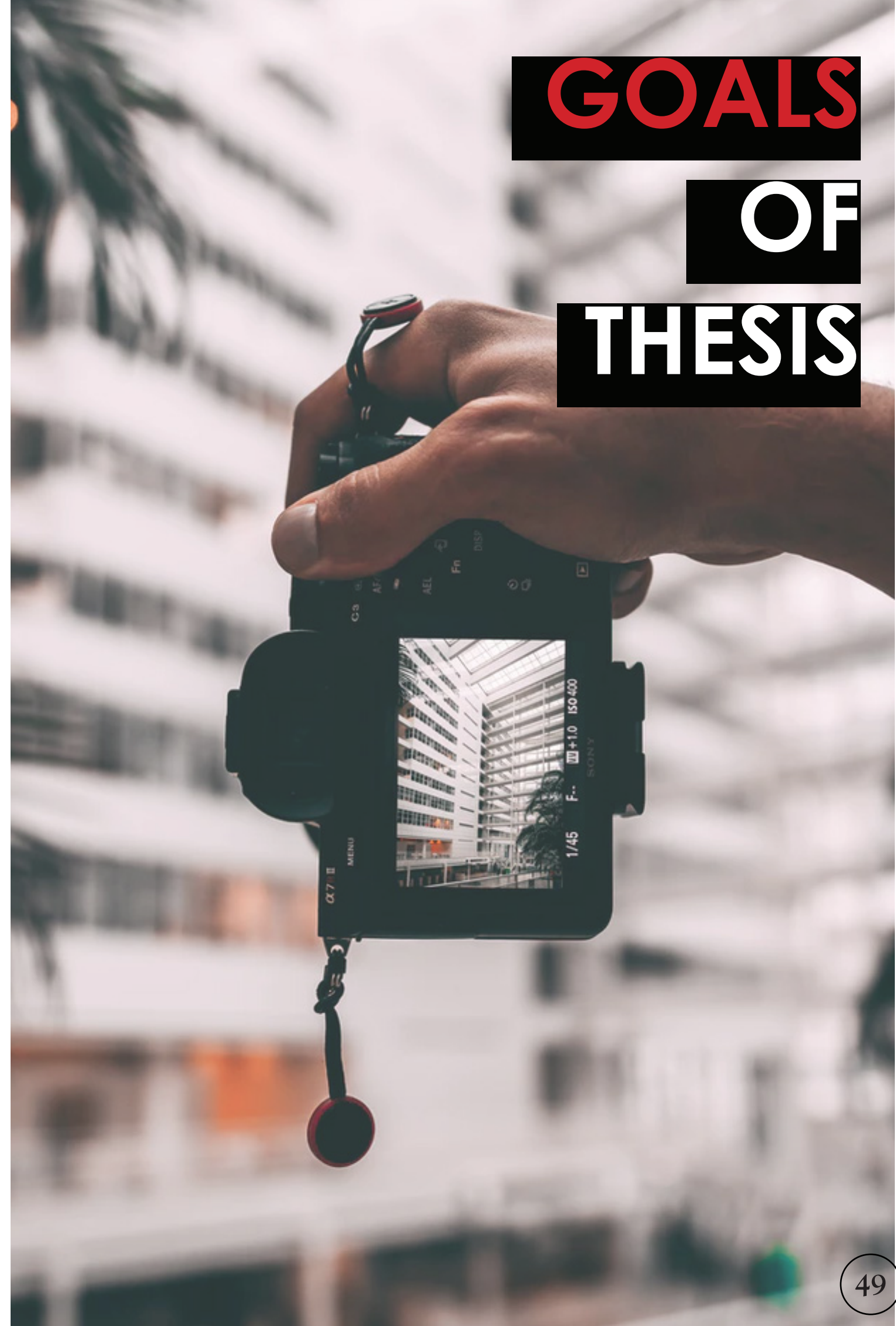
1. Present a thorough analysis of the issues around the site and how a community can be formed in the specific area.
2. Educate the audience on the pressing matters of the racial injustice of the urban planning of cities from past to present.

PROFESSIONAL

3. Create an affordable home that can be implemented today in our current community.
4. Revolutionize low income housing to be integrated and socially equitable.

PERSONAL

5. Learn about what it takes to make a building cost effective enough to make it affordable
6. Get all my questions answered through research of how to approach the housing crisis in America and start implementing this in multiple countries.



PLAN

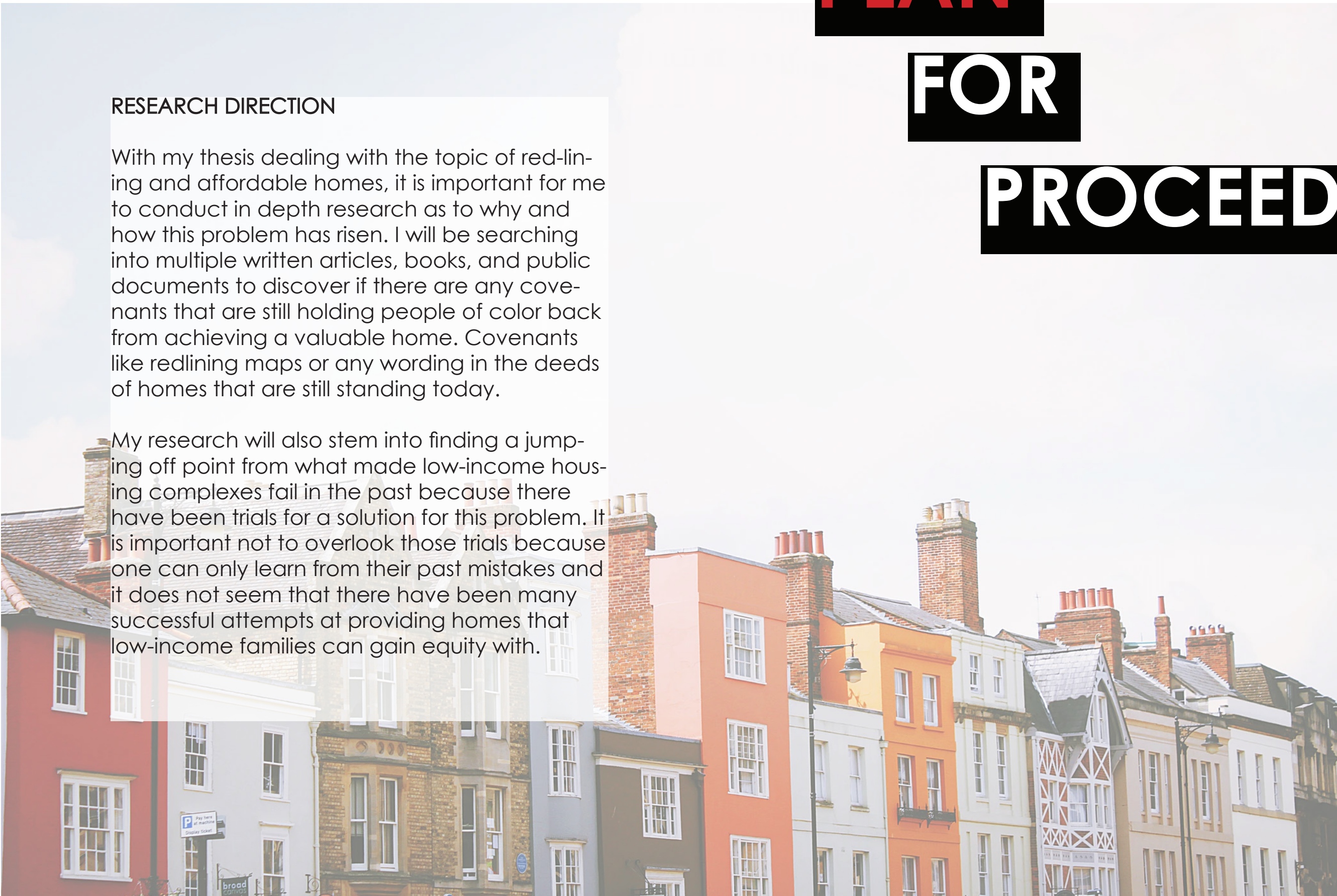
FOR

PROCEEDING

RESEARCH DIRECTION

With my thesis dealing with the topic of red-lining and affordable homes, it is important for me to conduct in depth research as to why and how this problem has risen. I will be searching into multiple written articles, books, and public documents to discover if there are any covenants that are still holding people of color back from achieving a valuable home. Covenants like redlining maps or any wording in the deeds of homes that are still standing today.

My research will also stem into finding a jumping off point from what made low-income housing complexes fail in the past because there have been trials for a solution for this problem. It is important not to overlook those trials because one can only learn from their past mistakes and it does not seem that there have been many successful attempts at providing homes that low-income families can gain equity with.



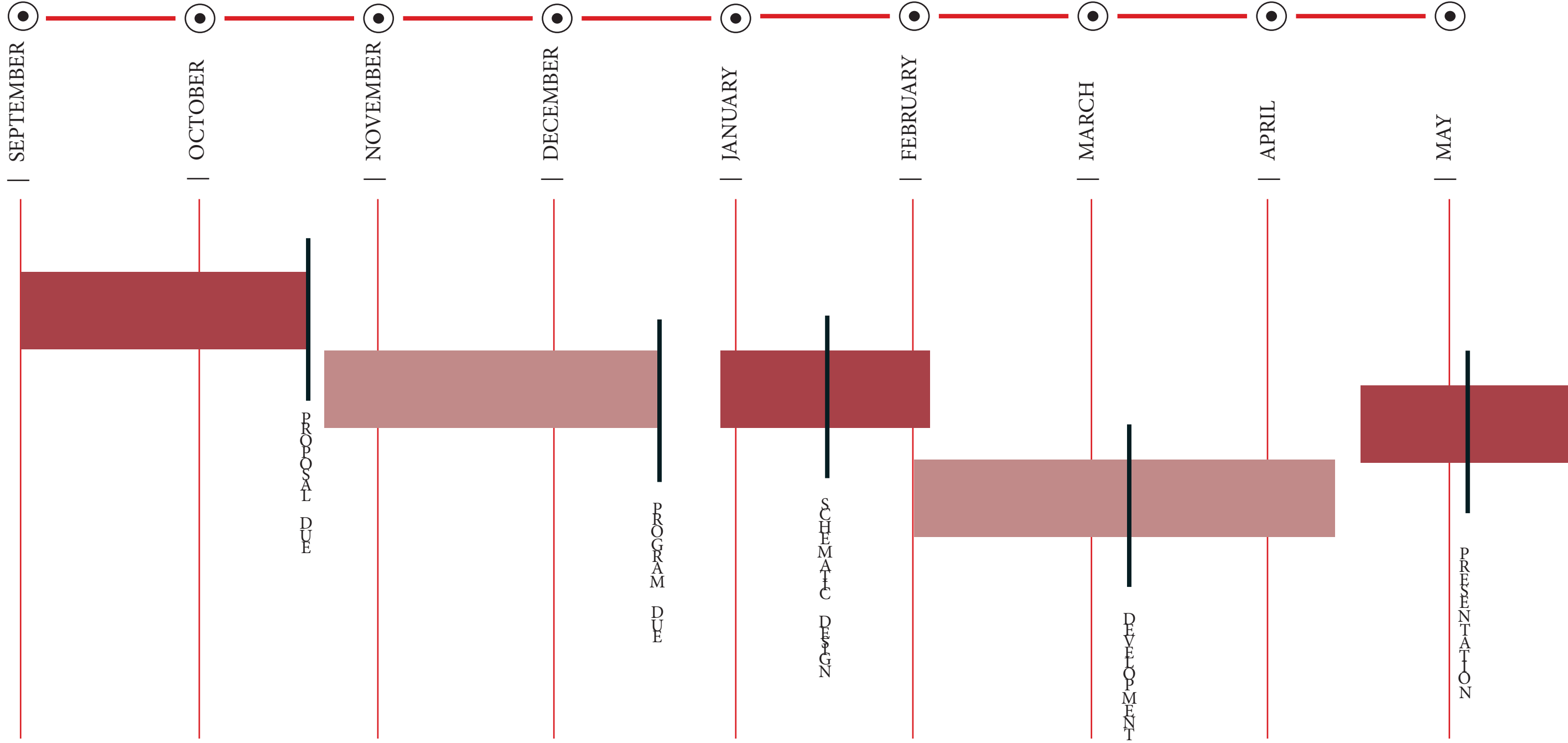
DESIGN METHODOLOGY

The way I will be exploring my question of how architecture can help solve the housing crisis in the US will be to perform some quantitative analysis and a few interviews with a certain group of people to get a census on what my design should include or incorporate. The quantitative analysis will be about discovering how many people have been indirectly affected by the rise of redlining back in the 1930s and how much knowledge they have about this issue. This analysis will also pertain to what kind of demographic lives in the area that I chose. The interviews with people in this area will be to discover how much they know about wealth disparities and any problems that they have faced gaining equity. These pieces of analysis will be key in the process of deciding what belongs inside the site and how I should place and design the houses. There will be a Community Center on site but information from these interviews will tell me what these people are lacking already and what I can incorporate that can help them learn what they need to learn and engage with their new neighbors.

DOCUMENTATION OF DESIGN PROCESS

As part of this thesis there is going to be a lot of research and behind the scenes work that is not reflected through the final boards or presentation and that is shown through the design documentation. What would be important to document for me and this this is the articles read or the input from people in the community and interviews and design decisions that make the result possible. The research done will be shown through the facts presented in this book and the questions an answer process during presentation.

SCHEDULE FOR THESIS





RESEARCH

PROJECT JUSTIFICATION

Why is the project topic important?

The passion that I have for this topic arose years before I started college. In a lot of the cities I have lived in or read about, there seems to be this running theme between the demographic of homeowners and how there is a stigma held in the name of a low-income neighborhood. It is within my best interest to work on a solution to better accommodate the quickly growing population of low-income families in this country that want to have a safe, reliable, reasonably priced home that they can rent or own. It is important that I finally act upon this issue in my 5th year because now I have gathered different ideologies and solutions to help me come to the correct conclusion for my premise.

What is the project going to add?

My project choice will add a better understanding of how to construction an energy efficient home to my knowledge and also how design a community not just single dwelling. After this project has concluded, my knowledge in sustainable design will strengthen and thus gaining me the skill of finding impactful and sustainable features that are feasible to include in residential projects.

What is the importance of this topic at this time?

Creating multifamily housing communities is essential for our professional right now because more and more cities are expanding and the easy response is to have reactionary buildings that are designed and made to accommodate the current needs of the population. These structures do not plan for the incoming future of the families that will occupy the homes. This is why I intend to expand my knowledge with examples of previous low-income dwellings to see if there is a better solution for the way complexes are built so we can avoid erecting another potential slum.

How will the project work financially?

Before talking about the money aspect of a project, it is important to state who exactly the project will be serving. I am gearing toward the audience of low-income to middle class families who are looking for either a permanent or semi-permanent place settle and grow their family. With this said, the project should be built in a detailed yet cost-efficient manner to produce a community of homes that our working families are able to purchase and grow as they rather than be built too high in value and defeat the purpose of them being low-income housing.

Where might the funds for this project come from?

The funds for a project like this might come from private investors that believe in the positive impact it will have in the city or they might come from a development company seeking to add low-income asset to their name.

What are the impacts of your project?

For post-occupancy and environmental, my project should give the occupying family and affordable means of living with the price of the development and the money saving energy features included. The families who own in this community will finally be able to have assets in their name that gain them credibility with the bank for loans and will be taught how to manage an energy efficient home.

Would this project contribute to the advancement of the profession?

I propose that my solution be used as a big stepping stone for future housing developments in this profession so firms and developers can learn the economic value that low income families provide for this country and how to better meet their needs then how we were doing it before. Just providing a means of housing is no longer going to fit the bill. This project will contribute a sense of knowledge for those to come on practical energy efficient moves and community tactics to keep a low

HISTORICAL, SOCIAL, AND CULTURAL CONTEXT OF THE THESIS

Starting from the early 1930s, there was a housing shortage amongst Americans, and it was clear with the fast-growing population that action needed to be taken. With Franklin D Roosevelt as president, he enacted the New Deal which started housing programs that would begin the construction of new single-family homes, but it quickly became clear that these homes were not made for everyone. These homes were constructed for Caucasian families only. Thus began the segregation of housing in the US. Middle class Caucasian families removing into these new suburbs but anytime a colored family would try to do the same, they were push back with the government enforced law that these homes could not be sold 2 any person of color.

As the years went on, many single-family developments came to be almost completely occupied by whites whilst colored families got pushed two smaller areas that were on the path to declining. By the year 1948, covenants written in housing deeds that prevented the selling of these homes to any persons of color were made unenforceable by the law, but Congress didn't end up banning racial restrictions until 20 years after in 1968 as part of the fair Housing Act. By this point, the damage had already been ensued. Colored residents were stuck living in those declining neighborhoods and were impossible to get out of because of a new type of restriction which would come to be higher loans for colored people. What would happen is that a color family would try to go to a bank to receive a loan to purchase a better home, but these loans came at the cost of a substantially higher interest rate then any Caucasian family would receive. In doing so, many colored families could not afford to change where they lived.

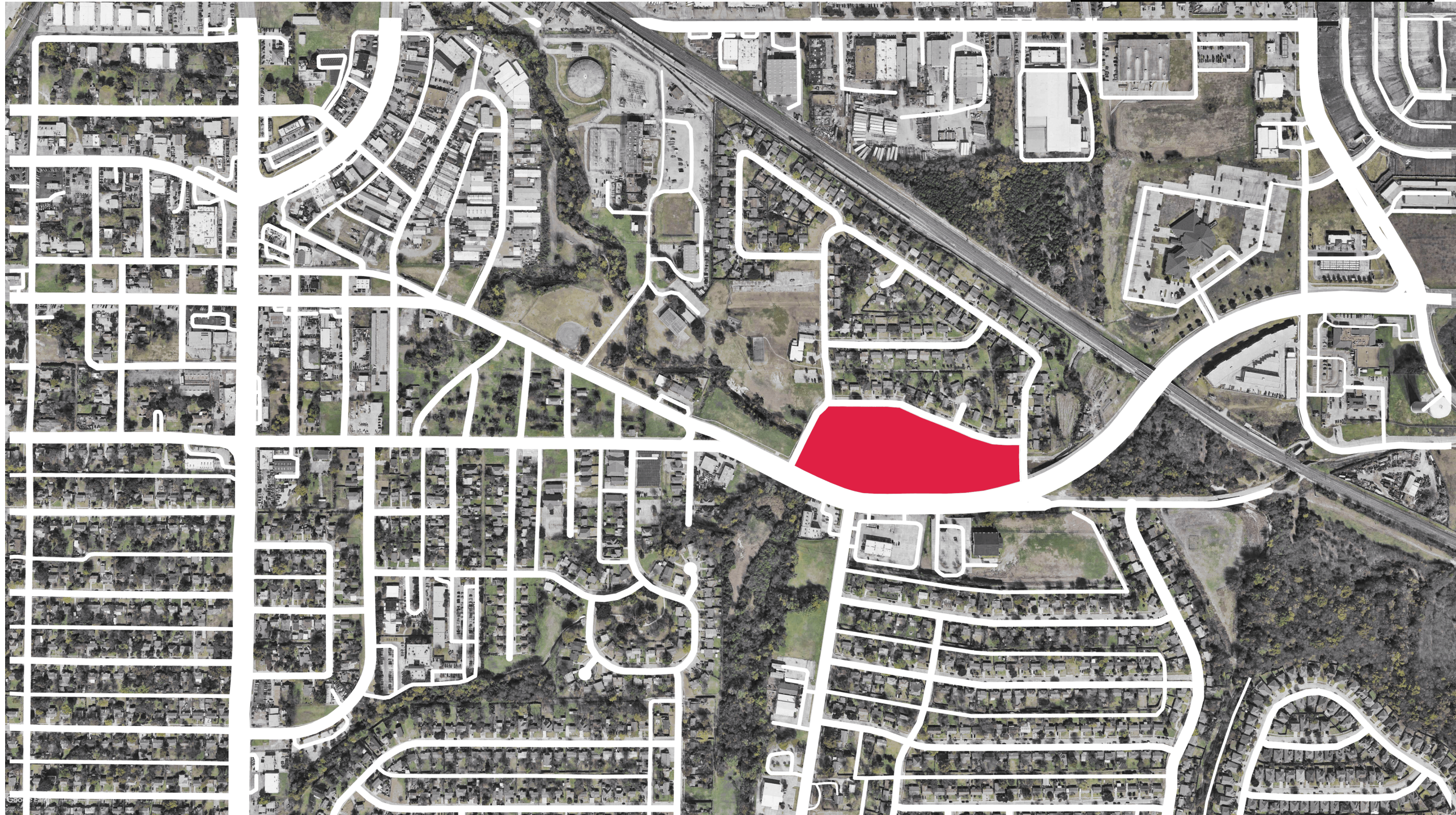
And this is what we know as redlining today. A mark of a neighborhood that was determined as declining just because of the racial demographic in the area. It was clear that there was a great wealth disparity amongst different demographics of Americans. White family's wealth was going up and up as their assets grew more and more through generations and the colored families we're stuck in this never-ending cycle of trying to keep their head afloat to make a living.

This conveyance is subject to the following provisions, the violation of which shall automatically revest the title herein in the vendors, their heirs or assigns, Party of the second part, his heirs, executors, administrators, or assigns, agrees not to sell or rent or permit said premises to be occupied by persons of African or Semitic race. According to the plat thereof on file and of record in the office of the Register of Deeds in and for the County of Hennepin and State of Minnesota.

With these declining neighborhoods came lower funded schools and underpaid teachers. this is because the prosperity of a school depends on the value of the houses next to them and if the housing is not good then the schooling will reflect it, and this comes along with the connotation that colored families are not well educated. It is sad to believe that the simplicity of a house affects our wealth and our schooling in America and without people knowing the full picture of why this happened, poor conclusions are being formed about why code families are the way they are today. Conclusions are formed as to why these neighborhoods are rundown. assumptions are formed as to why there is not an abundance of colored owners of homes.

These redlining maps and housing deeds with racial language in them public records today. Many people who own homes currently do not realize that some of their needs still contain this language in them and have not been changed. In the state of Texas, Senate Bill 30 was instituted to help the removal process be easier of the racist language in these deeds. Step was taken towards removing any evidence of inequality in documents, but it turns out that that removal is not enough to change the lives of the people that it has affected. More must be done on the housing side of things.

SITE ANALYSIS



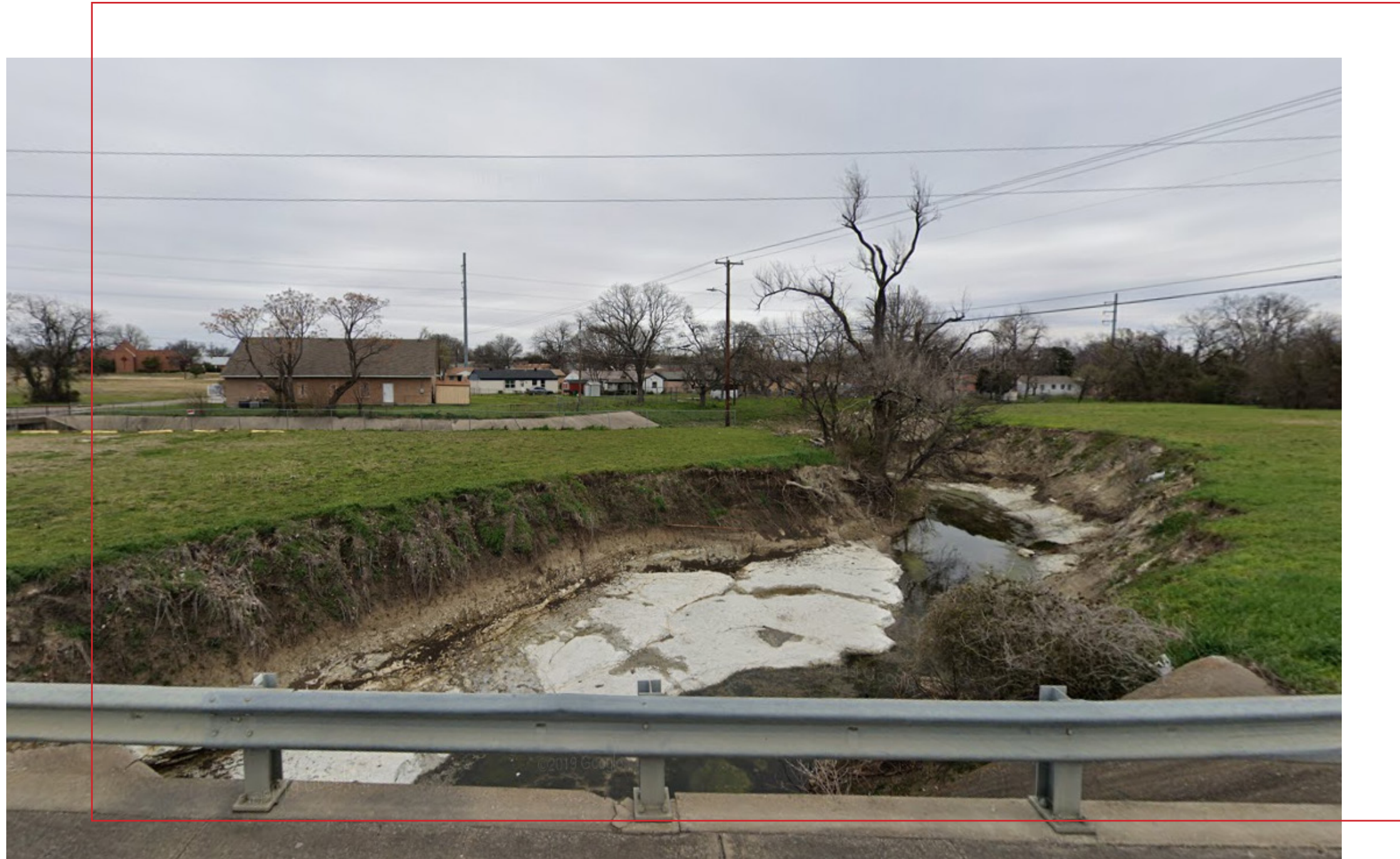
This empty lot near the heart of Garland, TX had nothing separating it from another empty lot. Appearance wise in the city. There are many overgrown trees occupying the lot and wild grass covering the ground. There is evidence of previous structures on this lot that had pre-existing car entry but no lot. It is almost as if the evidence was trying to be hidden and nature was taking over the land again.



Vegetation on site is quite random in location. There are no more than 10 trees on site, but they do seem to have previously encircle a space. This space would probably be the previous structure on the site. The goal would be to keep as many trees as possible better native to this lot and if not then they would be relocated to another spot on the site.

Trees and shrubs on East side of site | Google Maps

The water on site is in a little trench which the neighboring road goes over. This trench is mostly dried out and acts as a barrier between the church and pre-existing houses to the North and West of the site. It will be ideal to keep residents away from this natural barrier, but there does not seem to be immediate concern from neighboring sites.



Dried Trench on SouthWest side | Google Maps

Energy Consumption

The first criteria to assess is the energy consumption of the spaces. One of the primary focuses besides cost effectiveness is the amount of energy my spaces draw. Who is this the materials and passive design elements I choose will make a great impact in this department. In order for this project to be successful, it should give back what it consumes. The primary goal is to make the cost of energy for the residents of these homes low for years to come and for the very near future. This goal can only be met if the energy consumption is low or gives a good balance of give and take.

Environmental Performance

Another key aspect to assess is environmental performance of the spaces. Different and not commonly used sustainability tactics will be implemented in the homes and the performance of these tactics will be held for evaluation along with energy consumption to see how well it is meeting the standards of the resident.

Behavioral Performance

Because this project is so family based, behavioral performance will be a big factor in studying and analyzing to effectively meet the needs of the families these homes will be providing for. Daily movement patterns around common areas and spatial hotspots like living rooms, kitchens, or even outdoor areas will be under analysis so meet up overall layout of the home can better suit the everyday schedule and life of one of these families. When designing a duplex, the designer must be aware of how two backgrounds of life meet each other in a close space and this project will be successful if there is no friction between one family to the other. Each one should experience their own sense of space.

Cost Cost effective design is yet another decision driving aspect to this project and will be important to judge for this project. Laying out a low income family home can quickly become something to cut corners on and just not overstep the quota. Is my goal in a project so important to cost to make my material choices, sustainable aspects, and building layout feasible in the real world to meet real life financial limitations.

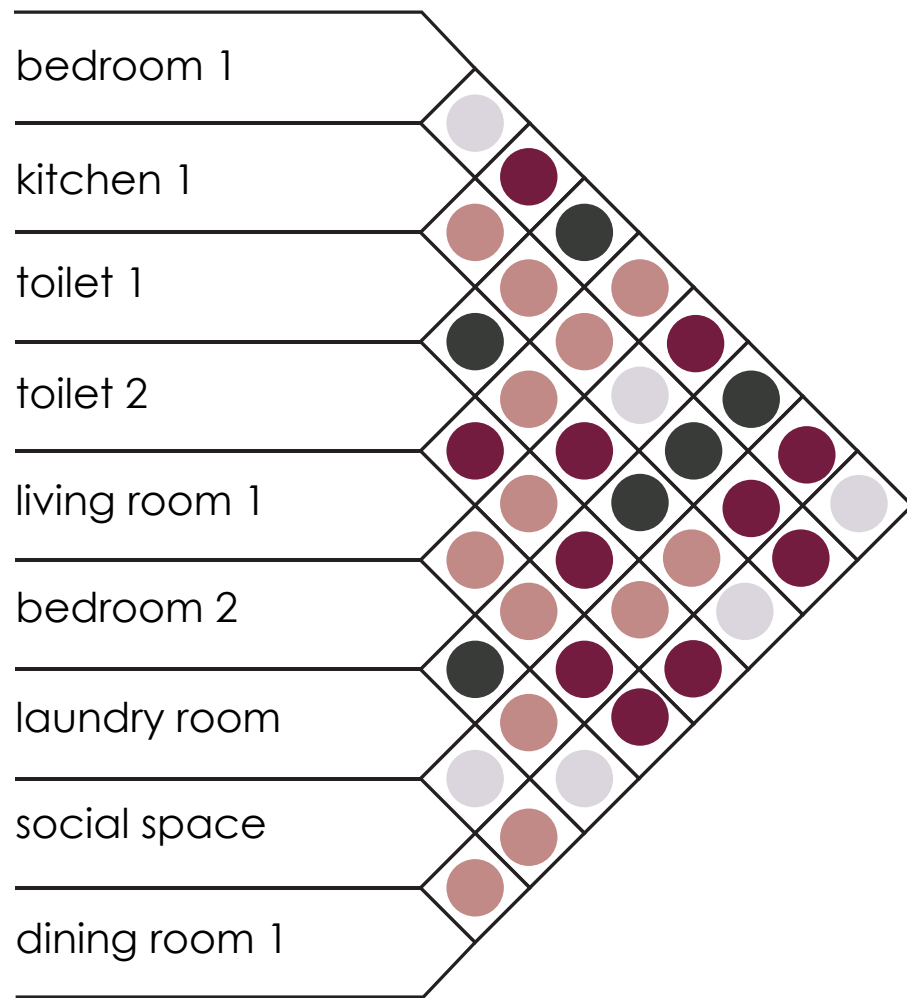
PERFORMANCE CRITERIA

SPACE ALLOCATION TABLE

Space Allocation for 1 Unit **Percentage of Floor**

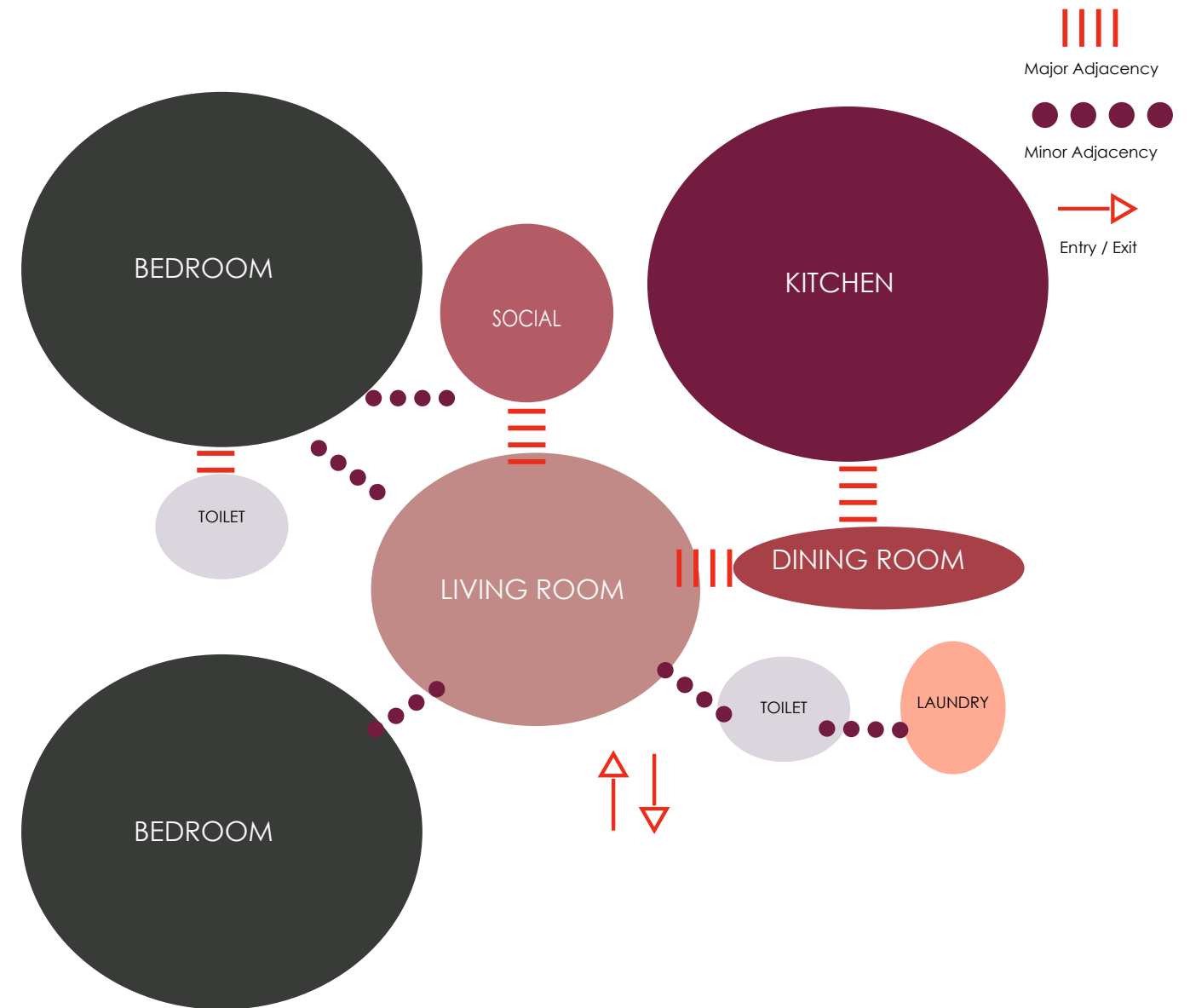
<i>Bedroom 1</i>	12%
<i>Kitchen 1</i>	11.6%
<i>Toilet 1</i>	6%
<i>Toilet 2</i>	6.3%
<i>Living Room 1</i>	8.6%
<i>Bedroom 2</i>	16.8%
<i>Laundry Room</i>	3.7%
<i>Social Space</i>	3.4%
<i>Dining Room 1</i>	7.4%
TOTAL	100%

SPACE INTERACTION NET



- Adjacent
- Nearby
- Non adjacent
- Non related

SPACE INTERACTION TABLE





DESIGN SOLUTION

PROCESS

DOCUMENTATION

• Main goals

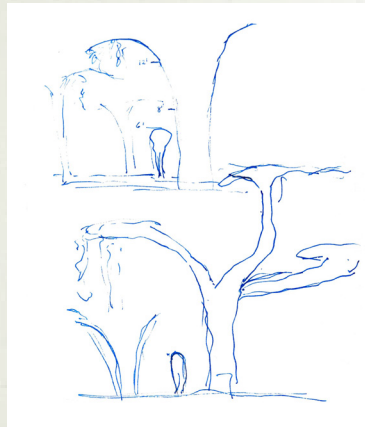
- ↳ • Have cheap electricity
- Have a community design
- Create a pleasing exterior
- Contribute to the well being of families
- Create inclusionary zoning
- Ensure close public transportation
- • Achieve a mixture of unit sizes & types
- Prevent displacement
- Assist tenants w/ use of efficient appliances
- Universal design (incorporating all)

Questions

- What is the best layout for a duplex/multifamily?
- How to utilize every square inch of the home?
- Will it be cheaper to have a smaller space and outside amenities or a bigger space with stuff inside?
- How feasible is a geothermal heat pump in these types of homes?

• Moshe Safdie

- "3D wall" - Having a wall that "saves space" that optimizes every square inch

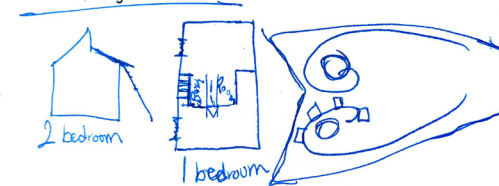


Water collection between 2 roofs



• Models for Units

- ↳ Design for houses all have bones as the unifying look.



This piece is during development went through a lot of changes and took in a lot of considerations as well. A lot of thoughts went through the mind that eventually went through the wind and a lot of thoughts went on pen and paper. My documentation was through my thesis sketchbook. Designing a project like so that is very personal to myself formulates a lot of ideas and feelings that need to be put down, so my sketchbook was the way to do so.

Starting with the early iterations of what I perceive the homes to look like and how they would interact with each other. The pages include my questions for interviews and the answers received to help guide my design. At first, during the proposal stage my project was gearing towards the multifamily side of design. I knew the path I was going to take was doing housing units rather than an entire apartment complex so I believed that multifamily homes would be the best way to solve this.

As ideas progressed further and further, it was clear that through the interview process these low-income families wanted to focus on buying their own home and living with her family but being able to intermingle with other families. This is what drove me towards the path of doing single family homes but making them affordable and allowing them to be a transitional home from renting to buying.

I documented ideas for my next steps and goals and questions I had internally on what else can I include in this project to make it as "real world" is possible. I wrote questions like "Will it be cheaper to have a smaller space an outside amenities or bigger space with stuff inside?" and "Is this a universal design?" meaning can it be implemented in a different state and not have to change me entire typology.

I also documented a few sketches of how I wanted my spatial layout of houses and the water collection design. The water collection is one I did a lot of sketches of and a lot of iterations and models and it all started out from this sketchbook. It shows how I wanted to make the water features seem like a tree that canopy is over the person existing like a "mother tree" that thrives over the people and helps them thrive as well.

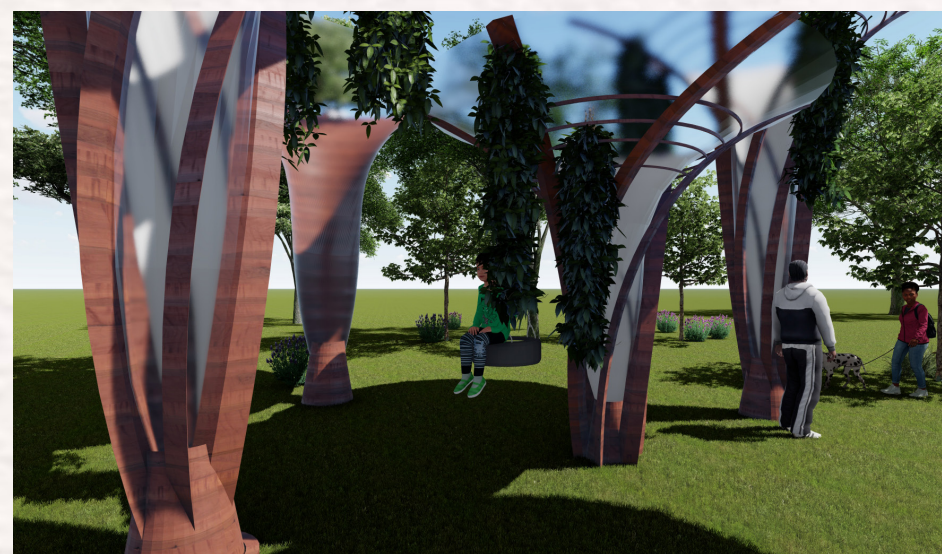
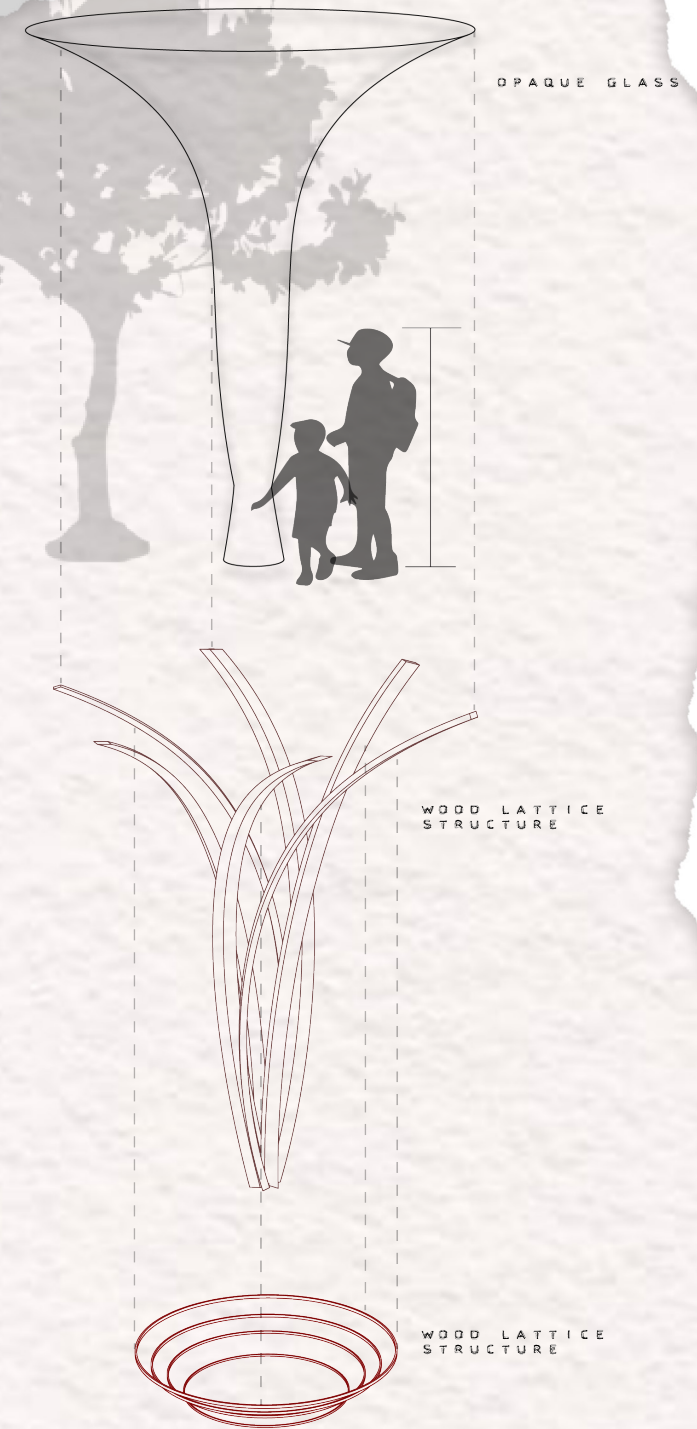
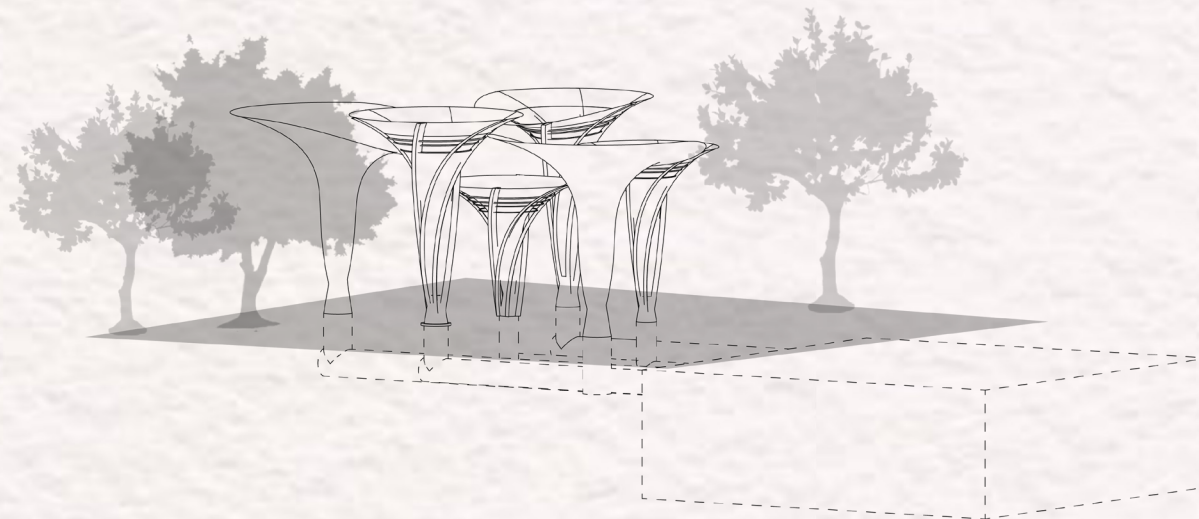
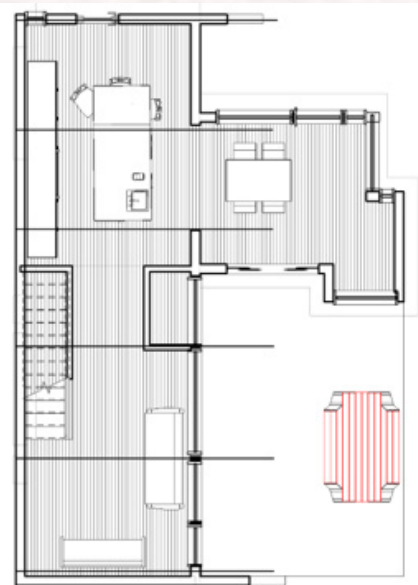
PROJECT

SOLUTION DOCUMENTATION

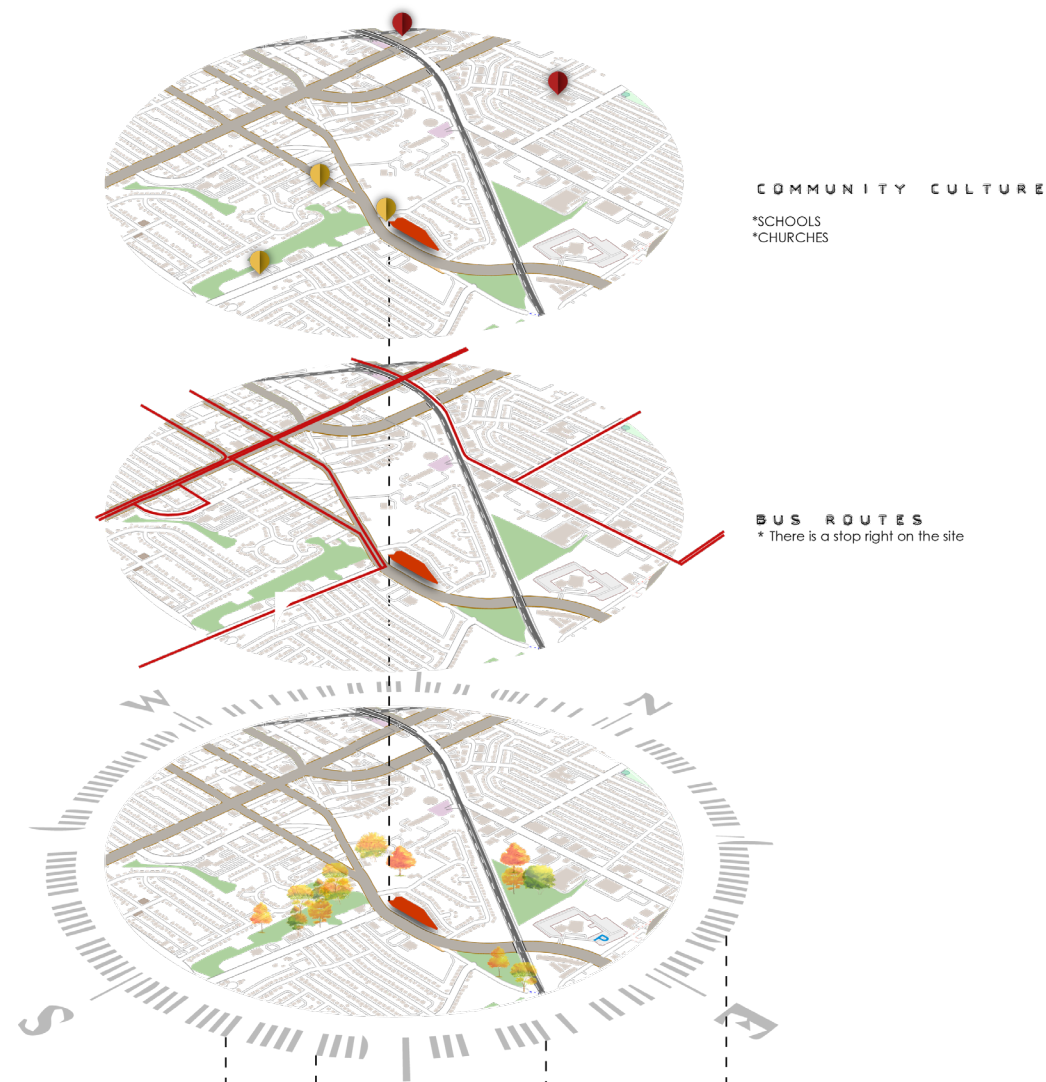
The intent for these units is to keep a modest sized square footage but also maximizing on what is available. Basically, decreasing your footprint and increasing your impact on the person. My inspiration for small design comes from tiny homes and how they can achieve sustainable living with such a small area.

In a tiny house or space, for it to feel livable, there needs to be a clear separation of zones in the function spaces. These function spaces would be living, sleeping, and working. The space is designed to allow each use of function to spill into the next basically creating a visual continuation or as I like to say a portal for the occupant to be transported from one use to another. The units are very simple in design and with this, it allows the occupants to adapt to their own space and make it their own. Rather than creating objects or gadgets that forced people into a use, I have learned that people are more adaptable than objects and will make themselves comfortable wherever they see fit.

The overall shape and exterior comes from a mix of a cabin and ranch style home. If you notice the common theme for the housing and other parts of the site is lumber and this is done by partnering with a locally known company called "Old Texas Wood" and what they do is take the opportunity to preserve old lumber add flooring salvaged from sites in North and East Texas areas.



RESPONSE TO SITE



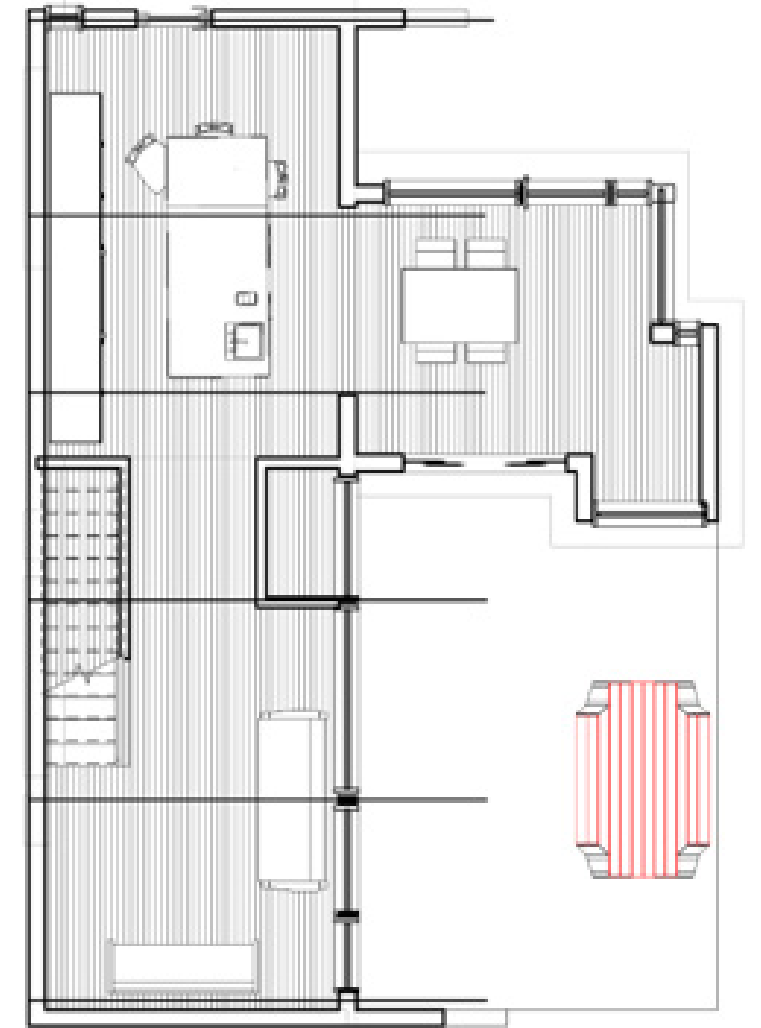
The layout of the development was made in consideration to the aspects that I found during site analysis. The analysis brought forth the community culture through the churches on site and the bus route that is directly on the South West corner of the site. I took those two elements and laid out where the cars would go and where the houses would sit in relation to those parking spots.

I had positioned the community center to the very West of the site because of the church that is right beside it. This is done so that the church members can come to the community center and use the community kitchen an eating area and engage with the residents as well.

All this is meticulously thought out so that the residents can have more community interaction amongst others besides the people that currently live there. I also did not layout any houses directly below the community center to allow space for cars and people to walk to the bus stop on that Southwest corner. I allowed two lanes of vehicular traffic on to the site and the southeast side is for other visitors and use of the basketball court there.



RESPONSE TO TYPOLOGICAL RESEARCH



My design was created to combat any previous stigma of low-income homes. Previous homes that have tried to do so have created buildings that look typical or uninteresting to the rest of the neighborhood and that creates a space that no one wants to walk to or associates with.

With my design, I intentionally made the housing units appear unique but simplistic in design on the exterior and interior. There could have been flashy parts or bigger spaces inside, but I decided to focus on a smooth exterior and a compact living space that allowed for external flow. This was especially important in a state like Texas which is hot. The housing units needed to have an interior space that could be opened to the outside and have that be part of their living space. This design also responds to how the units needed to be affordable and this was done by creating a small square footage and recycled building materials through the partner called "Old Texas Wood" and a lot of windows to allow air flow.

RESPONSE TO GOALS & PROJECT EMPHASIS

The important goals and drive of the thesis were to find a way of living that allowed low-income families and people of color feeling the disparities of redlining to grow in their communities, move up the ladder in the US, and develop wealth through the assets of their housing. The way I responded to that in my design was to create community centers but taught the people occupying the development on financial literacy and ways to reduce costs like the water collection features incorporated on the site.

This was an important goal of mine to establish, and it is shown through the way the community center interacts with the housing. I believe the thesis should not stop at creating a house, rather it should think about how these people will go about their everyday lives and that is through learning and knowledge comes with application and the application will be the result that we are looking for which is growing of wealth.

I have also created a simplistic yet eye catching design that is small on square footage but still achieves healthy living with exterior spaces included in the home. It was proven that you can save money on building a house while still achieving a thoughtful look or aesthetic.

I emphasize that my project would allow for self sustainable living and the growing of wealth and that is reflected through the water collection features incorporated in the shared spaces on the site and by allowing the users to make use of their housing choice vouchers to make their rent cheaper. If we look a little deeper into this, I made the Community Center with three spaces inside. These spaces include a community kitchen/ eating area, a teaching room, and an office for another partner of the project called the ICP. What the AICP does is engages in direct services, educational, research, an avid advocacy that promote and support the policies underlining the passage of the fair Housing Act. In general, they help families find places to live with their housing vouchers and let them know all the opportunities they have available with the little that they have in their pockets. In including a local community organization, I am achieving the aspect of creating a way for these low-income families to find a way out of the rut an into a land of opportunity. Accepting the housing vouchers will allow them to have lower rent which will allow them to in the end by the home with their saved income.

The water collection feature capitalizes on the fact that rain comes in abundance in this area and sometimes it is dry too and sometimes there are not weather anomalies that block water, and a low-income area is the first to hit. So, this water collection system allows for the family to for one cut on water costs that are constantly rising in this area and two keep a sustainable way of living that is not dependent on the city.

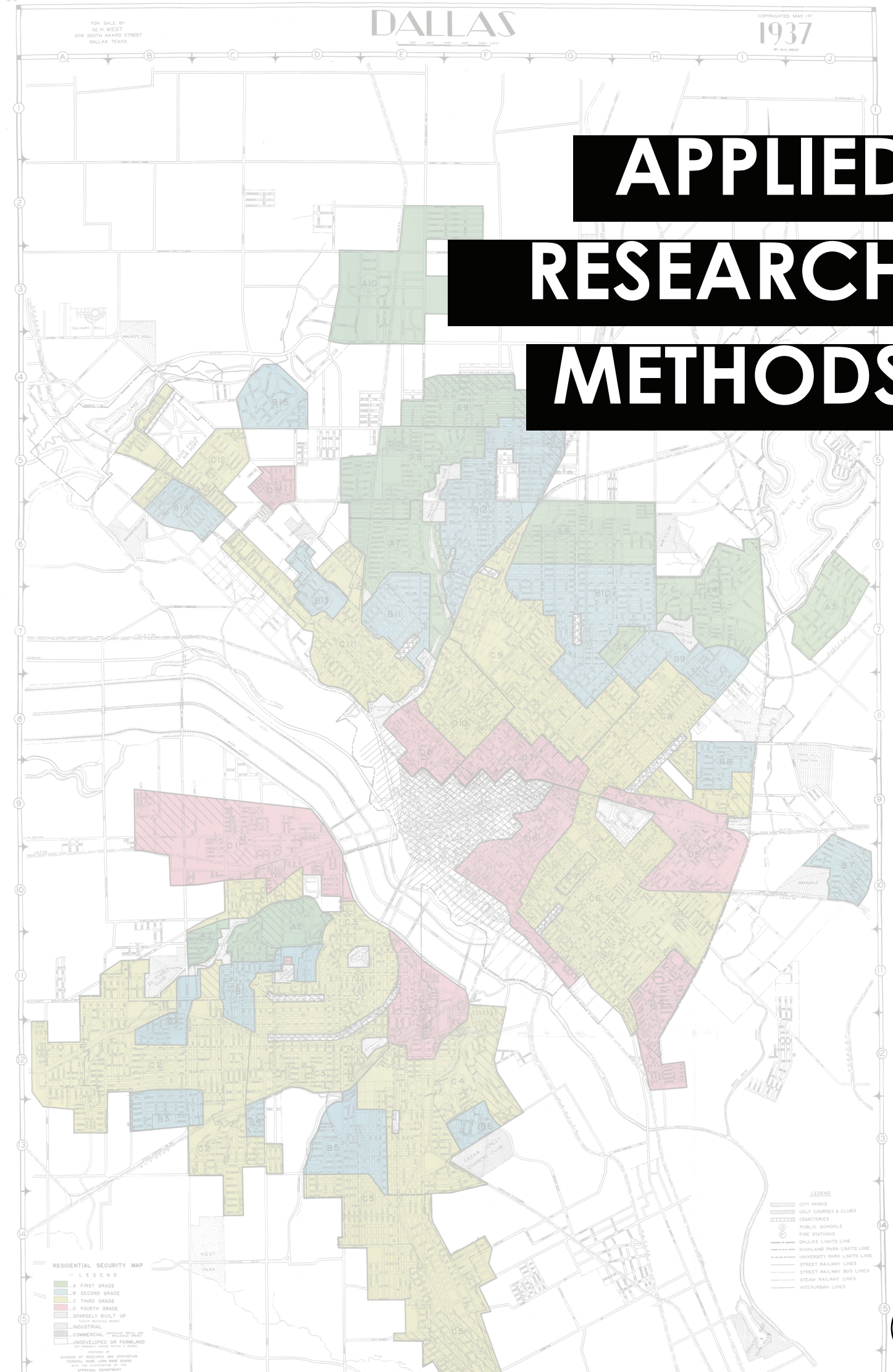
APPLIED

RESEARCH

METHODS

The research I did on the old redlining Maps from the 1930s and the covenants that I discovered were still in the language of housing deeds today all help me decide what was going to be in my site. this was crucial information to receive including the in person interviews that I conducted. Those interviews told me that some people do not know much about urban displacement or gentrification or the fact that there was language in housing deeds that prevented people of color from moving into a specific house. It was quite clear that there was a lack of knowledge on this issue with the people that it was affecting and that was a prominent factor that drove me to decide that there was going to be Community Center and that that was going to be the stomping grounds of my site. They're going to be teaching groups on the current problem that they're facing and the opportunities that are available to them.

With all the analysis that I did on my site and the areas around it trying to discover who this problem was affecting open my eyes too the fact of how many people, especially in this area, we're using housing vouchers and that drove me to incorporate the nonprofit organization ICP to help guide families to this development to start their path of increasing their wealth. Each comment made in the interviews and each little piece of information that I uncovered about redlining that is still prevalent today only field my emphasis for focusing on what aspects will be in the community rather than just settling on the development of the houses.





APPENDIX

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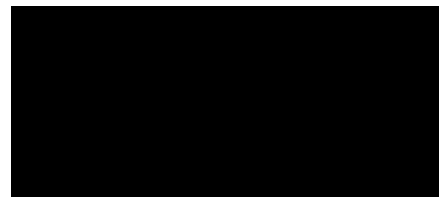
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"I'm here to challenge the current views of architecture and expand the minds of everyday people on what an architect can do not just for a city skyline but for the lives of people in it."



2nd Year

Fall 2017
Cindy Urness

Tea House | Commercial | MN
Boat House | Commercial | MN

Spring 2018
Milton Yergens

Single Family Dwelling | Marfa, TX
Multiuse Dwelling | Fargo, ND

3rd Year

Fall 2018
Regin Shwaen

The Arrow Head | Visitor Center | ND
The View Point Design Competition | NORWAY

Spring 2019
Ronald Ramsay

The R Hotel | Chicago, IL
Native American Musuem | Moorhead, MN

4th Year

Fall 2019
Cindy Urness

Triskelion | High Rise | Miami, FL

Spring 2020
Paul Gleye

Multiuse Dwelling | Brussels, Belgium

5th Year

Fall 2020
Ganapathy Mahalingam

Architectural Translation App | Innovation Challenge

STUDIO

EXPERIENCE