

Why Care

applying the methods of social housing in Detroit.

Connor Barbara
Advisor Wlodek Fuchs, Ph.D.
External Advisor Virginia Stanard

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Work produced by graduate thesis candidate Connor Barbara
University of Detroit Mercy School of Architecture
and Community Development

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Thesis Advisor: Wladek Fuchs, Ph.D.
External Advisor: Virginia Stanard

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Definitions

Relevant terms to this thesis.

Affordable Housing

Any housing development where repayments are artificially held below typical market value.

Area Median Income (A.M.I.)

A measure of a location's income distribution that can be used to determine unit allotments for specific economic groups by placing rent caps at set percentages.

Capped Rent

System to set a maximum rent or percentage rent increase that a landlord can charge for a property.

Co-housing

Residential projects realized by "intentional communities", created, funded, and managed by their residents. While households are typically self-contained, personal and private homes, residents come together and share activities, spaces and management responsibilities.

Housing Authority

Public corporations with boards appointed by the local government. Their mission is to provide affordable housing to low- and moderate-income people. In addition to public housing, housing authorities also provide other types of subsidized housing.

Intermediate Rent

Scheme provided by council or local housing authority under a subsidized rent between a percentage of typical market rate value. Time periods are typically 3-5 years to encourage residents to save.

Nonprofit Housing

Developed by nonprofit corporations with a community board of directors and mission. Most housing developed by nonprofit housing developers is affordable with rents or prices below market-rate. Income generated from the housing is put back into the mission of the organization, rather than being distributed to stockholders or individual investors as would be the case in for-profit housing.

Operating Subsidy

A type of subsidy going to property owners to reduce the management, maintenance and utility costs of housing. It is needed for projects housing extremely low-income residents who can't afford rents covering the actual costs of housing.

Social Housing

Any type of housing which is provided for rent or sale at a price under typical market rate value.

Section 8 Housing

Common name for Housing Choice Voucher Program that assisted low-income families in finding safe and sanitary housing on the private market. Through rent subsidies and vouchers, participants are able to choose whatever typology best suits their situation (single-family home, townhouse, apartment, etc.).

Public Housing

Established to provide decent and safe rental housing for eligible low-income families, the elderly, and persons with disabilities. Public housing comes in all sizes and types.

- 1523 The Fuggerei, arguably the oldest example of social housing, is built in Augsburg, Germany.
- 1760 Period of rapid industrialization begins.
- 1776 Congress endorses Declaration of Independence from Britain.
- 1851 Henry Roberts unveils his *Model Dwellings* at the Great Exhibition in London.
- 1853 Titus Salt develops his vision for Saltaire.
- 1886 Henry Ford builds his first automobile.
- 1914 The first World War begins in Europe
- 1917 The Russian Revolution overthrows the Romanov family dynasty.
- 1918 The first World War ends, leaving unforeseen levels of destruction.
- 1921 The Warsaw Housing Cooperative is formed in Poland.
- 1929 Great Depression begins.
- 1933 President Roosevelt passes his New Deal legislation.
- 1935 Techwood Homes, the first public housing in the United States, is built in Atlanta, GA.
- 1937 Housing Act initiates construction of public housing across the country.
- 1939 The second World War begins in Europe.
- 1945 The second World War ends.
- 1949 Housing Act reauthorizes 1937 Act and construction of public housing resumes.
- 1950 Korean War begins.
- 1953 Korean War ends.
- 1954 Pruitt-Igoe opens.
- 1955 U.S. involvement in Vietnam begins.
- 1956 Interstate Highway Act.
- 1957 Interbau exhibition in Germany studies new housing strategies.
- 1963 President Kennedy is assassinated.
- 1964 Civil Rights Act.
- 1968 Fair Housing Act.
Martin Luther King Jr. is assassinated.
- 1971 U.S. declares its War on Drugs
- 1972 Pruitt-Igoe is demolished.
- 1974 President Nixon places a moratorium on all public housing.
- 1975 U.S. ends its involvement in Vietnam.
- 1992 HOPE VI provides \$600 million for urban renewal of housing projects.
- 1995 “Blueprint for Reinvention of HUD” is passed.
- 1998 Faircloth Amendment further restricts all new public housing developments.
- 2001 September 11th attacks.
U.S. declares its War on Terror.
- 2005 Parisian Housing riots.
- 2008 Great Recession leads to millions of Americans losing their homes.
- 2012 Rental Assistance Demonstration is passed.
- NOW U.S. continues effort to reposition public housing to private markets.



Thesis Statement

Guiding concepts within the work.

Beginning around the mid-19th century as a response to the housing requirements of the new industrial city, social housing concepts have been sought out as methods to provide adequate housing to economically restricted residents. The ideas behind social housing have evolved to apply to a range of housing typologies and its effects have had massive implications on our urban environments. Yet when examining the current standing of affordable housing within the United States, there is an obvious and severe lack of housing strategies that assist these same restricted residents. This thesis asks whether the concepts found within the field of social housing can be adapted to the environment of the United States and utilized to create more widespread and resilient strategies for affordable housing.

The concepts behind social housing can be traced back as far as the 1830's, originating more as a response from factory owners out of necessity rather than desire. It marks, however, one of the first moves in providing housing for individuals who weren't able to afford it. Later in the early 20th century, events such as the first and second world wars, the growth of socialist ideology, the Great Depression, and the growth of modernism all had a part to play

on the development of social housing ideas, especially concerning affordable housing. Certain projects, such as the Warsaw Housing Cooperative, remain today as testament to some of the ideas found in social housing. But, as modernist philosophy developed alongside them, architects such as Walter Gropius would start to introduce concepts of production, efficiency, and modularity into his architecture which would have far-ranging effects in the realm of affordable housing. In the United States, as the newly formed Public Housing Commission began to seek its own solutions, it looked towards Europe and found this new methodology. Technological advances in the automobile and the introduction of restrictions on planning in the form of zoning all happened under this umbrella of development and the effects are substantial on how they have morphed our urban environment. Projects such as Pruitt-Igoe (1952-1974), now infamous following the failure of the public housing system, exemplify the problems within the design and management previous attempts at affordable housing used. As the Housing and Urban Development Agency continues to look towards the future, there is the start of a new way of thinking about affordable housing, one that looks beyond providing the base necessities and extends to include an entire community support network.

This thesis seeks to offer possible solutions to problems affecting our urban

Fig. 1.00 *View from Poplar St. within the Core City community in Detroit.*



Fig. 1.01 View from Grand River Ave. facing downtown Detroit.

environments and communities through the lens of social housing concepts. It begins to suggest opportunities that they can offer by analyzing questions such as:

How has the idea of the American Dream and the aims of self-reliance stigmatized social housing and urban environments in the United States and what can be done through design to counteract that?

How have existing values shifted the perception of low-income housing by non-residents?

Can the built environment affect the social structure behind a community?

What are the advantages of designing for low-income residents by expand to an entire community?

Can guidelines be found within these concepts that can be used to create a successful development regardless of location?

The research and information this thesis follows leads to the inevitable conclusion that our current solutions to affordable housing are still weighed down by mistakes of the past and are unable to respond to the current and future needs of residents. By looking towards ideas found within the lens of social housing, such as building communities through a



Fig. 1.02 Sidewalk condition along Grand River Ave.

human-centered perspective and ways that respond to the different ways that people live, we can take from successful projects and methods found around the world and begin to improve and apply them to our own environments.

This investigation began by analyzing through three distinct lenses: social, economic, and political. In each area, information sheds light on how the design and management of these types of projects were fundamentally flawed in many circumstances and destined to fail. At a time when Modernism promised a solution to housing, it instead isolated its inhabitants and separated them further from the fringes of society. The



Fig. 1.03 Existing housing development within Core City.

management styles utilized were flawed from the beginning and relied on a misconstrued understanding of what low-income and affordable housing is. And all of these issues fall under the added umbrella of political machinations that trace back to the founding of the United States that continue to represent a barrier to these ideas. Already we have begun to take apart and solve parts of these problems, but not in a cohesive way. Precedent can be found internationally of how social housing concepts can be used in the design and management of different developments extending to whole communities.

There have been attempts in the past

and current efforts made today that attempt to tackle similar issues that would argue that these elements won't solve anything and are slated to receive the same end as other forms of affordable housing. This thesis, however, analyzes from multiple vantages that gives a more holistic view of the factors affecting affordable housing and the framework created reflects that in a unique way.

It must be addressed, however, that the factors that have influence within these ideas are too numerous to count and any conclusions gathered are built upon nuances that take up entire professional fields. It is impossible for me as a single researcher to have the total, complete understanding of all facets of this thesis, however, that does nothing to take away from the general guiding ideas within these pages. While this thesis seeks to provide a new way of understanding and responding to our urban environments, it remains just that: an idea. The information and conclusions gathered on these pages has no way of being truly tested without a full realization. That does not necessarily mean the information is any less factual or sound and can [should] be used in practice as the field continues to develop.

The goals of this thesis have never been to solve human habitation, rather they have been to seek out methods in order to improve our urban environments and

to explore responses to the decisions made in the past. It offers an opportunity to reflect on mistakes that were made while allowing us to build upon old foundations. By taking and adapting our current environment with those methods called for within social housing, we can transform our relationship with the urban environment. It will become a tool for analyzing the housing needs of people without relying on necessity and instead as a set of ideals to strive towards.

"Empathy is the starting point for creating a community and taking action. It's the impetus for creating change."

-Max Carver



Fig. 2.00 Demolition of the Pruitt-Igoe housing development in St. Louis, Mo following its closing in 1973.

Beginnings of Social Housing

The formation and development of concepts that influenced the ways we understand subsidized housing.

The term social housing is vague. This stems from the fact that the term is applied to any form of subsidized housing project, typically with a focus on low-income residents, but also extending to include those with disabilities, elderly, veteran, or homeless residents. This wide net that social housing casts means that a range of housing projects and management styles all fall under its umbrella. To add another layer of complexity, each of these factors can vary based on where they are found around the world, the scale the projects are developed at, as well as the level of ownership that residents will have within the projects.

Council housing, housing cooperatives, co-housing, housing voucher or rental assistance programs, and public housing are all examples of what falls within the realm of social housing. There is, however, a single concept found in all of these projects that unites the range of housing types, which is the shared goal of providing quality, affordable housing to its residents. How and why social housing has evolved to take up these different forms and roles is the result of roughly two centuries of evolution from an innumerable number of historical influences.

There's no such thing as a free lunch. That phrase certainly applies to why the ideas of social housing were forming and being introduced in different populaces. There are certain realities that need to be faced, and one of them is that when an individual cannot afford something, they typically cannot receive it. While it would be amazing to believe that the first attempts towards social housing were simply for humanitarian reasons, that was not the case, as there were ulterior motives at work.

During the period of industrialization in the 1800's, primarily in Britain, there were multiple moves occurring within the urban landscape due to the development of industry. When factories were being developed, it was done outside of the already established urban population centers. The effect this had on the populace was that it effectively separated workers from their place of employment. The factory owners and other stakeholders recognized this disconnect and saw a need to provide cheap housing that their typically poorer workers could afford that kept them close to the manufacturing centers. This housing was built as cheaply as possible by the owners and often would create poor environments and a low quality of life for its residents. There were not many advancements in social housing that didn't tie the dwellings to employment and next to none that focused on providing quality housing for the residents. It wasn't until individuals

such as Titus Salt and Henry Roberts began to explore how these concepts could expand.

Titus Salt was a philanthropist in the textile industry. He owned and operated Salt's Mill in West Yorkshire, and, as a factory owner, recognized many of the same issues as his predecessors. Where he differed from those that came before him was that Salt subscribed to the idea that healthy workers are good workers and sought to establish an environment to reinforce that. His development of the town

Saltaire was based in these principles. Salt would describe his development as "well-disciplined" with his plan including 800 dwellings, wide streets, recreation spaces, a dining hall, kitchens, baths and wash houses, an institute, as well as a church (Bradford, et.al). Speaking on his efforts, Salt continued to separate himself from those that came before him, and in response to a suggestion that he enter competitions with his development of Saltaire, he would reply with, "What has been attempted at Saltaire arose from my own private feeling and judgement, without the most remote idea that it would become subject of public interest and inquiry. A sense of duty and responsibility has alone actuated me, and I would have avoided publicity. If the answers given to the questions of the Imperial Commissioners, or if any of the facts, which experiment or experience has elicited, prove of benefit to the

public, or should lead others to adopt, and enable them to surpass the result of my effort, I shall be thankful." (Bradford, et.al). Others would go on to do just that, however it would take a long time for these ideas to become widespread.

That is not to say that Titus Salt was alone in his thinking. Just before Saltaire would begin construction (1853), there was another individual concerned with providing adequate housing that was also gaining attention. Henry Roberts used the 1851 Great Exhibition in London to unveil his design that focused on building cheap housing that was also providing a quality and clean environment for its residents. Roberts, similar to the ideals held by Salt, believed that, "...[the] house had a decisive impact on subject formation and his designs promoted "the comfort and moral training of a well-ordered family"" (Leckie). The design itself has been described as "...solid, opaque, unflamboyant, and quietly respectable" (Leckie), and was the topic of discussion leading up to and during the Great Exhibition. Ultimately, Robert's idea would not see the extensive development he intended for a variety of reasons that fall outside the scope of this thesis.

Development in Europe

As the 20th century began, urban centers were seeing migration trends continue as industrialization drove people towards the economic opportunity cities offered. As these ideas continued to develop,



Fig. 2.01 Illustration of Saltaire Village, pre-1857.

the attention they garnered would gain traction as the appeal of providing affordable housing for the economically disadvantaged was obviously popular and was seen by many politicians as an opportunity to help clear urban slums. During the following decades, social housing would be heavily influenced by different historical context, specifically the growth of socialist political ideology, the utopian movement, and the formation and growth of modernism in architecture.

Part of the response to the growth of capitalism, socialist ideas would grow

in Europe during this time period in response to the increasingly dangerous and extreme conditions that workers were forced to live and work under. Unemployment was commonplace, housing and sanitation within cities was a frequent issue, and individuals would feel their freedoms limited as time progressed. This time period saw social and political upheaval that would extend and be felt throughout all walks of life. Across Europe, individuals starting as early as 1870 would begin to organize themselves and fight for access to better working and living conditions, higher wages, and the right



Fig. 2.02 *Poor residents would frequently find themselves living in unsanitary and cramped urban conditions.*



Fig. 2.03 *Aftermath of the first World War on Ypres, France.*



Fig. 2.04 *The first and second World Wars would leave millions without homes.*

to vote among other issues. They would extend to the built environment as well, and concepts regarding social program and community would be included in design and management methods for new housing projects. It is important to recognize as well that these ideas were being developed and heavily influenced by the effects of the First and Second World Wars. The devastation that these conflicts left in their wake created massive housing shortages across Europe and had countries looking for solutions. Where they looked and the answers they found have defined the evolution of social housing since.

One of the answers was the Warsaw Housing Cooperative (Warszawska Spółdzielnia Mieszkaniowa). Following the First World War, Poland was a sovereign nation once again, and also tasked with rebuilding the roughly 650,000 dwellings destroyed in the war (de Lille). The government of Poland would encourage developments to use social housing ideals in their creation. They assisted through the passing of different laws that allowed for housing cooperatives to form and the allotment of funds through the National Fund for Reconstruction (de Lille). The Warsaw Housing Cooperative, formed in 1921, is just one of these developments that was created around this time period. Formed by the founder of Polish town planning, Tadeusz Toeplitz, and militants from the Socialist Polish Party, the cooperative was founded on principles which sought



Fig. 2.05 *Warsaw Housing Cooperative, designed by Bruno Zborowski, Jan Chmielewski, Juliusz Żakowski, Stanisław and Barbara Brukalscy in 1925.*

to, “...provide and rent to its members convenient and affordable dwellings thanks to mutual help” (Turowski). These developments embody the ideals held by communities and represented the intersection of social, artistic, and architectural avant-garde influences (Leśnikowski). The movement as a whole was one of the main methods for spreading modern architecture and town planning.

How modernism influenced architecture and the urban environment is particularly evident in the work of architects such as Mies van der Rohe, Le Corbusier, and Walter Gropius. The concepts they were introducing to the built environment

included ideas of bringing efficiency and function to the forefront of design. They were also influenced by the mass production industry was now capable of and how it could apply to construction. These ideas would expand to the urban scale as well, initiatives such as zoning were first introduced towards the beginning of the 20th century with the prevailing concept being to separate our communities based on function in a way that provided safe and clean neighborhoods for residents. Technological advancements in this time, particularly that of the automobile, also had massive influence on the direction urban planning would take and would quickly become the priority in future

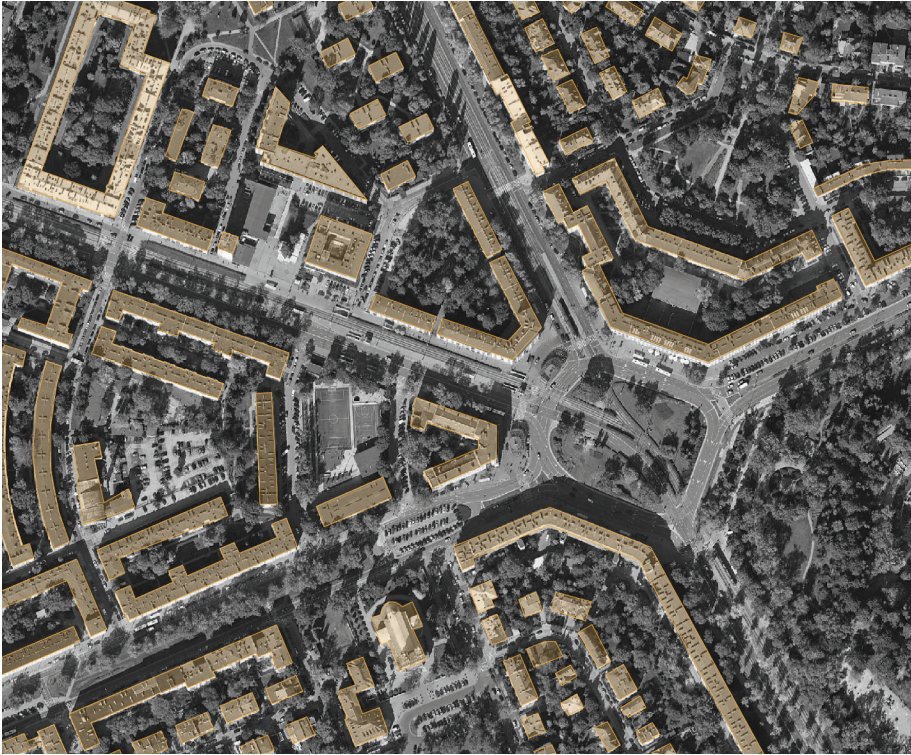


Fig. 2.06 Warsaw Housing Cooperative, current.

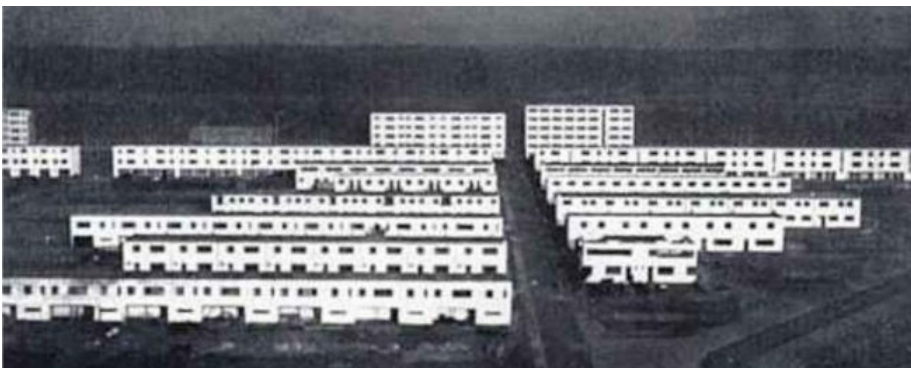


Fig. 2.07 Dammerstock-Siedlung designed by Walter Gropius, 1928.

developments.

Walter Gropius was one of the architects concerned with how these ideas could be used to answer the problems of affordable housing, specifically how the idea of mass production could create economic incentives as well. His designs would reflect his thinking and can be seen in developments such as those found at Dammerstock (1928) or Am Lindenbaum (1930). Not all were convinced modernism provided the solution that it claimed to bring, and Gropius' work received criticism from many. Critic Adolf Behne wrote of Gropius' Dammerstock project that "The advantages of row construction are excellent and should continue to be utilized. But it can only serve urban development as a means of urban design, not in place of urban design" (Krohn), implying that the limitations of the concepts create substandard housing environments for its residents. Gropius himself recognized many of the shortcomings of his designs and would take special consideration of the human elements within the dwellings in future projects. He writes about the Am Lindenbaum development, stating "...if the provision of light, sun, air and warmth is culturally more important and, with normal land prices, more economical than an in-crease in space, then the rules dictate: enlarge the windows, reduce the size of rooms" (Krohn). Both the Warsaw Housing Cooperative and many of Gropius' housing estates stand

today as testament to these concepts in establishing resilient and long-lasting communities. One area Gropius' ambitions did not reach was his hope of utilizing mass production to reduce cost on construction and building materials. The development at Dammerstock, despite these concepts engrained in the design and construction, came to cost more than a development using traditional methods. Ultimately, construction on that project and others around the world would be halted as the Great Depression's affects were seen worldwide.

Introduction to the United States

While the first and second World Wars created massive housing shortages and economic instability that grew social housing concepts in Europe, the United States saw economic growth during this time period and as a consequence, the ideologies were not as commonplace. During the Depression Era, however, public opinion would drastically change. At its height, an estimated two million Americans were homeless, migrating across the country while creating patchwork settlements and shantytowns (Gregory). The problem was too large to ignore and taken up by the Roosevelt Administration. As President Roosevelt's response to the Depression, he unveiled a plethora of social and economic programs for Americans. Within the Housing Act of 1937, Roosevelt penned

into existence the United States' response to its housing crisis in the Public Housing program under his Public Works Administration.

From its inception, the United States looked towards Europe for guidance in creating its own affordable housing system. In their search for the latest planning and design theories, the individuals that Roosevelt put in charge of his program would borrow heavily from modernist principles, especially those found in Europe (Vogel). The projects, completed in this international style, resulted in housing that did not blend with the American urban landscape, standing out with materials and detailing that were not typical of American cities of the time. The intention went as far in some circumstances as to directly copy European examples and recreate the design here. The Kiefhoek Estates (1929), located in the Netherlands, was reproduced nearly identically at the San Filipe Courts (1940) in Houston Texas. While these concepts developed from worker's housing proposals, they lacked many of the social programs and details that characterized European developments, and as a result the quality of living was simply not equal. It could be argued that social aspects were considered irrelevant when designing and implementing these housing projects within the United States. In determining locations for these developments, cities often selected areas with primarily black residents and

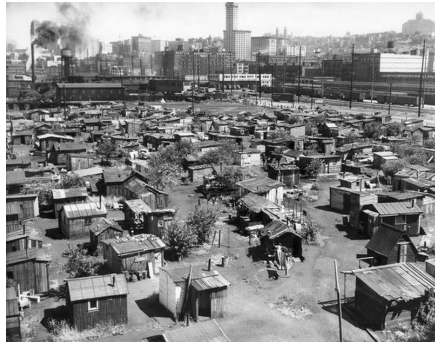


Fig. 2.08 *One of the first Hoovervilles to form, located in Central Park of New York City, 1933.*

would push many of them out of the area despite generational ties to the location and community in most cases. These values carried into the housing itself as all housing projects were segregated by race for decades until intervention from cases such as *Brown v. Board of Education* in 1954 and laws including the Fair Housing Act of 1968 (ACLU). Despite legal intervention to prevent these racist attitudes, the practices would continue and as late as 1984 it has been shown that many housing projects continued to separate themselves along racial barriers (Watts). Despite a strong initial push, and expansions through the Housing Act of 1947, the public housing system would begin to falter as early as the 1950's and would never recover.

Collapse of Public Housing

As with many of Roosevelt's programs, the public housing system was seen as a massive success by many politicians responsible for introducing them as well as residents who now had places to call home. Despite its overarching flaws, the program did succeed in placing millions of Americans in housing that was sanitary and healthy for its residents, a far cry away from the dirty and overpopulated urban slums they came from. But as is evident already, the public housing program rested on unsound footing. The projects, by seeking to provide for as many residents as economically as possible, would concentrate low-income populations within certain areas

of the cities they occupied. The visual disconnect to the surrounding urban context, the ostracized residents that are rejected from the overall community from a social and economic lens, and the flawed management policies that ran these housing projects would all play a part in the undoing of America's housing system. Despite strong intentions, these projects would later be characterized by high crime-rates, drug use, and high vacancy rates, often in excess of 70% (Vogel). They would rely on a constant influx of public money simply to maintain their existence and at a time when American cities were seeing their populations migrate towards the suburbs, this was especially influential.

One of the most infamous failures of the public housing system is the iconic Pruitt-Igoe Housing Project (1954) located in St. Louis, Missouri. The architects and planners described a plan that eliminated several city blocks of primarily black residents and proposed a landscape of isolated towers that could house tens of thousands of residents in a safe and clean environment. Many of the residents displaced by the initial construction would never be housed within Pruitt-Igoe, becoming one of the casualties of affordable housing. The design of Pruitt-Igoe was initially segregated, however during its construction several laws and legal decisions were passed that prohibited racial segregation within housing projects. Despite this, black families, in order to qualify for housing,



Fig. 2.09 *Aerial view of Pruitt-Igoe following its completion.*

could not have the male head of the household living with them inside the projects (Freidrichs). Racist policies and management methods can be seen in projects across the country and were just one of the many problems that prevented sustainable communities from forming. The stigma that housing projects would garner remains even today as a barrier for future development. Pruitt-Igoe would go on to be demolished in 1972, roughly two decades after its completion, showing just how quickly these projects deteriorated with a lack of support structures in place. Incompetency was seen at both a local and federal level with projects often being notoriously

fraud-ridden (Vogel) and incapable of providing for residents. St. Louis saw its urban population decline beginning around the mid-20th century and move towards the suburbs, losing most of its tax base which was used to help fund these projects. Ultimately, there would be a moratorium on federal housing projects put in place and no federal development has occurred since.

What Now

By the 1970's, many of the public housing projects found in the United States had become a mockery of their promised functions. With vacancy rates growing



Fig. 2.10 *Later conditions within Pruitt-Igoe.*



Fig. 2.11 *Broken windows and barbed wire fences dot the Pruitt-Igoe project.*



Fig. 2.12 Demolition of Pruitt-Igoe, 1972.

as high as 70%, these projects frequently had the highest crime-rates of the cities they were located in and were associated with illegal drug-use (Vogel). These facts, coupled with the other challenges, were influential in the eventual ending of the federal public housing program with President Nixon signing the Housing Moratorium in 1972. To this day, there have been no new federal public housing developments.

This does not mean the United States has given up on providing affordable housing to its citizens. In the following decades there has been a shift towards privatization where federal funding is utilized to provide housing opportunities to income-restricted individuals. The Housing and Urban Development Agency is responsible for assisting over 3,300 local housing administrators in running public housing projects and has championed initiatives that utilize vouchers and rental assistance through their Housing Choice Voucher program, commonly referred to as Section 8. This style of management allows residents to have more freedom over their housing, a benefit over the standard unit style used previously within the public housing system. However, current approaches lack much of the support that many past projects offered in the form of community centers, local businesses, educational institutions, and other community pillars. In a larger sense, the United States is still unable to contend with its current needs for affordable housing as can be seen in

resident figures. Currently, H.U.D. counts 1.2 million families in its public housing projects while 1.6 million remain on waitlists. The more widely used Section 8 program counts 2.2 million families that rely on housing subsidies while 2.8 million are on waitlists. In total, it is estimated that the United States requires at least 6.8 million additional units of affordable housing to meet its current demand (H.U.D.). These facts illustrate the flaws that remain in the current approach to affordable housing, and despite the best intentions, still lack ways to improve the resident's quality of life and standard of living.

Distribution of Residents within Affordable Housing (United States)

62,500 residents = 

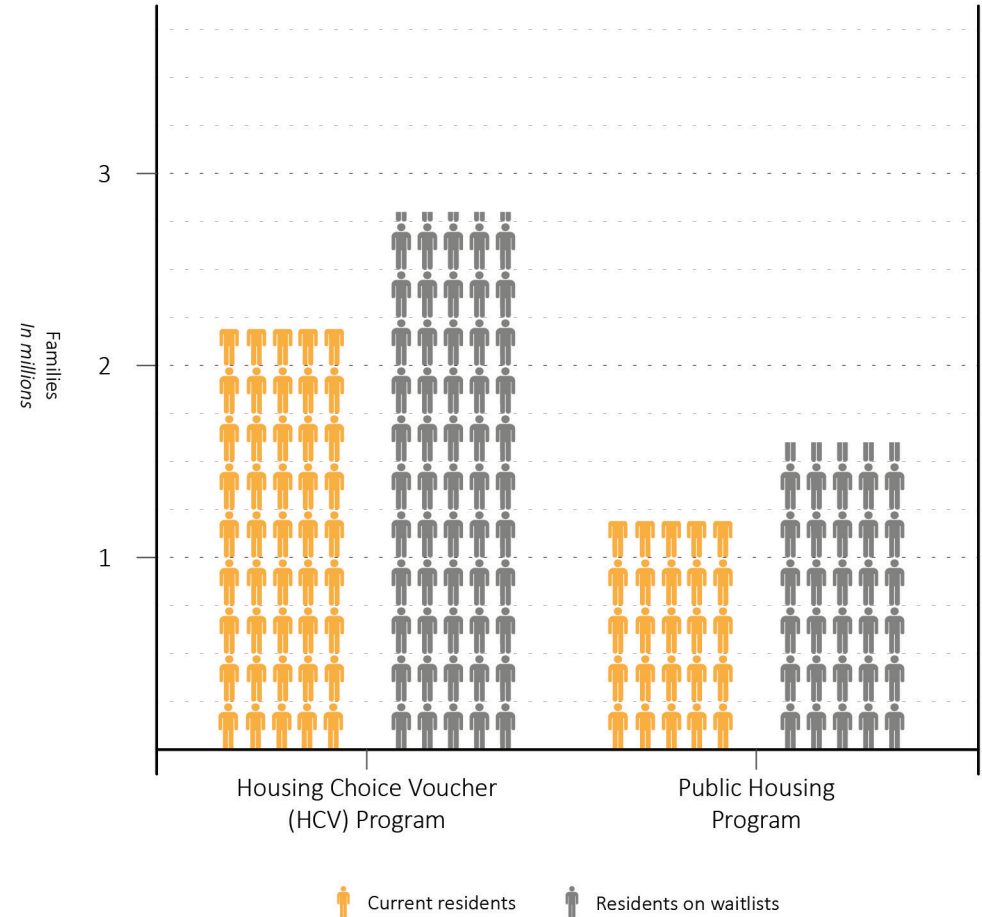


Table 2.01 Based on information gathered from: NLIHC. "Millions of Families on Voucher and Public Housing Waiting Lists." National Low Income Housing Coalition, 7 Mar. 2016. USHUD. "Hud's Public Housing Program." HUD.gov / U.S. Department of Housing and Urban Development (HUD).



Fig. 3.00 Residents protesting rising rent costs in New York.

Doomed from the Start

How has the relationship the United States formed around affordable housing influenced its current state.

The evolution and current perceptions of the United States' affordable housing initiatives make up only one factor that challenges the concept's future development. Foremost among them is the question of affordability itself. Who are the stakeholders interested in seeing these types of projects built? Who are they built for and who is building them? How is it funded? These are all questions that need an answer in order to make affordable housing a reality no matter where the project is located. Over its relatively short, yet complex history, social housing methods have been influential in how the costs to develop and maintain this style of housing have been handled. The shared goal of all affordable housing is to provide it at a cost the resident can afford and similar to the variety that exists in the form these projects take, the methods used to manage the financial aspect also range widely.

The initial housing developments that began these ideas connected the housing to the resident's employment. During the period of industrialization, factory, and mill towns, such as Saltaire, were constructed as industry grew with individuals following economic opportunity (Stilwell). However, not

all who developed these projects had as high-minded intentions as those of Titus Salt. These developments were done with the main justification being close proximity of the workforce to the manufacturing areas, which meant concerns such as resident quality of life, architectural design, and the use of quality materials were not a priority. It wasn't until the latter half of the 19th century and continuing into the 20th that real conversations began regarding the provision of quality living environments. In response to the rise in population that cities experienced during this period, the general living conditions began to deteriorate. Areas with low-income residents frequently experienced over-population which caused slum-like conditions to develop. Cities needed a response to the growing issue and ultimately saw to the clearing of urban decay and its replacement with sanitary and safe housing for residents.

This style of civic endorsement was popular at this time, especially as the 20th century continued. When the events of the first and second World Wars left Europe devastated, their governments responded by providing the economic relief necessary for rebuilding. The reformed Polish state, following the first World War, responded to the question of replacing over 650,000 destroyed dwellings by passing legislation that would provide the finances necessary to rebuild. The National Fund for Reconstruction was introduced in 1919



Fig. 3.01 Crowds gather outside Central Bank in New York following its failure, 1931.



Fig. 3.02 Crowds listen to details of President Roosevelt's New Deal program.

alongside legislation that allowed the formation of housing cooperatives. Through subsidies, these groups could cover as much as 95% of construction costs (de Lille). Countries frequently held competitions for housing developments in the Post-War era, often with the added condition of addressing social conditions (Wagner-Conzelmann). For architects, this was also an opportunity to showcase developing trends as modernist pursuits began to realize. Many of the concepts found within modernist philosophy concern themselves with areas of affordable housing, particularly regarding how mass-production and kit-of-parts styles of assembly can be applied to architecture (Seelow). This methodology is one that has evolved to keep up with building materials and techniques and is still utilized today in many housing developments.

In the United States, the public housing system began under Roosevelt's New Deal policies, his response to the struggles Americans were experiencing during the Great Depression. In each of these situations, affordable housing is developing as a response to large demand out of necessity. Factory owners required their workforce nearby in order to match rising production, state and city governments needed to respond to growing protest from residents regarding deteriorating urban conditions, the governments of Europe required a solution to the catastrophic damage of the World Wars, and the United States

needed an answer for its millions of homeless Americans during the Great Depression. This societal-scale demand is in part what required intervention on a civic level as they not only have a duty to their citizens, but they also represented one of the only institutions capable of this magnitude of investment and sustaining such large subsidies.

That responsibility did not end after construction finished; in fact it was just beginning. The methods used to manage the cost of operating affordable housing varied based on the function it was providing for different groups. For factory owners, they were able to offset the cost of developing and maintaining worker's housing through taking portions of the wages received by employees. This management style resulted in hazardous construction and poor living conditions, ultimately leading to protest. Residents often had few liberties in these communities and extremely low wages. In the event that the resident lost their job, they found themselves without housing as well as a source of income. Slowly the conversation regarding housing would expand and take up social issues faced by residents. By the Post-War era, social housing concepts have been developing to a point where they are at the forefront of the discourse surrounding affordable housing. This environment created one in which the housing developments were constructed alongside the city around them which would have lasting effects

on the sustainability of the community long-term. Within Europe, social housing would become widespread and in cities such as Vienna, Austria, over 60% of dwellings receive government subsidies (Dreier). The living conditions associated with social housing are ingrained within European cities alongside the economic management and benefits.

The United States, by comparison, used housing projects as a response to urban blight as well as affordability. This meant that entire swaths of city blocks were bulldozed to make way for new developments. As indicated, this concentrated low-income and at-risk residents within a single location, but unlike similar European developments, they did not have the same level of social awareness and support structures in place for residents. The lack of opportunity for residents to prosper leads to complete reliance upon subsidies, and public housing projects quickly became funnels for government funding (Vogel). The typical resident within these projects would pay no more than 30% of their monthly income in renting the unit, or whatever percentage was manageable based on H.U.D. measurements, but when residents had little to no income this meant that housing projects would need to rely on government funding for operation costs. Getting adequate funding to maintain the projects was a constant battle as well as fraud committed by the public officials responsible for running them (Vogel).



Fig. 3.03 Resident protesting rent costs within public housing.

Funding was frequently provided by the city's tax base, however the 1950's and onward would see America's urban population migrate towards the suburbs, crippling many city's finances. This effect was particularly evident within Post-Industrial cities such as St. Louis, MO, the home of Pruitt-Igoe, and Detroit, MI. Projects would begin to deteriorate, eventually resembling the same dilapidated structures they were meant to replace. The conversation regarding affordable housing would begin to shift, taking on darker connotations and gaining a stigma among communities that it still struggles to lose today.

Associated Financial Burdens

The shift towards a privatized model

leaves the United States in a precarious situation; some party is necessary for the building and maintaining of housing projects. When the issue is viewed through the eye of a private developer, low-income housing is far from the typical high-return markets focused on. The goal of companies involved in the development and management of any housing typology is profit and the level of uncertainty regarding economic factors that comes with a lack of government interest represents a challenge in incentivizing individuals to introduce and grow these ideas. The variables coupled with affordable housing that influence the cost can range from design strategies that impact material and construction to land acquisition and property management techniques.

Income Distribution for Rental Homes among 100 Households

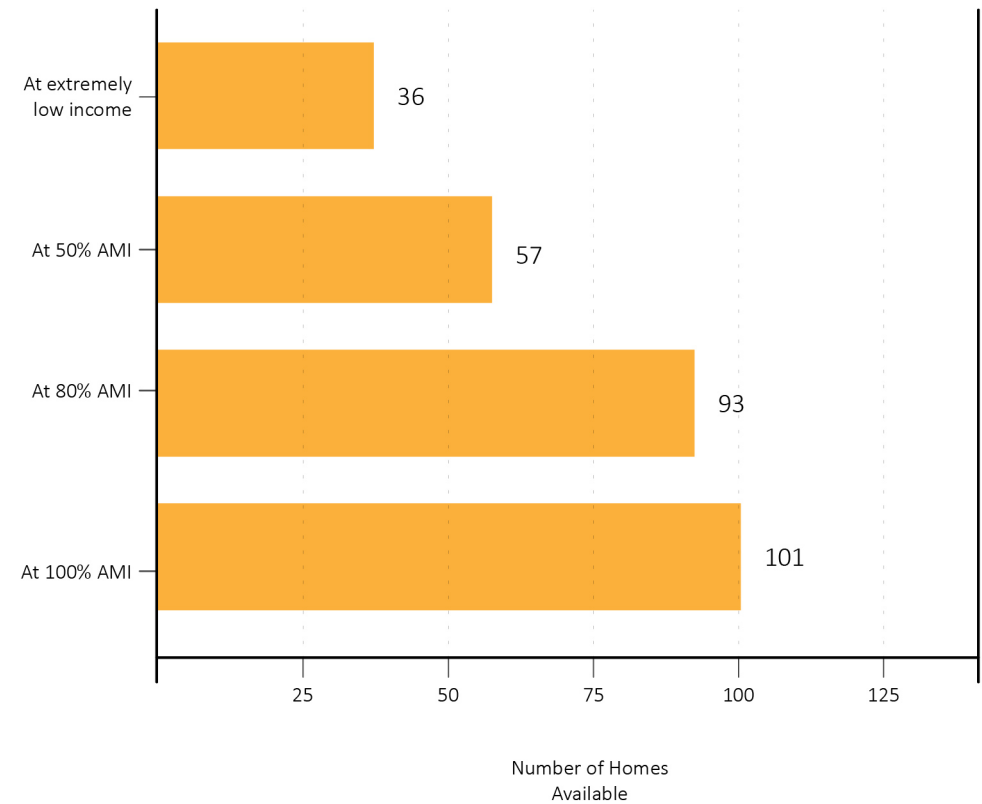


Table 3.01 Based on information gathered from: Aurand, Andrew, et al. NLIHC, Washington, DC, 2018, pp. 1-32, A Shortage of Available Homes.

Housing Development Associated Hard Costs

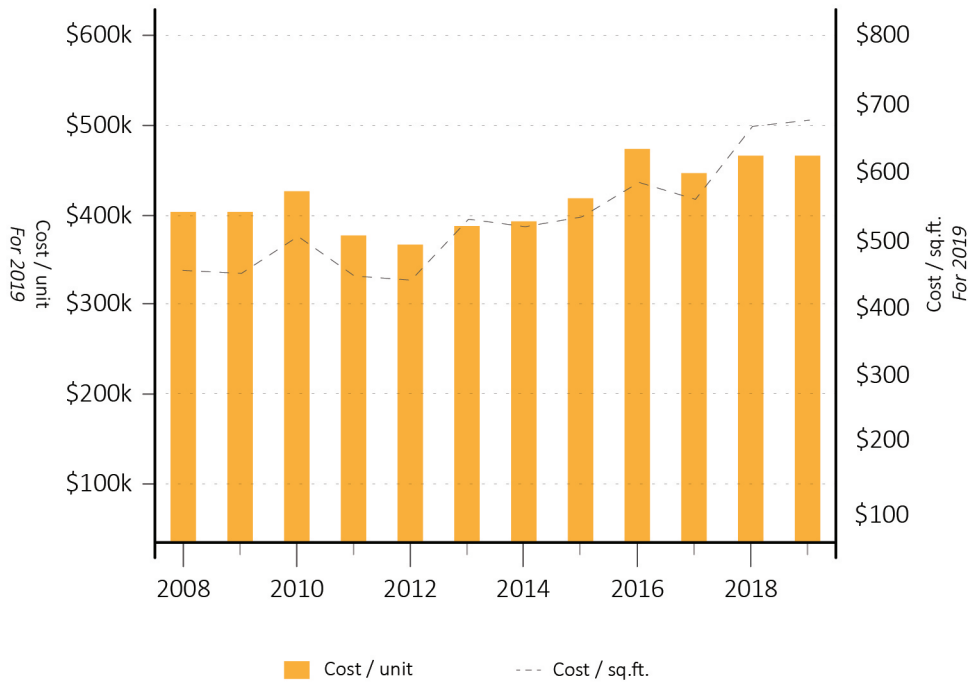


Table 3.02 Based on information gathered from: Reid, Carlonia K, Adrian Napolitano, and Beatriz Stambuk-Torres. Rep. *The Costs of Affordable Housing Production: Insights from California's 9% Low-Income Housing Tax Credit Program*. Berkeley, CA: Terner Center for Housing Innovation, 2020.

One of the largest hurdles for low-income and affordable housing projects is being built in the first place. What party is paying for it and how frame the conversation regarding cost-factors in housing projects. In the United States, there are two methods by which the majority of affordable housing is created; the first is the use of low-income housing tax credits and breaks for developers that offset the cost for construction, and the second is supplying residents with housing vouchers that subsidize

the rental or purchasing costs of existing dwellings. As has been established, in the United States there is a limited supply of housing options for low-income residents. The methods currently in use are in part to blame as they lack incentives for private developers to pursue projects. The low-income housing tax credit system is one that incentivizes developers in building low-income and affordable housing by offsetting some of the construction costs, yet the added complexity that using these programs

Housing Development Funding Breakdown

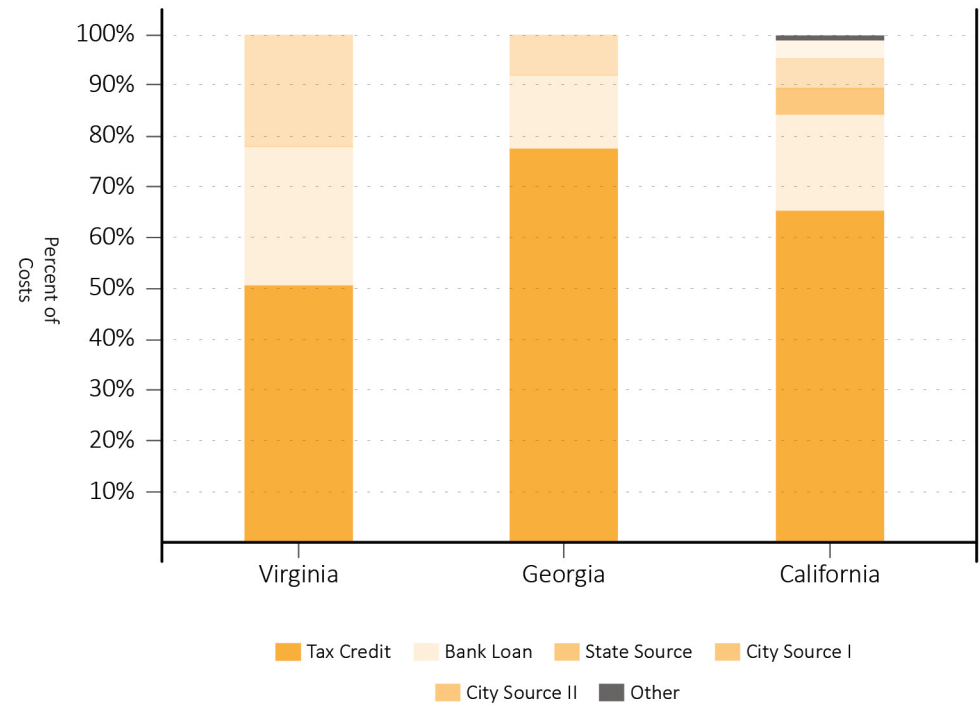


Table 3.03 Based on information gathered from: Kneebone, Elizabeth, and Carolina K Reid. Rep. *The Complexity of Financing Low-Income Housing Tax Credit Housing in the United States*. Berkeley, CA: Terner Center for Housing Innovation, 2021.

brings to the project frequently drives up costs (Kneebone). Meeting the requirements for tax credits on a project is difficult and sometimes impossible for developers to manage. Where the projects are located also influence these factors as locations will value tax credits at different rates. Even if a project qualifies to receive credit, they do not cover all costs of construction, meaning developers must seek out additional sources of funding.

This economic network that builds around affordable housing projects grows as the scale of development increases, which can mean stakeholders may be inclined towards more conservative scaled projects. The actual construction materials and techniques used are no different than traditional housing projects, but in order to qualify for assistance, projects will need to meet different requirements which vary by municipality and often result in projects that are more expensive to complete

(Reid). Projects can have stipulations tied to construction items such as the required use of locally sourced material and contracted business, even requiring projects to meet set standards for employing minority-owned businesses.

While this means nothing to some areas, it can be crippling to other projects when these requirements drive up material and labor costs. An example of how complex these projects can grow is seen in the design and construction of the Via Verde (2012) housing development. Designed by Grimshaw + Dattner, the project located in the Bronx in New York City is a large-scale, multi-family housing project that tackles affordable housing. In total, the 222-unit project would cost \$98.8 million dollars to complete (U.L.I.), and that figure comes with significant caveats. More than 19 different sources of funding were required in order to complete the project. Illustrating the quasi-governmental relationship that exists in affordable housing, the site was sold to developers for \$1 dollar by New York's Housing Preservation and Development office while also being granted \$145,000 dollars for environmental remediation as the location was a former brownfield site (U.L.I.). The funding sources ranged from public and private entities to non-profit organizations affiliated with the project, each of which have different interests within the project. The design itself was in part responsible for the large costs as the project would boast drivers from

environmental sustainability to mixed programming that supports residents. The amount of cooperation required in order to bring such a project to life is simply not able to expand to operate in a large-scale framework and the policies in place severely limit the individuals who may be interested in this type of development.

The other method the United States uses as a solution to affordable housing is the Housing Choice Voucher program, also known as Section 8. Through granting qualifying residents housing vouchers to offset the cost of purchasing a home or covering a percentage of a unit's rental costs, the program intends to assist residents while having the added benefit of allowing individuals more freedom to choose the style of dwelling that works for them. The disadvantages that come with this style of management is that the assistance ends for residents there. As seen in some of the earliest forms of affordable housing, those based in social ideals, there were a variety of additional services that aided residents in more areas of their lives. They included programming for food procurement, employment, education, businesses, etc. As these developments grew, they continued to include functions that extended beyond housing itself that were concerned with the resident's quality of life with the goal being for them to achieve financial security. Within European developments of the 20th century, they were organized in such

a way that integrated the community within the surrounding context. Within the United States, the projects often replaced the unsanitary slums in dense urban environments, however as time progressed the allocations that were made for additional services for things such as public education, municipal services such as police and fire departments, and job training were some of the first programs cut due to budgetary concerns. This left residents without the tools necessary to eventually no longer have to rely on constant economic relief.


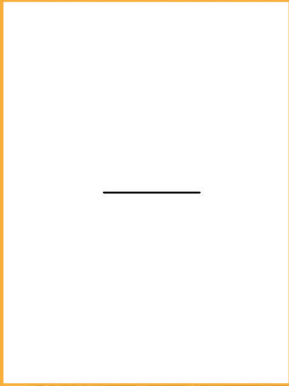

Where the projects are located has a large part to play in aiding that effort. Past examples have located them in proximity to manufacturing and dense urban settings that represent areas for economic opportunity. This concept is still seen today and its lack of visibility in some housing developments could explain why they struggled and ultimately failed. When concepts regarding zoning and urban planning began to change in the 20th century, they started to separate how our cities are laid out based on functional parameters. With developments to the automobile and introduction of the highway system, suburbs began to develop outside of the dense city environment and once again separated housing and employment opportunities. Without access to a car, this situation illustrates how low-income residents can be isolated if proximity is not considered. There needs to be care




Fig. 3.04 Residents protesting rising rent costs in Los Angeles.

in the thinking surrounding these issues, and the services must be in place as resident needs often don't overlap with other, wealthier areas.

Affordable Housing Development Cost Breakdown

Project	Design Drivers
 <p>Via Verde Bronx, New York Dattner Architects + Grimshaw</p> <p>222 Units</p> <p>Total cost: \$98,800,000 USD</p>	<p>Via Verde is an affordable, sustainable residential project...in three distinct building types—a 20-story tower at the north end of the site, a 6 to 13-story mid-rise duplex apartment component in the middle, and 2 to 4-story townhouses to the south. It reflects a public commitment to create the next generation of social housing and seeks to provide a setting for healthy, sustainable living.</p> <p><i>Text taken from architect's website.</i></p>
 <p>Proposal One Alexandria, Virginia</p> <p>81 Units</p> <p>Total cost: \$35,150,000 USD</p>	
 <p>Carmel Place New York City, New York nARCHITECTS</p> <p>55 Units</p> <p>Total cost: \$16,700,000 USD</p>	<p>Carmel Place was the winner of the adAPT NYC competition, optimizes modular construction to provide the city with housing solutions for the expanding small household population. Exterior and interior spaces were designed with the goal of creating a systemic new paradigm for housing in NYC and other cities with similar demographic and affordability challenges.</p> <p><i>Text taken from architect's website.</i></p>

Funding Sources	Development Cost Analysis
<p>Total cost: \$98,800,000 USD</p> <p>19 different public, private, and nonprofit funding sources</p> <p>Site sold for \$1 by Housing Preservation and Development (HPD)</p> <p>\$145,000 USD for environmental remediation (former brownfield site)</p>	<p>\$32 million USD for 71 co-op units (\$451k / unit)</p> <p>\$66.6 million USD for 151 rental units (\$441k / unit)</p> <p>151 low-income units 40%- 60% area median income (AMI)</p> <p>71 middle-income co-ops 70%- 100% AMI</p>
<p>Total cost: \$35,150,000 USD</p> <p>Bank Loan: \$9,796,000</p> <p>Alexandria City Loan: \$7,650,000</p> <p>Federal Tax Credit Equity: \$17,701,952</p>	<p>\$35.15 million USD for 81 units (\$434k / unit)</p> <p>81 income-restricted units 30% / 50% / 60% AMI</p> <p>Units range from 0 to 3 bedrooms</p>
<p>Total Cost: \$16.7 million USD</p> <p>Housing Preservation and Development (HPD) provided \$1.167 million USD and allocated \$1.06 million USD in Federal HOME Funds</p> <p>Site owned by city</p> <p>\$10.3 million USD private loan from M&T Bank</p>	<p>\$16.7 million USD for 55 units (\$304k / unit)</p> <p>22 low-income units 8 units designated for formerly homeless veterans</p> <p>11 80% AMI 5 145% AMI 6 155% AMI 32 market-rate units</p>

 <p>© Bruce Damonte</p>	<p>1180 Fourth St. San Francisco, California Mithun-Solomon + Kennerly Architecture and Planning</p> <p>149 Units</p> <p>Total cost: \$70,660,000 USD</p>	<p>Sustainability and wellness grow from the urban context of this mixed-use development: walking distance to jobs, local and regional transportation, retail services and city parks. Details connect residents with the city and each other: circulation flooded with daylight and city views, a multilevel courtyard at the mid-block, and special nooks for children to explore.</p>
<hr/>	<p>Proposal Two Atlanta, Georgia</p> <p>84 Units</p> <p>Total cost: \$15,870,000 USD</p>	
<hr/>	<p>Proposal Three Los Angeles, California</p> <p>80 units</p> <p>Total cost: \$43,000,000 USD</p>	

<p>Total Cost: \$70.66 million USD</p> <p>7 different public, private, and nonprofit funding sources</p> <p>Units designated for low-income households and formerly homeless</p>	<p>\$70.66 million USD for 149 units (\$474k / unit)</p> <p>99 low-income units 50% AMI</p> <p>50 units for formerly homeless Subsidized so no one pays more than 30% of monthly income.</p>														
<p>Total Cost: \$15.87 million USD</p> <table data-bbox="1333 708 1731 869"> <tr> <td>Bank Loan</td> <td>\$ 2,400,000</td> </tr> <tr> <td>Invest Atlanta</td> <td>\$1,200,000</td> </tr> <tr> <td>Federal Tax Credit Equity</td> <td>\$ 7,552,521</td> </tr> <tr> <td>State Tax Credit Equity</td> <td>\$ 4,720,326</td> </tr> </table>	Bank Loan	\$ 2,400,000	Invest Atlanta	\$1,200,000	Federal Tax Credit Equity	\$ 7,552,521	State Tax Credit Equity	\$ 4,720,326	<p>\$15.87 million USD for 84 units (\$189k / unit)</p> <p>84 income-restricted units 9 units designated for residents with physical disability 50% / 60% / market AMI</p> <p>Units range from 1 to 3 bedrooms</p>						
Bank Loan	\$ 2,400,000														
Invest Atlanta	\$1,200,000														
Federal Tax Credit Equity	\$ 7,552,521														
State Tax Credit Equity	\$ 4,720,326														
<p>Total Cost: \$43 million USD</p> <table data-bbox="1333 1090 1708 1407"> <tr> <td>Bank Loan</td> <td>\$ 8,063,000</td> </tr> <tr> <td>Housing Authority of the City of Los Angeles (HACLA) Ground Lease</td> <td>\$ 2,800,000</td> </tr> <tr> <td>HACLA Loan</td> <td>\$ 1,750,000</td> </tr> <tr> <td>HCD- Infill Infrastructure Grant Program Loan</td> <td>\$ 1,999,268</td> </tr> <tr> <td>Accrued/Deferred Interest</td> <td>\$ 220,000</td> </tr> <tr> <td>Federal Tax Credit Equity</td> <td>\$ 11,222,438</td> </tr> <tr> <td>State Tax Credit Equity</td> <td>\$16,973,008</td> </tr> </table>	Bank Loan	\$ 8,063,000	Housing Authority of the City of Los Angeles (HACLA) Ground Lease	\$ 2,800,000	HACLA Loan	\$ 1,750,000	HCD- Infill Infrastructure Grant Program Loan	\$ 1,999,268	Accrued/Deferred Interest	\$ 220,000	Federal Tax Credit Equity	\$ 11,222,438	State Tax Credit Equity	\$16,973,008	<p>\$43 million USD for 80 units (\$538k / unit)</p> <p>80 low-income units 30% / 40% / 50% / 60% / 80% / market AMI</p> <p>Units range from 1 to 4 bedrooms</p>
Bank Loan	\$ 8,063,000														
Housing Authority of the City of Los Angeles (HACLA) Ground Lease	\$ 2,800,000														
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Table 3.04 Based on information gathered from:
 Kneebone, Elizabeth, and Carolina K Reid. *Rep. The Complexity of Financing Low-Income Housing Tax Credit Housing in the United States*. Berkeley, CA: Terner Center for Housing Innovation, 2021.
 Urban Land Institute. *Rep. ULI Case Studies - Via Verde*. Urban Land Institute, January 2014. <https://casestudies.uli.org/via-verde/>.
 Urban Land Institute. *Rep. ULI Case Studies - 1180 Fourth Street*. Urban Land Institute, January 2014. <https://casestudies.uli.org/1180-fourth-street/>.

The Odd One Out

Stemming from the economic relationship that defines the current environment of the United States and the response to affordable housing is a real and measurable effect on the cost and scale of developments that are completed. When a comparison is made between the United States and the countries of Europe, there is sharp contrast in the number of projects that exist, as well as the scale those projects took and the total associated costs. Just how drastic the disconnect is demonstrates the reality that the current relationship creates for affordable housing and how the methods and constructs in place inhibit future growth in the industry.

To see the extent that Europe leads the United States in affordable housing strategies, one needs to look no further than Vienna, Austria. Colloquially referred to as the capital of social housing, the Austrian government began making large investments into its cities' housing infrastructure in the 1920's. Unlike the American public housing system, Vienna's response relied on social housing constructs in its framework and applied to a range of economic backgrounds, avoiding the stigma that came along with low-income projects. The effects of this program are seen today as 60% of Vienna's 1.8 million residents receive government subsidies and residents

pay no more than 25% of their monthly income towards housing costs (Dreier). Comparing those figures to Philadelphia, a city of 1.6 million residents, only 9% receive low-income housing subsidies. There is a clear relationship that exists between the housing projects and local municipalities that encourages this nature of development that simply is not present within the United States.

The number of projects that focus on affordable housing in Europe far outmatch those in the United States as well. To complicate matters, the projects that do exist are frequently smaller in scale yet cost more to build at the same time. The Via Verde (2012) project in New York had a final cost of \$98.8 million dollars to complete 222 units, and this project had additional assistance in the land acquisition as well. Two projects of similar scale, the Ellebo Garden Room (2017) in Denmark at 276 units and Les Lilas young workers housing and crèche (2009) in France at 240 units, both received large amounts of direct government assistance (in the case of the Les Lilas development subsidies covered 100% of costs) and as a result were able to be completed as less than half the cost of Via Verde, finishing at \$38.4* million and \$22.5* million respectively (Karakusevic). The scale of developments is also telling as they are completed at a much smaller size. Two private developments, located in Los Angeles, California and Alexandria, Virginia only had 80 and 81 units



Fig. 3.05 Rendering for new Nightingale Estates in London.

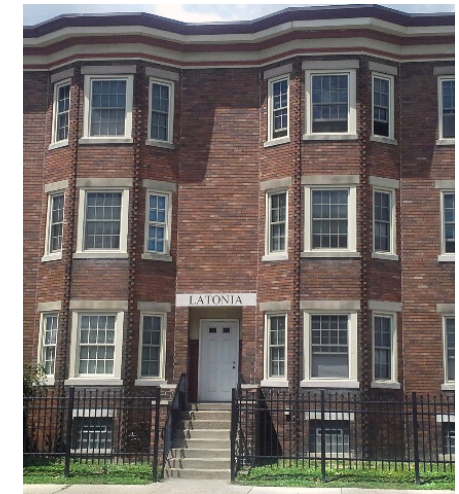


Fig. 3.06 Algonquin Apartments located in Detroit, MI.

proposed for low-income residents, yet the project estimates had costs for the Los Angeles proposal at \$43 million and the Alexandria proposal at \$35.6 million (Reid). The scale European projects are able to reach are unheard of in the United States with developments easily exceeding 300 units, and some eclipsing 700+ such as Knikflats (1999) in the Netherlands at 704 units and Kings Crescent (2013) and Colville Estates (2010) in Great Britain at 765 and 925 units respectively (Karakusevic). The uniting feature among many of the projects is the more direct relationship that exists between the stakeholders and developers and political frameworks that exist to facilitate this style of development. Even in cases where civic interests are not relied upon for funding, such as the housing cooperatives in

Germany, the cost to develop housing projects still falls far below numbers in the United States. In a comparison study of 32 housing projects found around the United States and Europe, the average cost of development compared to units of affordable housing created saw the United States constructing at \$416,968/unit whereas Europe was constructing at \$212,493*/unit. Even in such a small sample area consisting of multiple housing typologies and management styles, the difference is apparent.

Affordable Housing Development Cost Analysis across the World

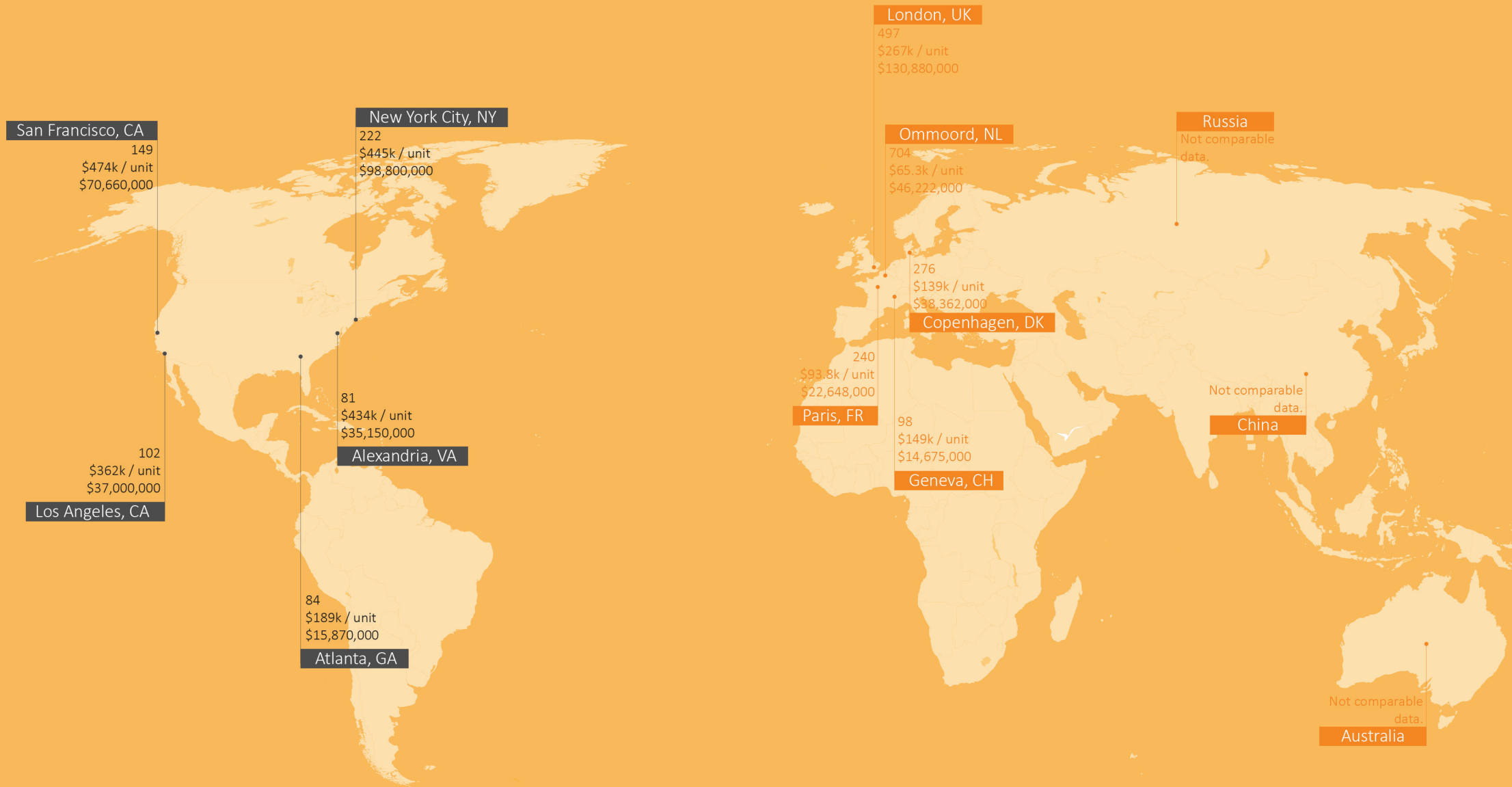


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 Urban Land Institute. Rep. *ULI Case Studies - 1180 Fourth Street*. Urban Land Institute, January 2014. <https://casestudies.uli.org/1180-fourth-street/>.

An Unclear Future

The United States recognizes that there is a problem with their response to affordable housing, yet there still has not been a viable solution that will create the necessary housing for low-income families. Through shifting towards a voucher-based program, the Housing and Urban Development agency has found a way of providing for residents while still allowing them a level of freedom in choosing their housing. Similar to the public housing program, the Housing Choice Voucher program assists residents in paying for a portion of their housing costs. As has already been addressed, this system in its current form lacks many of the social initiatives and other support mechanisms found abroad but is a step towards a more sustainable system of affordable housing. Current thinking no longer envisions the large, tower and block style projects of the past, and instead favors housing projects that are surrounded by more mixed program that reacts to all aspects of life for the resident. Instances of mixed-use projects that apply adjusted income strategies for units is more commonplace with developments assigning established ratios to the units. A popular strategy is the 40-40-20 ratio, meaning 40% of units will be public housing or income restricted, 40% will have adjusted rents based on the Area Median Income, and 20% will be market rate. It is methodologies such as these that can begin to shift the way

we think about affordable housing, as it will not respond to only low-income residents but any residents that pay too large of a share of their income towards housing. It is not enough, however, that the applications are changing within the development and these strategies will need to extend to the greater political framework as well.



Fig. 3.07 Residents protest newly revealed rent costs.



Fig. 4.00 Suburban sprawl in Las Vegas, NV.

Lost in Translation

Examining the existing frameworks that surround affordable housing and its development.

The other reality that exists when considering the implementation of social housing concepts is the political framework that guides it. There is an inescapable connection that exists between the provision of affordable housing and the bodies that govern us. Whether by process of providing safe and clean dwellings for humanitarian reasons, urban renewal, or to hold political sway, providing affordable housing has been seen as the duty of the government. Within the United States, there are certain and unique attitudes that pertain to our understanding of government and how that extends to topics of public and private domain. That understanding has evolved since the inception of the United States and have been visible within the different approaches used to tackle affordable housing. A quote from Alex F. Schwartz in his book, *Housing Policy and The United States*, summarizes the current emotions Americans have regarding public housing, suggesting that “Public housing is unpopular with everybody except those who live in it and those who are waiting to get in”. That quote captures perfectly the dichotomy that exists current among Americans. This unique mindset comes following centuries of development from the nation’s creation

and the ideals set forth still influence our current perception. Why this is important is because real change needs to occur at a local, state, and federal level in our response to affordable housing. Many institutions in their current form either complicate the methods through which affordable housing is created or actively work against it by making specific instances illegal to develop. Much of the thinking that guides policies such as public housing and zoning are based on outdated thinking and traditions that stand in contrast to many of the values held by Americans today.

The connection between government and housing is traced easily enough through its beginnings in the 19th century to today’s environment. Although much of the initial interest in affordable housing was connected to employment and factory towns, governments also began to take interest in the field in response to deteriorating urban conditions within cities and growing protest from residents. And so, from very near the beginning, government bodies were the ones responsible for implementing many of these social housing concepts. In conditions such as those following the first and second World Wars, governments were some of the first backers of social housing, such as the governments of Warsaw and Vienna passing laws and forming economic funds to subsidize the creation of affordable housing. In the United States that relationship was



Fig. 4.01 Public housing projects began to be demolished as early as the 1960's.

born with the passing of the Housing Act of 1937, President Roosevelt's response to the growing pressures of the Great Depression. Through the development and management of these projects, government bodies were responsible for the growth and evolution of low-income and affordable housing. However, as these experiments began to fail, that relationship began to sour. The deteriorating projects began to be viewed as a new blight within American cities while the economic mismanagement and illicit actions of public officials would run the program into the ground (Vogel).

Perception has often been the first challenge to providing affordable housing. Within the United States' strategies to tackle affordable housing

are also ideas and values held that deal with racial and economic stereotypes. When the initial public housing developments were built, they were completed in the borrowed image of the international style, taking directly from European precedent. The standalone detailing and architecture would visually signal the changing demographic within the community and come to be synonymous with ostracized populations such as low-income and black residents. The institutionalized racism within these projects is evident as racial segregation was still common within housing projects after the passing of several civil rights laws from the 1950's to 1970's. Even extending to the policies that the projects had, such as those stating that the male head of household could not live with the family in the public housing



Fig. 4.02 Rental costs are often sources of social protest.

project at Pruitt-Igoe (Freidrichs). As Americans began to move out of cities in the 20th century, the suburbs were used as a way to isolate fringe groups further. In his collected essays Todd Bressi writes that the suburbs served "...as a bulwark, insulating women and children from the industrial city's evils" as well as "...strengthened the suburbs' middle-class nature by excluding those who could not afford purchase or maintenance costs". Americans were seeking out ways to isolate their communities from those they deemed undesirable in moves that were assisted on a municipal level through zoning policies and at a community level through legally binding homeowner's associations. The values that individuals held in regard to topics of race and economic class were being ingrained within the fabric of our urban environments and to this day still hinder the development of affordable housing in many areas.

Public v. Private

To understand the underpinnings behind the values Americans have regarding public and private land ownership requires a look back into the formation of the United States itself. Imperative to that understanding is the view that many of the first settlers from Europe were seeking alternative systems from those of the Old World that gave them more freedom from government oversight. Land was seen as a tool to create that separation and in the United States it

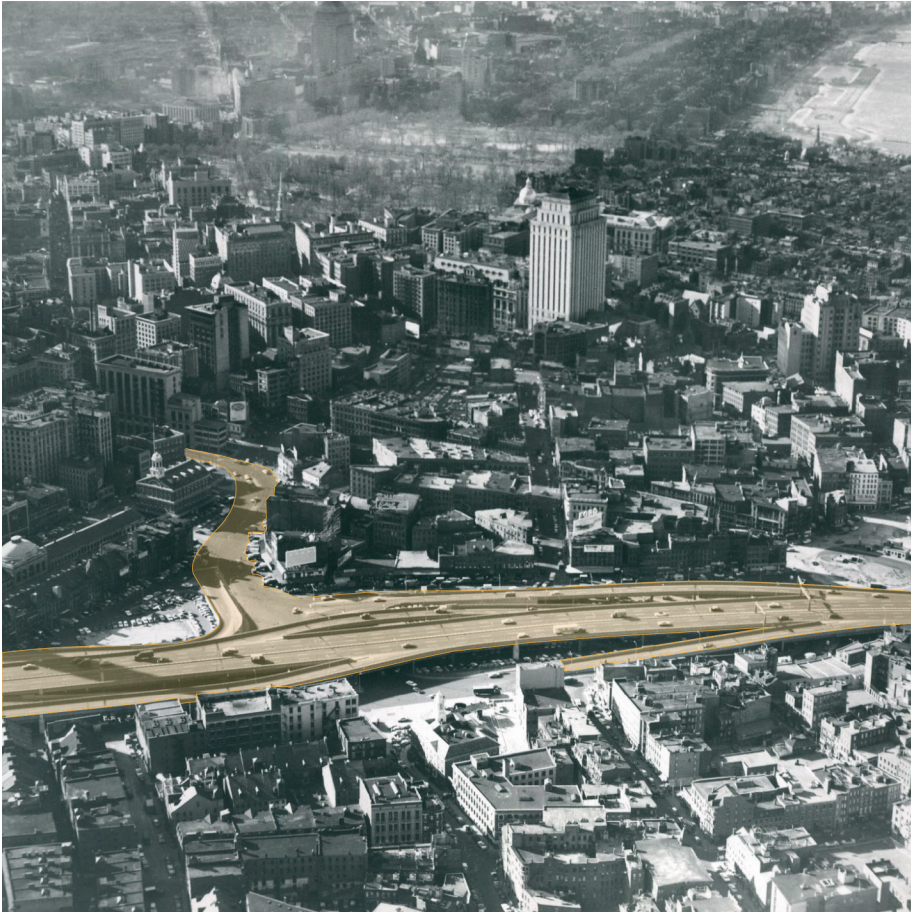


Fig. 4.03 Highways cutting through established urban zones.

quickly became associated with civil freedoms as well. As a young nation, citizens were required to be landowners in order to vote and it was due to mechanisms such as this that influenced Americans into viewing land as a civil right rather than a social commodity. In the formative years of the United States,

discussion was frequently concerned with topics regarding ownership and ideas about public versus private. The conversation was framed under the larger discourse of colonialization and push-back against the British Empire which would heavily influence American ideals regarding individual freedoms



Fig. 4.04 Typical suburban subdivision layout of properties.

and liberties. The effect the values we associated with private land ownership can be located within our founding documents. Thomas Jefferson's iconic phrase, entitling all men to, "life, liberty, and pursuit of happiness" is a direct reference to economist John Locke and his phrase, "life, liberty, and property".

Within the Constitution, your rights as a private property owner are reinforced in the 5th and 14th Amendments, detailing the limitations of government oversight and what the property owner's rights are against the government. In the first implementations of zoning and city planning, regulations were used

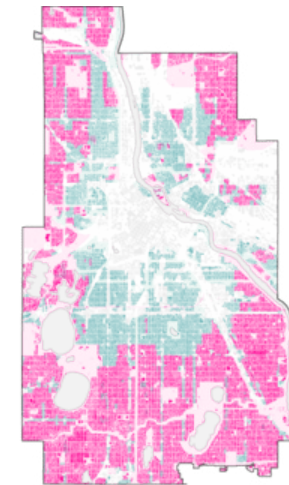
as protections for the property owners that would ensure property values were not damaged by future development. In every sense, actions were taken that would assist in gaining as much freedom as possible for private property owners in search of individual liberty and would play into ideas such as the American Dream and the nuclear family of the suburbs.

By the 1930's, when the United States was struggling through the Great Depression, it would turn to a number of social programs aimed at turning around the American economy, part of which included affordable housing. In order to take control of the land necessary to implement these ideas, the United States government would need a method to acquire private land for public use. Eminent Domain was this method through which many of the original pushes for public housing were constructed. In response to increasing use of eminent domain to acquire and renew urban areas, more limitations would be placed on the power as the 20th century continued. On a national and local level, governments would grant more legal power to groups including homeowner's associations and landlords that allowed them to create exclusive ordinance and policy that would prevent unwanted residents from being able to live in the area. Restrictive deeds and covenants could outright state certain races or ethnic groups were not able to purchase property within some

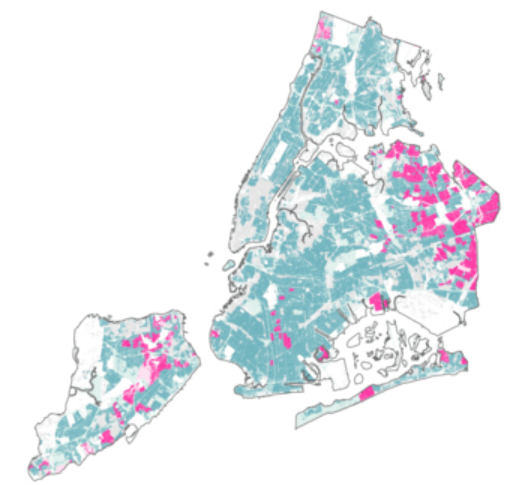
communities (Katz). While there are now limitations on this type of legislation, the effects are still plainly seen on our urban environments. Despite decades of progress, our current system is still struggling to free itself from now antiquated thinking. Our current urban environments have morphed in ways that our ancestors could never have anticipated, yet we find civil duties such as voting are still tied to where individuals live. There are new trends that are showing how individuals favor a living environment that reflects the way they live, resisting the traditional separated urban condition of the past (Karakusevic). There needs to be a response to this new thinking and understanding in terms of design and in terms of the political framework that supports it.

Zoning Resolution

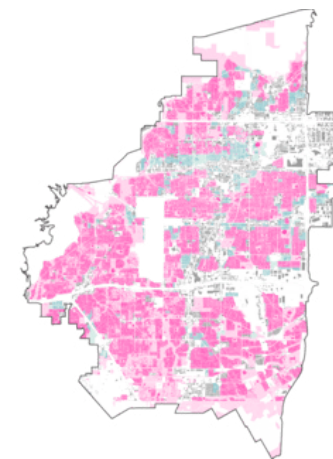
Zoning elements began to be introduced in the early 1900's as a response to the expanding city. As buildings grew, concerns started to circulate regarding access for residents to clean air and sunlight within their dwellings as well as growing industrial applications. Preserving the status and quality of property for the owner was of paramount importance in these initial zoning regulations and would continue to be used as protections for property owners by setting regulations that assigned maximum building heights, size, density, and property setbacks



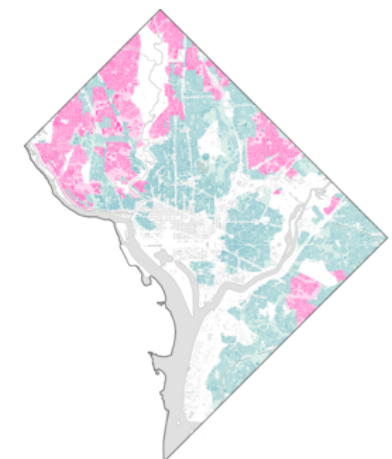
Minneapolis, MN 70%



New York, NY 15%



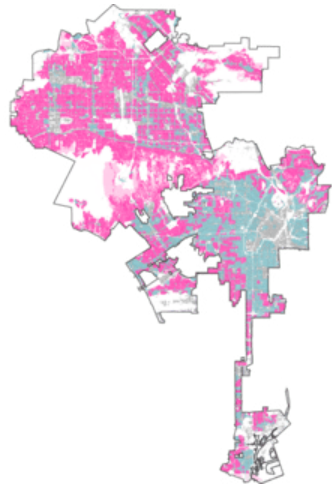
Arlington, TX 89%



Washington, D.C. 36%

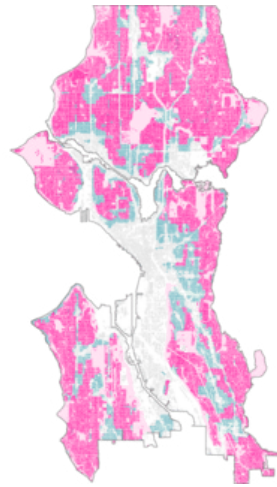
■ Detached single-family ■ Other Housing

Cities not shown to scale.



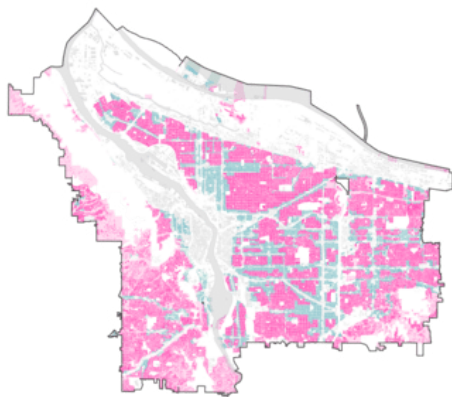
Minneapolis, MN

75%



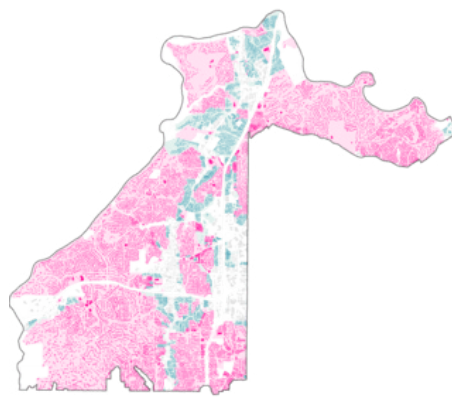
Seattle, WA

81%



Portland, OR

77%



Sandy Springs, GA

85%

Table 4.01 Statistics and images from: Badger, Emily, and Quoc Trung Bui. "Cities Start to Question an American Ideal: A House with a Yard on Every Lot." *The New York Times*, *The New York Times*, 18 June 2019, <https://www.nytimes.com/interactive/2019/06/18/upshot/cities-across-america-question-single-family-zoning.html>.

among other issues. It was through the introduction of technological advances in the automobile and other transportation factors that would transform the role of zoning on our urban environments.

Planners would establish frameworks through which developers could design their neighborhoods and zoning was the tool used to dictate typical lot sizes, building size, etc. that would impose a certain level of uniformity to suburban developments. This methodology was repeated across the United States with little to no differentiation based on location by treating hundreds of thousands of people and property alike. Underlying motives for protecting property value and maintaining a degree of social and economic uniformity can be seen in the zoning techniques as well as local ordinances that "... separated commercial and residential uses, sanctified single-family homes by isolating them from apartments and imposed liberal setback rules that required large lots, thereby driving up housing costs" (Bressi). This exclusionary style of planning would soon see the effects of the automobile on the urban landscape as the technology became of primary importance within future developments. Assisted through initiatives such as the Highway Act, cars would open up large areas of land for development and the maintaining of them. The associated costs with suburban living were weaponized as a method of separation against low-

income families as the initial investment, transportation costs, and property maintenance was too much to keep up with.

As has been established, economic precedent and current trends demonstrate the strength found in housing developments that rely on social housing concepts, however many of the housing types called for in these initiatives are impossible to build due to these lingering constraints. Large areas of land planned using traditional suburban styles have a substantial land bank that is designated as single-family, therefore projects calling for mixed-use functionality are difficult to implement as they will require zoning changes. The City of Los Angeles, California has one of the largest homeless populations in the United States and, in response, many groups interested in building affordable housing, namely Brooks + Scarpa. In an interview, principals Angela Brooks and Larry Scarpa explain that zoning is frequently the main barrier within projects, pointing out that over half of the land left available for development is zoned as R1, single-family (Anderton). The pair also explained that for residents, this is already a reality. Many families find themselves sharing single-family dwellings with multiple others as a cost-cutting measure. The lack of response has led to no legislation governing the conditions that thousands of Americans find themselves living in and poor living conditions within the housing

itself. There is growing conversation surrounding the issue of zoning on our built environment as movements such as the New Urbanism suggest how we can move past traditional methods of urban design in response to shifting attitudes. Some cities, including the city of Detroit, have started analyzing and rewriting many of their own ordinances in this way and the cities of Berkeley, California and Minneapolis, Minnesota have gone as far as to outright ban single-family zoning.

The New Urbanism

Where the ideas of New Urbanism overlap to influence the future of zoning practices are similar to the concepts utilized to develop many of the social housing developments in Europe and South America. At the core of the New Urbanist philosophy is the concept that urban planning and communities need to assert the importance of public space over private values. This social condition is similar to the communal constructs that united many of the first social movements in the 19th century and were influential and the establishment of the first social housing projects. The deceptively simple response to the United States' growing suburban challenge from New Urbanism aligns with the trends found in the history of social housing, sharing attitudes regarding public spaces, local amenities, mixed-functionality within communities, and variation in land-use. Within each are valid and tested responses that

can address the future development of American communities that no longer neglect the challenge faced by low-income individuals.

New Urbanism emerged as a response to the growing suburban sprawl that resulted from the exodus of residents from American cities beginning in the Post-War era. It recognized a crucial fact in that the American suburb was failing. Despite hopes of social and economic prosperity in an idyllic community, suburbs would signal a new form of urban distress as residents would find themselves isolated within their cars and households. The suburb has mitigated the urban vitality that it replaced from the city, creating homogenous mono-communities. New Urbanists rejected this urban reality, advocating for a new understanding of community that placed public space over private. The concepts they called for re-imagined the ways we have planned neighborhoods and communities for decades, creating approaches that placed public spaces at the center of our communities and activate them through commercial and civic activity. They extend this philosophy into stating every neighborhood should accommodate a range of land-use and household types, even establishing restrictions on pedestrian strategies and the encroaching design of cars (Bressi). Jan Gehl, an architect and urban planner, organizes these ideas concerning public space by the human condition. His believes his policies and framework



Fig. 4.05 *Highways would destroy countless homes and communities through their construction.*

he applies to design are universally held and that "...increased concern for the human dimension of city planning reflects a distinct and strong demand for better urban quality. There are direct connections between improvements for people in city space and visions for achieving lively, safe, sustainable and

healthy cities" (Gehl). The implications of these concepts lead to discussions of resident health, comfort, and safety as well as touching on topics of environmental sustainability and public transportation and amenities.

The overlap between concern for

social housing, urban planning, and the human condition of our communities show the direction required for the establishment of long-term and sustainable communities that provide a high-quality of life for residents. The initial developments that explored the concepts of social housing share many of the strategies advocated for under New Urbanism. The social policies and constructs that form and operate many of the housing projects of Europe emulate the ideas of shared public spaces and mixed functionality found here. The growing social trend withing urban environments as well as new financial management and development opportunities all would indicate a shift in the methods we use to design and understand our communities.



Fig. 4.06 *The planned city of Seaside, FL uses many of the foundations of New Urbanist principles.*



The Coming Change

Applying the research topics to a site in the Core City area of Detroit to explore alternatives to the traditional approach to affordable housing.

The methods used in the past to respond to the challenge of affordable housing in the United States have not worked and continue to hold back meaningful advancements in the area of affordable housing. As research has demonstrated, there are a variety of factors that have influenced the implementation of social housing constructs within the United States ranging from social stigmatization from traditional beliefs and values to economic and civic barriers that still rely on outdated planning strategies. The future direction of affordable housing is in the process of forming, and along with it are new understandings that can be brought to the ways we approach urban planning moving forward. By using these concepts and values to influence our built environment there can be a new way of thinking behind how we tackle affordable housing within our communities.

Detroit, Michigan is a city with a tumultuous past that has seen it rise to greatness under the might of industrialization, only to falter in a Post-War era that saw its population flee towards the suburbs. Detroit was once the fifth largest city in the United States, yet today stands a shadow of its former

self, waiting to rise again. The reasons for Detroit's decline fall outside the scope of this thesis, however the city's current conditions are relevant due to the opportunity that exists within it to demonstrate the concepts of this study. In particular, the area of Core City is worth careful examination and for the purposes of this thesis was chosen to represent the implementation of these concepts. Core City was selected for a variety of reasons that each represented an advantage to a particular concern of the development. The location within the greater context of Detroit shows that the community is surrounded by some of the wealthiest areas of the city, falling less than 1.5 miles from downtown Detroit, the community is placed near Wayne State University's campus, Midtown, Corktown, and Woodbridge neighborhoods. Similar to the trends that show developments prospering in these conditions as they place residents near areas of opportunity, Core City's area median income falls far short of these other communities, meaning it has the economic opportunity. The area itself is severely underdeveloped. The section of Core City bordered by I-96, Grand River Ave. and Martin Luther King Jr. Blvd. has fewer than 250 homes located within it. The large percentage of vacancy can be utilized to the proposals advantage as it can allow for integration to the existing community without displacing residents. Too often strategies in the past have simply removed the existing residents and created housing projects

Fig. 5.00 View from Humboldt St. within the Core City community in Detroit.

Detroit Demographic Group Analysis

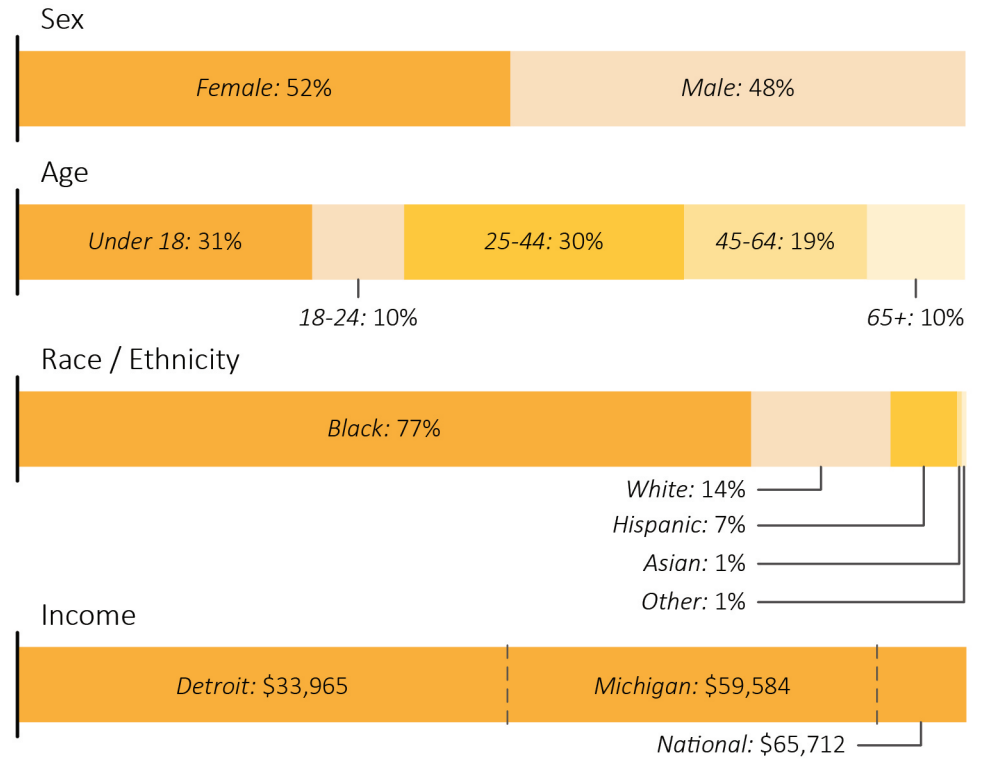


Table 5.01 Based on information gathered from:
 Center on Budget and Policy Priorities | CBPP.org CBPP analysis of HUD 2018 administrative data and the Housing Assistance Council's urban, suburban, and rural Census tract designations (for location).
 "Detroit, MI." Data USA, <https://datausa.io/profile/geo/detroit-mi>.



that they were unable to live in, however future developments should rely on the community to guide design proposals based on the needs and requirements of residents. Despite its emptiness, Core City does offer a variety of existing community anchors that will assist in levelling the design proposal. Within the local context are three educational institutions, several commercial and retail businesses, six religious groups, two buildings belonging to Salvation Army, and a number of existing

community groups. The integration of new communities will rely on these existing anchors as well as define future developments through their collective view.

The greater positioning of the city of Detroit was also considered in the selection of Core City to implement a housing proposal using these concepts. Currently the city stands ready to start a wave of new development and has an existing framework under which it

Figure 5.01 Expanded site greater context map.

Detroit Affordable Housing Location Analysis

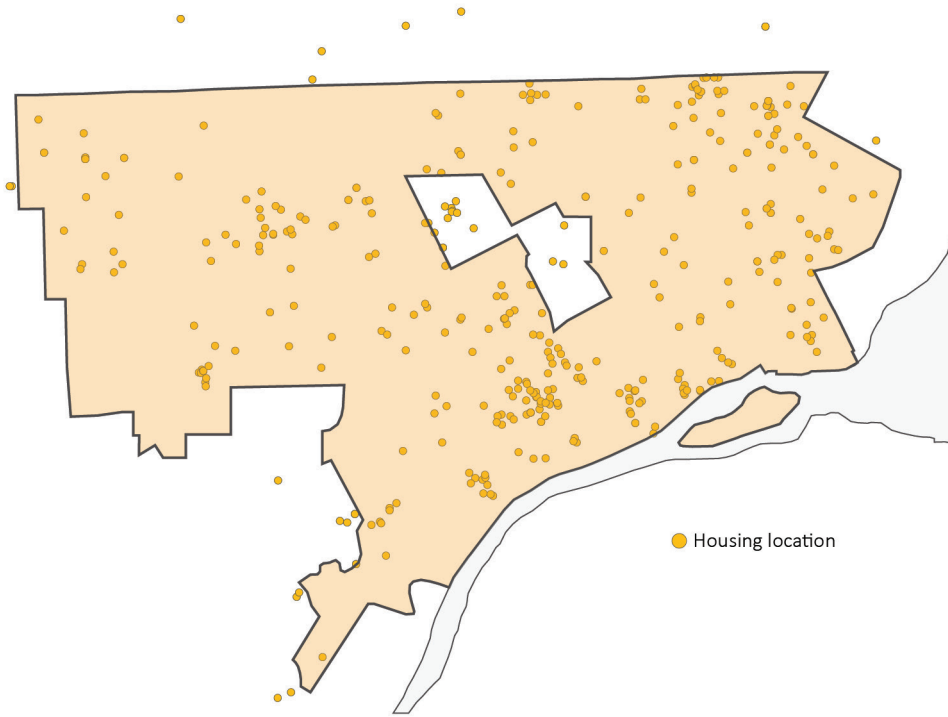


Figure 5.02 Based on information gathered from: Center on Budget and Policy Priorities | CBPP.org CBPP analysis of HUD 2018 administrative data and the Housing Assistance Council's urban, suburban, and rural Census tract designations (for location).

will occur. Laying out the plan for future of city planning was the Detroit Future City manifesto that comprehensively outlined the path Detroit would take in the coming decades. The plan sought out methods to improve the city in ways that build infrastructure, stimulate economic growth, and create vibrant neighborhoods with strong community engagement and interaction. Along with this new framework were economic programs that were tackling issues of urban blight and reconstruction including

the implementation of programs such as the Strategic Neighborhood Fund. Despite the advantages an area like Core City offers, the location is not one of the seven the city currently recognizes under many of its programs. Despite this, an independent property developer, Philip Kafka, has identified a portion of Core City as an area of opportunity with the goal of redeveloping area. As of 2012, Prince Concepts owns 17 acres of land in Core City, located north of Buchanan St. and bordered by the railway line.

Detroit Income-based Location Analysis

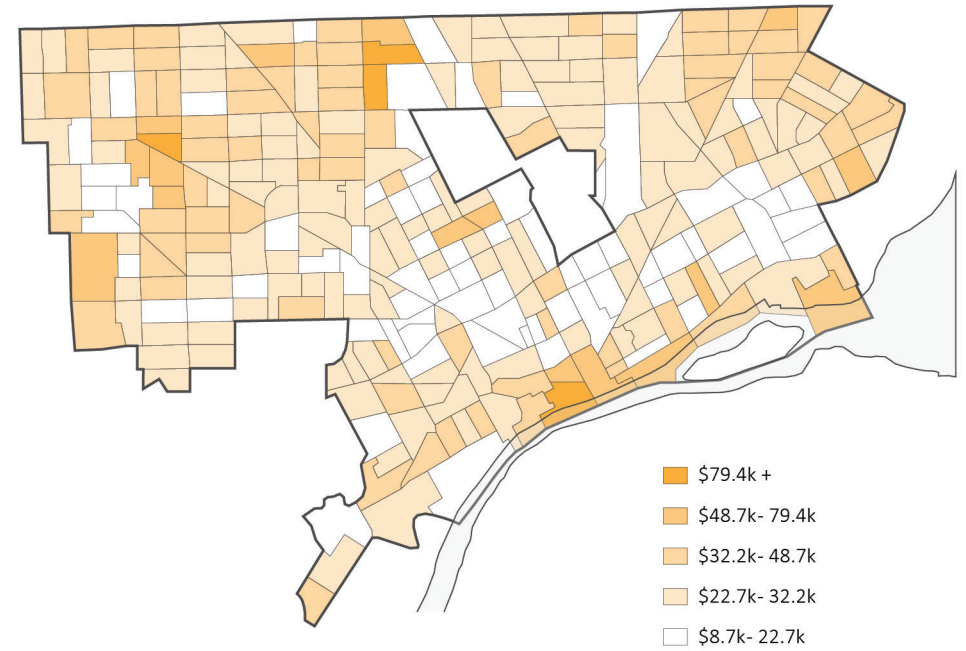


Fig. 5.03 Based on information gathered from: "Detroit, MI." Data USA, <https://datausa.io/profile/geo/detroit-mi>.

Warren Ave., and Grand River Ave. Prince Concepts, Kafka's development company, has renovated 62,000 sq.ft. of industrial blight, introduced 20,000 sq.ft. of new housing, 15,000 sq.ft. of public space, and planted 300 new trees (Kafka). His developments are some of the first in the area since the 1960's and are done true to the ideals laid out here. In his work, Kafka speaks towards ideas of utilizing Detroit's unique opportunities concerned with density to create a new style of urbanism framed and actuated

through the voices of the community.

The various opportunities that Core City demonstrates in terms of its existing geographic, economic, and social environments makes the location ideal for a future design proposal. With Kafka's area of interest ending at Buchanan St., that leaves a large area of land without a clear path forward. Within those borders, this location was the perfect setting to implement these strategies to challenge the traditional approach to affordable

Comparative Economic Analysis of Detroit, MI to Los Angeles, CA

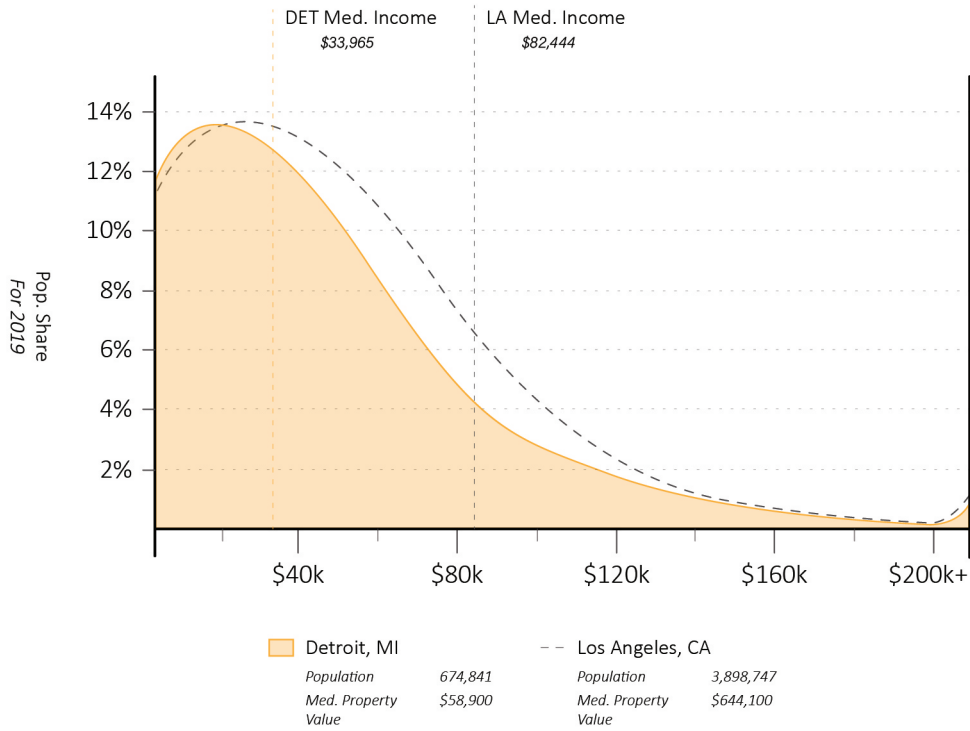


Figure 5.04 Based on information gathered from:
 "Los Angeles County, CA." Data USA, <https://datausa.io/profile/geo/los-angeles-county-ca>.
 "Detroit, MI." Data USA, <https://datausa.io/profile/geo/detroit-mi>.

housing. The proposal seeks to provide solutions to each of the barriers found within the field today by examining how these concepts can be used in the development's formation and how they influence the later development of the project.

Implementation and Strategies

The implementation of the strategies discovered were modeled after the initial developments in social housing

in Europe following the first and second World Wars. The Warsaw Housing Cooperative in particular was used in discussing opportunities within the implementation of design strategies as well as development timelines and how social programs among residents can influence this. The implementation was examined through the same lenses as the research conducted as to respond to the social, economic, and political realities that have influenced the current state of affordable housing strategies. The design

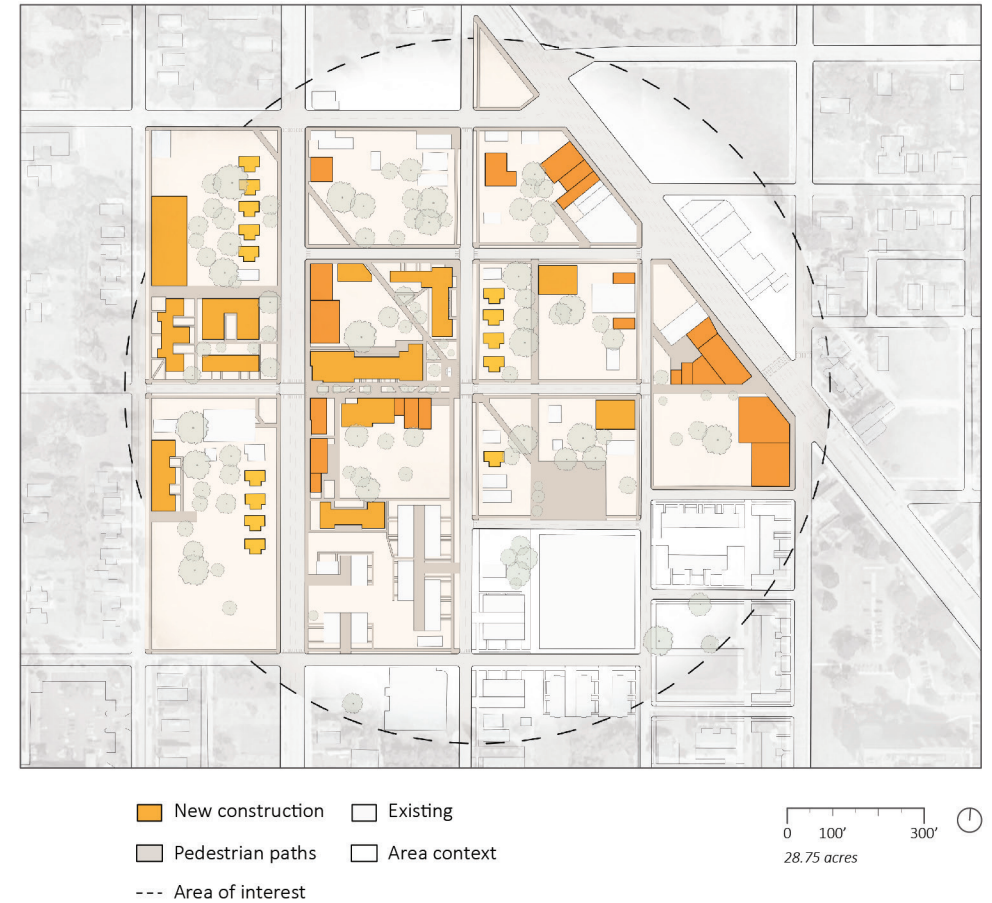
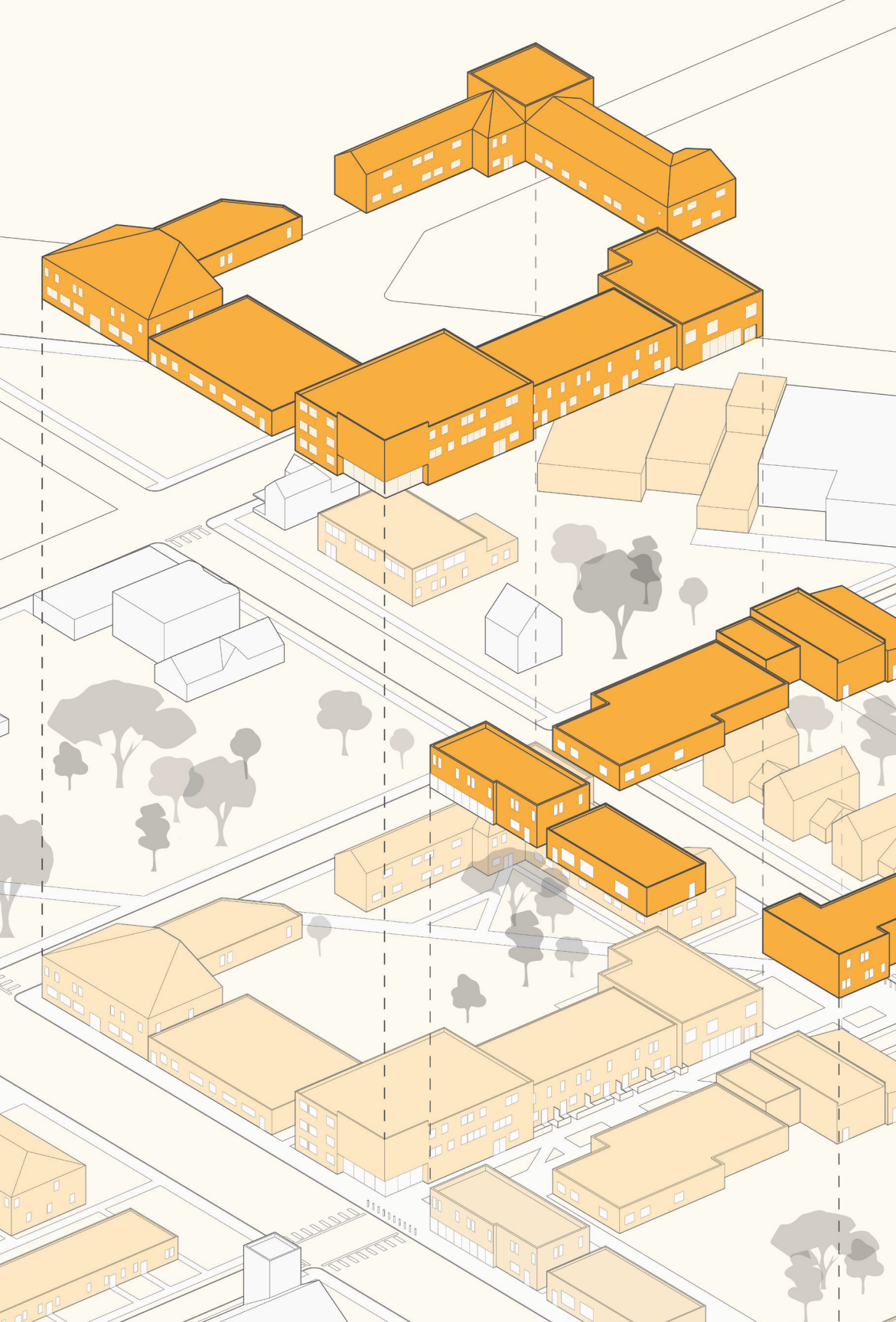


Figure 5.05 Zoomed site context map with new developments.

proposal which calls for the introduction of a mixed-use and mixed-income neighborhood takes away from the opportunities social housing concepts offer and uses these ideas to frame the built environment. Lessons from past developments and management strategies and how they have led to the future success or failure of a housing project have been considered with new trends that illustrate ways to establish and maintain a self-sufficient community with mixed-income strategies. The

design extends to the community scale in order to address the struggles that an urban plan based in outdated thinking pose to these ideas and how they can be designed for through the lens of human-centered design that reinforces the social community.

The housing itself within the Core City development reflects the desired multi-family and co-housing styles that create the level of density necessary for the neighborhood to be sustainable



while still integrating large amounts of existing single-family homes. The introduction of multiple typologies allows for individuals to be located in the community in the best suited housing style for their needs. The diversified housing stock gives residents a wide range of selection for a housing method that meets their acceptable associated costs based on their income. This diversity encourages residents to come from multiple economic backgrounds that reinforce the mixed-income nature of the development. The design of the housing itself is done in such a way that it informs the borders of large public and green spaces and intends to assist in the formation of community groups. Through the introduction of large, shared spaces that connect the housing, the design challenges the concept Americans have towards the single-family home and private property by creating a quasi-private space that residents share, but others in the community may not have as much access to or be welcomed in. At the onset, the design can be driven through the formation of social groups such as housing cooperatives, however they do not need to exist in a formally defined role. Existing community programs, such as the communal farms located in the area, can be a method that residents organize themselves around. This style of organization can be the source of the initial push for development in the area from residents as well as a source of community voices. It is important that the residents themselves guide

Fig. 5.06 Exploded isometric view of new developments within the design proposal.



Fig. 5.07 Legacy Academy School located on Selden St.



Fig. 5.08 Greater St. James F.B.H. Church located on 18th St.

Fig. 5.09
Initial Design Development

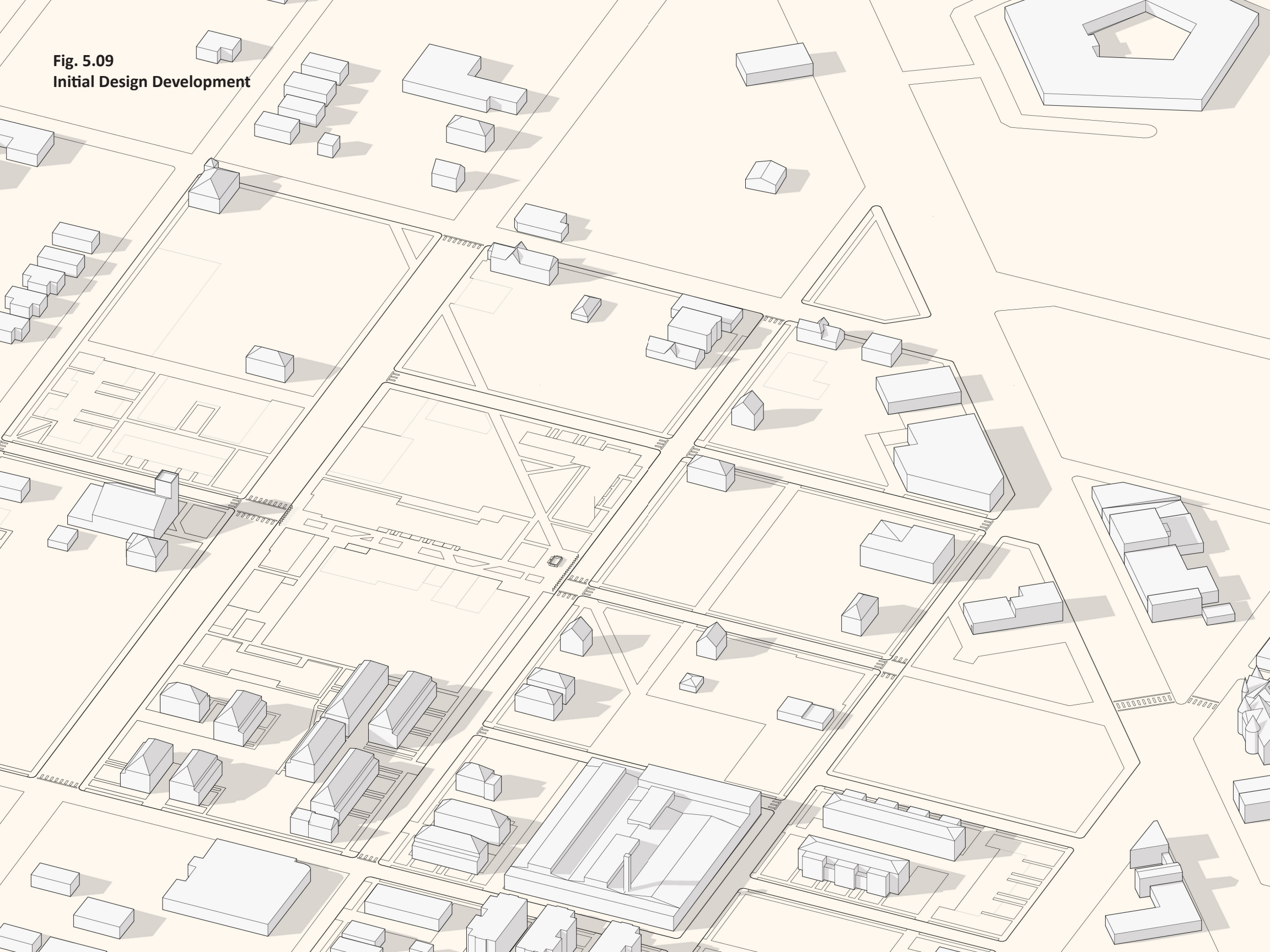


Fig. 5.10
Progressive Development I

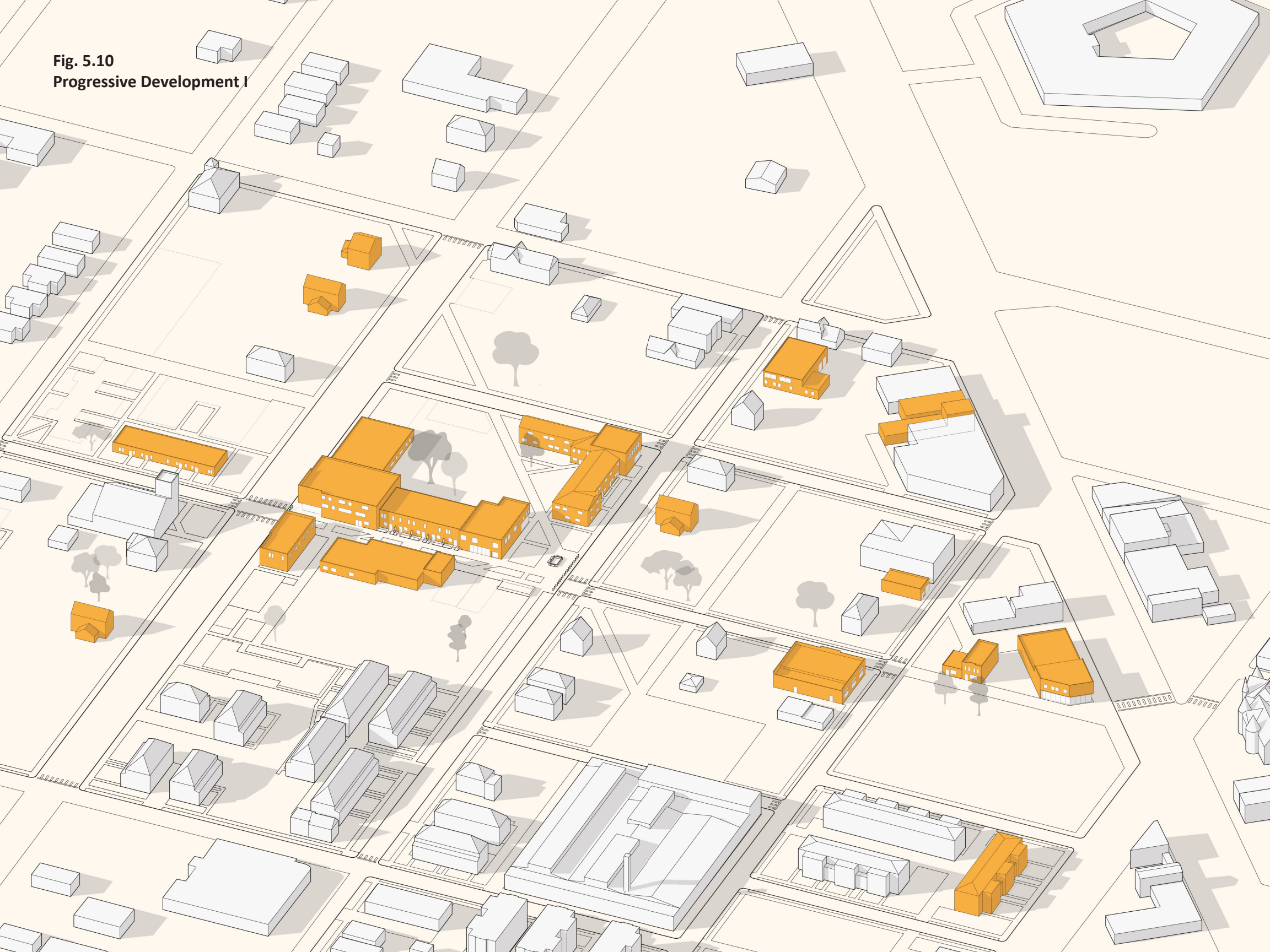
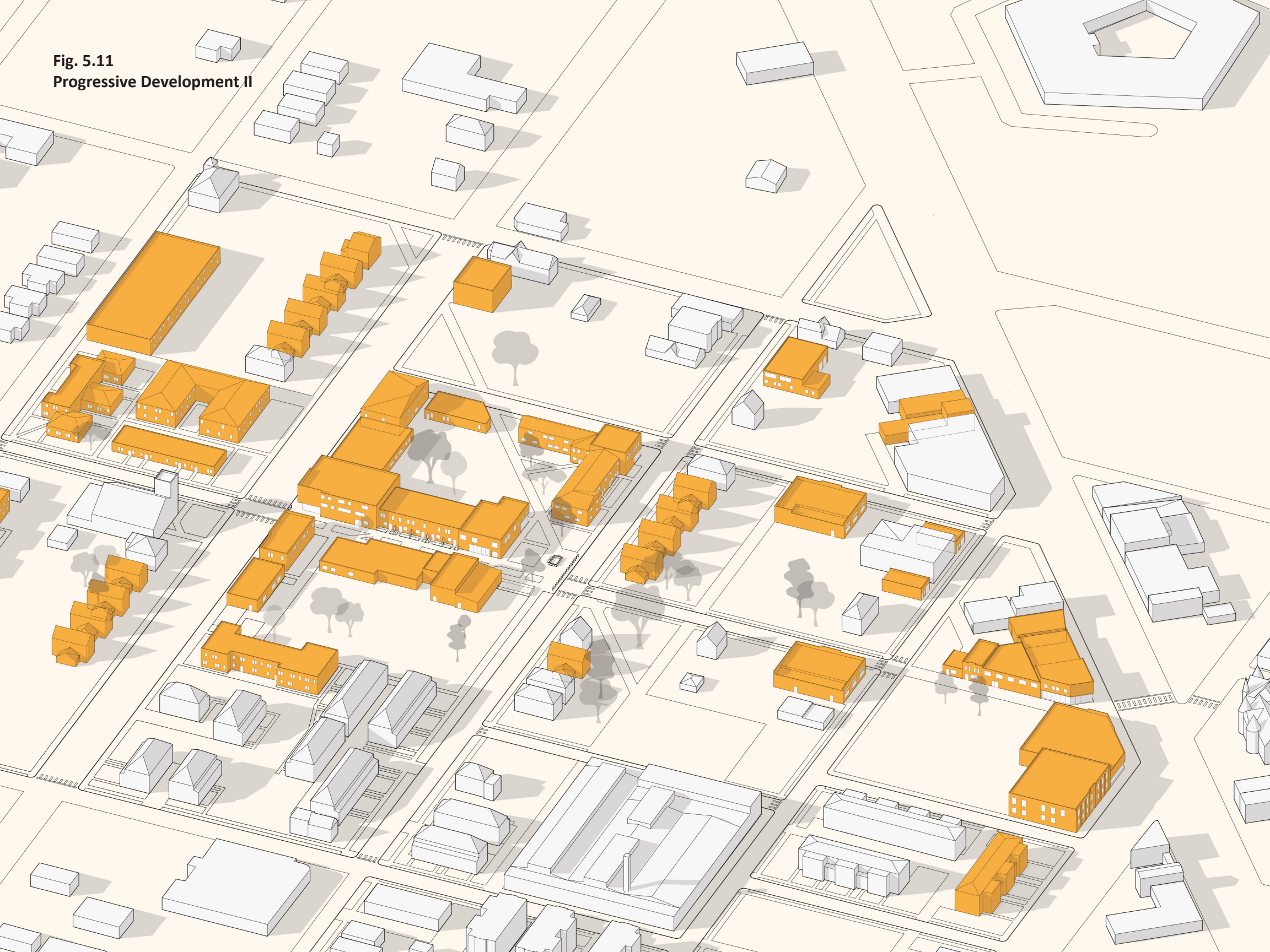


Fig. 5.11
Progressive Development II



that future, along with new residents joining the community in an active and meaningful way. As the population increases with the rate of development, the introduction of housing at a high-density can assure the project's long-term sustainability.

The density that the apartment and other multi-family housing strategies introduce couple with ideas of commercial and retail growth as the green and public spaces they organize can be activate through them. By analyzing the methods which previous successful developments used for their creation and maintenance, the design proposal uses strategies to establish a sustainable, long-term community through mixed-income strategies. The housing typologies themselves range from single-family to multi-family and apartment developments, each coming with relative associated costs. The plan relies on strategies which see stronger ties forming between civic partners and private developers or community action groups to provide the funding necessary to make the development possible. In its early form, the project can use its land as a commodity for generating wealth within the community through auctioning it off to potential residents and developers. A single development can also be designed around with the purpose of offsetting other cost-factors within the project. Existing strategies such as the Strategic Neighborhood Fund, can be shifted to include more resources



Fig. 5.12 *Edge condition of the University of Detroit Mercy's dental campus that faces Magnolia St.*



Fig. 5.13 *Fisheye Farms located on Buchanan St. in Core City.*



Fig. 5.14 *Existing community-run greenhouse and farm.*

for housing development and apply to a larger area within the city of Detroit. Once the developments are completed, rent and income management strategies that reflect this new understanding can be applied in the form of adjusted income measures within individual developments. Income management will rely on established concepts such as the 40-40-20 breakdown approach that assigns a portion of all units to be capped at a percentage of a resident's income, adjusted to reflect the area median income, or held at market rate. The integration between private developers and municipal interests will result in less logistical confusion that creates financial burdens within the project, leading to decreased costs that are typically associated with affordable housing.

As is evident from the analysis of the surrounding context, the design proposal's location means that extensive alterations to local zoning restrictions will need to happen in order to make the plan a reality. Also touched on are the relationships that will need to be reframed in order to make that happen within the proposal. The design proposal's establishment of mixed-program elements harkens back to a period where live-work communities were not only possible but commonplace. The design focuses on creating zones of collection that can be activated through commercial enterprise, however that

connection with residential features is not always legal in most circumstances. Most of the developable land available within Core City is designated as single-family residential and will require revision, however the design itself in calling for a proposal rooted in social housing concepts finds overlap with the direction that the city of Detroit is taking in its planned future. Overlapping concepts from New Urbanist and human-centered design have also been largely influential through the implementation of strategies focused on movement throughout the community. The design strategies include fixing and extending the existing sidewalk conditions to better suit pedestrian needs throughout the area, connecting the community to local nodes with focuses on social and economic programs, and connecting residents to the wider city through expanding the existing bus network. Increasing the range of functions offered to residents within close proximity to their housing has implications for individual health, community building, and environmental sustainability, and by moving to improve and increase the scale of walkable pedestrian paths, the design is creating an environment that improves these conditions for residents. The choice in using the city's existing bus network comes from its ability to adapt rapidly to new developments and change routes as time progresses. In order to facilitate high-traffic public areas, sidewalks and greenspaces are used to channel pedestrians through different



Fig. 5.15 *The True North (2017) live-work development designed by Prince Concepts located on Grand River Ave.*

zones with commercial and community programs. The design's attitudes towards ideas of property, proximity, and spatial organization all relate back to concepts of community and social structure that have been influenced by social housing developments. Ultimately, through using these design guidelines, the proposal created seeks to shift the understanding of affordable housing and what its future can be.

Facing Reality

When studying this proposal for its merits, the connection must be made to the attempts to challenge these same issues in the past as well as examining

current methods. Every attempt made in good faith towards solving the problem of affordable housing has claimed that it represented the answer, often finding themselves within the utopian futures imagined in the early 20th century. Yet it remains true that the same issues are faced by millions every day. Time would slowly chip away and reveal the flaws in past attempts, and there remains no single answer today. This thesis does not claim to offer the solution to affordable housing, rather it believes the concepts found within social housing represent a plausible methodology for growing the industry within the United States. The research conducted was completed through

analyzing factors from multiple lenses that offered a holistic understanding of affordable housing as it has developed throughout history and these factors created a framework that treats housing as only part of the response and expands to challenge these concepts on a neighborhood scale. As stated, it must be addressed that as this design remains theoretical, there is no possible test for its functionality or plausibility. While the intent of the research was to analyze from multiple sources in order to develop a refined understanding of the topic, the influences and variables at work are innumerable and impossible to account for them all. The conclusions gathered are based nuances that take up entire professional fields and this thesis is unable to address challenges that pose significant barriers within the confines of reality.

Conclusions

The goals of this thesis have never been to solve human habitation, rather they have been to seek out methods that challenge the traditional ways we deal with issues such as affordable housing. It offers an opportunity to reflect on the mistakes of the past, recognizing the effects a complex network of social, economic, and political factors has had as the concepts of social housing have developed. By taking and adapting our current environment with those methods called for within these concepts, the relationship individuals have with the



Fig. 5.16 *True North and gardens alternative view.*



Fig. 5.17 *DelMar Corporation located on W. Alexandrine St.*

urban environment will be transformed. The framework created will become a tool for analyzing the housing needs of people in a way that simultaneously builds healthy, long-lasting, and sustainable neighborhoods. The information and conclusions gathered on these pages has no way of being truly tested without a full realization of the design proposal, but that does not necessarily deem the information is any less factual or sound and therefore can [should] be used in practice as the field continues to develop in the years to come. The discourse surrounding affordable housing is challenging the

traditional understandings that were grown out of necessity from historical influences. This thesis frames the conversation to replace this thinking with an understanding of affordable housing that extends to a neighborhood level and becomes the ideal community that we strive to reach in the future.

This proposal represents the floor for new methods of understanding affordable housing, not the ceiling.



Fig. 5.18 *View towards downtown Detroit from Grand River Ave.*

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Table 3.05 expanded data.

Location	Name (year)	Architect	Units
Austria	Wohnprojekt Wien (2010-2013)	Einszueins	39
Belgium	Paspoel Anders (2012-2021)	S333 Architecture + Urbanism	192
Denmark	Ellebo Garden Room (2017-2019)	Adam Khan Architects	276
France	Tour Bois-le-Pretre (2005-2011)	Lacaton & Vassal + Druot	96
	Les Lilas young workers housing and crèche (2009-2013)	Chartier Dalix Architectes + Avenier Cornejo Architectes	240
	Carré Lumière (2009-2015)	LAN architecture	79
	Lourmel mixed use housing (2009-2015)	Trévelo & Viger-Kohler Architectes Urbanistes (TVK)	180
Germany	BIGYard (2007-2010)	Zanderroth Architekten	45
Great Britain	Darbshire Place (2007-2014)	Níall McLaughlin Architects	13
	Colville Estate (2010-2016)	Karakusevic Carson Architects	925
	Silchester Estate (2010-2016)	Haworth Tompkins	112
	Bacton Estate (2011-2016)	Karakusevic Carson Architects	314

Development Cost	Cost / unit	Adjusted Cost (USD)	Funding Notes
€ 6,500,000	€ 166,666.67	\$191,570.88	
€ 23,000,000	€ 119,791.67	\$137,691.57	100% public
247,000,000 kr.	894,927.54 kr.	\$138,963.90	Quasi-governmental
€ 11,200,000	€ 116,666.67	\$134,099.62	100% public
€ 19,600,000	€ 81,666.67	\$93,869.73	100% public
€ 8,000,000	€ 101,265.82	\$116,397.50	Private benefactor
€ 24,000,000	€ 133,333.33	\$153,256.70	
€ 15,500,000	€ 344,444.44	\$395,913.15	Housing cooperative
£2,300,000	£176,923.08	\$242,360.38	
£111,000,000	£120,000.00	\$164,383.56	
£24,000,000	£214,285.71	\$293,542.07	
£98,000,000	£312,101.91	\$427,536.86	

Location	Name (year)	Architect	Units
Great Britain	Hillington Square (2013-2014)	Mae	319
	Kings Crescent (2013-2017)	Karakusevic Carson Architects + Henley Halebrown	765
	Agar Grove (2014-2016)	Hawkins \ Brown + Mae	497
	Granby Four Streets (2014-)	Assemble	10
	The Nightingale Estate (2015-2022)	Karakusevic Carson Architects + Stephen Taylor Architects + Henley Halebrown + Townshend Landscape Architects	400
	Tower Court (2016-2019)	Adam Khan Architects + muf architecture / art	132
	Goldsmith Street (2018)	Mikhail Riches	105
	k1 Co-housing (2018)	Mole Architects	42
Netherlands	Knikflats (1999-2009)	biq / Hans van der Heijden	704
	Osdorp mixed use centre and housing (2005-2011)	Mecanoo	72
Switzerland	Housing and crèche (2006-2011)	Sergison Bates Architects + Jean-Paul Jaccaud Architectes	98
United States	1180 Fourth Street (1998-2014)	Mithun – Solomon + Kennerly Architecture and Planning	149
	Via Verde (2006-2012)	Dattner Architects + Grimshaw	222
	Carmel Place (2016)	nARCHITECTS	55
	Georgia Proposal		84
	Los Angeles Proposal		80
	Virginia Proposal		81
	Rose Apartments	Brooks + Scarpa	222
	Fuller Apartments	Brooks + Scarpa	222

Development Cost	Cost / unit	Adjusted Cost (USD)	Funding Notes
£34,900,000	£109,404.39	\$149,869.03	Local housing auth.
£60,000,000	£78,431.37	\$107,440.24	Cross-subsidy funding
£97,000,000	£195,171.03	\$267,357.57	
£800,000	£80,000.00	\$109,589.04	
£137,000,000	£342,500.00	\$469,178.08	Mixed-use; possible impractical value of cost
£37,000,000	£280,303.03	\$383,976.75	
£15,000,000	£142,857.14	\$195,694.72	
£8,000,000	£190,476.19	\$260,926.29	
€ 40,000,000	€ 56,818.18	\$65,308.25	Local housing auth.
€ 15,000,000	€ 208,333.33	\$239,463.60	
€ 12,700,000	€ 129,591.84	\$148,956.13	100% public
\$70,660,000	\$474,228.19		Focus on health and wellness
\$98,800,000	\$445,045.05		Focus on sustainable
\$16,700,000	\$303,636.36		
\$15,870,000	\$188,928.57		
\$43,000,000	\$537,500.00		
\$35,150,000	\$433,950.62		
\$20,639,982	\$589,713.77		
\$37,000,000	\$362,745.10		

Total average: \$265,261.07

European average: \$212,493.29

U.S. average: \$416,968.46

Greater Core City photo-documentation.









