

ABSTRACT

Title of Thesis:

MIDDLE GROUND: RECALIBRATING
PRINCE GEORGE'S COUNTY'S FAIR
LIVING OPPORTUNITIES

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2022

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While some neighborhoods around Washington, DC have a higher-than-average area median income, ample employment opportunities, and a diverse housing stock, that's not entirely the case for Prince George's County, Maryland. Specifically in the city of Landover, some residents are highly cost-burdened and living in poverty. These neighborhoods are often the result of systemic and historical racial discrimination where minorities were not given equal financing opportunities for their homes. To meet the needs of this community, Missing Middle housing options should be integrated in the neighborhood, which offers home options give residents a diversity of choice in their home dependent on their group's size and income. Missing Middle housing is essentially all the varying housing types between the scale of a single-family home and a mid-rise multi-family building. These typologies accommodate a higher density within a walkable and multi-modal neighborhood, which fosters opportunities for employment and community engagement.

MIDDLE GROUND: RECALIBRATING PRINCE GEORGE'S COUNTY'S
FAIR LIVING OPPORTUNITIES

by

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List of Abbreviations

MHV:	Median Home Value
MHI:	Median Household Income
AMI:	Area Median Income
MMH:	Missing Middle Housing
PG:	Prince George's
D.C.:	District of Columbia
MD:	Maryland
VA:	Virginia
FHA:	Federal Housing Authority
LIHTC:	Low-Income Housing Tax Credit
MLKJ:	Martin Luther King Jr.
HWY:	Highway

Chapter 1: Introduction and Defining the Problem

Prince George's County, Maryland as a Case Study

Why and how PG County differs from the surrounding counties of DC

There are stark differences in the philosophies of urbanism that make Prince George's County's cities more of an outlier than the surrounding cities of Washington, DC. The district has height restrictions for their buildings, mostly to be shorter than the Washington Monument, but it really has more to do with the ratio of the width of the streets to the heights of the buildings being comfortable for the human scale. Just across the Potomac River, though, Crystal City in Arlington, VA has buildings that tower over those in DC. Because of the proximity to Reagan National Airport and some stops on the DC Metro lines, the plan for Crystal City was to create a business district. Residences are also present here, but only because of all the amenities the city has to offer. This is just one example of how this idea of urbanism varies from Prince George's County.

The four surrounding counties of Washington DC are Prince George's, Montgomery, Alexandria, and Arlington. By comparing their data, a more complete illustration of Prince George's County as the outlier can be concluded. The chart below compares the Median Household Income, Median Home Value, Median Gross Rent as a Percentage of Household Income in the Past 12 Months, and Percentage of

Homeowners Paying 50% of Income on Ownership Costs¹. The area median income in the Washington D.C. metropolitan area is around \$117,000, which is due to the nature of the opportunities in the nation's capital.

	Prince George's	Montgomery	Alexandria	Arlington
MHI	\$78,607	\$103,178	\$93,370	\$112,138
MHV	\$302,800	\$484,900	\$572,900	\$705,400
Rent as % of Income	30.70%	30.30%	27.20%	25.60%
50% of Income on Home Costs	11%	9%	7%	7%

Figure 1: Surrounding Washington, DC Suburbs' Demographics (Source: Author, Social Explorer)

There are cities and neighborhoods within Prince George's County that have statistics significantly lower than the county itself, which will be used as a case study to explore and propose a solution to mitigate these discrepancies.

Minorities and Historical Systemic Financing Issues

Prince George's County is made up of 88% minorities: 61% Black, 20% Hispanic, 4% Asian, and 3% two or more races². Due to a history of redlining and unfair loan opportunities, especially during the recession but continuing through the present day, Black people often struggle to finance their homes. The mortgage crisis of 2008-2009 left Maryland as the third highest state in the country for foreclosed homes. Prince George's County residents were some of the hardest hit, often even

¹ "Account Management - Social Explorer." n.d. Accounts.socialexplorer.com. Accessed October 13, 2021. <https://www.socialexplorer.com/3d320463d6/explore>.

² "Prince George's County, MD." Data USA. Accessed October 14, 2021. <https://datausa.io/profile/geo/prince-georges-county-md#demographics>.

targeted with predatory loans. The issue was in the loans' high cost, which many residents did not even know about. Interviews of Prince George's County residents were often faced with frustration, with some people saying that they know they are able to afford their homes, if only the banks could "make the loan right."³

Compared to White households, minority households are generally younger and larger. There is a cyclical problem for Black and Hispanic households having a lower median household income than White and Asian households, rooting from redlining practices and unfair loan opportunities at the initial transaction of their homes. However, because White and Asian households do have higher household incomes, they will be more likely and able to qualify for larger mortgages, leading to larger and homes with greater value⁴.

Due to historical redlining practices, Black residents would end up in Prince George's County. It is also said that the county became predominantly Black in the 1980s when people left the district to flee the school system. Coupled with the redlining, this led to a large gap in home values between the adjacent Prince George's and Montgomery counties, particularly because housing discrimination prevented these residents to purchase homes for over a century. Once the Fair Housing Act was passed, it did not mean Black people were automatically able to purchase homes. According to LendingTree, Black homeowners are denied of mortgage loans 17% of

³ Bonessi, Dominique Maria. "Some Black Homeowners in Prince George's County Are Still Fighting Predatory Great Recession-Era Loans." DCist. WAMU 88.5, October 1, 2020. <https://dcist.com/story/20/10/01/prince-georges-maryland-housing-bubble-crisis-loans-evictions-in-2020/>.

⁴ Urban Land Institute. *Housing for Niche Markets : Capitalizing on Changing Demographics*. Washington, D.C.: Urban Land Institute, 2005. 24.

the time, and refinancing mortgage loans 30% of the time. Initial buyers are also twice as likely to be denied a mortgage loan. According to Bryan Green, a fair housing policy director at the National Association of Realtors, it is wrong to take qualification standards, such as credit, as the only means of offering loans and mortgages, especially since Black people are still trying to overcome the on-going legacy of unfair housing practices⁵.

Highly cost-burdened residents

Changing Demographics and Housing Issues

Within the last decade, there has been a major demographic shift in Prince George's County, where the population is getting older, and less people are living with families and instead are living alone or with roommates. Therefore, less people need a single-family home, or an apartment with multiple bedrooms, which are the majority of the available housing stock. The demographic also presents a range of needs, whether it be from income, homeownership versus rentals, or desired home sizes. There are some people with larger families that would like to own larger homes, whereas a lot of the population are looking for rental opportunities tailored to affordability. While there are some income-restricted rental options in Prince George's County, it surely does not meet the demand of a demographic seeking very low-income households. One problem occurring is that people with extremely low

⁵ Lerner, Michele. "One Home, a Lifetime of Impact." The Washington Post. Last modified July 23, 2020. <https://www.washingtonpost.com/business/2020/07/23/black-homeownership-gap/>.

incomes are competing with people with low incomes, and the homes are given to those with the slightly higher income.

As mentioned previously, the rent to income ratio for Prince George's County residents is at least 30.7%, with other sources suggesting this number is even higher. In general, according to the notion that one should not be paying more than 30% of their monthly income on their home expenses, 41% of residents are doing that regularly. This defines these people as highly cost burdened. It creates a recurring cycle where people's incomes are not increasing at the same rate of the increase in housing costs, and residents are trapped. Among renters in the county, 49% of their income is devoted to their housing cost, which is greater than the percentage of homeowners⁶.

Housing Statistics

6.52% of homes in Prince George's County are vacant. There are some specific neighborhoods and cities within the county that have even more vacancies; it is no surprise that these neighborhoods are even more cost burdened than the county as a whole. Residents are having a hard time keeping their homes due to historical unfair housing opportunities, and it can be difficult for minority residents to continue to finance their homes without the proper assistance.

Poverty in Prince George's County is about 8.5%, and this can come from several factors: household income, rent or ownership costs, and unemployment. As

⁶ "Prince George's County Comprehensive Housing Strategy."
<https://www.princegeorgescountymd.gov/DocumentCenter/View/21637/Section-4---Housing-Fact-Sheet>, March 27, 2018.

mentioned earlier, the median household income is around \$78,000. 62% of the county is homeowners, with the remainder being renters. Around 8.2% of the county residents are unemployed⁷.

The county seems able to afford their rent based on the standard that one should not spend more than 30% of their income on it. Despite this, there were some cities in the county were bringing these statistics down. Which cities are the most cost burdened, have a great amount of poverty, and do not have as high of a median household income than the rest of the county? According to Figure 2, when observing the cities in Prince George's County with the highest amount of poverty, Landover stood out as one with one of the higher statistics of that.

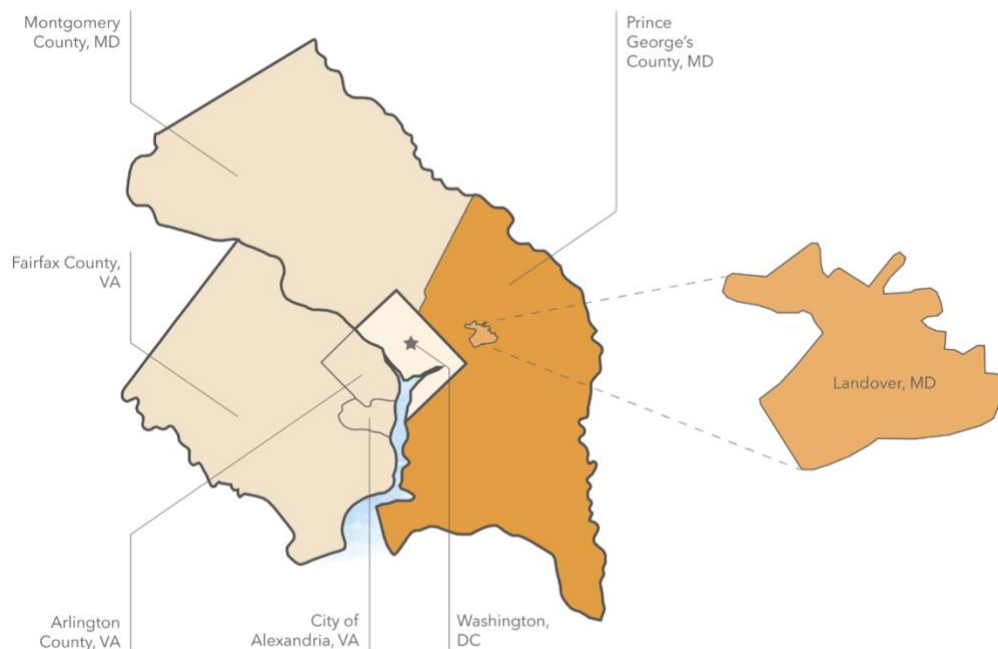


Figure 2: Surrounding Washington DC Counties with Landover, Maryland highlighted (Source: Author)

⁷ "Prince George's County, MD." Data USA. Accessed October 14, 2021. <https://datausa.io/profile/geo/prince-georges-county-md#demographics>.

Initial Impression of Landover, Maryland

There are areas of Prince George's County that fluctuate in terms of having the most or least amount of poverty, and Landover, Maryland is one of the cities with the highest amount of it. The city as a case study and potential site was interesting to consider because of its proximity to Washington DC via the Orange Line on the Metro, in order to understand how a transit-oriented community could be struggling as much as it is.

The demographic of minorities, unemployment rate, and poverty level were all higher than the county as a whole, and the median household income was significantly lower than the county's average. Due to these reasonings, as well as the potential that these neighborhoods can flourish by being near the district, this city offered itself as a great candidate for an area of research for this thesis.

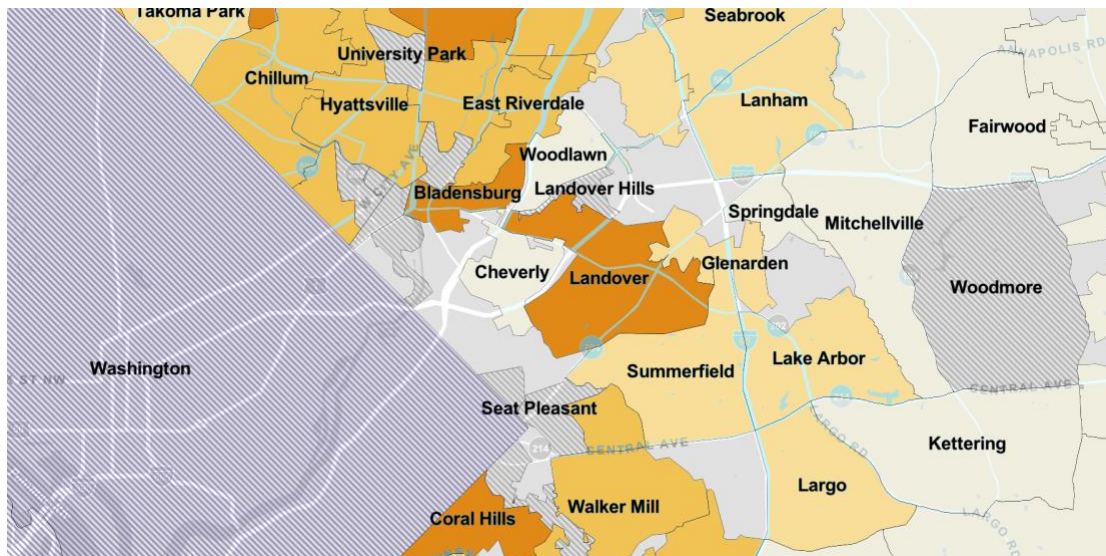


Figure 3: Poverty Levels in Prince George's County (Source: Author, U.S. Census Bureau)

Introduction to Missing Middle Housing phenomenon

What is Missing Middle Housing?

The phenomenon of Missing Middle Housing is booming more now than it has in the last several decades. This is not a new concept, though, which is part of the reason why society calls this ideology “missing;” Missing Middle Housing (MMH) are typologies that often get overlooked when building for a demographic who also gets overlooked. The term “middle” in this phrase has two meanings. The first is that it represents building typologies that are in between single-family homes and large apartment buildings, and those will be further explored later in this document. Secondly, it relates to the affordability of these homes; historically, middle-income families making 60-110% of the average median household income of an area can easily attain these types of homes⁸. By providing a diversity of housing options, residents have the ability to choose a living situation that works for their household, and become a part of a neighborhood of opportunity, amenities, multi-modal transportation, and community⁹.

Current lack of diversity in housing types

In Prince George’s County, while some Missing Middle housing exists, they are rarely interwoven with multiple different typologies in the same neighborhood. Many residents of the county live in neighborhoods without a diversity of choice,

⁸ Parolek, Daniel G, and Arthur C Nelson. *Missing Middle Housing : Thinking Big and Building Small to Respond to Today's Housing Crisis*. Washington, DC: Island Press, 2020. 8.

⁹ Parolek, Daniel G, and Arthur C Nelson. *Missing Middle Housing : Thinking Big and Building Small to Respond to Today's Housing Crisis*. Washington, DC: Island Press, 2020. 1.

forcing residents of a particular area to live in one type of home regardless of their group or family's size and income¹⁰. The available housing after World War II, when a lot of these neighborhoods of single-family homes were created due to baby boom, was an idealized view of how society ought to live. However, this is changing drastically, and there are a huge discrepancy of the available housing stock and what people are desiring today¹¹.

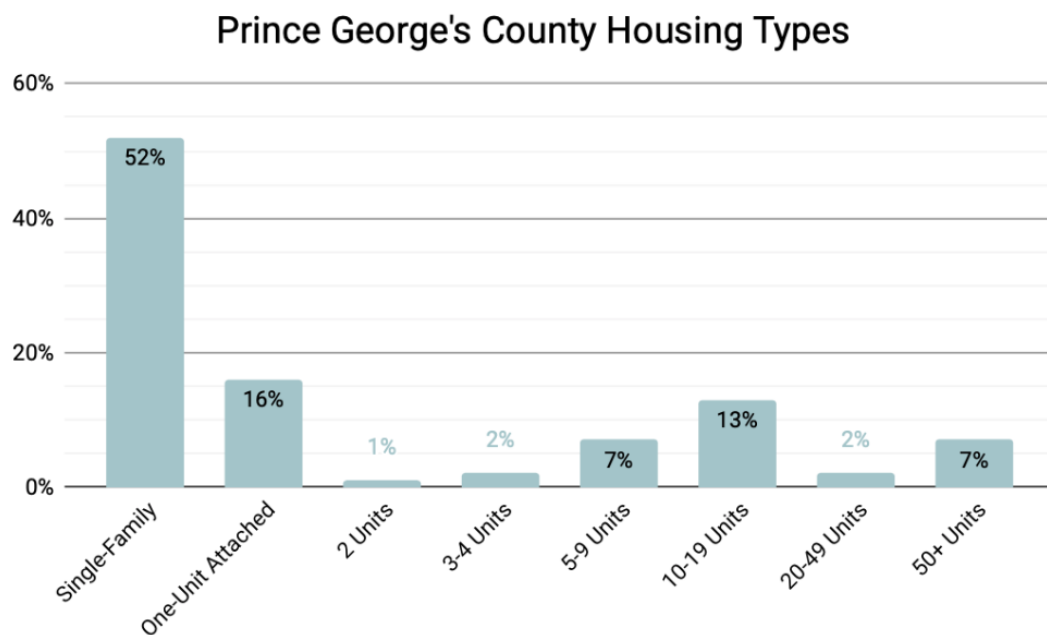


Figure 4: Available Housing Stock in PG County, MD. (Source: Author, Towncharts)

Demographic Looking for Missing Middle Housing

The demographic changes across the United States have a major influence in the growth of the households currently and projected for the future. More than 80% of

¹⁰ “Prince George's County, Maryland Housing Data.” Towncharts Housing Data. Accessed December 07, 2021. <https://www.towncharts.com/Maryland/Housing/Prince-Georges-County-MD-Housing-data.html>.

¹¹ Parolek, Daniel G, and Arthur C Nelson. *Missing Middle Housing : Thinking Big and Building Small to Respond to Today's Housing Crisis*. Washington, DC: Island Press, 2020. 1.

new households from 2018 to 2040 will be childless¹²; that alone causes designers to question whether the typical single-family home with an owner's suite and several bedrooms for children will even be viable anymore. Not only that, but the Baby Boomer and Generation X population will become empty nesters and singles around the same point in time, causing these older people to consider downsizing, and singles to opt for smaller or attached homes. By 2025, less than one fifth of the housing demand will be from married couples with children, since 28% of the demographic is married couples without children, followed by people living alone at 26%¹³. In addition to these predictions, other demographic trends significantly affecting the housing demand in the next few decades will be from the changing composition of typical households, and a continuing growth in immigration and ethnic diversity¹⁴.

Starting to grow over the next few decades will be the role that minority households play in reconfiguring the demand for housing product. Minority neighborhoods are gaining more attention from the designers and financiers of these homes, as well as government agencies, lenders, and mortgage market agencies like Freddie Mac and Fannie Mae. The agencies are attempting to increase home-ownership opportunities, since often minority families will be pushed to continue renting homes because of trouble obtaining fair loans. By lowering down-payments and credit expectations, and offering homeownership counseling, minorities are

¹² Parolek, Daniel G, and Arthur C Nelson. *Missing Middle Housing : Thinking Big and Building Small to Respond to Today's Housing Crisis*. Washington, DC: Island Press, 2020. 32.

¹³ Urban Land Institute. *Housing for Niche Markets : Capitalizing on Changing Demographics*. Washington, D.C.: Urban Land Institute, 2005. 9.

¹⁴ Urban Land Institute. *Housing for Niche Markets : Capitalizing on Changing Demographics*. Washington, D.C.: Urban Land Institute, 2005. 11.

finally getting a fairer opportunity for financing homes of their choice – a long-overdue necessary paradigm shift¹⁵.

¹⁵ Urban Land Institute. *Housing for Niche Markets : Capitalizing on Changing Demographics*. Washington, D.C.: Urban Land Institute, 2005. 24.

Chapter 2: Landover, MD Background and Site Selection

Historical Segregation

Slavery Impact

In order to dissect the reasons for why Landover, Maryland is behind the rest of the county in terms of income and opportunity, it is important to understand the history of the place. While Prince George's County does rank high across the nation as being one of the most affluent African American communities, there are systemic issues that still leaves these minorities at a different starting point in growth and wealth than White people. The history of the county was rooted in slavery, particularly as the county with the greatest number of slaves in 1860, with the slave population being 12,000; that was more than the amount of White people and free Black people living in this border. The reason slaves made up most of the population in this part of Maryland was because tobacco, a main cash crop, was more widespread in this county, which is further South than other communities in Western and Northern Maryland, and Baltimore. Once Washington D.C. abolished slavery in 1862, many Blacks in Prince George's County went there to acquire their freedom. However, those who stayed in the county would reap those consequences by dealing with segregation in many parts of their lives¹⁶.

¹⁶ Henry, John. "How Prince George's Co. Went from the Highest Number of Slaves in the State to a Destination for African Americans." wusa9.com, Last modified March 15, 2019.

1937 Federal Housing Authority Map

The Federal Housing Authority (FHA) developed a map in 1937 of how they divided the Residential Sub-Areas of Washington D.C. and its nearby suburbs. Post-World War II, federal investments sparked a housing boom with America's White middle-class, of which they were able to build their wealth through home and land ownership. Access to loans, insurance, and other financing methods were mostly based on race as well. The Federal Home Owners Loan Corporation (HOLC) redlined and "graded" areas of cities based on race a lot of times, but a HOLC map of Washington D.C. is not in the public domain. The 1937 Federal Housing Authority map below is graded on the basis of loan risk and is rooting with racial prejudice.

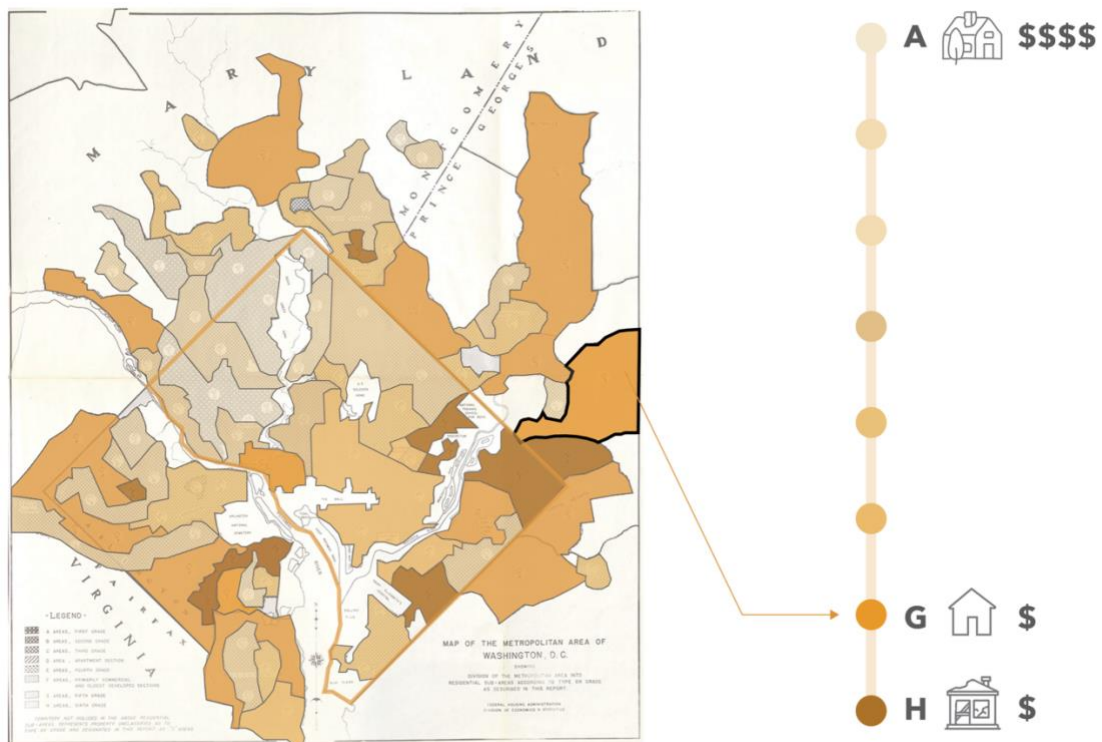


Figure 5: 1937 Federal Housing Authority Graded Loan Risk Map (Source: Author, U.S. Census Bureau)

The lighter areas on this map were those that received higher ratings, such as A, B, and C, whereas the darker regions related to the lower ratings of F, G, and H. Based on these grades, people living in lower-ranked areas were typically denied both mortgages by banks and insurance which was subsidized by the Federal Housing Administration. In result, these housing deeds and covenants were restrictive, and their neighborhoods became that way as well. This led to many Blacks and minorities to be influenced into renting instead of homeownership.¹⁷

The confines of Landover, Maryland are within a G grade on this map, which is one of the lowest ones. Type G residential sub areas are the lowest rank of neighborhoods where a White person would be. The land is usually dilapidated and lacks appeal, a sense of place, facilities, proper streets, and controlled development. As a result of a heterogeneous character, property values can range drastically, where some areas could be almost entirely underdeveloped, and others could foster small one-story homes.¹⁸

Historical redlining and marking predominantly Black neighborhoods as undesirable had an impact on the homeowners' abilities to build generational wealth. Lower and biased property appraisals based on a redlined area affected the homeowners' investments in their homes.

¹⁷ Cava, Eliza. "Redlining: The Legacy of Wealth and Systemic Racial Discrimination in Our Land." ANS Conservation Blog, Last modified October 6, 2020. <https://conservationblog.anshome.org/priority-campaign-areas/human-health-access-to-nature/redlining-the-legacy-of-wealth-and-systemic-racial-discrimination-in-our-land/>.

¹⁸ "Mapping Segregation in D.C." D.C. Policy Center, Last modified January 9, 2020. https://www.dcpolicycenter.org/publications/mapping-segregation-fha/?fbclid=IwAR1USyhrd1o_JdCxvk_UDFCJWqVdMVdI_-KZzg0mBVOxxWcBfm0-fkEGEpA.

Segregation of Schools

Argued as the key reason for Landover's socioeconomic decline was desegregated busing in this part of the county. In 1972, when the county was only 12% Black, a federal judge sparked what would be one of the most life-changing periods of the county's history. By desegregating buses in public schools, many White people moved out of the county or enrolled the children in private schools. In 1998, a court-order was passed to eliminate desegregated busing. Prior to this, communities struggled and were divided, because students of the same age in the same neighborhood would be spread across multiple different schools. This lack of unity led to and was the result of school systems that were failing as they were not as cohesive and experienced as schools in the newly majority White neighborhoods.¹⁹

Characteristics of Landover, Maryland

Demographics, Poverty, and Median Household Income

Due to the historical information on both Prince George's County and Landover, there are characteristics of each in which some are favorable, and some are not. However, when comparing the city of Landover to the county as a whole, the city has greater intensities in five major categories: poverty level, people of color,

¹⁹ Nakamura, David. "Pr. George's Ending Racial Busing." The Washington Post. Last modified November 17, 2000. <https://www.washingtonpost.com/archive/local/2000/11/17/pr-georges-ending-racial-busing/b20d8b3a-3144-4ddc-a30e-fd42f4f2d85f/>.

unemployment rates, people without a car, and median household income. The following graphic shows these statistics as they compare to one another.

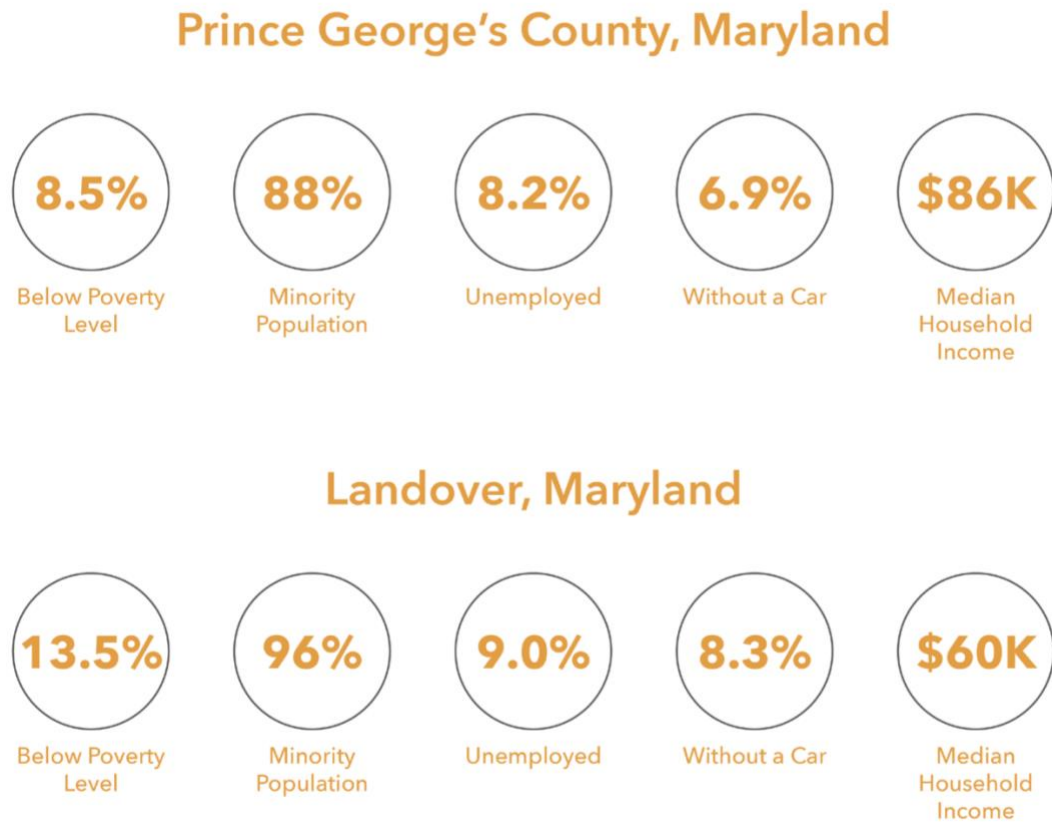


Figure 6: Demographic Comparison between Prince George's County and Landover, MD (Source: Author, DataUSA)

Though the statistics above represent the city as a whole, there are particular neighborhoods that skew the average one way or another. The following three diagrams highlight certain regions of the city and how the poverty levels, unemployment, and median household incomes related to neighboring communities²⁰. The proposed project site is outlined in yellow.

²⁰ "Landover, Maryland." Landover, Maryland (MD) Profile: Population, Maps, Real Estate, Averages, Homes, Statistics, Relocation, Travel, Jobs, Hospitals, Schools, Crime, Moving, Houses, News, Sex Offenders. Accessed November 10, 2021. <https://www.city-data.com/city/Landover-Maryland.html>.



Figure 7: Areas of Landover Below the Poverty Level (Source: Author, City-Data)



Figure 8: Unemployment Rate Levels in Landover (Source: Author, City-Data)



Figure 9: Median Household Income Levels in Landover (Source: Author, City-Data)

Zoning

Below is a zoning map of the entire city of Landover²¹. What can be derived from this image is that though there is a range of zoning types, there is an abundance of R-55 zones, which is typical single-family dwellings. There are also smaller portions of zones in areas that could seem slightly out of context. There are many opportunities where zoning interventions such as variances or form-based codes could replace the typical Euclidean zoning segments of the current master plan.

²¹ PGAtlas.com. Accessed September 16, 2021. <https://www.pgatlas.com/>.

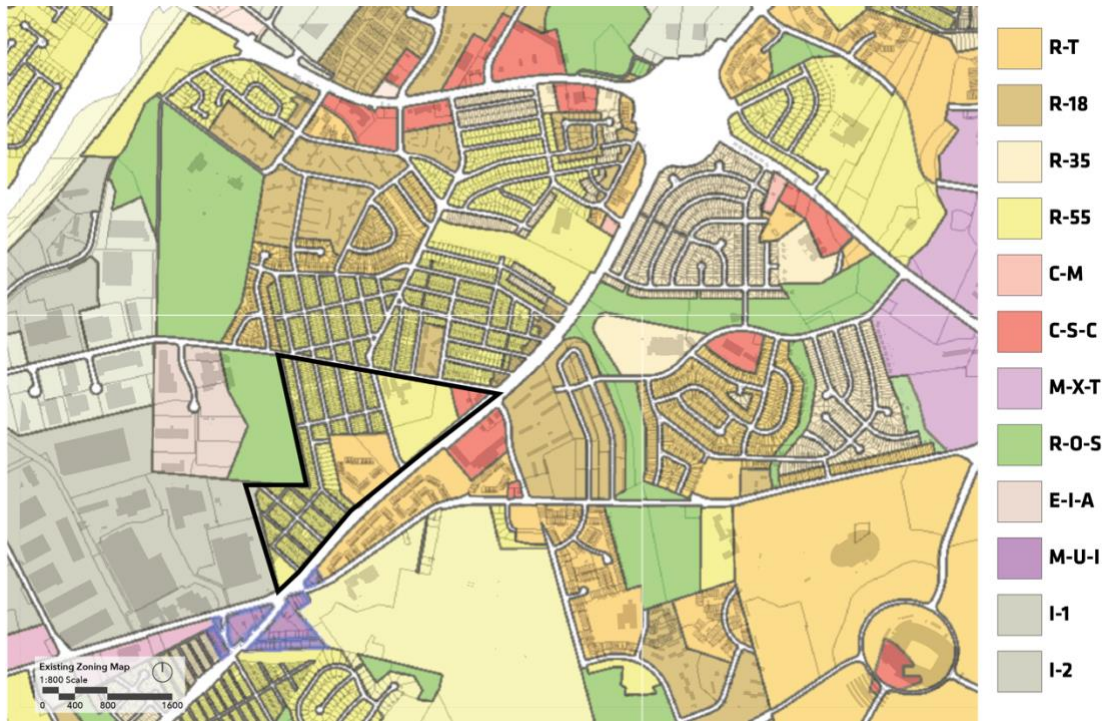


Figure 10: Current Zoning Map of Landover, Maryland (Source: Author, PGAtlas)

Finding the Desired Site

Criteria

In order to choose a site to introduce Missing Middle Housing to remedy a fragmented neighborhood of Landover, a list of criteria for an ideal site was developed, taking several different sites into consideration. The most critical line items for this thesis were for there to be a considerable amount of poverty in an area of a low median household income, the site should be fragmented with opportunities to intervene by new construction, in-fill, and careful demolition, and diversity in the demographic in terms of race, age, group size, and income. Another area of criteria included being in proximity to transit to reinforce the success of Missing Middle Housing creating walkable, transit-oriented neighborhoods. Being near existing

residences as well as having commercial adjacencies also reinforce that same idea. Ideally, the site would also have a lack of some integral community spaces and have housing vacancies for careful consideration for redesigning. With all of this in mind, a suitable site was found, which can be seen below. The area of the site is in the loose boundaries of Martin Luther King Jr. Highway, Columbia Park Road, and Columbia Avenue.



Figure 11: Proposed Site of Intervention (Source: Author, GoogleEarth)

Demographics

The proposed site proved to have demographics and characteristics that makes it a good choice to intervene in through a neighborhood redesign. The diagram below shows that the median home value in this particular site is even lower than the city of Landover as a whole, and there is a greater minority population. The age demographics are important to point out here because it begins telling the story of the

people who are living here, and why their current single-family home situation for living is not the most ideal for them.

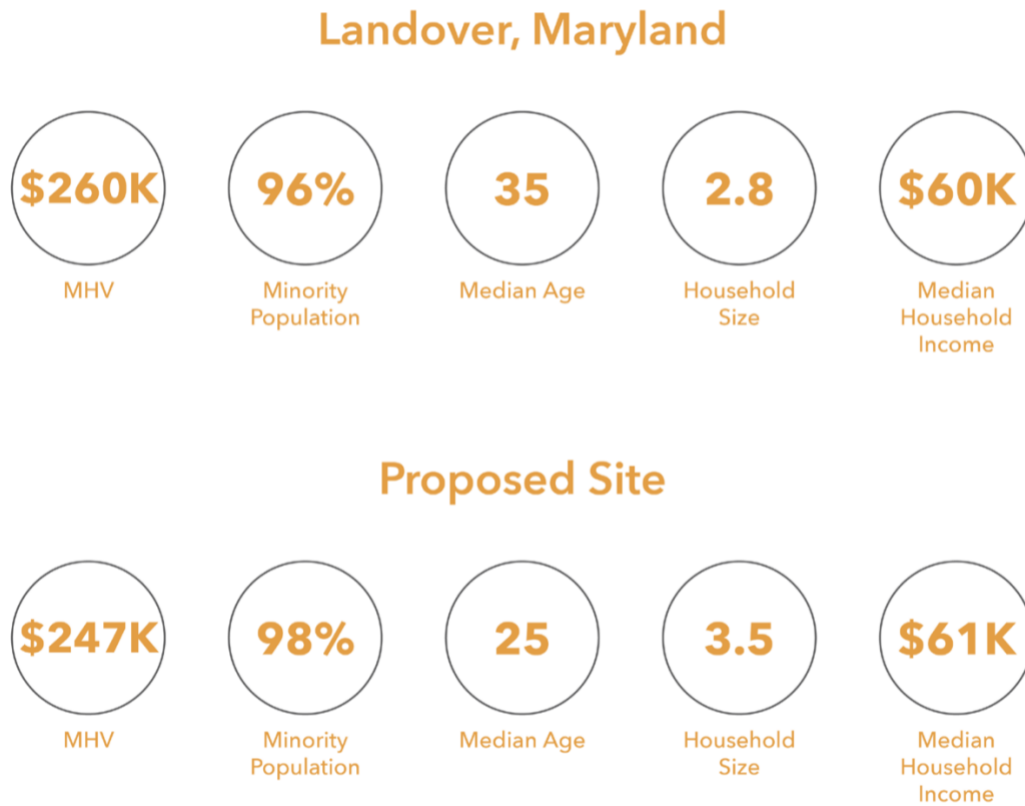


Figure 12: Demographic Comparison between Landover, MD and the proposed site (Source: Author, DataUSA)

Existing Conditions for the Proposed Site

Diagrams

The site is two miles away from the confines of Washington D.C., flanked in between two major D.C. Metro lines, the Orange and Silver lines. Though the site is just outside of a one-mile radius of a metro stop, there are ample bus stations and routes that can transport people from the site directly to the two closest metro stations, Cheverly and Landover. It was difficult to find an appropriate site to work in within a 10-minute walk of a train station, mostly because the building stock around

these stations are mostly industrial, as seen by the larger buildings on the following figure ground plans. On the following plan, the blue line shows current bus routes. There are opportunities for an even better bus network to be introduced to the scheme, for instance, connecting the site in yellow directly to the Landover metro station about one mile and a half north of the site.

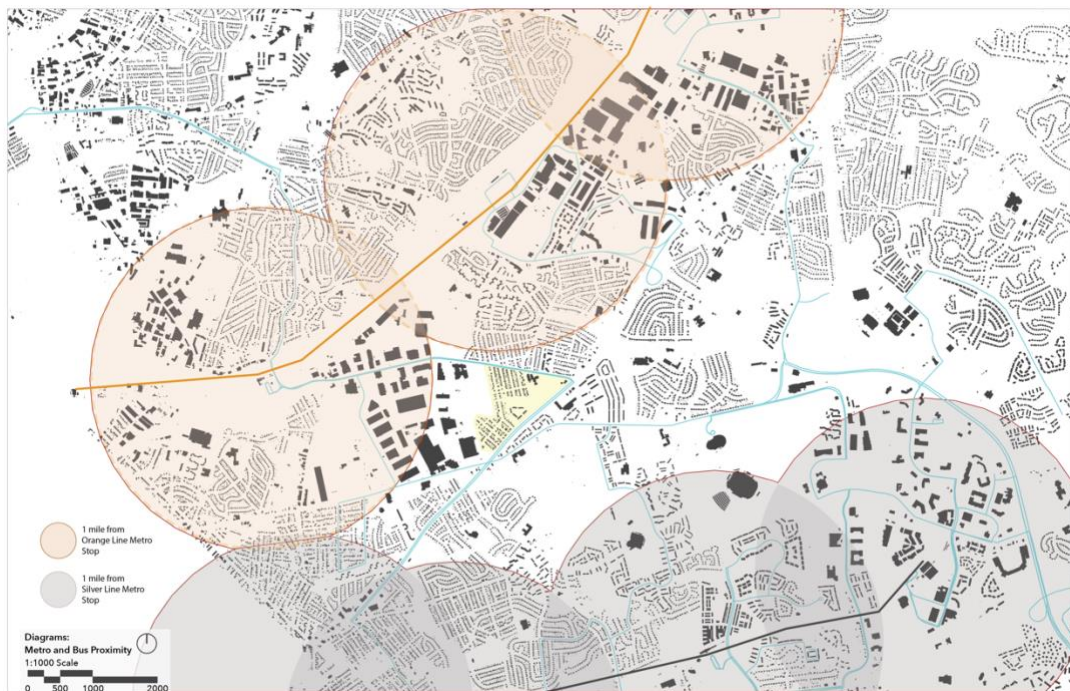


Figure 13: DC Orange and Silver Metro Lines and Bus Routes (Source: Author)

The following diagram shows the existing land use and building types around the site. Though there are some Missing Middle housing typologies around the site, such as townhouses and walk-up apartments, most of the areas are zoned for single-family detached homes. This site has great potential for its proximity to institutions and commercial and retail areas; the challenge is that the main commercial center is across the street of a four-lane highway with a tree-median in the center. There may be opportunities to connect each side of the street of Martin Luther King Jr Hwy and

bring more opportunities for work and shopping on the West side of the street. The proximity to the institutional buildings, which are an elementary school and high school, can be seen as an opportunity for walkability, but also a constraint because this land is owned by the schools.



Figure 14: Existing Land Use and Building Typologies (Source: Author)

Pinpointing Particular Intervention Areas

Exploring the Site Boundaries

The diagram below highlights how there are four seemingly separate neighborhoods right around the site. The opportunity for the thesis to intervene and complete these fragmented neighborhoods will work with a holistic master plan and Missing Middle Housing typologies. Opportunities for in-fill, careful demolition, and

insertion of typologies such as accessory dwelling units could be added to any of the colored regions on the diagram below.



Figure 15: Existing Neighborhood Grid Networks and their Impact on the Proposed Site (Source: Author)

The fact of the matter is that the addition and in-fill of new housing typologies could occur in all adjacent areas of the site. However, the goal of this thesis is to use the context as a template for creating a neighborhood that will then tie back into the existing network.

Chapter 3: Missing Middle in Design

Missing Middle Housing Characteristics

Introduction: What is Missing Middle Housing?

Missing Middle Housing are typologies of homes often overlooked in between single-family homes and large apartment buildings. These buildings in the middle can accommodate more units in a smaller footprint, all while not compromising on the quality and livability of the homes. The demographics interested in these typologies are also a part of the middle of the population that had needs for the desired home, whether it be group size, income, a walkable neighborhood, or employment opportunities. Luckily, Missing Middle Housing and commercial types can deliver housing to those who want to part ways with the traditional housing types seen in most of the country's available housing stock.

Characteristics

Beyond being characterized through particular building typologies, neighborhoods of Missing Middle Housing usually follow certain criteria in order to make the most of the development. Firstly, these neighborhoods thrive the most if they are in walkable context. This does not mean walkable in the sense that the site provides paths and trails for recreational walking, but instead, as a way to get from one point to another, such as work, food places, entertainment, and more amenities. The reason for this is the clientele and demographic that is interested in this kind of housing. In car-oriented neighborhoods, Missing Middle Housing is still possible, but

it will not attract the renters and buyers who are interested in sustainable living patterns²². Because these communities are more focused on pedestrian movement rather than the automobile, thoughtful approaches to parking are another criteria item. The quantity of parking on-site and on-street is integral to the design of these neighborhoods in order to efficiently use the land for these buildings, as well as bring the focus back onto the walkability of the site²³.

In terms of the placement of buildings on the site, there are parameters that these typologies typically adhere to. The building footprints are generally small, with the width and depths of the appearing to be at a similar scale to a single-family building. Another criterion is that these homes live like a single-family home. The most desirable homes are ones where people feel a sense of individuality and ownership. In most of these homes, people can enter through private front doors on their own stoops, versus having a long elevator and corridor trek like large apartments offer. Because these typologies are so similar to single-family homes, there is a less dramatic mental shift in interested residents to pursue living in shared footprints²⁴. There is a lower perceived density with these typologies because of the comfortable size of the buildings. The lot sizes may be similar in size, but more dwelling units per acre are possible when the housing typologies create more units. Although the overall unit sizes of many Missing Middle Housing typologies will be smaller than that of a

²² Parolek, Daniel G, and Arthur C Nelson. *Missing Middle Housing : Thinking Big and Building Small to Respond to Today's Housing Crisis*. Washington, DC: Island Press, 2020. 14.

²³ Parolek, Daniel G, and Arthur C Nelson. *Missing Middle Housing : Thinking Big and Building Small to Respond to Today's Housing Crisis*. Washington, DC: Island Press, 2020. 21.

²⁴ Parolek, Daniel G, and Arthur C Nelson. *Missing Middle Housing : Thinking Big and Building Small to Respond to Today's Housing Crisis*. Washington, DC: Island Press, 2020. 18-20.

single-family home, many different demographics find this attractive. These homes also have the ability to either be for rent or for sale and could be intermixed in the same neighborhood.

	Single-Family Block	Mixed Block
Density of Residential	7.0 du/acre	18.6 du/acre
Density of Housing Above Retail	N/A	46.0 du/acre
Density Average	7.0 du/acre	26.6 du/acre

Figure 16: Density of Single-Family versus Mixed Typology Blocks (Source: Author, "Missing Middle Housing")

Affordability

For many reasons, Missing Middle typologies can be made affordably while also being affordable to residents. These types are generally Type V construction, which means it is primarily simple wood constructions. Because of this, compared to Type I or Type III categories, these types will be less expensive, and less risky, because it will be easier to finance²⁵. For residents whose home expenses are disproportionate to their income, without subsidy, it is challenging to pay for the true cost of building housing. Therefore, it is the due diligence of architects and developers to increase the supply of subsidized housing for people with incomes below 60% of the area median income (AMI)²⁶. Missing Middle Housing types are affordable by design and are ideal for small developer projects because they do not

²⁵ Parolek, Daniel G, and Arthur C Nelson. *Missing Middle Housing : Thinking Big and Building Small to Respond to Today's Housing Crisis*. Washington, DC: Island Press, 2020. 23.

²⁶ Parolek, Daniel G, and Arthur C Nelson. *Missing Middle Housing : Thinking Big and Building Small to Respond to Today's Housing Crisis*. Washington, DC: Island Press, 2020. 52.

require extensive engineering, they can be site-built by a qualified general contractor, and the homes have the flexibility upon exit, where residents can sell the property or keep it for residual rental income²⁷. On the contrary, Missing Middle Housing can be affordable for rental and for-sale units without subsidies with careful planning and infilling. Due to the simple, low-cost construction methods, integrating on a site more efficiently in terms of density and floor area ratio (FAR), and the typologies themselves requiring less reliance on the car and providing employment opportunities for the local economy, Missing Middle Housing is attainable to a wide range of demographics²⁸.

The New Preference

The demand for Missing Middle Housing and walkable neighborhoods is so elevated, that even if every home built between 2020 and 2040 were built in with these parameters, it would still not be enough to meet the needs of the population seeking this kind of living situation. Many of the generations who will be in the next wave of buyers and renters, such as downsizing baby boomers and new millennial and generation Z buyers, prefer having their amenities all in one place in a walkable neighborhood²⁹.

²⁷ Heid, James M. *Building Small : A Toolkit for Real Estate Entrepreneurs, Civic Leaders, and Great Communities*. Washington, DC: Urban Land Institute, 2021. 80-81.

²⁸ Parolek, Daniel G, and Arthur C Nelson. *Missing Middle Housing : Thinking Big and Building Small to Respond to Today's Housing Crisis*. Washington, DC: Island Press, 2020. 54.

²⁹ Parolek, Daniel G, and Arthur C Nelson. *Missing Middle Housing : Thinking Big and Building Small to Respond to Today's Housing Crisis*. Washington, DC: Island Press, 2020. 32.

Typologies

Housing Typologies in this Thesis

There are many different types of Missing Middle housing options that have been designed in the past and are continually iterated on. The typologies designed in this thesis were deliberately introduced because of the demographics of this particular part of Landover, Maryland. Understanding how many bedrooms needed to be a majority of master plan, how many units of each type, how many retail buildings, among other demographics, were all important and recognizing the need for different housing options that were not available in the city as it currently existing. The diagram below shows the pertinent demographics influencing the housing typologies that were designed for this thesis.

Demographics Influencing Housing Typologies

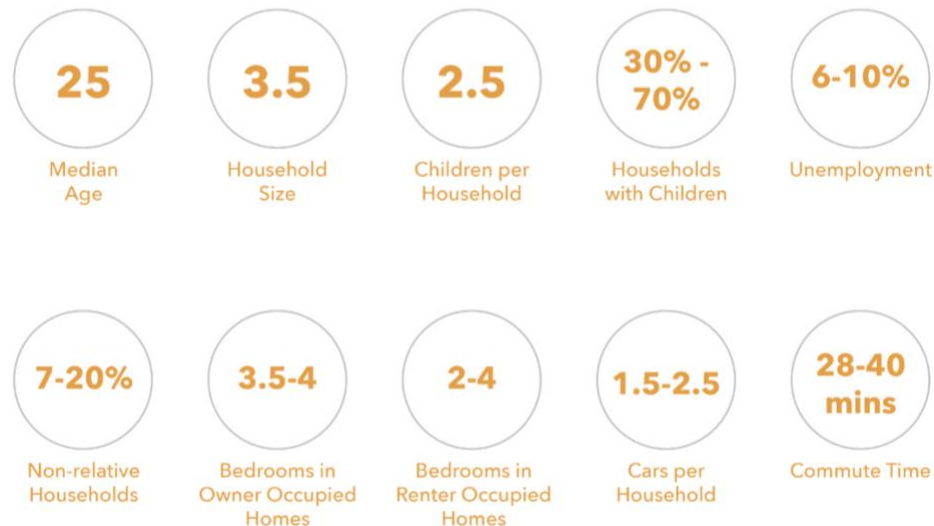


Figure 17: Demographics in the Proposed Site Influencing Housing Typologies (Source: Author)

Accessible Bungalow / Granny Flat

The first typology in this thesis is an accessible bungalow, otherwise known as a granny flat. This is the smallest building type introduced in this thesis, and it fits in the most seamlessly with an existing single-family home neighborhood. It is essentially a small, one-bedroom home, meant for a demographic that is usually elderly or handicapped individuals. It takes a one-bedroom apartment typology and forms it into a small home so that residents can have a sense of individuality and ownership.



Figure 18: Possible Accessible Bungalow / Granny Flat Configuration (Source: Author)

Carriage House

Carriage house typologies solve the problem of public parking and achieving a greater number of units on the site. The ground floor of a carriage house is used nearly exclusively for parking, and a unit's ground floor begins on the second floor, right above those garages. Tenants in the carriage houses could apply for parking

spaces in those garages, but the covered parking could also be used by other residents of the community. In this master plan, there are two variations of this typology: a one-unit, and a two-unit building. While both of these types exist in the newly designed neighborhood, one-unit carriage houses can also be seen in single-family lot parcels as accessory dwelling units.

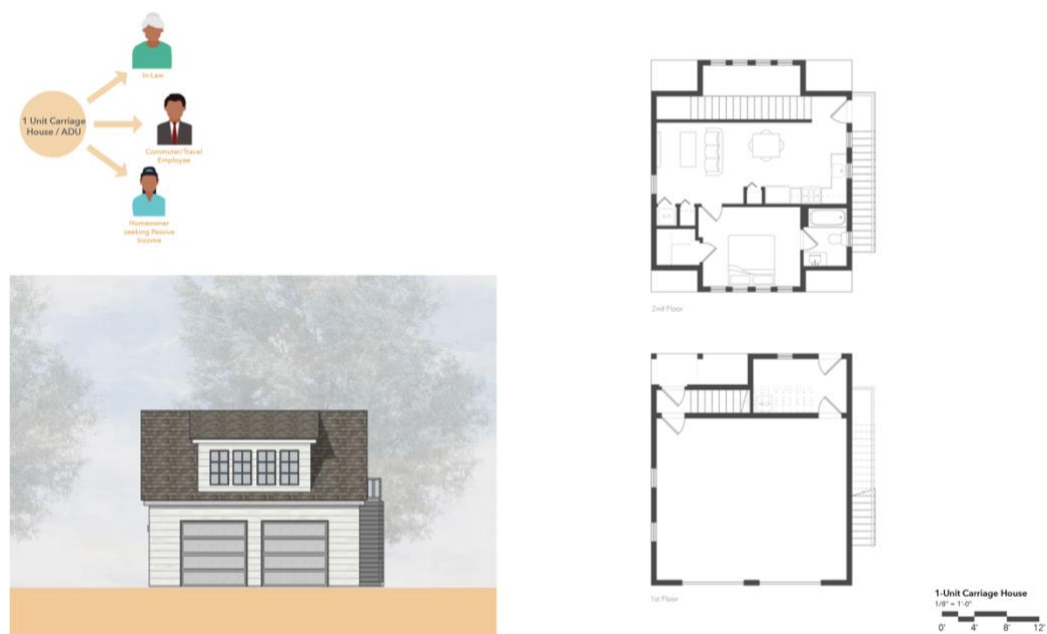


Figure 19: Possible One-Unit Carriage House Configuration (Source: Author)



Figure 20: Possible Two-Unit Carriage House Configuration (Source: Author)

Duplexes

Duplex housing typologies are comprised of two units that either share a party wall or are stacked on top of one another. A side-by-side duplex is more attainable than a single-family home, but it is not the best solution to propose when delivering attainable housing. This is mostly because this typology takes up more width facing the street and is therefore slightly inefficient since it is only offering two units.

Nonetheless, it is a typology that is attainable for a lot of the demographic looking for Missing Middle Housing. One way this typology becomes more efficient is when the units are stacked on top of one another. This type can be placed on a narrower lot, even something as tight as 30 feet wide. Duplexes offer an opportunity for the owner to rent out one of the units for residual income to help pay for their own mortgage, or

for families of multiple generations and greater size to be under one roof but still separated.³⁰



Figure 21: Possible Side-by-Side Duplex Configuration (Source: Author)

³⁰ Parolek, Daniel G, and Arthur C Nelson. *Missing Middle Housing : Thinking Big and Building Small to Respond to Today's Housing Crisis*. Washington, DC: Island Press, 2020. 97-105.



Figure 22: Possible Stacked Duplex Configuration (Source: Author)

Triplexes

Triplexes are similar to stacked duplexes, except there are three units instead of two. These typologies are standard and typically seen in a city like Philadelphia³¹, where the goal is to increase the density within the same rhythmic pattern that townhouses deliver. Likewise, these units can be on narrower lots. The entries to these units are generally from the same front door for efficiency, but the upper floor units could possibly have their own entry separate from the ground floor unit³².

³¹ The triplexes in Philadelphia are usually coined the term “Trinity Houses,” referring to the Holy Trinity’s three main elements and relating that to the layout of the structure.

³² Parolek, Daniel G, and Arthur C Nelson. *Missing Middle Housing : Thinking Big and Building Small to Respond to Today's Housing Crisis*. Washington, DC: Island Press, 2020. 143.



Figure 23: Possible Triplex Configuration (Source: Author)

Townhouses

Townhouses are arguably one of the Missing Middle Housing typologies that is not entirely missing. Townhouse developments have been beginning to show up more and more in the last few decades, both as options for purchasing and renting. Townhouses are at least two stories, with more luxury ones with a greater number of bedrooms being upwards of four stories. There is no true parameter on the number of townhouses in one string, but at a certain point, the building width would suggest there be a break for better access from the front to the backs of them. Townhouses generally have front entries on the main façade of the home, but in some cases, such as for units on the ends of the string, the front façade could be placed on the side, which is great for these masses that meet street corners. Townhomes are efficient in

their land uses because they emulate the lifestyle of a single-family home, but share walls, and therefore could be priced lower than a single-family home³³.

In this master plan, there are four different variations of this typology: two-story, three-story, three-story with garage, and townhouse live/work. The townhouse live/work will be explained in a later chapter. However, the former three variations all have to do with different internal configurations, reinforced the overarching theme of providing residents with a diversity of choice in their homes. In these townhouses, residents get a choice of whether they prefer to have a garage or a roof deck, two primary bedrooms or just one, and varying numbers of bedroom and den spaces.



Figure 24: Possible Two-Story Townhouse Configuration (Source: Author)

³³ Parolek, Daniel G, and Arthur C Nelson. *Missing Middle Housing : Thinking Big and Building Small to Respond to Today's Housing Crisis*. Washington, DC: Island Press, 2020. 133-139.



Figure 25: Possible Three-Story Townhouse Configuration (Source: Author)



Figure 26: Possible Three-Story Townhouse with Garage Configuration (Source: Author)

Manor House

Lastly, of the housing typologies in the scheme that are exclusively residential, the medium-sized structures that are smaller than mid-rise apartments but offer more than four units are Manor Houses, which are a type of multiplex. These types can take shape in many forms, but the core similarities between them is that they usually have between five to twelve units, sometimes more, and share an entry on the ground floor. Developers and designers sometimes get carried away with this type, providing too many units because of the notion that more units mean more efficient. However, the footprint and number of stories should be regulated; a healthy footprint width could be upwards of 75 feet, with a depth no greater than 60 feet³⁴.

In this scheme, the manor house designed is a three-story, nine-unit building. The units on the ground floor are no-step and accessible. The varying floor plans are one-bedrooms with dens, two bedrooms, and four-bedrooms, showing that different demographics of residents can all coexist in the same modest footprint.

³⁴ Parolek, Daniel G, and Arthur C Nelson. *Missing Middle Housing : Thinking Big and Building Small to Respond to Today's Housing Crisis*. Washington, DC: Island Press, 2020. 149-150.



Figure 27: Possible Manor House Configuration (Source: Author)

Missing Middle Commercial Types

Characteristics

The available housing stock in the aftermath of the industrial revolution created a certain notion that commerce and economy should be separated from residential neighborhoods³⁵. However, this mindset has changed in the 21st century. Traditional Neighborhood Development (TND) advocates are encouraging a shift from this model to one that creates livable communities in the suburbs, creating walkable, amenity-filled neighborhoods. These neighborhoods are not just made up of Missing Middle Housing types but bring in Missing Middle Commercial types

³⁵ Klinkenberg, Kevin. "There's a Missing Middle for Commercial Spaces, Too." Strong Towns. Last modified November 8, 2018. <https://www.strongtowns.org/journal/2018/11/6/theres-a-missing-middle-for-commercial-spaces-too>.

beyond large-scale retail and industry³⁶. Similarly, for the need for affordable housing, entrepreneurs and small businesses also desire attainable places of work; what would make these places of work even better is if they could be near their homes as well.

Live-Work

One example of a housing typology that encourages multi-purposes in the same small-scale building is the Live/Work model. This building type usually has a flexible retail or commercial space on the ground floor, with one or two stories of units above that. This typology is different from the typical mixed-use apartment building for two reasons: the scale is much smaller and suitable for one business, and there is only one unit above, unlike mixed-use apartment building units and the large network of corridors and quantity of units. The Live/Work model could perhaps encourage the owner or renter of the unit to start a business or use the ground level space for a hobby. If the resident would rather generate passive income, the storefront could be rented to another business to help the tenant pay for their home. Likewise, businesses with this close of a proximity to housing could be ideal for residents that do not have a car or drive and want to bring economic opportunities to a neighborhood³⁷. One-unit and a two-unit live/work buildings were introduced in the scheme, as well as a townhouse live/work, in which the ground floor of a townhouse operates as a small retail space.

³⁶ Steinfeld, Edward, Jonathan White, and Danise R Levine. *Inclusive Housing : A Pattern Book : Design for Diversity and Equality*. 1st ed. New York: W.W. Norton & Co, 2010. 16.

³⁷ Parolek, Daniel G, and Arthur C Nelson. *Missing Middle Housing : Thinking Big and Building Small to Respond to Today's Housing Crisis*. Washington, DC: Island Press, 2020. 165.



Figure 28: Possible One-Unit Live/Work Configuration (Source: Author)



Figure 29: Possible Two-Unit Live/Work Configuration (Source: Author)



Figure 30: Possible Townhouse Live/Work Configuration (Source: Author)

Other Typologies

From make-shift pop-up businesses to ones that travel, to one-story retail spaces, and finally to live-work and small mixed-use buildings, there are Missing Middle Commercial typologies often overlooked or not considered, especially to be integrated in a neighborhood context. Though introducing business into a residential area often needs to be approved by zoning, it is a critical aspect of designing a neighborhood that enables economic opportunity and diversity. These types are usually seen as a transition from a commercial corridor to the housing, serving as an appropriate buffer in program and in scale to the context³⁸.

³⁸ Klinkenberg, Kevin. "There's a Missing Middle for Commercial Spaces, Too." Strong Towns. Last modified November 8, 2018. <https://www.strongtowns.org/journal/2018/11/6/theres-a-missing-middle-for-commercial-spaces-too>.

Constraints and Possible Solutions

Zoning

Missing Middle Housing typologies that are still around today and were not newly created were most likely built prior to the inception of zoning practices in the early 1900s. This concept known as Euclidean Zoning was created so that different building typologies were separate from one another, including different types of housing like single- and multi-family. The challenge of implementing Missing Middle Housing is that zoning in a lot of cities fail to truly include these types. It typically goes from single-family detached, possibly including duplexes, right to large multi-family buildings much bigger than the middle typologies³⁹. Zoning based on density is rarely discussed because it has been the norm for so long, but it is one of the primary reasons why there is a lack of diversity in housing types in the country. Smaller multi-family buildings are discouraged by many because most people perceive this as being inefficient but advocates for Missing Middle Housing are trying to reverse this notion⁴⁰.

Form-Based Codes

One way to combat this problem is by implementing form-based codes. These focus on the physical nature of each building and how they interact with the context, public space, and street scape, rather than land use. Form-based codes currently affect

³⁹ Parolek, Daniel G, and Arthur C Nelson. *Missing Middle Housing : Thinking Big and Building Small to Respond to Today's Housing Crisis*. Washington, DC: Island Press, 2020. 72.

⁴⁰ Parolek, Daniel G, and Arthur C Nelson. *Missing Middle Housing : Thinking Big and Building Small to Respond to Today's Housing Crisis*. Washington, DC: Island Press, 2020. 75.

close to fourteen percent of the population of the United States as it gives communities the opportunity to be equal and inclusive.⁴¹ These codes are becoming more popular, especially in great historic neighborhoods. In form-based codes, land use is less strictly segregated, and therefore can align more smoothly with older buildings and neighborhoods⁴².

Form-based codes are regarded as one of the most viable ways to address the affordability and environmental crises that were the result of sprawl. These codes help streamline the approval processes to include a development of mixed uses, promoting walkability and a higher density of inhabitants. Euclidian zoning divided land into specific uses, such as residential, commercial, industrial, institutional, and agricultural. Form-based codes are the only way to rework these traditional zoned municipalities. Most places will be up-zoned to promote a higher density, and this is typically seen in areas of mass-transit. There is an ethical dilemma with positive and negative outcomes regarding up-zoning in low-income minority communities. On one hand, these communities that were historically discriminated against now are being chosen as opportunity zones to thrive with affordable housing, however, it must be carefully done to not ensure gentrification. Up-zoning purely focused on density itself can lead to displacement, so policies must be in place to ensure that there is

⁴¹ Tagtachian, Daniela A., Natalie N. Barefoot, and Adrienne L. Harreveld. "Building by Right: Social Equity Implications of Transitioning to Form-Based Code." *Journal of Affordable Housing & Community Development Law* 28, no. 1 (August 2019): 71–115.

⁴² Heid, James M. *Building Small : A Toolkit for Real Estate Entrepreneurs, Civic Leaders, and Great Communities*. Washington, DC: Urban Land Institute, 2021.

affordable housing development.⁴³ When form-based codes are adopted in a municipality, it becomes up to the legislators to allow or disallow new development coming into these defined transect zones, which are areas that have a particular intervention type depending on how rural or urban it is distinguished as.

Implementation

Location

Missing Middle Housing can work best in areas where there are smaller lots more conducive for buildings at the house scale rather than a large apartment building. This is usually the case around transit stations, which makes these sites great ones for bringing a walkable neighborhood of diverse housing types in⁴⁴. In a lot of cities, the notion is that transit-oriented development should include buildings with many stories of units to be more efficient. However, if there is still open land on a site, even with these larger buildings already in place, Missing Middle Housing typologies could be used as a transition zone from larger apartments to single-family neighborhoods.

⁴³ Tagtachian, Daniela A., Natalie N. Barefoot, and Adrienne L. Harreveld. "Building by Right: Social Equity Implications of Transitioning to Form-Based Code." *Journal of Affordable Housing & Community Development Law* 28, no. 1 (August 2019): 71–115.

⁴⁴ Parolek, Daniel G, and Arthur C Nelson. *Missing Middle Housing : Thinking Big and Building Small to Respond to Today's Housing Crisis*. Washington, DC: Island Press, 2020. 235.

Chapter 4: Design Approach

Defining the Problem

Demographics

This site in Landover has a median household income of around \$61,000, where the median house value is \$247,000 and the median rent is \$1,170. Despite this rental rate, close to 5% of residents are in poverty, and 7% are unemployed. In the entire site, certain blocks vary with vacant units, and fall between 0-33%. The rate of poverty is skewed in this location because most of it is not developed; in the site itself, the poverty rate is around 5%, but in the surrounding neighborhoods, the poverty rate ranges between 11-23%. Most homes in this area were constructed in the 1960s, which is during the era of mass discrimination and redlining.⁴⁵

Lack of Diversity of Choice

Since most of the available housing stock are single-family detached homes, many people feel like they have no choice but to live here, despite most of the household sizes being between 2-3.5 people. The average age of people living in this area is 25 because of the young student population, but among minorities, the average age of adults is in their mid to low 30s. About 50% of residents were never married,

⁴⁵ “Landover, Maryland.” Landover, Maryland (MD) Profile: Population, Maps, Real Estate, Averages, Homes, Statistics, Relocation, Travel, Jobs, Hospitals, Schools, Crime, Moving, Houses, News, Sex Offenders. Accessed November 10, 2021. <https://www.city-data.com/city/Landover-Maryland.html>.

so this needs to be considered in the design of the available housing, where single-family homes may not make sense for people who are single or live with roommates. 29% of the homes in this area are without a mortgage, and upwards of 17% of people rent in this area, where there are equally split renters and homeowners in adjacent neighborhoods that have more options. With all of this in mind, it poses a position that more diversity of choice in housing would benefit a very diverse demographic.

Initial Ways to Respond to Problem

Exploring Potential Boundaries

The site could be explored and stretched to several different boundary options. There are vacant homes in all these boundaries, so depending on the type of intervention, there may be opportunities to connect these fragmented neighborhoods and complete the community. One goal of this thesis is to serve multiple communities with the master plan, and not create a self-contained community in this neighborhood. With that in mind, the area of ample opportunity for additions to the plan is in the yellow shading. The orange shading is also important to include in the plan, bearing in mind that there is a school with their own boundaries in this area. The shade in red could be where new homes are introduced on a case-by-case basis per lot. Finally, the burgundy areas adjacent to the main site interventions could be impacted either in building typologies or street design.



Figure 31: Potential Site Boundaries (Source: Author)

New Construction, In-Fill, and Demolition

The following diagrams are intended to show the many options for intervention that are possible with this site, including new construction, in-fill, and demolition. The plans are not illustrative of what will be happening in the plan, but they are options for opportunity. For instance, the buildings highlighted for demolition are not all going to be demolished, however, they are some options if it benefits the overall scheme and could be replaced. Current residents will not be displaced in the exercise of this thesis, and any home in need of demolition will be offered to the residents as replacement housing in the master plan.



Figure 32: Areas of Consideration for New Construction at the Neighborhood Scale (Source: Author)



Figure 33: Building In-Fill Opportunities within Existing Neighborhoods (Source: Author)



Figure 34: Potential Options for Demolition Considerations if Beneficial to the Master Plan (Source: Author)

Completing the Neighborhood

Bridging Existing Arteries

Connecting Columbia Park Road and Columbia Avenue was the first move in create a more complete neighborhood, as well as breaking up Martin Luther King Jr. Highway with more streets that lead directly north into the site. A regularized street grid made up of multiple different street types was important in creating fully functional blocks. Not all of the streets in the master plan would be for the vehicle; some streets are exclusively for the pedestrian experience, and other streets are alleys which are used for parking and back-of-house functions.

Overall Proposed Site Plan of Housing

Master Plan

Below is a proposed site plan of the entire site, with existing buildings gray and all new ones in white. A pedestrian only street traverses from the east to the west, and also in one area from the north to the south of the site. The purpose of this street is to foster a walkable, multi-modal neighborhood for the residents, and introduce more public spaces for placemaking purposes, whether it is for light retail and commercial reasons, or to liven up this area of Landover.



Figure 35: Proposed Master Plan (Source: Author)

The image below shows the seven different housing typologies with their variations being distributed across the neighborhood. The beauty of Missing Middle housing is that the neighborhood works best when all of the housing typologies are integrated together rather than separated, as this is the case with typical zoning

practices. When land is designed based on form-based codes, and building masses adjacent to one another make sense for the urban and neighborhood scales, then having different typologies in one block will not seem out of place.



Figure 36: Proposed Master Plan with Building Typologies highlighted (Source: Author)

The following three diagrams below show a more zoomed in scale of how multiple different building typologies can exist within a block, how each home has their own areas of personal and shared spaces, and how other areas of the plan are solved, such as parking, mail and trash locations, and other gathering places.



Figure 37: North-West block of the proposed master plan (Source: Author)



Figure 38: South-West block of the proposed master plan (Source: Author)



Figure 39: Central block and pedestrian street of the proposed master plan (Source: Author)

Chapter 5: Community Interventions and Engagement

Community Amenity Buildings and Spaces

Community Center

The community center near the center of the master plan will be the neighborhood's leasing office, club house, recreation and fitness center, pool, and day care all in one location. Along the pedestrian street and near the existing elementary school, indoor recreational space and a core neighborhood amenity building are placed strategically in the plan.

West Park

The park space on the western end of the site begins to show the hierarchy of green spaces in the master plan. Open green park spaces near the existing high school and elementary school are pulled into the site in the form of parks, and then smaller internal courtyards, creating shared intimate outdoor spaces.



Figure 40: West Park: Public Space and Placemaking while offering a diversity of choice (Source: Author)



Figure 41: Parks, Courtyards, and Yards: Hierarchy of Public Spaces in Placemaking (Source: Author)

Boardwalk Paths

From the image above, wide boardwalk paths are seen throughout the master plan along the edges of the site. The purpose of this is to create meaningful paths in the linear parks, and connect the new community plan with the existing context. Traveling by foot safely is important to this design due to the great amount of young children in the area. Along these boardwalk paths are places to pause and join other residents in intimate outdoor spaces, which is something different than typical single-family neighborhoods.



Figure 42: Perspective of Communal Spaces along the Boardwalk Paths (Source: Author)

Sustainable Site Design

WELL Certified Healthy Communities Criteria

A goal of this neighborhood was not only offering a diverse range of homes for the residents, but to create a community that impacts the well-being of those

residents. The neighborhood goes beyond providing homes and business but fosters a healthy environment in many different areas of life, such as physically and mentally, ecologically, and socially. This thesis follows the checklist of being a WELL Certified Healthy Community, which is one that addresses specific realms of occupant health, comfort, and knowledge. There are ten criteria for healthy communities with further characteristics shown in the figure below: air, water, nourishment, light, fitness, temperature, sound, materials, mind, and community. The certification system follows a 100-point cap, with Silver certification rewarded for gaining 50 points on the checklist, Gold certification at 60 points, and Platinum certification at 80 points⁴⁶. This thesis attempts to achieve at least Silver certification by tapping into each of the categories of criteria in at least one way.

⁴⁶ “WELL Community Checklist.” International Well Building Institute, Last modified August 10, 2021. <https://resources.wellcertified.com/tools/project-checklist-well-community-standard/>.

WELL Community Standard Pilot

Project: _____

Location: _____

Updated By: _____

Date: _____

Certification Matrix

AIR

Y	?	N	P
			0 AQU Fundamental Air Quality
			0 SMK Smoking Ban
			0 SMO Outdoor Smoking Ban
			0 LTA Long-Term Air Quality
			0 LTR Enhanced Long-Term Air Quality
			0 STA Short-Term Air Quality
			0 STE Enhanced Short-Term Air Quality
			0 SEP Pollution Source Separation
			0 PRK Parking Restrictions
			0 LEV Low Emission Vehicles
			0 AED Air Quality Education
0	0	0	TOTAL OPTIMIZATIONS

LIGHT

Y	?	N	P
			0 LMP Lighting Master Plan
			0 LCS Lighting Control Schedule
			0 CMC Community-wide Emittance Caps
			0 LCT Obtrusive Light Control
			0 LTR Light Trespass Mitigation for Sleep
			0 SVI Visibility Facilitation
			0 BLI Right-Of-Way Lighting
			0 LEX Lighting for Exteriors
			0 MLI Mass Transit Lighting
0	0	0	TOTAL OPTIMIZATIONS

SOUND

Y	?	N	P
			0 SOU Sound Planning
			0 SHP Community Sound Mapping
			0 PLN Planning for Acoustics
			0 ORD Noise Ordinance
			0 NLV Noise Level Limit
			0 HEA Hearing Health Education
0	0	0	TOTAL OPTIMIZATIONS

WATER

Y	?	N	P
			0 WQT Drinking Water Quality
			0 WAD Public Water Additives
			0 PWT Periodic Water Quality Testing
			0 WQD High Quality Drinking Water
			0 WAC Drinking Water Access
			0 FAC Sanitary Facilities Provision
			0 WFS Water Feature Sanitation
			0 LEG Legionella Control
			0 SWA Stormwater Management
			0 OVF Overflow Water Management
0	0	0	TOTAL OPTIMIZATIONS

MOVEMENT

Y	?	N	P
			0 MIX Mixed-Use Development
			0 MNP Movement Network Planning
			0 WAK Walkability
			0 PED Pedestrian-Scale Design
			0 PDS Enhanced Pedestrian Environments
			0 CTC Cyclist Infrastructure
			0 BPK Bicycle Parking
			0 CYS Enhanced Cyclist Environments
			0 BSH Community Bicycle Share
			0 TRA Mass Transit Infrastructure
			0 TRN Mass Transit Support
			0 WAV Community Wayfinding
			0 PAS Physical Activity Spaces
			0 PRG Activity Programming
			0 PET Pet Support
0	0	0	TOTAL OPTIMIZATIONS

MATERIALS

Y	?	N	P
			0 HWM Hazardous Waste Management
			0 WST Waste Stream Management
			0 REM Site Remediation and Redevelopment
			0 CRE Construction Remediation
			0 ODS Outdoor Structures
			0 PES Landscaping and Pesticide Use
			0 HAZ Hazard Communication
0	0	0	TOTAL OPTIMIZATIONS

MIND

Y	?	N	P
			0 AMH Access to Mental Health Services
			0 CRJ Mental Health Crisis Support
			0 ABU Substance Abuse and Addiction Services
			0 ARK Substance Abuse and Addiction Services for At-Risk Populations
			0 ALC Alcohol Environment
			0 RDR Responsible Driving
			0 IPV Support for Victims of Interpersonal Violence
			0 SGR Integration of Streetscape Greenery
			0 CHI Outdoor Child Play Spaces
			0 GRE Restorative Green Spaces
			0 BLU Restorative Blue Spaces
			0 BLT Restorative Built Spaces
			0 SCE Preservation of Scenic Views
0	0	0	TOTAL OPTIMIZATIONS

THERMAL COMFORT

Y	?	N	P
			0 EXT Extreme Weather Warnings
			0 HET Urban Heat Adaptation: Community Support
			0 HPE Urban Heat Adaptation: Public Education
			0 CLD Urban Cold Adaptation: Community Support
			0 CPE Urban Cold Adaptation: Public Education
			0 HDM Urban Heat Island Mitigation
			0 VEG Urban Vegetation and Green Spaces
			0 WAT Urban Water Bodies
			0 SUN Personal Sun Exposure
0	0	0	TOTAL OPTIMIZATIONS

SUMMARY

Y	?	N	P
0	0	0	Preconditions (10 possible)
0	0	0	Optimizations (100 pts possible)
0	0	0	Innovations (10 pts possible)
0	-	-	Certified Buildings (30 pts possible)

Count "Maybe" and "Pending PV" as ☐ Yes

Requirements	Results
Preconditions: Must meet all preconditions.	10 preconditions not yet met.
Optimizations: 50 still needed for Silver, 60 for Gold, 80 for Platinum	Certification cap: None Status: Not certified -- missing ≥1 optimization per concept

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Figure 43: WELL Certified Healthy Community Checklist (Source: International WELL Building Institute)

Employment Opportunities: Missing Middle Commercial Types

Retail in the Live-Work Spaces

22.5% of the units in the master plan are live/work buildings. This means that more job opportunities can be introduced in this neighborhood, which is in walking distance for everyone in the existing and newly designed communities. The existing unemployment rate in this part of Landover was upward of 10%, so introducing opportunities for entrepreneurial jobs, start-up companies, or existing small businesses or franchises will be a great way to boost the local economy while serving the residents.

Commercial Building Strategies along MLKJ Highway

The main design decision of bringing a new commercial pedestrian street into the center of the new neighborhood was so that a new anchor point could be established, not only for the new neighborhood but for the existing ones as well. This move takes a stance on the types of commercial and retail spaces that are most beneficial to these residents. Focusing the commercial spaces internally in the community rather than on the outskirts and at prime intersection locations was intentional. The pedestrian street still does lead to the corner intersection where the existing commercial shopping center is, but more foot-traffic and live/work buildings traverse into the center of the site.

Chapter 6: Financials

Funding

Low Income Housing Tax Credits

Since some units in the master plan of the neighborhood will be available for rent, there are opportunities for these homes to have Low Income Housing Tax Credits which can be used for affordable rental housing investments. Similar to other tax credits, investors may purchase these in exchange for federal tax credit which is equal to a percentage of the cost of developing the property. In this instance, the state of Maryland's housing finance agency would need to approve these applications and the project would need to follow a particular criteria⁴⁷. To be eligible for LIHTCs, the project must meet at least one of the following criteria:

- 1) At least 20 percent of units are for households at or below 50 percent of the area median income.
- 2) At least 40 percent of units are for those at or below 60 percent of the area median income.
- 3) The average household income of tenants shall not exceed 60 percent of the area median income.

⁴⁷ Heid, James M. *Building Small : A Toolkit for Real Estate Entrepreneurs, Civic Leaders, and Great Communities*. Washington, DC: Urban Land Institute, 2021. 106.

Renting and Home Ownership Opportunities

Replacement, Affordable, and Market Rate Housing

Since Landover's median household income is around \$60,000, which is close to about 60% of the Washington DC metropolitan area's AMI, the goal is that many of these units would need to be offered at an affordable housing discrepancy of 60% of the area median income. Residents would qualify for this, and therefore be able to rent these units. This will essentially be the market rate value. Residents who make less than 60% of the area median income would therefore be looking for more affordable housing options in the master plan. The residents whose homes were demolished as a part of this master plan will have the choice of living in another new home in the community. The homes would not be demolished until there were new units built in the community first.

A neighborhood split equally with renters and homeowners makes more sense in this community context compared to a single-family neighborhood. When 50% of residents are renting a single-family home, it should bring light to the systemic issue of minority residents having a difficult time producing generational wealth through owning real estate. However, there are other housing typologies more conducive to renters, as well as housing typologies, like duplexes, where renting a unit comes after the home is owned.

Chapter 7: Conclusion

Lasting Impacts

Missing Middle and Diversity of Choice

In the city of Landover, Maryland, the current housing stock is unable to meet the needs of the residents currently living there. Some residents are highly cost-burdened and living in poverty, and this is most likely the result of systemic and historical racial discrimination where minorities were not given equal financing opportunities compared to White people for the initial transaction of their homes.

Offering residents a diversity of choice in their home is achieved by using Missing Middle housing typologies, which offers home options of varying sizes and types, suitable for a group based on their size and income. Accessible bungalows, carriage houses, duplexes, triplexes, townhouses, manor houses, and live/work buildings were all utilized in the master plan in strategic ways to better serve the residents.

Families and groups are now able to find employment, multi-modal transportation, and community amenities all within walking distance of their homes. Their homes are also better designed for these residents specifically, which are not the typical nuclear families. This thesis critiques the single-family home and typical zoning practices, and introduces housing typologies into this neighborhood that would better meet the needs of these residents who are in need of affordable housing.



Figure 44: Elevations of the 13 Variations of Housing Types in this Thesis (Source: Author)

Site Images

The following images are site and building perspectives from this thesis.



Figure 45: Multi-Modal Transportation: Martin Luther King Jr. Plaza (Source: Author)



Figure 46: Shared Neighborhood Courtyard (Source: Author)



Figure 47: Accessible Bungalow Housing Typology (Source: Author)



Figure 48: Townhouse Housing Typology from the Accessible Bungalow Front Porch (Source: Author)



Figure 49: Stacked Duplex Housing Typology (Source: Author)



Figure 50: Manor House Housing Typology (Source: Author)



Figure 51: Live/Work Roof Deck (Source: Author)



Figure 52: Live/Work Housing Typology (Source: Author)



Figure 53: Main Pedestrian Street Reinvigorating the site (Source: Author)

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