Building Impact: Alleviating Lacking Low-Income Affordable Homeownership

Created For Habitat for Humanity Virginia

Charlie See Well - 4/4/2025

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Executive Summary

Virginia lacks affordable housing. 66.64% of Virginians are homeowners. However, only 48.52% of low-income Virginians, those making less than 80% of an area's median income, are homeowners (*Comprehensive Housing Affordability Strategy Table 9*, 2021). Furthermore, 58.80% of low-income Virginians who own or rent spend over 30% of their monthly income on housing (*Comprehensive Housing Affordability Strategy Table 9*, 2021). This represents a population spending too much on current living arrangements with lacking opportunities to become homeowners. These trends are worse for non-White Virginians who have historically faced greater barriers to homeownership (Acolin et al., 2019). Although 73.66% of White Virginian households are homeowners, only 48.44% and 51.46% of Black and Hispanic Virginian households are homeowners (*Comprehensive Housing Affordability Strategy Table 9*, 2021). Similarly, while 22.01% of white households are cost burdened, 37.94%, 37.80%, 27.71% and 29.70% of Black, Hispanic, Asian, and multiracial or other households, respectively, are cost burdened (*Comprehensive Housing Affordability Strategy Table 9*, 2021).

Cost-burden places households at greater risk of displacement in the event of an unplanned expense or economic downturn. Homeownership can mitigate this risk through building wealth with one study finding homeownership associated with a $6,786.7 (2012 USD) increase in wealth per year (Killewald & Bryan, 2016). Homeownership may also improve childhood home environments, educational attainment, and civic participation (Haurin et al., 2002; McCabe, 2013).

Habitat for Humanity Virginia seeks to aid in the construction of homes for low-income households as well as the provision of non-cost burdening mortgages. Furthermore, a variety of nonprofit organizations and the Virginia Department of Housing and Community Development (DHCD) offer low-income homeowners assistance on making down payments (*Accessibility Grants*, n.d.; *Homeownership Down Payment Assistance Program (DPA)*, n.d.; *Loan Specialty Programs*, n.d.; *Projects*, n.d.; McKelvey, n.d.). Affordable mortgages and down payment assistance address two of the three root causes of limited low-income homeownership: limited liquid assets and mortgage access.

However, the third root cause, the high cost of housing, is insufficiently addressed. Nationally and within Virginia, home supply has fallen while demand has increased. This has contributed to an immense increase in the cost of housing. Nationally, in 2017, only 6.9% of new homes sold for less than $150,000 ($194,528.18 2025 USD) (Rosen et al., 2017). In 2021, a report commissioned by the Commonwealth noted that the average home price in Virginia had increased to $355,000 ($412,232.49 2025 USD).

This document provides Habitat for Humanity Virginia with three alternatives primarily directed at addressing increasing home costs to aid in providing affordable low-income homeownership.

The first alternative establishes a fund to build 500 new affordable housing units and place them within the Virginia Statewide Community Land Trust (VSCLT). In this alternative,

a household owns their home, but the land underneath is leased to them by VSCLT. This severs home value from land value and delivers a significant subsidy to the household. Community land trust (CLT) homes feature a median annual appreciation of $1,657.7 (2019 USD) and CLT homeowners have better mortgage outcomes (Acolin et al., 2021; Nelson et al., 2020). CLTs also emphasize a governance model where 1/3 of the board controlling the CLT are its homeowners, which allows for resident agency in trust decision making.

Manufactured homes are cheaper than traditional housing and represent the largest source of affordable housing in the United States (*Co-Op Ownership of Mobile Home Communities, A Webinar*, 2024; Durst & Sullivan, 2019; Vanderford et al., 2005). Manufactured homeowners face displacement from investors seeking to redevelop mobile home parks (*Co-Op Ownership of Mobile Home Communities, A Webinar*, 2024). The second alternative creates a fund to purchase three mobile home parks at risk of displacement and convert them into 501(c)(3) nonprofits that will charge residents a non-cost burdening rent. To recreate the resident self-governance offered by the CLT model, these nonprofits will have homeowners make up 1/3 of their board.

Inclusionary zoning mandates or provides incentives for developers to include affordable units, sold at below market rates, in new developments. Inclusionary zoning that makes the production of affordable units mandatory produces more affordable units than inclusionary zoning that merely provides incentives (*Evidence Drives Efforts To Promote Equity in Affordable Housing*, 2024; Mukhija et al., 2015; Hamilton, 2021). Virginia has two sets of legislation related to inclusionary zoning. A more permissive law applies to a select few localities and allows for mandatory inclusionary zoning. A less permissive law applies to all other localities and disallows mandatory inclusionary zoning. The third alternative recommends an advocacy campaign to make the more permissive law, that allows for mandatory inclusionary zoning, apply universally in the Commonwealth.

These three alternatives were evaluated on five criteria:

1. How low a household's annual income can be while still affording to live in the alternative.
2. Their political feasibility.
3. The cost to serve one household under the alternative.
4. How many units of additional housing supply they create.
5. Their equitability.

This report ultimately recommends the creation of a fund to build 500 new CLT units. Although it is the most expensive alternative per household, it would serve the lowest income on average, is politically feasible, and possesses a great deal of equity. By creating 500 units of new, high-quality housing, this recommendation represents the largest potential to address increasing housing costs.

The implementation of this recommendation will occur over a nearly six-year period. It requires fundraising $144,485,400, the mobilization of local affiliates, the addition of 500 new homes and residents to the Virginia Statewide Community Land Trust (VSCLT), and consultation with these new residents on the future of VSCLT.

Mandatory Disclaimer

The author conducted this study as part of the program of professional education at the Frank Batten School of Leadership and Public Policy, University of Virginia. This paper is submitted in partial fulfillment of the course requirements for the Master of Public Policy degree. The judgments and conclusions are solely those of the author, and are not necessarily endorsed by Habitat for Humanity Virginia, the Batten School, by the University of Virginia, or by any other agency.

Acknowledgements and Dedication

This project has been a year in the making and represents the culmination of my academic career. I would first like to thank Overton McGehee of Habitat for Humanity Virginia for giving me the opportunity to work with an organization as impactful as Habitat. Without his input, this project would have been impossible. I would also like to thank the various people I spoke with across Habitat affiliates, nonprofits, academia, and industry groups in the Commonwealth. Your guidance was instrumental not just in providing information but also by putting me on the right track to deliver a successful final product.

I would like to thank the Batten School itself for equipping me with the tools to conduct this project and many future projects. Batten was also a crucial help in avoiding the ravages of the job search for at least a little while longer. I would also like to thank those in my cohort who have been able confidants as I resolved this struggle and many others. Importantly, I would like to extend a special thanks to Professor Rorem who has provided excellent guidance and aid throughout the entire length of this project. Without her, I guarantee this final product would have suffered greatly.

Finally, I would like to extend my thanks to all my friends outside of Batten for keeping me in good spirits. Most notably, I would like to extend my deepest appreciation to my girlfriend, Cat Sklar, who provided enduring support as I worked tirelessly on the research, drafting, and editing of this project late into the night.

Problem Statement

Low-income households make less than 80% of an area's median income (AMI) (*HUD's Public Housing Program*, n.d.). Cost burdened households pay too much, over 30% of monthly income, on housing (*Nearly Half of Renter Households Are Cost-Burdened, Proportions Differ by Race*, 2024)

- The Department of Housing and Urban development estimates 66.64% of Virginians are homeowners (*Comprehensive Housing Affordability Strategy Table 9*, 2021).
- However, only 48.52% of low-income Virginians are homeowners, and 58.80% of low-income Virginians, owners and renters, are cost-burdened (*Comprehensive Housing Affordability Strategy Table 9*, 2021).

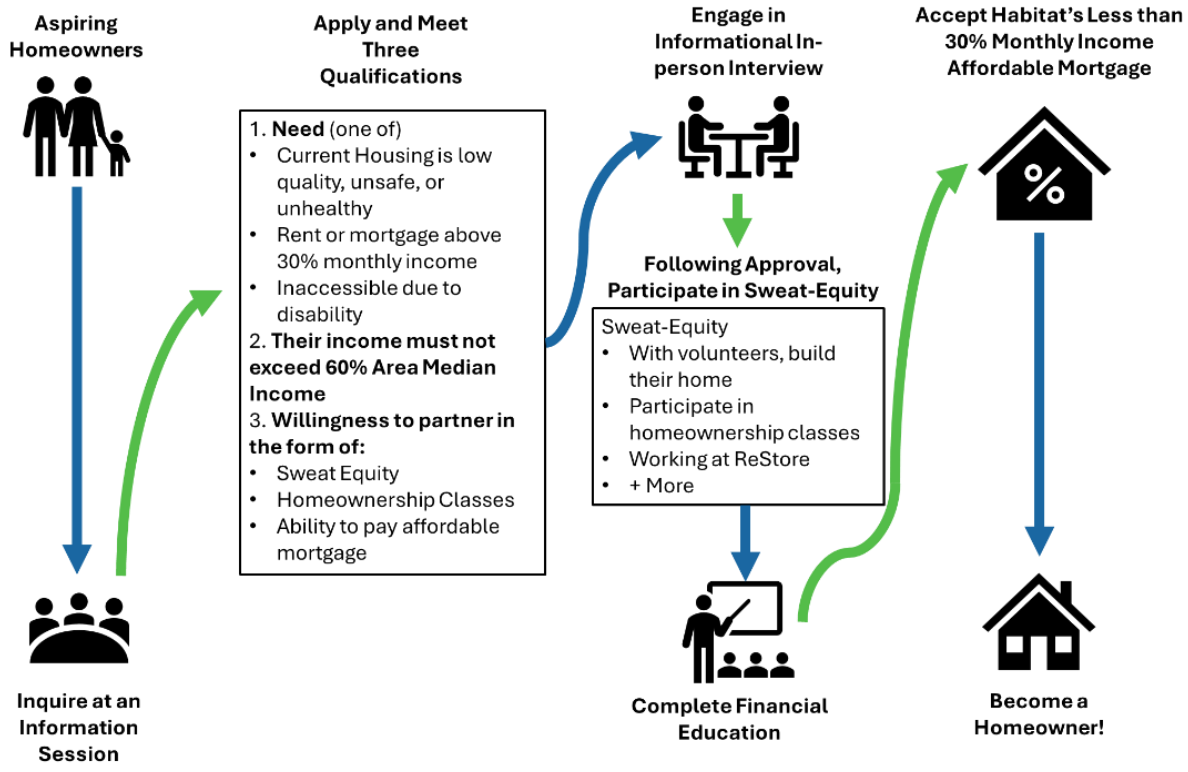
Low-income Virginians have difficulty accessing homeownership and their current living arrangements, whether renting or owning, are too expensive.

The Current Status of Affordable Homeownership

Client Overview

Habitat for Humanity seeks to "put God's love into action" by bringing "people together to build homes, communities and hope" (*Our Mission, Vision and Principles*, n.d.). This project's client is Habitat for Humanity Virginia, the state level affiliate of the Habitat for Humanity parent organization. Habitat Virginia shares its parent organization's mission: the construction of affordable homes and strong communities (*About*, 2022.). In turn, Habitat Virginia provides guidance and advocacy for local affiliates in Virginia and Washington D.C. (*Home*, 2022).

Figure 1.1: Habitat's Homeownership Model



Habitat's role in promoting low-income homeownership is direct in terms of housing provision and community engagement. Most Habitat affiliates follow the model depicted in Figure 1.1. First aspiring homeowners inquire at information sessions about homeownership (*Steps to Homeownership*, 2024). These households must meet the qualifications described in the figure (*Qualifications for a Habitat Homeowner*, 2024). Notably, being low-income is one of these qualifications (*Qualifications for a Habitat Homeowner*, 2024). Households meeting these qualifications have an informational interview with a representative of the local Habitat affiliate to assess fit (*Steps to Homeownership*, 2024). Following this, they participate in sweat-equity, which generally involves furthering Habitat's mission (*Steps to Homeownership*, 2024; *What Is Sweat*

Equity?, 2024). Throughout this process, they also complete a financial education (*Steps to Homeownership*, 2024; *Financial Education*, 2024). Once their financial education and home are finished, these households accept a mortgage offered by Habitat. (*Steps to Homeownership*, 2024). The terms of these mortgages vary between affiliates, but they **generally offer very low interest rates and must meet the threshold of avoiding cost-burden set by HUD**: 30% or less of a household's gross income (*HUD Archives: Glossary of Terms to Affordable Housing - HUD*, n.d.; *Qualifications for a Habitat Homeowner*, 2024). Following this process, the household are now homeowners.

Why Cost Burden and Homeownership Matter

Cost burden, from spending at least 30% of income on housing, creates housing instability. In interviews with Habitat staff, many expressed their clients often feared a single unplanned expense, like a medial bill, making them unable to pay rent and upending their housing situation (A. McDaniel & J. Presly, personal communication, October 9, 2024; C. Reed, personal communication, October 9, 2024). Prior to the 2008 Financial Crisis, many low-income communities of color were targeted by subprime predatory home loan lenders, who offered loans without regard for income (*Racial Equity in Virginia - Page 2 of 5*, n.d.). When the Financial Crisis began and subprime loans became too expensive, targeted low-income Black and Latino borrowers were 76 and 71% more likely to lose their home (*Racial Equity in Virginia - Page 2 of 5*, n.d.). The foreclosure crisis this initiated did not subside in Virginia until 2011 (*Racial Equity in Virginia - Page 2 of 5*, n.d.). In this instance, targeted low-income groups, whose low-income status made them more sensitive to cost burden, were more sensitive to financial shocks. This sensitivity to unplanned spending and economic shocks is the direct result of cost burden, which can be resolved through affordable homeownership.

When controlling for prior wealth and income, homeownership is associated with a $6,786.7 (2012 USD) increase in wealth per year (Killewald & Bryan, 2016). Combined with affordable mortgages that seek to eliminate cost burden, like those offered by Habitat, affordable homeownership can further alleviate instability from low-income status. Additional income also presents an opportunity to reduce the impact of generational poverty, which contributes to low-income status initially. With these same controls on income and wealth, homeownership is associated with increases in home cognitive environment of 10.67% and home emotional environment of 5.89% (Haurin et al., 2002). This same study found a marginally significant 9% and 7% improvement in math and reading achievement for children from these improvements in home environment (Haurin et al., 2002). Additional wealth from homeownership may also be invested in children for potentially even larger reductions in intergenerational poverty. Homeowners are also 48.0% and 27.6% more likely to join neighborhood and civic groups, which represents homeownership increasing civic engagement (McCabe, 2013). Beyond the direct consequences of cost burden, low-income households that lack homeownership also lose these benefits of homeownership.

Racial Disparities in Homeownership

Households of color are most impacted by a lack of homeownership access and cost burden. Many households of color were targeted by predatory subprime lenders and, as a result, faced severe housing instability in the Financial Crisis of 2008 (*Racial Equity in Virginia - Page 2 of 5*, n.d.). Past racist housing policies, like racial covenants, redlining, and urban renewal, barred households of color from accessing homeownership and building intergenerational wealth (*Racial Equity in Virginia - Page 2 of 5*, n.d.). These same households faced a tightening credit environment after the 2008 Financial Crisis that barred them from homeownership (*Racial Equity in Virginia - Page 2 of 5*, n.d.). In Virginia, this has resulted in 73.66% of homeowners being White (*Comprehensive Housing Affordability Strategy Table 9*, 2021).

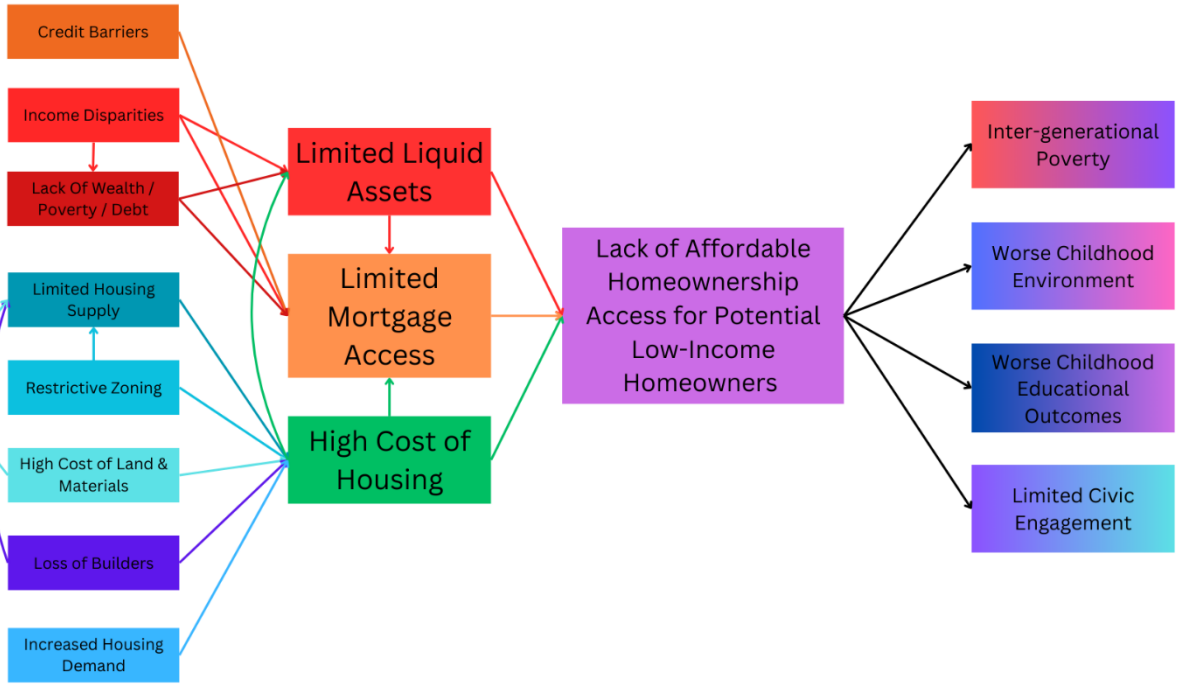
These significant barriers to non-White homeownership are seen in the divergent homeownership and cost burden rates across racial groups. Although 66.64% of Virginian's are homeowners, according to The Department of Housing and Urban Development's (HUD) Comprehensive Housing Affordability Strategy (CHAS) Data, only 48.44% of Black Virginian households, 51.46% of Hispanic Virginian households, and 57.01% of multiracial or other racial group Virginian households are homeowners (*Comprehensive Housing Affordability Strategy Table 9*, 2021). This is compared to homeownership rates of 73.66% and 68.99% among Virginia's White and Asian households (*Comprehensive Housing Affordability Strategy Table 9*, 2021). Around 26.32% of Virginians are cost burdened (*Comprehensive Housing Affordability Strategy Table 9*, 2021). Divergent trends by race are also present in Virginia's cost burden. 37.94%, 37.80%, 27.71% and 29.70% of Black, Hispanic, Asian, and multiracial or other households are cost burdened respectively (*Comprehensive Housing Affordability Strategy Table 9*, 2021). This is compared to cost-burden rates of 22.01% among White households (*Comprehensive Housing Affordability Strategy Table 9*, 2021).

In addition to HUD data, academic evidence indicates households of color face barriers to homeownership. Black homeowners have far worse endowments to homeownership (Acolin et al., 2019). Endowments refer to persisting intergenerational determinants of homeownership like intergenerational wealth and the effects of discriminatory housing policies (Acolin et al., 2019). In 2013, a 1% negative shock to income from an economic crisis would have dropped Black homeownership by 18%, Hispanic homeownership by 19%, and Asian homeownership by 17% compared to 6% for White homeowners (Acolin et al., 2019). Another study from 2020 found that from 2007 to 2013 17.7% of Black homeowners lost their homes while only 9.6% of White homeowners did (Ren, 2020). This difference was attributed to different levels of assets between White and Black homeowners, with White homeowners having five times the nonliquid assets and seven times the liquid assets of Black homeowners (Ren, 2020). These findings are likely more acute for low-income aspiring homeowners. Other studies revealed that discrimination against low-income households by lenders was also a barrier to candidates for homeownership (Santiago & Galster, 2004).

Root Cause Analysis and Current Interventions

Limited liquid assets, limited mortgage access, and high housing costs are key barriers to homeownership.

Figure 1.2: Root Causes



Liquid Assets

Through permitting access to mortgages and home maintenance, liquid assets are a crucial pre-requisite to homeownership. Liquid assets permit mortgage access through a loan to value ratio (LTV) (Acolin et al., 2016). LTV is the portion of an asset a lender is willing to finance (Maxwell, 2024). More liquid assets allow potential homeowners to make larger down payments and reduce LTV. A lower LTV reduces the risk a bank takes and encourages mortgage provision. In a 2017 national Zillow survey of 10,000 renters, down payment was the largest reported barrier to homeownership (Stegman, 2019).

Nationally representative panel data of 9,763 Americans measured from 1985 to 2012 indicates that income and wealth are both determinants of liquid assets and have a statistically significant, positive relationship with entry to the homeownership market (Killewald & Bryan, 2016). A movement from the lower quartile of income to the middle two quartiles is associated with a 51.0% improvement in homeownership access (Killewald & Bryan, 2016). On average, a quartile improvement in wealth is associated with 23.4%

improvement in homeownership access. Notably, as households move to higher quartiles the effect of wealth and income homeownership entry diminish (Killewald & Bryan, 2016). The relationship between wealth and income and transition to homeownership has persisted since at least the 1980s (Di & Liu, 2007).

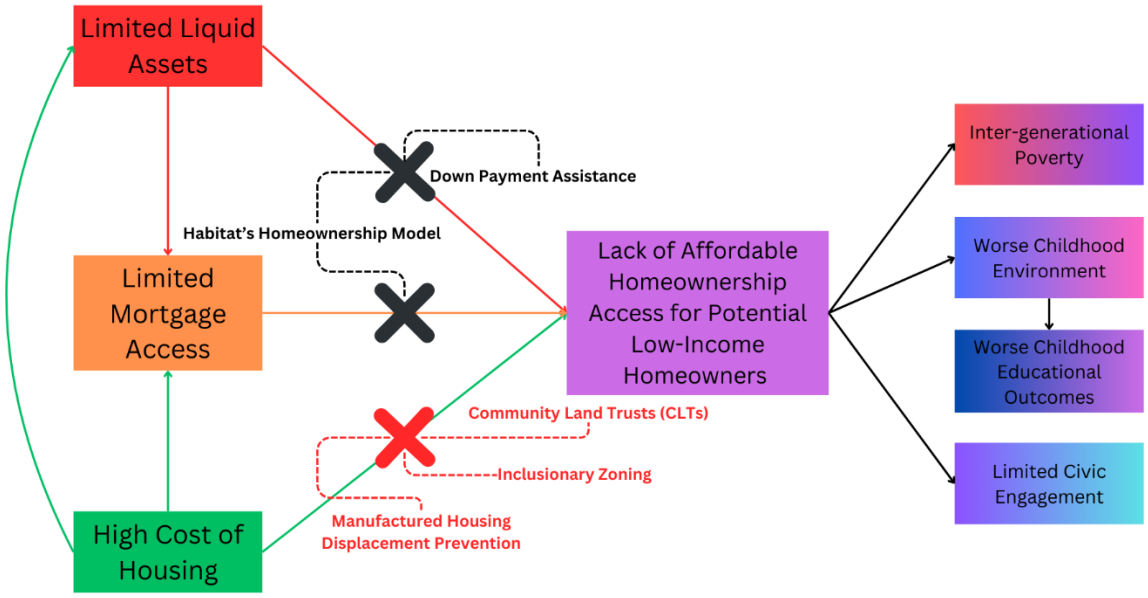
Continuance of homeownership is also crucial to homeownership access. Liquid assets maintain homeownership through permitting timely mortgage payments, addressing new costs of home maintenance, and acting as a cushion during times of economic stress (Ren, 2020). According to a 2020 study, using nationally representative panel data of over 6,000 households from 2007 to 2013, a lack of liquid assets increased the chance of homeownership exit by 83% (Ren, 2020).

Mortgage Access

Mortgages are a pre-requisite to homeownership. Unfortunately, many determinants of low-income status are also barriers to mortgage access. These three barriers are wealth, income, and credit (Acolin et al., 2016). They reduce mortgage access because banks use them to determine how risky a given loan will be (Acolin et al., 2016). In the current, post-Great Recession, credit regime, households subjected to these mortgage constraints are 30% less likely to become homeowners (Acolin et al., 2016).

Lack of wealth and income contribute to poor credit. To avoid risk, banks avoid lending to those with low credit scores. Only 9% of mortgages are issued to those with credit scores under 660 and 58% of mortgages are issued to those with credits scores of 760 and above (Rosen et al., 2017). In a study of low-income households taking part in a Denver transition to homeownership program, 44.8% said poor credit was a major barrier. Low credit scores have been a long-term issue; studies as far back as 2003 identified it as a major barrier (Barakova et al., 2003). Of those in the Denver study, over a third said carrying too much debt and not earning enough hourly wage were major barriers (Santiago & Galster, 2004). These factors also contribute to mortgage access through making borrowers a riskier prospect to banks.

Figure 1.3: Root Causes and Interventions



The Importance of Housing Cost

Current interventions address limited mortgage access and limited liquid assets. A significant number of nonprofits and the Virginia Department of Housing and Community Development address limited liquid assets through the provision of down payment assistance (DPA) (*Accessibility Grants*, n.d.; *Homeownership Down Payment Assistance Program (DPA)*, n.d.; *Loan Specialty Programs*, n.d.; *Projects*, n.d.; McKelvey, n.d.). DPA comes in the form of direct grants, forgivable loans that diminish as home occupancy lengthens, loans that must only be repaid upon house sale or mortgage termination, or second liens (Stegman, 2019). DPA lowers the initial barrier to homeownership by allowing households to place less of their limited liquid assets in the initial down payment.

Habitat's homeownership model addresses limited mortgage access and liquid assets through financial education that seeks to build credit and assets. A lack of mortgage access is also directly remedied through providing non-cost-burdening mortgages directly through Habitat.

Habitat has persistently sought to promote affordable housing since 1976 (*Habitat's History*, 2024). However, housing costs have worsened over time and are insufficiently addressed by current interventions.

Housing supply is at an all-time low nationally. The Federal Home Loan Mortgage Corporation (FreddieMac) has identified a deficit of 3.8 million housing units in Q4 of 2021 and noted the deficit increased by 52% from 2018 to 2020 (Khater et al., 2021). Nationally,

in early 2021, there was 4.1 months of housing supply (*Monthly Supply of New Houses in the United States [MSACSR]*, 2025). This indicates that, at the current rates of sale, all homes on the market would be purchased in around 4.1 months. Virginia's supply is notably lower. In the same period, housing supply had decreased to around 1 month in Virginia (HB854 Statewide Housing Study - Current Efforts, Future Needs, New Strategies, 2022).

Lack of supply is especially pronounced for cheaper starter homes characterized by low square footage. Starter homes are less expensive, which represents a lower barrier to entry for the income constrained. Starter homes were about 40% of all home building in the 1980s, but, in 2021, fell to 10% of all home-building, an annual average of 55,000 units (Khater et al., 2021). National trends of decreased starter home supply exist in Virginia as well. Starter homes fell from 47% of all Virginia's home sales in 2013 to 41% in 2021 (HB854 Statewide Housing Study - Current Efforts, Future Needs, New Strategies, 2022, 181).

Housing demand has also remained incredibly high (Khater et al., 2021). As a result, the Government Accountability Office estimates that the real cost of homes nationally doubled from 1998 to 2021 (AFFORDABLE HOUSING: Information on the Self-Help Homeownership Opportunity Program, 2021). In practical terms, many low-income households are priced out of housing; Only 6.9% of new homes were sold for less than $150,000 in 2017 ($194,528.18 2025 USD) compared to 35.4% in 2002 ($111,361 2002 USD) (Rosen et al., 2017). In Virginia, price increases are dramatic. From 2016, the average price for a single-family home increased by 30% to $355,000 in 2021 ($412,232.49 2025 USD) (HB854 Statewide Housing Study - Current Efforts, Future Needs, New Strategies, 2022, 181). This price increase is even more drastic when considering that, as of 2023, the median income of Virginian households was $89,931 (*Virginia - Census Bureau Profile*, n.d.)

Decreasing supply and growing demand increase home costs. Greater cost makes homeownership harder to obtain; it increases the financial resources needed to enter the homebuying market and limits the number of homes affordable to low-income households. It also generates greater cost burden for these same households (HB854 Statewide Housing Study - Current Efforts, Future Needs, New Strategies, 2022).

Beyond being prohibitive itself, immense housing cost, nationally and in Virginia, exacerbates other root causes. The more expensive a home, the riskier it becomes to lend to low-income households, and more liquid assets are required to make a down payment or maintain homeownership. In addition to lack of supply and growing demand, zoning and the cost of housing inputs also contribute to the larger issue of housing cost.

Zoning is widely considered to increase housing costs. As a measure of zoning regulations Glaeser and Gyrourko constructed an index of the time it took an average subdivision to receive a building permit. The values ranged from one to five, and each increase in the index correlated to permit receipt taking about double the time of the previous value (Glaeser & Gyourko, 2002). An increase of one on the index of permit lag increased housing costs by $7 ($12.70 2025 USD) per square foot (Glaeser & Gyourko, 2002). This finding is also the consensus of the housing industry (Rosen et al., 2017).

Key inputs to housing have also increased in price. In 2015, 93% of single-family homes were built with framing lumber (Rosen et al., 2017). Lumber increased in price by 220.51% from 2009 to 2017. Similar inputs have faced price increases from 7% to 48% (Rosen et al., 2017). Furthermore, the price of land, another key input, has increased by 60% from 2012 to 2019 (*The Affordable Housing Crisis Grows While Efforts to Increase Supply Fall Short*, 2023). This report noted that tariffs were expected to increase the price of Canadian lumber (Rosen et al., 2017). As new tariffs are levied by the Trump administration, it is likely that these input costs will increase.

Current trends in home cost indicate present interventions targeting limited liquid assets and mortgage access are not effective enough. Thus, it may be worthwhile for Habitat Virginia to work toward the statewide adoption of new interventions, marked in red on Figure 1.3.

Alternatives

Establishing A Fund for Community Land Trusts

Habitat for Humanity Virginia should create a fund for a pilot program to build 500 community land trust units across Virginia affiliates. Local affiliates will apply for this funding and build the community land trust (CLT) units with assistance from Habitat Virginia over a nearly six-year period. These units will be built in partnership with the Virginia Statewide Community Land Trust (VSCLT), which is affiliated with Habitat and will manage the units' ground leases (Winters et al., 2025). Should this pilot program succeed, Habitat should establish a larger fund for further construction.

Shared equity programs (SEPs) take a one-time investment and convert it into perpetually affordable housing for low-income households (*Shared Equity Programs*, n.d.). This is accomplished through restrictions on the home's resale price (*Shared Equity Programs*, n.d.). These resale restrictions share the equity gained through homeownership by allowing the next low-income household the opportunity to purchase the sold home inexpensively (*Shared Equity Programs*, n.d.). Most shared equity programs are deed restrictions, limited equity cooperatives, or community land trusts (Shared Equity Research, n.d.).

In a community land trust (CLT), a land trust owns the ground underneath a home, which it leases to a household who owns the home above. This ground lease severs the value of the property from the value of the underlying land permitting the home to be sold at a lower price. Like all SEPs, CLTs seek long-term home affordability (*Shared Equity Housing*, n.d.). To achieve this, property owned by a CLT household appreciates according to set formula and not market conditions (*Shared Equity Models of Ownership*, 2017). Households receive a reduced home price in exchange for accepting lower appreciation. Although these formulas decrease the amount of equity gained by CLT homeowners, they are necessary to maintain these homes' perpetual affordability (Rives, 2023). A home's lower resale price forms a subsidy for the next low-income household to purchase the property (*Shared Equity*

Models of Ownership, 2017). The ground lease contains the terms that enforce the price appreciation formula (Rives, 2023).

This model permits low-income homeownership access, which then permits greater wealth building potential. In this way, homeownership can break the cycle of generational poverty. A 2021 study using nationally representative panel data from 1997 to 2019 found that first-time homebuyers in SEPs, of which CLTs formed 75% of their sample, saw annual median household equity appreciation of $1,657.7 compared to $2,079 for traditional owners and $15.5 for renters (non-equity assets) (2019 USD) (Acolin et al., 2021). As the alternative to CLTs for many low-income households is renting, not traditional homeownership, the authors believe CLTs promote equity and wealth growth (Acolin et al., 2021). Although this study used the relatively weak design of propensity score matching, the length of time it follows households leads credence to their findings.

Additionally, other studies confirm the positive benefits of SEPs, which include CLTs, to first-time homeowners' financial outcomes. A 2019 study used the strong research design of difference in difference to investigate those who bought a home from 2012 to 2014 compared to matched groups of similar homeowners. Those taking part in SEPs were 11.4% less likely to have a HELOC (second mortgage), had $103,378.40 less credit on open mortgage trades, and $736.57 in monthly credit payments, which indicates smaller mortgages (Theodos et al., 2019). The study also found no difference between groups in terms of credit score, debt, or non-mortgage delinquencies (Theodos et al., 2019). These findings indicate that those in SEPs have better mortgage outcomes. The strong research design and large sample across the United States makes the findings externally generalizable. However, the lack of focus specifically on CLTs is a limitation.

The recommended CLT model emphasizes land stewardship through relationship building and have boards that consist of 1/3 CLT homeowners, 1/3 community members, and 1/3 public representatives (Rives, 2023). In this way, the model delivers a subsidy while being reactive to the needs of the community (Rives, 2023).

This alternative proposes partnering with the Virginis Statewide Community Land Trust (VSCLT). VSCLT currently has only nine homes within the trust and a single homeowner on the board (O. McGehee, personal communication, March 27, 2025; Winters et al., 2025). However, as the trust grows it is committed to adopting the recommended CLT model where 1/3 of the board are homeowners (Winters et al., 2025).

CLTs impact on residents and the wider community are broadly positive. A survey of renters and CLT owners in both Portland, Oregon and Minneapolis, Minnesota asked participants to rate their experience on a five-point scale with high scores reflecting greater frequency or agreement. (Schneider et al., 2023). As a measure of financial hardship, the authors asked participants the difficulty of meeting a battery of costs relating to home, transportation, and personal expenses (Schneider et al., 2023). CLT owners reported 0.60 of a point less likely to face financial hardship. As a measure of housing stability, the authors directly asked how respondents felt about the stability of their housing situation. CLT owners were 1.07 points more likely to report housing stability. As a measure of time and

resources, the authors asked if, after moving to their current home, participants had more time for various personal, friendship and community activities (Schneider et al., 2023). CLT owners were 0.81 of a point more likely to report having more time and resources (Schneider et al., 2023). Although the study compares survey respondents in CLTs to renters and traditional owners with similar characteristics, it was not randomly administered, which may bias results (Schneider et al., 2023). The focus on two cities also makes it less generalizable.

CLTs may also stabilize deteriorating neighborhoods. One study found that from 2006 to 2011 the presence of multiple CLT units raised the sales price of nearby non-CLT homes by 5% in North Minneapolis and 3% in Central Minneapolis (Nelson et al., 2020). Furthermore, from 2011 to 2016 the authors found the mere presence of CLT increased nearby home sales price by 10%, which they attribute to the CLTs foreclosure prevention program (Nelson et al., 2020). They claim this is evidence of neighborhood stabilization (Nelson et al., 2020). This study used difference in difference with the establishment of a CLT property as the marker for pre and post treatment (Nelson et al., 2020). The strong research design indicates causality. As their marker was the mere presence of a CLT unit, these impacts could begin almost immediately. Although this study focuses on Minneapolis, as most CLTs target similar demographics, the results apply to CLTs generally.

Preventing Displacement Through Purchasing Mobile Home Parks

This alternative advocates preventing displacement through establishing another statewide pot of funds for a pilot program to purchase the land underneath three mobile home parks and convert them into 501(c)(3) nonprofits, instead of a disincentivized resident owned cooperatives. Local affiliates may apply for this funding and manage the development of the nonprofit with technical assistance from Habitat Virginia. This pilot program has an expected timeline of around six years. Many mobile home park residents own their homes; purchasing the land underneath is a natural complement to current operations (*Co-Op Ownership of Mobile Home Communities, A Webinar*, 2024).

Furthermore, structuring the nonprofit's board like that of a community land trust can allow the nonprofit to serve as a forum for resident discussions on the park's future. Residents may opt to continue living as normal without the threat of displacement or may seek to redevelop their park. Should this pilot program succeed it should be repeated.

Due to rapid fabrication and quick assembly, manufactured housing (MH) is the largest form of affordable housing in the United States (*Co-Op Ownership of Mobile Home Communities, A Webinar*, 2024).

One 2005 study claims that manufactured homes were about 70% cheaper than traditional homes after controlling for other characteristics (Vanderford et al., 2005). This study is strengthened by data from a large national sample and the inclusion of covariates backed by the literature (Vanderford et al., 2005). However, validity and causality concerns are raised by the potential stigma associated with manufactured housing and the fact that their dependent variable of house value is self-reported.

However, other studies confirm manufactured housing's affordability. According to a 2019 study, mobile home renters, the population of interest for this alternative, pay 46.15% less a month than traditional owners (Durst & Sullivan, 2019). This observational finding was determined using the well regarded 2013 American Housing Survey. The authors took great pains to identify specific tenure types among manufactured housing households as well as manufactured housing within and without parks (Durst & Sullivan, 2019).

Homes built with Habitat's volunteer model are cheaper than manufactured homes (O. McGehee, personal communication, February 8, 2025). Thus, manufactured housing is not an alternative building strategy for Habitat. However, many mobile home parks, where manufactured housing is located, are at risk of being purchased by investors. (*Co-Op Ownership of Mobile Home Communities, A Webinar*, 2024). These investors increase land rents, sometimes by 7% annually, to displace mobile home park residents and allow redevelopment (*Co-Op Ownership of Mobile Home Communities, A Webinar*, 2024). Displacement is accelerating as land values increase, mobile home park infrastructure deteriorates, and general stigma against mobile home parks grows (Catto, 2017).

Resident-owned cooperatives (ROCs) are a common displacement prevention strategy (Lamb et al., 2023). In ROCs, a cooperative of park tenants purchases the land underneath the park (Lamb et al., 2023). While impossible individually, collective bargaining allows residents to compete and qualify for a loan to buy the park (Lamb et al., 2023). Cooperative membership then entitles residents the right to occupy a parcel of land and vote in matters of common interest (*Shared Equity Models of Ownership*, 2017).

These two studies discussing ROCs focus primarily on qualitative data. Although some of their argumentation is backed with Census data, Centers for Disease Control data, and data from the nonprofit ROC USA organization (Catto, 2017; Lamb et al., 2023). Catto, 2017 is primarily a case study of ROCs in Oregon (Catto, 2017). Lamb, 2023 uses the strong qualitative method of theme coding from 27 interviews to back their findings but note most ROCs in their study are clustered in the northeast United States (Lamb et al., 2023). This may make their findings less applicable to Virginia. However, given the congruence of the trends they identified with the larger literature on manufactured housing, it is likely that similar trends exist in Virginia. This is especially true of the legal frameworks identified in the Oregon case study (Catto, 2017).

Anti-displacement initiatives are heavily reliant on the legal frameworks of right of first refusal and opportunity to purchase. Right of first refusal mandates that residents be given the opportunity to purchase the park before anyone else (Catto, 2017). Opportunity to purchase requires park owners inform residents of offers on the park and allow residents to make a competitive bid (Catto, 2017).

Many states lack these protections and the ability for MH residents to form limited equity cooperatives. For example, ROCs only proliferated in Oregon after the state passed a law permitting MH limited equity cooperatives, instituting these legal frameworks, and providing incentives for ROC creation (Catto, 2017). Virginia law on cooperative ownership favors condominiums over ROCs (M. Jones, personal communication, January 22, 2024). Furthermore, incentives to establish ROCs do not exist in Virginia, and the few ROCs in

Virginia do not belong to a wider ROC network (Common Interest Communities, n.d.; Lamb et al., 2023).

Virginia has an opportunity to purchase law; park owners must notify tenants 90 days before selling the park and consider counter offers by tenants representing 25% of the park (*Manufactured Housing (MH)*, n.d.). This allows tenants to purchase the park instead of investors. However, many mobile home park ROCs require significant financial and technical assistance from outside, nonprofit, sources for the initial park purchase (*Co-Op Ownership of Mobile Home Communities, A Webinar*, 2024; Catto, 2017; Lamb et al., 2023). Additionally, MH homes are classified as chattel property (Catto, 2017; *Co-Op Ownership of Mobile Home Communities, A Webinar*, 2024). Chattel property is property that is mobile as opposed to immobile real property (Kenton, 2024). Mortgages on chattel property are subject to higher interest rates and oftentimes use the property under loan as collateral (Kenton, 2024). This classification also prevents MH from receiving lower-interest home improvement loans making nonprofit funding crucial to any community improvements in the ROC (Catto, 2017; *Co-Op Ownership of Mobile Home Communities, A Webinar*, 2024).

Financial assistance typically serves to purchase the land under parks and address deteriorating infrastructure, a common issue in mobile home parks (*Co-Op Ownership of Mobile Home Communities, A Webinar*, 2024; Catto, 2017; Lamb et al., 2023). Deteriorating infrastructure also contributes to a wider perception of manufactured housing being low quality, which has created a stigma around mobile home parks (*Co-Op Ownership of Mobile Home Communities, A Webinar*, 2024). However, one 2008 study found that determinants of neighborhood as well as housing quality are similar in both manufactured and traditional housing (Boehm & Schlottmann, 2008). This indicates that, if manufactured housing is built like traditional housing, it should have the same perceived quality. It also indicates that if the mobile home park itself, the neighborhood, is improved perceptions of low quality may be remedied. This has the potential to alleviate the stigma associated with living in mobile home parks. Although, when taken together, manufactured housing's stigma may invalidate these different determinants of quality when perceived alone. However, due to the study's use of strong national panel data from 1993 to 2001 the causal claim that housing type does not impact how you view neighborhood and housing quality seems valid, at least for that period.

Advocating for Changes in Inclusionary Zoning Legislation

In Virginia, cities must be explicitly given the right to utilize inclusionary zoning (Valdes-Dapena, 2021). There are two laws that govern inclusionary zoning ordinances. Albemarle, Arlington, Fairfax, and Loudon counties and the cities of Alexandria and Fairfax have permissive inclusionary zoning granted by the state (Valdes-Dapena, 2021). These localities have almost no requirements regarding how they construct their IZ ordinances beyond requiring optional density bonuses (Affordable Dwelling Unit Ordinances in Certain Localities, 2020). This allows these localities to implement more effective mandatory IZ that is tailored to local needs. All other localities are subject to onerous IZ guidances and a specific formula for density bonuses (Valdes-Dapena, 2021). This law for other localities also only permits voluntary inclusionary zoning (Affordable Housing Dwelling Unit Ordinances, 2020). Currently, the only inclusionary zoning ordinance outside of the more permissive set of localities is in Virginia Beach (*Inclusionary Housing Database*, 2020).

Inclusionary zoning (IZ) ordinances are implemented by local planning commissions along their comprehensive plan (The Comprehensive Plan, n.d.). Thus, Habitat cannot directly influence the adoption of this alternative. Habitat Virginia is familiar with advocacy. This alternative recommends Habitat Virginia build an advocacy coalition that seeks to standardize inclusionary zoning law across Virginia toward the more permissive law that allows for mandatory IZ.

Inclusionary Zoning (IZ) ordinances, referred to as affordable dwelling unit ordinances in Virginia, require or request developers to include below market-rate units in new developments (Valdes-Dapena, 2021). IZ is also a newly relevant policy tool. There are 1,068 jurisdictions with IZ; a 2019 report noted that over 70% were implemented after 2001 (Ramakrishnan et al., 2019; *Inclusionary Housing Map*, n.d.). Studies in 2016 and 2017 claimed IZ has produced between 150,000 to 173,000 affordable units nationally (Ramakrishnan et al., 2019).

The incomes IZ ordinances target, the length units must be affordable, and the size of incentives offered to developers vary significantly (Ramakrishnan et al., 2019). However, the key feature for this alternative is whether programs are mandatory or voluntary. Mandatory programs require developers include affordable units in their developments. Voluntary programs allow developers to opt into the construction of affordable units in exchange for a density bonus. In Virginia, mandatory programs must offer developers a density bonus for the construction of affordable units (Affordable Dwelling Unit Ordinances in Certain Localities, 2020). Density bonuses allow developers to build more units than zoning would otherwise allow and offsets the profits lost from providing affordable units (Hamilton, 2021).

IZ program features greatly impact program effectiveness. A 2022 study found that 46% of IZ policies created no units and that variations in program features caused this lack of production (Wang & Fu, 2022). The authors of this study strengthened their findings by weighing unit production by income levels targeted and controlling for the ideology of a given area (Wang & Fu, 2022). However, they note a significant risk of selection bias due to the

data they draw from failing to randomly sample (Wang & Fu, 2022). Additional research suggests that mandatory programs, older programs, and programs that allow developers to build denser in exchange for producing IZ units produce more affordable units (*Evidence Drives Efforts To Promote Equity in Affordable Housing*, 2024; Mukhija et al., 2015; Hamilton, 2021).

IZ supporters claim that it allows local governments to leverage private money toward increasing affordable housing supply while building mixed-income communities (*Inclusionary Zoning and Mixed-Income Communities*, 2013). Opponents claim IZ acts as a tax on new development by reducing the number of market-rate units, which reduces profit (Hamilton, 2021). This increases housing prices and reduces supply (Hamilton, 2021). The size of this tax increases as IZ units are targeted at lower incomes (Hamilton, 2021).

Evidence for impact on prices and supply is mixed. A 2021 study found that IZ increased home prices by 0.81% annually and had no detectable effects on housing supply (Hamilton, 2021). A 2015 literature review noted small increases in price and decreases in supply whose effects were heavily reliant on program features (Mukhija et al., 2015). In general, the effectiveness of IZ in building affordable units is tied to the strength of the housing market (*Inclusionary Zoning and Mixed-Income Communities*, 2013).

The 2021 study utilized a difference in difference design (Hamilton, 2021). The strength of the research design indicates the validity of their findings. Furthermore, many of the IZ policies in the study are those of Virginia. This makes its findings highly relevant for this alternative. Although, the same study ran another model and found no effects of IZ on price. The 2015 study is a literature review of other IZ studies (Mukhija et al., 2015). It thus represents a broad scholarly consensus.

IZ may further inequality. HUD notes that 6 of 8 California cities with IZ placed their affordable units outside of high-income areas (*Evidence Drives Efforts To Promote Equity in Affordable Housing*, 2024). Another 2015 study found that, when IZ was optional, more diverse neighborhoods were more likely to receive IZ developments (Kontokosta, 2015). The same study found that, in the two IZ policies observed, one concentrated units in high-income areas while another concentrated them in low-income areas (Kontokosta, 2015). However, this study used propensity score matching, a notably weak technique. It also only observed the inclusionary zoning policies of two counties, which are not representative of IZ policies in the nation at large or Virginia.

Criteria for Evaluation

To address the problem of expensive and lacking low-income homeownership in the Commonwealth of Virginia, this document will analyze and recommend, along objective criteria, one of three alternatives: establishing a fund for community land trusts, establishing a fund to prevent displacement through purchasing mobile home parks, and advocating for changes in inclusionary zoning legislation. These criteria are based on consultations with Habitat Virginia and seek to see Habitat's mission and values reflected in the final alternative.

Depth of Affordability

Habitat seeks to serve the most vulnerable populations. Furthermore, homeownership becomes a cost-burden when a household spends over 30% of their income on it. This criterion provides the income of an average household served under a given alternative without being cost-burdened. Lower incomes served are better.

Political Feasibility

Some of the proposed alternatives require the cooperation of political stakeholders. To evaluate the risk of political actors blocking an alternative, this criterion sums up the political bodies that would need to buy-in for a given alternative to succeed. When political buy-in is helpful but not necessary, a half point will be added to the score. Lower scores are better.

Cost of Implementation per Household

Habitat must steward their funds for maximum impact. This criterion assesses the direct costs of material, land, technical assistance, community outreach, and advocacy. When not already in per household terms, these costs will be divided by the number of households served by the average form of each alternative to provide a cost per household. A lower cost is better.

Additional Housing Supply

Habitat recognizes that a key driver of cost is the severely limited supply of affordable units. Habitat is also concerned that housing units built or preserved under an alternative are high quality and have the potential to appreciate. This criterion evaluates the number of new, high-quality, affordable housing units a given alternative would place on the market. More units produced are better.

Equity

For a given project to be successful, community buy-in is necessary. This is a qualitative alternative that seeks to assess the potential for a given alternative to consider community input, promote community action, allow for home appreciation, and avoid stigma.

Evaluation of Alternatives

Establishing A Fund for Community Land Trusts

Depth of Affordability:

The key subsidy provided by community land trusts (CLTs) is the severance of land from home value. With data from the 2023 American Communities Survey, the average cost of a home can be assessed (Ruggles et al., 2024). Combined with information published by the Federal Housing Finance Agency on the proportion of a home's value that land comprises by county, the cost of a home with this subsidy can be calculated (Larson et al., 2020). Absent the value of land, the median home value in Virginia is $296,832.2 (±$2,055.22). Factoring in volunteers and lower square footage, Habitat can build a house 35% cheaper resulting in a final home value of $192,940.93 (±$1,335.89) (O. McGehee, personal communication, March 26, 2025). In a community land trust, A Habitat home features two mortgages. Both have a zero percent interest rate and last 30 years (*About*, 2022). The first mortgage is paid by the CLT resident. These vary based on what is affordable to a given household but are typically worth $90,000 (O. McGehee, personal communication, March 26, 2025). The second mortgage is forgiven over 30 years and represents any additional home value not covered by the first $90,000 mortgage (O. McGehee, personal communication, March 26, 2025). Using the risk-free interest rate from 30-year treasury bonds, the present value of all mortgages can be determined as $137,892.73 (±$954.74). This present value can be placed in FannieMae's mortgage calculator. This results in an annual home payment of $8,940 (±$60). **A household earning $29,800 (±$200) could afford to pay this without being cost-burdened.** As Virginia Statewide Community Land Trust (VSCLT) price appreciation formulas vary per location, this calculation does not account for any additional subsidy from accepting a price appreciation formula. For full calculations please visit the appendix.

Political Feasibility

This alternative may require developing new land for community land trust homes. It may be necessary to apply to rezone this land for residential purposes. In Virginia, the "governing body" of a locality decides rezoning appeals (Zoning, n.d.). However, if land is already zoned as residential, rezoning may not always be strictly necessary. For this reason, **this alternative receives a score of 0.5 points on this criterion**.

Cost of Implementation Per Household

This alternative requires purchasing both the home and land underneath for a household. Using the same 2023 American Communities Survey and Federal Housing Finance Agency land value data we can assess the cost to Habitat in terms of separate land and home value (Larson et al., 2020; Ruggles et al., 2024). Notably, Habitat's volunteers allow them to produce homes 35% less expensively (O. McGehee, personal communication, March 26, 2025). Factoring in land cost and that of the home itself, Habitat would pay $347,234.3 (±$3,391.11) for each household.

Habitat provides the typical household in a CLT a $90,000 first mortgage, which provides payments offsetting costs (O. McGehee, personal communication, March 26, 2025). Additional home value is placed in a 30-year mortgage that is forgiven by a thirtieth a year (O. McGehee, personal communication, March 26, 2025). As the second mortgage is forgiven, Habitat only recoups value from payments on the first mortgage. Using FannieMae's mortgage calculator, the monthly cost of this first mortgage from private mortgage insurance and the principal and interest, which are paid to Habitat, is $317 (±$1.5) (*Mortgage Calculator*, n.d.). The present value of these payments made to Habitat can be calculated at $61,263.57 (±$193.26).

Technical assistance is crucial to the operation of a successful community land trust. Under this alternative, the community land trust units are managed by the Virginia Statewide Community Land Trust (VSCLT). VSCLT will thus provide all technical assistance. There is no direct cost to Habitat. However, to accept a new CLT unit, VSCLT receives $3,000 from Habitat (O. McGehee, personal communication, March 26, 2025). Thus, $3,000 is the estimated cost of technical assistance per household to Habitat.

Home cost, land cost, the value regained through Habitat's mortgage, and technical assistance are already in per household terms. **These numbers can be combined to generate a per household cost of $288,970.8** (±$**3,049.12**). More specific cost calculations are included in the appendix.

Figure 4.1: CLT Fund Cost Table

Description	Cost Per Household
Value of A Habitat Home Less Land	$192,940.93 (±$1,335.89)
Cost of Land Under Homes	$154,293.4 (±$1,906.49)
Cost of Technical Assistance / Per Household	$3,000
Revenue from Habitat Mortgage	- $61,263.57 (±$193.26)
Total	**$288,970.8 (±$3,049.12)**

Additional Housing Supply

After consultation with Habitat for Humanity Virginia, this project's client, it was determined that, under this alternative, 500 units would be produced as part of the initial pilot program (O. McGehee, personal communication, March 26, 2025). These units are to be built by Habitat and thus must meet Habitat's commitment to quality. **This 500-unit amount represents the additional housing supply created.**

Equity

Many CLTs mandate a third of their board's members be homeowners (Rives, 2023). This alternative places homes in VSCLT. VSCLT is committed to adopting this model of board membership that centers the needs of the community (Winters et al., 2025). CLTs are also associated with strong outcomes for homeowners. On a five-point scale, CLT homeowners were 0.60 of a point less likely to face financial hardship and 0.81 of a point more likely to engage in community and friendship activities than traditional homeowners (Schneider et al., 2023). Thus, CLTs are likely to boost community capacity. Additionally, CLT homes are free of stigma and promote equity growth; CLTs are associated with increases in nearby home prices of 10% and annual median household equity appreciation of $1,657.7 (compared to $2,079 for traditional homeowners) (2019 USD) (Acolin et al., 2021; Nelson et al., 2020). The strong governance model and value of CLT homes indicate that **equity is present in this alternative**.

Preventing Displacement Through Purchasing Mobile Home Parks

Depth of Affordability

This alternative preserves current affordable housing stock in Virginia's 1,336 mobile home parks (*Mobile Home Parks*, 2024). Many mobile home park residents already own their homes outright (*Co-Op Ownership of Mobile Home Communities, A Webinar*, 2024). Thus, they are not cost-burdened by their homes themselves. Data from the 2023 American Communities Survey provides the **median income of Virginian households currently residing in mobile home parks: $55,534.29 (±$3,439.982)** (Ruggles et al., 2024). As this alternative seeks to avoid displacement, this median income is depth of affordability. A complete explanation and link to the RStudio calculation file is included in the appendix.

Political Feasibility

The process of preventing mobile home park displacement requires negotiation between the park's owner, who controls the land underneath mobile homes, the local Habitat affiliate seeking to purchase that land, and park residents. Virginia requires mobile home park owners to forewarn their residents 90 days before sale and entertain competitive bids from tenants to buy the park (*Manufactured Housing (MH)*, n.d.). As there is no negotiation between Habitat affiliates and governmental decisions makers, **this alternative scores a zero on this criterion**.

Cost of Implementation per Household

As manufactured housing is commonly owned by residents, this alternative proposes limited park redevelopment (*Co-Op Ownership of Mobile Home Communities, A Webinar*, 2024). Thus, this alternative is primarily interested in the cost of land. Using the 2023 American Communities Survey and Federal Housing Finance Agency land value data, the value of the land underneath a mobile home park can be calculated (Larson et al., 2020; Ruggles et al., 2024). Because redevelopment pressures drive mobile home park displacement, the land value of mobile home parks is calculated as the median of county median land values for counties with mobile home parks. This is presented in per unit terms.

This median value is $100,742 (±$3,200.70). Notably, this value does not account for parcel sizes due to data limitations. Specifics are included in the appendix.

Establishing a nonprofit requires technical assistance. The cost of this assistance, if it is assumed that one person provides assistance and that all the necessary skills are captured in the average salary of nonprofit consultant jobs, will be $65,778 (*Salary*, n.d.).

Many mobile home parks have suffered significant deterioration in their infrastructure due to owner noninvestment (Catto, 2017; *Co-Op Ownership of Mobile Home Communities, A Webinar*, 2024; Lamb et al., 2023). There is scant information on the cost of this noninvestment. However, Frank Rolfe, the co-founder of Mobile Home University a notable redeveloper of mobile home parks, claimed that the cost of maintaining infrastructure on mobile home park lots can vary from $50 to $200 ($155.03 (±$93.02) 2025 USD) (*About Frank Rolfe & Dave Reynolds, Mobile Home Park Investment Experts*, n.d.; M. Jones, personal communication, January 22, 2024; Rolfe, 2019). To simulate 10 years of deferred maintenance, the 2025 USD midpoint of this range was compounded over 10 years by the risk-free interest rate of a 30-year treasury bond. The total cost of deferred maintenance per household is $2,005.34 (±$1,203.23).

The government sponsored Homeland Infrastructure Foundation-Level Data (HIFLD) compiled a dataset of mobile home parks across Virginia (*Mobile Home Parks*, 2024). Unfortunately, the dataset does not contain the size of a given park. It instead estimates sizes from small, less than 50 units; medium, 51 to 100 units; and large, over 100 units. Small parks make up 79.72% of the entire dataset. When confining observations to those made after September of 2020, they are entire dataset. This range provides an estimate for the number of households whose displacement would be prevented. The dataset notes the Census data they partially pull from only records parks with more than 10 units. Thus, a single nonprofit in this alternative would most likely serve between 10 to 50 households.

It is assumed that the average displacement prevention program will serve the lowest number of mobile home park residents: 10. Technical assistance can be divided by 10 to get a per household cost of $6,577.8 Combing with previous per household costs **the per household cost of this alternative is $109,325.34 (±$4,403.93)**. Costs were derived primarily in RStudio. A detailed explanation, the cost calculation file, and summation of costs are included in the appendix.

Figure 4.2: Mobile Home Displacement Fund Cost Table

Description	Cost Per Household
Cost of Land Under Homes	$100,742.2 (±$3,200.70)
Cost of Technical Assistance / Per Household	$65,778/10
Cost of 10 Years of Deferred Maintenance	$2,005.34(±$1,203.23)
Total	**$109,325.34 (±$4,403.93)**

Additional Housing Supply

Although this alternative has the potential to preserve a significant number of affordable housing units, it does not build new units to increase the total supply of affordable units. Additionally, the units being preserved are subject to stigma and given that the land underneath units is not owned by households, it is unlikely these preserved manufactured units will appreciate in value (Boehm & Schlottmann, 2008; *Co-Op Ownership of Mobile Home Communities, A Webinar*, 2024). As this alternative neither builds additional units nor preserves high-quality housing with the potential to appreciate, it contributes 0 units of additional housing supply.

Equity

This alternative recommends the proposed nonprofit adopt a board structure similar to that of a CLT where a significant number of board seats are held by residents. This allows residents of purchased mobile home parks to direct their community (Rives, 2023). However, there are significant equity concerns. Manufactured homeowners who own the land under their homes see similar value appreciation to that of traditional homeowners (Boehm & Schlottmann, 2008). As the nonprofit owns the land, these homeowners are deprived of value appreciation. Academic and industry literature notes the significant stigma associated with manufactured housing (Catto, 2017; I. McLain, personal communication, December 7, 2024; Z. Miller, personal communication, October 23, 2024; Vanderford et al., 2005). As this alternative recommends maintaining current manufactured housing, stigma may continue under this alternative.

However, the nonprofit's governance model allows residents and community members to direct their community. This is similar to existing resident-owned cooperative models that are disincentivized by state law (Catto, 2017; M. Jones, personal

communication, January 22, 2024; Lamb et al., 2023). Under this alternative, the nonprofit serves as forum for residents to direct the future and improvement of their community. In any redevelopment, the desires of the community would be centered through their governance of the nonprofit. By placing the community in charge of their own management and redevelopment, **this alternative has equity**.

Advocating for Changes in Inclusionary Zoning Legislation

Depth of Affordability:

Inclusionary Zoning (IZ) ordinances target certain income groups set by a locality. A dataset from the Grounded Solutions Network has the area median income percentile of the lowest and highest household income served by every Virginia IZ ordinance. This dataset can be refined to those localities subject to the more IZ permissive law and combined with information from the 2019 American Communities Survey (ACS) to estimate the median income range of a household served by inclusionary zoning. This is done by multiplying the lowest and highest median area income percentile by the median area income from the 2019 ACS then converting these results to 2025 dollars. This provides the income range that may benefit from localities implementing mandatory IZ after the law change proposed by this alternative. It should be noted that inclusionary zoning ordinances offer homes to households to avoid cost-burden (*Inclusionary Zoning and Mixed-Income Communities*, 2013). Under this alternative, **households earning between $111,579.4 to $143,376.5 would be served**. This high number reflects that inclusionary zoning ordinances are typically designed for high and growing cost of living areas. Other areas that implement this alternative are likely to serve similar income ranges.

Political Feasibility

In Virginia, a bill must be approved by the relevant committee in the chamber it was introduced, the chamber it was introduced in, the relevant committee in the other chamber, the other chamber itself, and, finally, the governor (Nardo, n.d.). Furthermore, a given inclusionary zoning ordinance must be adopted by the planning commission of a locality, who set the zoning plan (The Comprehensive Plan, n.d.). This planning commission is appointed by the governing body of a locality and beholden to them (Local Planning Commissions, n.d.). The consent of the locality's governing body is not strictly necessary. However, given the potential cost to developers IZ poses, this body may intercede to prevent the adoption of IZ ordinances. Because there are six governing bodies that must buy-in and the locality's governing body's consent is likely required for this alternative, **this alternative scores a 6.5 on this criterion**.

Cost of Implementation per Households

This alternative is built on lobbying. Lobbyists are required to report their spending on certain lobbying activities (*31.205-22 Lobbying and Political Activity Costs.*, 2025). The OpenSecrets organization tracks lobbying spending using data from the Senate Office of Public Records (*Lobbying Data Summary*, n.d.). In 2024, the average lobbyist spent $348,429.40 (2025 USD) on lobbying. This provides a proxy for the cost of an advocacy

campaign. This alternative requires Habitat to hire two project coordinators to aid the lobbying firm in their activities and pressure local planning commissions to adopt inclusionary zoning ordinances. According to Glassdoor, the average project coordinator in Virginia makes a median salary of $74,000 a year (*Salary*, 2025).

A Grounded Solutions Network dataset provides information on the number of ownership units a given Virginia inclusionary zoning ordinance produces yearly (*Inclusionary Housing Database*, 2020). The five mandatory inclusionary zoning programs in Virginia produce an average of 29.4 ownership units yearly. To aid in comparison with other programs, this criterion assumes that an inclusionary zoning program will operate for 6 years, the length of both other alternatives. Thus, an inclusionary zoning ordinance established after the legislative changes from this alternative would provide units for 176.4 households.

Combining our costs and dividing by the number of households served provides a **per household cost of $2,814.23**. Specific calculations are included in the appendix.

Figure 4.3: Inclusionary Zoning Advocacy Campaign Cost Table

Description	Cost Per Household
Average Lobbying Spending / Average Number of Households Served	$348,429.40 / 176.4
Project Coordinator Salary (x2) / Average Number of Households Served	$148,000 / 176.4
Total	**$2,814.23**

Additional Housing Supply

Previously the Grounded Solutions Network Dataset was utilized to determine the per household cost of this alternative. The number of households served by the alternative necessarily represents the number of high-quality units built under this alternative. Thus, the additional housing supply provided by this alternative is 176.4 units over six years.

Equity

Inclusionary zoning is a top-down solution to housing affordability. It relies on local governments and planning commissions to center the needs of the community in the process. This is not guaranteed. Other interests can influence the design and application of inclusionary zoning. In some cases, IZ is placed outside of areas of economic opportunity

and can contribute to segregation (*Evidence Drives Efforts To Promote Equity in Affordable Housing*, 2024; Kontokosta, 2015). This is evidence that the needs of the community served by IZ are not centered in the process and are at a risk of missing the opportunities provided by homeownership. **In this alternative, equity is absent**.

Outcomes Matrix and Recommendation

Figure 4.4: Outcomes Matrix

Alternatives	Criteria					
	Depth of Affordability	Political Feasibility	Cost of Implementation per Household	Equity	Additional Housing Supply	Total Value
Establishing a Fund for Community Land Trusts	$29,800 (±$200)	0.5	$288,970.8 (±$3,049.12)	Present	500	8
Preventing Displacement Through Purchasing Mobile Home Parks	$55,534.29 (±$3,439.982)	0	$109,325.34 (±$4,403.93)	Present	0	7
Advocating for Changes in Inclusionary Zoning Legislation	$111,579.4 to $145,376.5	6.5	$2,814.23	Absent	176.4	3
Numeric Criteria Ranks and Value	1st - 2 Points	2nd - 1 Points	3rd - 0 Points			
Equity Criterion Ranks and Value	Present - 3 Points	Absent - 0 Points				

Habitat for Humanity Virginia should establish a fund for community land trusts. As vulnerable populations are key targets for Habitat, it is important that the recommended alternative score well on depth of affordability. This alternative scores the best on depth of affordability. Although this alternative performs the worst on cost of implementation, its significantly better depth of affordability is a worthwhile trade off. The cheapest alternative, advocating for changes in inclusionary zoning legislation, scores terribly on depth of affordability. The second cheapest alternative, preventing displacement through purchasing mobile home parks, serves vulnerable populations. However, those served by the recommended alternative are significantly more vulnerable. The recommended alternative also adds a tremendous number of high-quality, affordable units to the market and is politically feasible. Both other alternatives are nowhere near the recommended alternative in terms of alleviating the serious deficit of affordable housing supply.

The recommendation also has phenomenal potential for equity. The CLT homes provided are high quality and likely to appreciate in value. Their governance model also allows residents to direct the future of the CLT and its community.

Implementation

Implementation requires coordination between stakeholders to establish a detailed plan and pre-empt various challenges. Stakeholders and their roles are highlighted in the implementation's action plan.

Action Plan

1. Establish The Fund: Immediately – Month 6
    a. At current per household costs **Habitat for Humanity Virginia** needs $144,485,400 (±$1,524,560) to build 500 homes
    b. This money will be raised from **private donors**. **Habitat Virginia** will need to collaborate with **Local affiliates** and **past donors** to design an effective campaign to raise these funds. However, this campaign will be spearheaded by Habitat Virginia.
2. Engage and Inform **Local Affiliates**: Immediately & Month 7
    a. **Local affiliates** will build CLT units as part of implementation. **Habitat Virginia** should thus inform affiliates across the state of the fund. This process should occur prior to fundraising and again once funds are collected. Although the fund is large, **local affiliates** should be consulted on the criteria within an ideal application for funding. This serves to ensure that funds are distributed intelligently to generate maximum impact.
        i. Any CLT will fail without soliciting **community** buy-in (Esfahani et al., 2018; Schneider et al., 2018). As part of this process, it should be emphasized to **local affiliates** that they must inform potential homeowners of the benefits and costs of living in a CLT as well as the various re-sale formulas available under the **Virginia Statewide Community Land Trust (VSCLT)** (Winters et al., 2025). This way **buyers** can make an active choice to participate and be prepared for the responsibilities of CLT homeownership.
    b. In this process, **local affiliates** should be informed of the utility of the **VSCLT** to mitigate the increasing cost of housing. It should be emphasized that this program serves to build **VSCLT** from a small organization of nine homes to larger organization that can have greater impact (Winters et al., 2025).
    c. Those affiliates currently participating in **VSCLT**, **Fauquier, Loudon, and DC/NOVA Habitats** will be instrumental in this process (Winters et al., 2025).
3. Solicit Applications from **Local Affiliates**: Months 8 – 10
    a. Applications from **local affiliates** should be received and considered based criteria established through previous consultation as well as depth of affordability and cost for a specific site.
4. Disburse Funds from **Habitat Virginia** to **Local Affiliate** for CLT unit production: Months 11 – 70
    a. CLT units will be produced over a five-year period with a target of 100 units a year.
5. Engage **Residents** in CLT Management: Months 11 – 70

a. Successful CLTs include those with lived experience in the community and experts who can effectively manage the trust (Esfahani et al., 2018; White, 2011). This is accomplished through a tripartite board divided into thirds between **residents**, **community members**, and those in the "public interest", or **Habitat** in this case (White, 2011).
b. **VSCLT** already has a board consisting of experts (*About VSCLT - Virginia Statewide Community Land Trust*, n.d.). Due to its small size, it lacks **homeowner** board membership. As units are being produced it is imperative that **Habitat Virginia** and **local affiliates** notify **residents** of the opportunity to participate in the board and encourage this participation.
c. Engaging **residents** in CLT management involves meetings with stakeholders where shared principles are made explicit to better aid in CLT governance (White, 2011). Representatives of **Habitat Virginia**, **local affiliates**, **community members**, and **residents** must come together to establish these principles and incorporate them into **VSCLT's** bylaws, which should then be approved by a vote of **residents** at large (White, 2011).

6. Evaluate the Program and Consider Expansion: Months 11 – 90
   a. Evaluation is primarily concerned with communicating to **donors** the effective use of their funds. It will require gathering metrics like the percentage of funds spent on different aspects of housing (land, materials, neighborhood improvements, etc.), the average cost of building a home under the program, the raw number of units produced yearly, the average income of households served, and the number of **homeowners** on the board.
   b. If considered successful, the lessons learned should be incorporated in future implementation and the program should receive another wave of fundraising for additional construction.

Challenges Ranked by Importance

1. Some Residents Do Not Want CLT Membership– **Likely**
    a. In this alternative, residents must opt into participating in VSCLT. However, if they were improperly informed of the costs and benefits of participating, they may wish to leave the program. They are within their rights to sell their home. However, the home will remain part of VSCLT and residents will receive appreciation from home value along one of the four resale formulas offered by VSCLT (Winters et al., 2025).
2. Negotiations between residents and Habitat breakdown during the establishment of shared principles– **Unlikely**
    a. Informing residents of the roles and responsibilities between CLT stakeholders seeks to establish a baseline of shared values from which other values can be established. However, there is a risk that residents and Habitat clash in the process of enumerating shared values to be incorporated in bylaws. As VSCLT is already established, it has the important CLT stewardship responsibilities already in place. Should discussions break down, pains should be taken to bring in community building experts to restart dialogue. However, should this fail, VSCLT is well equipped to continue its duty as a land steward under current bylaws. Furthermore, as described in the first challenge, residents who find living in VSCLT incompatible with their goals may sell their homes.
3. Costs of Home Construction Exceed Budgeted Funds – **Likely**
    a. Given trends in increasing cost of all housing inputs, as well as newly announced tariffs, this program may face cost overruns (Rosen et al., 2017). Thus, additional rounds of fundraising may be necessary. Should fundraising prove impossible, the number of additional housing units offered by this program must be paired down.
    b. It may also be worthwhile to mobilize residents, on the board and elsewhere, in stakeholder groups. These groups can discuss best uses of funds and if there are opportunities to reduce amenities in homes built in the future to promote greater cost effectiveness.

Conclusion

Low-income Virginians already have difficulty transitioning to homeownership and spend a larger fraction of their income on remaining in their homes. Cost burden from unaffordable living arrangements places them at risk of displacement in the event of an unplanned bill or economic turmoil. Lacking homeownership deprives this population of the wealth building, educational improvements, and civic involvement provided by homeownership. While some targeted interventions exist to lower wealth and mortgage barriers to homeownership, increasing cost of housing remains insufficiently addressed and has the potential to further lower rates of low-income homeownership while increasing rates of cost burden.

This report analyzed three potential remedies to low homeownership and high cost burden rates. It ultimately recommends creating a pilot fund to build 500 community land trust (CLT) units in partnership with Virginia Statewide Community Land Trust (VSCLT).

This recommendation presents the highest cost but also serves the most vulnerable population and has the largest potential impact on housing supply, through adding 500 new units. The alternative is also equitable and politically feasible. The vulnerable population this recommendation serves and the high number of units it provides them is key to its impact. By increasing housing supply for such a vulnerable population, it is expected that those who, absent this recommendation, would have found no homeownership opportunities will be able to transition to affordable homeownership.

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Appendices

Appendix A – Glossary of Terms

HUD: Department of Housing and Urban Development

FHFA: Federal Home Finance Agency

ACS: American Communities Survey (Created by the Census Bureau)

HIFLD: Homeland Infrastructure Foundation-Level Data

CLT: Community Land Trust

VSCLT: Virginia Statewide Community Land Trust (A statewide CLT in Virginia)

MH: Manufactured Housing

ROC: Resident Owned Cooperative

IZ: Inclusionary Zoning (IZ ordinances in Virginia are called affordable dwelling unit ordinances)

Appendix B – Difference in Difference & Propensity Score Matching

Difference in Difference is a quasi-experimental technique used to evaluate causality when it is impossible to get a random sample (*Difference-in-Differences - Dimewiki*, n.d.). It assumes that a given outcome trends the same between the control and treatment group (Difference-in-Differences - Dimewiki, n.d.). If trends in the control and treatment group are the same, difference in difference assumes that the difference between the outcome of the treatment group after treatment and how that treatment group would have trended absent treatment (based on trends in the control group) is the effect of treatment (*Difference-in-Difference Estimation*, 2016).

Propensity score matching is another, albeit weaker, quasi-experimental technique. It's strength is highly dependent on the strength of observed characteristics in determining enrollment in treatment and the amount of bias introduced by unobservable characteristics (*Propensity Score Matching - Dimewiki*, n.d.). Propensity score matching uses observable characteristics to evaluate the likelihood of an observation to enroll in treatment; this likelihood is the propensity score (*Propensity Score Matching - Dimewiki*, n.d.). It then compares the outcomes of control and treatment observations with similar propensity scores to evaluate the impact of treatment.

Appendix C – Depth of Affordability and Cost Calculations

The values placed into the cost calculations below were derived from the datasets using RStudio. The data utilized and RStudio files have been included with this paper through accessing this link:

https://drive.google.com/drive/folders/1KdwhXvTCZf_yLlhZ3Us0XeH5n29l77mO?usp=sharing

All dollar amounts are reported in 2025 USD unless otherwise specified. Data sources have been confined to observations made in Virginia.

Depth of Affordability – Establishing A Fund for Community Land Trusts

The 2023 American Communities Survey (ACS) includes information on home value (Ruggles et al., 2024). A working paper published by the Federal Housing Finance Agency has information on how much of a home's value land makes up (Larson et al., 2020). This data is reported in a variety of ways and is differentiated between counties. By merging the datasets in RStudio along the county FIPS code, which is included in both datasets, the proportion of a home's value that is land can be determined. The working paper includes the acreage value per county and the proportion of a home's value that land makes up by county. Unfortunately, the ACS codes properties with acreages of less than one as a zero. To avoid biasing any estimates by looking only at properties with more than one acre (these are typically more valuable homes) the proportion of a home's value that land makes up is multiplied by each home's individual value. This provides as estimate for the land value of a given property. This technique can also be used to determine the value of a property less land. The median of these values can be determined with the application of survey weights.

This median value of a home less land is then multiplied by 0.65 as, due to their volunteer model and lower square footage, Habitat can produce homes 65% cheaper than a normal developer (O. McGehee, personal communication, March 26, 2025). This value is reported below. The typical Habitat home's value is split into three mortgages (O. McGehee, personal communication, February 5, 2025). The first is paid to Habitat, the second serves as downpayment assistance from the Virginia Department of Housing and Community Development, the third is issued by Habitat and represents any remaining value forgiven over 30 years (O. McGehee, personal communication, February 5, 2025).

However, under this proposed CLT model there are two mortgages. The first represents the traditional low to no interest, 30-year mortgage offered by Habitat (O. McGehee, personal communication, March 26, 2025). The second is also issued by Habitat and represents any remaining value forgiven at a rate of 1/30 a year over 30 years (O. McGehee, personal communication, March 26, 2025). The first mortgage varies by family and is formatted to avoid cost-burden, but it is typically $90,000 (O. McGehee, personal communication, March 26, 2025). The present value of both mortgages is calculated by discounting using the risk-free rate of a thirty-year treasury bond (*United States Rates & Bonds*, 2025). This discount rate was chosen because it represents the opportunity cost of money over the same period as a typical 30-year mortgage. It is important that this value be

placed in present value terms to assess the costs to a household at the moment of mortgage acceptance. This present value is then placed into FannieMae's mortgage calculator to assess how much this present value mortgage would cost a family monthly (*Mortgage Calculator*, n.d.). This is then multiplied by 12 to generate a yearly payment. This yearly payment is then divided by 0.3 to simulate a household spending 30% of their yearly income, which is the threshold for cost-burden (*Nearly Half of Renter Households Are Cost-Burdened, Proportions Differ by Race*, 2024). This then provides the total household yearly income that a given family would have under this alternative. This is depth of affordability. Standard errors were calculated in RStudio unless otherwise noted.

RStudio Script Where Data Work Took Place: CLT – Depth of Affordability and Cost.R

Median home value in Virginia less land: $296,832.2 (±$2,055.22) (Larson et al., 2020; Ruggles et al., 2024)

Home value of a Habitat home less land: $192,940.93 (±$1,335.89) (Larson et al., 2020; O. McGehee, personal communication, March 26, 2025; Ruggles et al., 2024)

Risk free interest rate of 30-year treasury bond: 0.0463 (*United States Rates & Bonds*, 2025)

Split into two mortgages (O. McGehee, personal communication, March 26, 2025)

1. Mortgage to Habitat (Interest free) of **$90,000 (±$623.14)**
2. Mortgage to Habitat (Interest free and forgiven 1/30 a year for 30 years) of **$102,940.93 (±$712.75)**

Present Value of Combined Mortgage Principals (to be placed in a mortgage calculator)

$$\$90{,}000 + \left(\$102{,}940.93 - \sum_{n=1}^{30} \frac{\frac{1}{30} * \$102{,}940.93}{1.0463^{n}} \right)$$

$$= \$137{,}892.73\ (\pm \$954.74)$$

$$(Standard\ Error\ Derived\ from\ Excel\ Calculations)$$

This is placed into FannieMaes's Mortgage Calculator assuming $0 in downpayment assistance, a zero percent interest rate, and a mortgage term of 30-years (*Mortgage Calculator*, n.d.)

- Note: (FannieMae's calculator will not accept values of 0%. Calculation was made with an interest rate of 0.000000000001%)

Monthly Mortgage Payment: $745 (±$5) (*Mortgage Calculator*, n.d.)

Cost-burden factor: 0.3 (*Nearly Half of Renter Households Are Cost-Burdened, Proportions Differ by Race*, 2024)

Depth of Affordability:

$$\frac{\$745 * 12}{0.3} = \$29{,}800\ (\pm\$200)$$

Cost of Implementation– Establishing A Fund for Community Land Trusts

The same technique as above is utilized to assess costs. Median land and home values (multiplied by 0.65 to simulate Habitat's cost savings when developing) are determined using the 2023 American Communities Survey (ACS) and cost of land from a Federal Housing Finance Agency working paper (Larson et al., 2020; O. McGehee, personal communication, March 26, 2025; Ruggles et al., 2024).

Furthermore, community land trusts (CLTs) require some form of technical assistance. This technical assistance is provided by the Virginia Statewide Community Land Trust (VSCLT). Thus, it is not a direct cost to Habitat. However, Habitat pays VSCLT $3,000 for every house it takes over (O. McGehee, personal communication, March 26, 2025). This $3,000 figure thus represents the cost of CLT technical assistance.

While there are two mortgages provided to a family, only the first mortgage is expected to be paid back to Habitat. Additionally, FannieMae divides the cost of mortgages into four parts: private mortgage insurance, home ownership association payments, taxes and insurance, and principal and interest (*Mortgage Calculator*, n.d.). It is assumed that Habitat only receives payments made toward private mortgage insurance and principal and interest. The value of these payments over the 30-year mortgage term is also discounted by the 30-year risk-free interest rate of a treasury bill as this value represents the opportunity cost of money (*United States Rates & Bonds*, 2025). Specific calculations are included below. Standard errors were calculated in RStudio unless otherwise displayed.

RStudio Script Where Data Work Took Place: CLT – Depth of Affordability and Cost.R

Land value of the median home: $154,293.4 (±$1,906.49) (Larson et al., 2020; Ruggles et al., 2024)

Median home value less the value of land: $296,832.2(±$2,055.22) (Larson et al., 2020; Ruggles et al., 2024)

Habitat volunteer savings factor: 0.65 (O. McGehee, personal communication, March 26, 2025)

Home value of a Habitat home less land: $192,940.93 (±$1,335.89) (Larson et al., 2020; O. McGehee, personal communication, March 26, 2025; Ruggles et al., 2024)

Split into two mortgages (O. McGehee, personal communication, March 26, 2025)

1. Mortgage to Habitat (Interest free) of **$90,000 (±$623.14)**
2. Mortgage to Habitat (Interest free and forgiven 1/30 a year for 30 years) of **$102,940.93 (±$712.75)** (no value recouped from this mortgage)

Monthly private mortgage insurance (paid to Habitat): $82 (*Mortgage Calculator*, n.d.)

- This value assumes a loan from habitat of $90,000 (±$623.14)
- This value assumes that the $0 in downpayment assistance
- This value is placed into an annuity formula to simulate monthly payments

Principal and interest payment (paid to Habitat): $235 (±$1) (*Mortgage Calculator*, n.d.)

- This value assumes a loan from habitat of $$90,000 (±$623.14)
- This value assumes that the $0 in downpayment assistance
- This value is placed into an annuity formula to simulate monthly payments

Risk free interest rate of 30-year treasury bond: 0.0463/12 = 0.0039 (*United States Rates & Bonds*, 2025).

- Divided by 12 for monthly interest rate

Technical assistance: $3,000 (O. McGehee, personal communication, March 26, 2025)\

Per Family Cost to Habitat

$$\$154{,}293.4 + 0.65(296{,}832.2) + \$3{,}000 - (82 + 235)\left(\frac{1}{0.0039} - \frac{1}{0.0039(1.0039)^{360}}\right)$$

$$\$154{,}293.4 + 192{,}940.93 + \$3{,}000 - \$61{,}263.57$$

$$Per\ Family\ Cost = \$288{,}970.8\ (\pm\$3{,}049.12)$$

$$(Standard\ Error\ Derived\ from\ Excel\ Calculations)$$

Depth of Affordability – Preventing Displacement Through Establishing a Fund to Purchase Mobile Home Parks

The 2023 American Communities Survey (ACS) includes a variable for payments made on mobile homes (Ruggles et al., 2024). Although they do not include a variable that differentiates traditional and mobile homeowners, this variable for payments made on mobile homes, which includes land rent, can be converted into a binary that differentiates mobile from traditional homeowners.

This alternative advocates for preventing the displacement of those currently living in mobile home parks. Thus, depth of affordability refers to the incomes of the population currently residing in mobile homes. The 2023 ACS presents income data at the household level (Ruggles et al., 2024). Thus, with the variable to differentiate mobile home park residents, who are paying land rents, and being mindful to apply survey weights, the median income of this population can be computed in RStudio with a command to find the survey median. Using the Consumer Price Index, this value can be converted from 2023 dollars to 2025 dollars (*Consumer Price Index Historical Tables for U.S. City Average*, n.d.). The depth of affordability using this methodology is $55,534.29 (±$3,439.98). Standard errors were calculated in RStudio.

RStudio Script Where Data Work Took Place: MH – Depth of Affordability and Cost.R

Cost of Implementation – Preventing Displacement Through Establishing a Fund to Purchase Mobile Home Parks

Using the same methodology as depth of affordability, we can use the variable that differentiates between mobile home parks and traditional housing to determine the median of county median land values across counties with mobile home parks.

This value was selected because, although data from the Federal Housing Finance Agency (FHFA) includes a per acre value of land, the 2023 American Communities Survey codes acreage numbers below one as a zero (Larson et al., 2020; Ruggles et al., 2024). In previous calculations, this biased home values less land derived from subtracting land value from home value. Thus, land values were assessed using a proportion of the total value of a property that land makes up, which varies by county. Additionally, the Homeland Infrastructure Foundation-Level Data (HIFLD) from which the size of mobile home parks are derived lacks acreage data (*Mobile Home Parks*, 2024).

Looking at mobile homes using the proportion provided by the FHFA at the household level returns land values far lower than what is reasonable. This is because manufactured housing is generally cheaper than traditional housing and the ratio provided by the FHFA works with a fraction of the value of the property. Additionally, mobile home parks are purchased to redevelop thus their true value is likely to reflect the value of land in the wider county. In the interest of both consistency with past calculations, limited information, and a recognition that desires for redevelopment are driving mobile home park displacement, the median of median county land values across counties with mobile home parks was selected as the key value to determine land cost. When converted from 2023 dollars to 2025 dollars, this value is $100,742 (±$3,200.70).

This alternative requires a nonprofit, which requires some level of technical assistance. It is assumed that the cost technical assistance is represented by the average salary of nonprofit consultant jobs and that one person provides technical assistance (*Salary*, n.d.). As every other cost is already in per household terms, the cost of technical assistance is divided by the lowest number of families a mobile home park serves to put it into per family terms. The Homeland Infrastructure Foundation-Level Data indicates this value is 10 (*Mobile Home Parks*, 2024). Standard errors were calculated in RStudio unless otherwise displayed.

Many mobile home parks require serious repairs to infrastructure (Catto, 2017; *Co-Op Ownership of Mobile Home Communities, A Webinar*, 2024; Lamb et al., 2023). The specific costs of this can be difficult to determine. However, Frank Rolfe, a serious mobile home park investor, indicated the cost of these repairs in yearly, per unit terms (Rolfe, 2019). The midpoint of this yearly value is converted to 2025 Dollars and compounded over 10 years to simulate the costs of 10 years of deferred maintenance. This represents the per family cost of infrastructure repairs. Specific calculations are included below. Standard errors were calculated in RStudio unless otherwise displayed.

RStudio Script Where Data Work Took Place: MH – Depth of Affordability and Cost.R

Median county median home land values across counties with mobile home parks: $100,742.2 (±$3,200.70) (Larson et al., 2020; Ruggles et al., 2024)

Technical assistance: $65,778 (*Salary*, n.d.)

Number of Families Served: 10 to 50 (*Mobile Home Parks*, 2024)

Midpoint of per lot maintenance cost (2025 USD): $125 (±$75) * (317.671/256.143) = $155.03 (±$93.02) (Standard error is based on distance from the midpoint established by the range below)

- Estimates for range of repair costs (2019 USD): $50 - $200 (Rolfe, 2019)
- CPI Factor: 317.671/256.143 (*Consumer Price Index Historical Tables for U.S. City Average*, n.d.)
- This needs to be compounded over 10 years to simulate 10 years of deferred maintenance on infrastructure
- Compounding will be done using the risk-free interest rate of 30-year treasury bond: 0.0463 (*United States Rates & Bonds*, 2025)

<u>Per Family Cost to Habitat</u>

- Cost assumes the lowest number of families served (10)

$$\$100{,}742 + \frac{\$65{,}778}{10} + \sum_{n=1}^{10} (\$155.03 * 1.0643^{n})$$

$$\$100{,}742.2 + \$6{,}577.8 + \$2{,}005.34$$

$$Per\ Family\ Cost = \$109{,}325.34\ (\pm\$4{,}403.93)$$

$$(Standard\ Error\ Derived\ from\ Excel\ Calculations)$$

Depth of Affordability – Advocating for Changes in Inclusionary Zoning Legislation

The depth of affordability calculations for this alternative were completed in RStudio. A dataset on inclusionary zoning ordinances is provided by the Grounded Solutions Network (*CLT & Shared Equity Program Database*, n.d.). These data include the highest and lowest percentile of median area income served by a given inclusionary zoning ordinance. The Grounded Solutions Network also indicates the locality a given ordinance is from. 2019 American Community Survey (ACS) data also include the locality a given household resides in (Ruggles et al., 2024). The 2019 ACS data, with proper application of weights, can be used to provide the area median income of a given locality. This area median income can be converted into 2025 dollars with information from the Consumer Price Index. Area median income can then be multiplied by the highest and lowest percentile of area median income served by an inclusionary zoning ordinance from the Grounded Solutions Network data to get a range of incomes served by a given inclusionary zoning ordinance. The average of these ranges is the ultimate depth of affordability criterion for this alternative. This average value range is $111,579.4 to $145,376.5.

RStudio Script Where Data Work Took Place: IZ – Depth of Affordability.R

Cost of Implementation – Advocating for Changes in Inclusionary Zoning Legislation

This alternative requires a lobbying campaign. Information on the total number of lobbyists and their spending is compiled by the Open Secrets organization (*Lobbying Data Summary*, n.d.). These numbers for 2024 are divided by the number of active lobbyists and converted to 2025 USD to provide the average spending per lobbyist. Furthermore, it is assumed that such a campaign will require the assistance of two project coordinators to aid lobbyists and pressure local governments to adopt inclusionary zoning. Similarly, to CLT technical assistance, it is assumed that the cost of these project coordinators is reflected in the median salary of project coordinators in Virginia (*Salary*, 2025).

This lobbying campaign represents a one-time investment. However, inclusionary zoning, once active, can produce units for many years. Other alternatives are also presented in terms of a one-time investment. However, such an investment is presented in per household terms. To display the potential for this one-time investment to serve many distinct households over the lifetime of an inclusionary zoning ordinance the cost of this alternative is divided by the average number of ownership units built by an inclusionary zoning ordinance over six years. Six years was chosen as that is the length of implementation for other alternatives. This average value was determined in RStudio using a dataset on Virginia inclusionary zoning ordinances provided by the Grounded Solutions Network (*Inclusionary Housing Database*, 2020). Specific calculations are included below.

Total lobbying spending (2024): 4,400,000,000 (*Lobbying Data Summary*, n.d.)

Total number of lobbyists (2024): 13,007 (*Lobbying Data Summary*, n.d.)

CPI Factor (2025/2024) = 317.671/308.417 (*Consumer Price Index Historical Tables for U.S. City Average*, n.d.)

Average yearly spending per lobbyist (In 2025 USD):

$$\frac{\$4{,}400{,}000{,}000}{13{,}007} * \frac{317.671}{308.417} = \$348{,}429.40$$

Project coordinator salary (times two): $74,000*2 = $148,000 (*Salary*, 2025)

Average number of families served annually: 29.4

Year length of other alternatives (to aid in comparison with other alternatives)**: 6**

Average number of families served (over 5 years to aid in comparison with other alternatives) (*Inclusionary Housing Database*, 2020):

$$29.4 * 6 = 176.4$$

Per Family Cost to Habitat

$$\frac{\$348{,}429.40 + \$148{,}000}{176.4} = \frac{\$496{,}429.4}{176.4}$$

$$Per\ Family\ Cost = \$2{,}814.23$$