

Can Green Housing be Affordable?

The Future of Housing in Uptown

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Purpose Statement

The larger sustainability framework of the 2030 district allows for focused study, investment, and education in Green Affordable Housing practices that will improve the affordability, health, resilience, and social equity in this community.

The COVID-19 Pandemic has highlighted the inequities such as rent burden and outdated housing stock of the Uptown portion of the Cincinnati 2030 district.

This neighborhood will not be able to meet its full potential without all residents having access to safe, efficient, and affordable housing.

Primary/working goals include retrofitting existing housing to reduce energy emissions, creating more affordable units, educating the community on sustainability and the 2030 district, and promoting environmental justice.

Scope of Project

The parameters for this project was to find an issue in the Uptown portion of Cincinnati's 2030 district. The 2030 district network is an organization of cities who brought together local businesses and building owners and committed to cutting their energy and water emissions by 50% by the year 2030. I initially chose the topic of Green Housing to bring the efforts and technologies being implemented in the larger buildings to a smaller scale, which would have a more direct impact on the community living within this district. After I began my analysis of the existing housing stock I found that a large number of households in this area are rent burdened. Residents of these neighborhoods are being excluded from sustainable housing and forced into low-quality unaffordable units. In order for the 2030 District to have a truly lasting impact the sustainability efforts the housing stock in Uptown needs to be updated and become more affordable to successfully serve the community.



Introduction to Housing Issues

Terms to Know:

Affordability

Housing is considered affordable when a household pays 30% or less of their monthly income on housing costs

Rent Burden

This occurs when households have to pay over 30% of their monthly income on housing costs

Sustainability

Housing that is sustainable includes energy efficient technologies, recycled materials, and attempts to have as little environmental impact as possible

Resilience

Resilient Housing is built to withstand shocks and stresses to the community such as increased temperatures due to climate change

Equity

Quality housing should be accessible to all, low-income and minority households are often excluded from sustainability initiatives due to the cost of implementation

Retrofitting

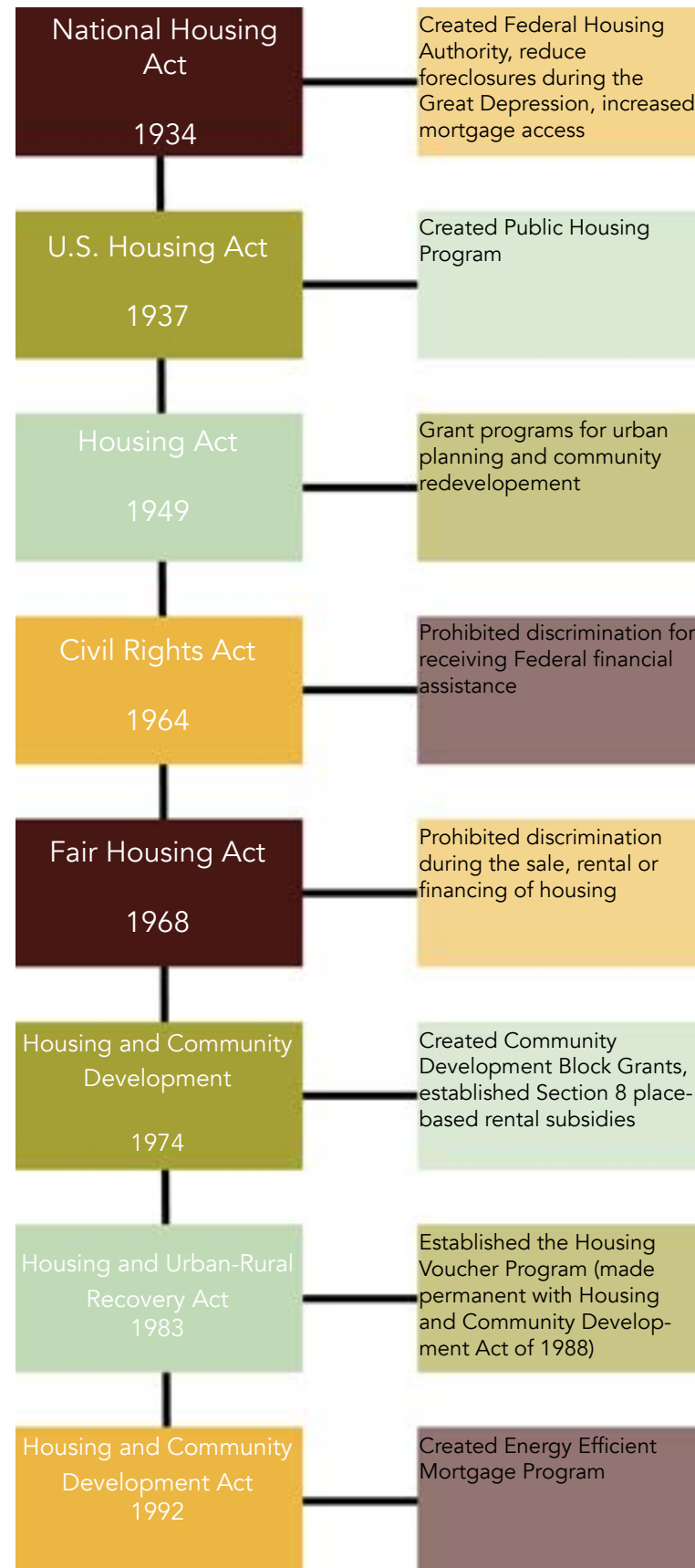
The process of updating technologies to lower a buildings energy and water emissions

Area Median Income

This is calculated using income data collected through the U.S. Census. It is the mid-point of household income in a particular area. This means that half of the population make more than this number and half make less.

Fair Market Rent

This is the value used to determine how much of a subsidy one can receive for the Housing Choice Voucher program. It is calculated as 40% of the average Market Rate rental in an area.



Affordable Housing in the U.S.

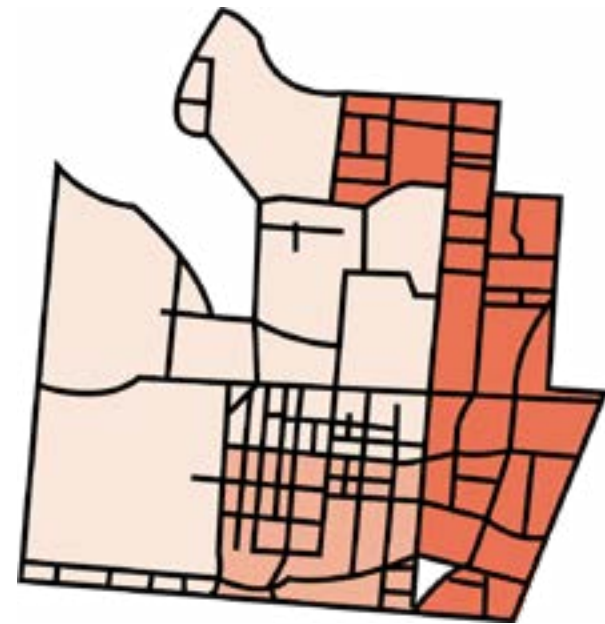
The United States has a long history of Affordable Housing legislation. There are two kinds of rental assistance programs: place-based and person-based. A place-based subsidy is tied to a specific affordable rental unit. A person-based subsidy is tied to a particular person who receives a housing voucher. It allows them to move into any unit at Fair Market Rent that accepts vouchers.

There are many actors involved in the process of creating an affordable unit. Funding for affordable housing programs is usually organized by Community Development Organizations (CDOs). These are non-profit organizations are "focused on revitalizing the areas in which they are located, typically low-income, underserved neighborhoods that have experienced significant disinvestment." ("Community Development Corporations"). Local Initiative Support Corporations (LISC) work as intermediaries between CDOs and the government to create low and moderate-income housing. Since 1970, LISC has financed more than 400,000 homes ("LISC Housing"). State Housing Finance Agencies assemble federal funding to allocate towards below market rate housing. They can also issue tax-exempt bonds to investors. For-Profit developers also play a role in the creation of affordable housing. Inclusionary zoning laws that require a certain number of affordable units leads to many developers receiving tax-credits and using project based Section 8 to construct units.

However, there is still a shortage of affordable rental units in the United States. The gap in available and needed affordable housing is due to the financialization of the housing market. This concept refers to the increasing role of financial motives, actors, and institutions in the operation of the housing market. According to a study done by the National Low Income Housing Coalition, there are only 37 available units for every 100 extremely low-income households (<https://reports.nlihc.org/gap>). This same gap can be seen in the housing stock of the Uptown portion of Cincinnati's 2030 district. Not only is there a shortage in available units, the units that are there are outdated and inefficient.

Uptown Housing Stock

Housing Units



Number of Housing Units, 2021: **Fig. 1**

- 0-1,000
- 1,001-1,500
- 1,501-2,000

Household Income



Median Household Income, 2021: **Fig. 2**

- 2,499\$-25,000\$
- 25,000\$-50,000\$

These maps above show the number of housing units and the median household income of the Uptown 2030 district. It reveals that the majority of housing units are located in the same areas as an extremely-low income population. It is important to understand the existing housing stock so targeted improvements can be made. **The limited availability of housing combined with a low and moderate income population means many residents are living in overcrowded and outdated buildings.** When walking around the neighborhood one can see the dilapidated state of some of the homes. This is shown in images 1 and 2, on the right.

The new housing developments on Eden Ave and a long Martin Luther King Jr. Drive are too expensive for the existing population and were built with the aim of housing medical students and staff for the U.C. Health Network, shown in Image 3. These housing units were also not built sustainably or with resiliency against climate change in mind. This initial map analysis prompted me to look more into how much residents of the Uptown 2030 District are burdened by the cost and quality of their housing.

Primary Zoning

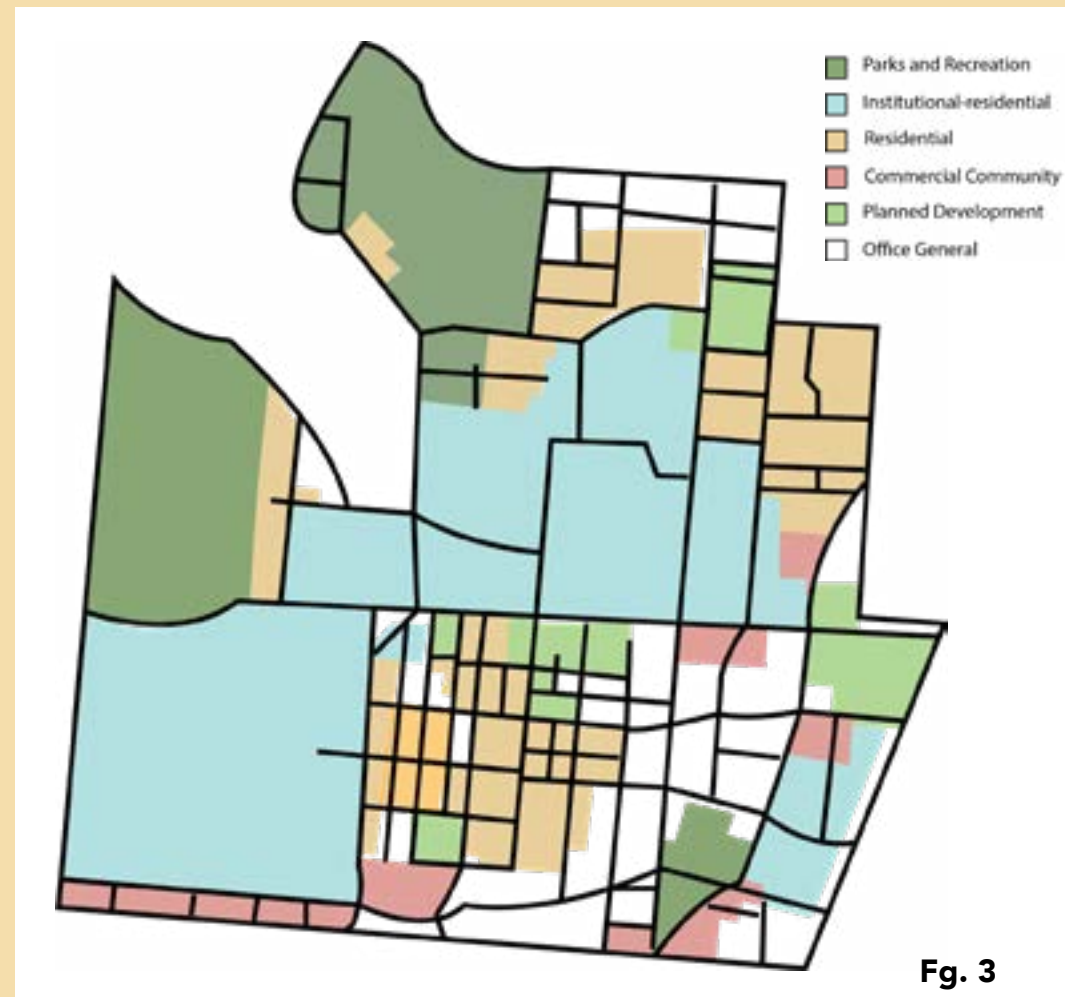


Fig. 3

This map is recreated from Cincinnati's zoning map to show the primary zoning distinctions within the Uptown 2030 District. It shows that the majority of the housing is located in the neighborhoods of Corvillie and Avondale. It also reveals that a large portion of this district is institutional uses. This includes the University of Cincinnati Main and Medical campuses. These large capacity buildings have been the focus of the 2030 district network thus far. Meaning the majority of the housing has been neglected by these initiatives.



Image 1



Image 2



Image 3

Affordability In Hamilton County

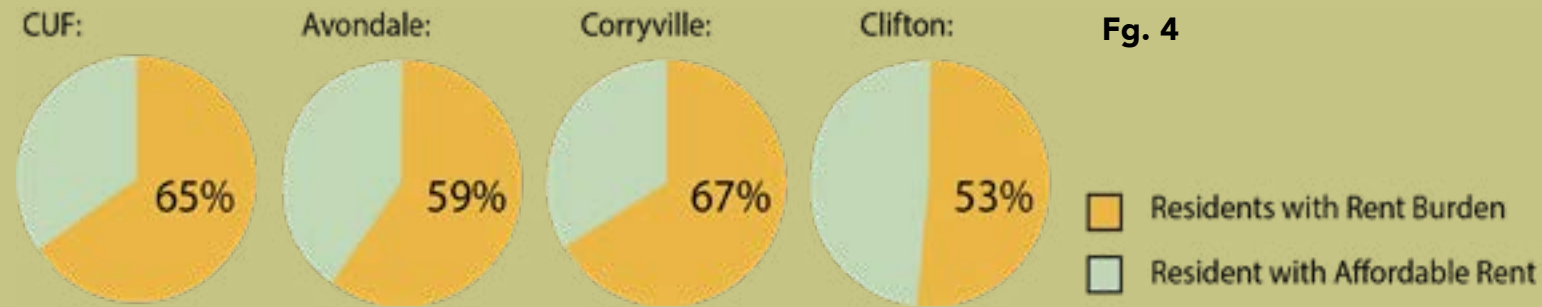


Figure four, shown above, shows the percentage of residents in each of the Uptown 2030 district neighborhoods that are experiencing rent burden. Rent burden is when a resident pays over 30% of their monthly income on housing costs. Even though there is an obvious need for affordable housing, many neighborhood lack sufficient units. According to "Housing Affordability in Hamilton County", a study released by LISC in 2017, there was an increase in poverty in Cincinnati between 2000-2015, but a decrease in affordable units (LISC, 2017). Extremely low-income families are defined as making less than 30% of the AMI. This income category experiences the largest gap in available units. The lack of affordable housing can lead families to homelessness or the inability to access food, education, or medical resources. Affordable Housing in the United States is funded through the Department of Housing and Urban Development. The most common form of affordable housing in Hamilton County is through the Housing Choice Voucher Program and is constructed through Low Income Housing Tax Credits.

The "2019 Research Update on Community-Wide Housing Strategy" in Cincinnati, states that the production of new affordable units is made difficult by "land use regulations, lack of competitive access to state and federal tax credits and other funding opportunities, and resident opposition" (Reina, Aiken, 2019). This document also states that 42% of HUD contracted units are set to expire by 2029. This means that this lack of access in Hamilton County will continue to get worse. There are a lot of broader impacts the lack of affordable housing can have on a city as a whole. A study done by the National Low Income Housing Coalition (NLIHC) states that "the shortage of affordable housing costs the American economy about \$2 trillion a year in lower wages and productivity. Without affordable housing, families have constrained opportunities to increase earnings, causing slower GDP growth." (NLIHC, The Problem) Additional impacts include increased poverty, crime, lower educational attainment, and worsening urban health outcomes. If Hamilton County doesn't invest in affordable housing these issues will continue to grow.

Impact of Covid-19

Covid-19 had a great impact on many aspects of urban life, including housing. Low income and minority families were disproportionately impacted due to many "blue collar" jobs being shut down and unable to continue remotely. Because of this impact the City Council of Cincinnati voted to have an eviction moratorium during the first few months of the pandemic. This is a city-wide order that prevented landlords from evicting residents for late or unpaid housing costs. However, when this moratorium ended, many families were forced out of their homes.

The American Rescue Plan Act of 2021 attempts to correct this impact of Covid-19 on low income families by providing funds for affordable housing. As states on pages two and three of Cincinnati's 2021 Recovery Plan "Finally, the economic impacts of COVID-19 have led to City of Cincinnati 2021 Recovery Plan Performance Report 3 greater housing instability for many moderate- and lower-income City residents; therefore, the Administration is increasing investments in affordable housing options and economic stability for these impacted City residents." (City of Cincinnati, 2021) This shows that the pandemic has exacerbated pre-existing issues in the affordable housing network. Image four shows how non-profits stepped up during the pandemic by creating a Regional Response Fund. This helped fill some of the gap left by the pandemic.

Fig. 5



Figure 5, on the left was created by Interactive Health to display survey data on their "Greater Cincinnati COVID-19 Health Issues Survey" (Interact for Health, 2021). This shows that on top of housing costs, which include rent and utilities, residents of Cincinnati had financial difficulties in many areas.

Image 4



Green Affordable Housing Practices

What is Green Affordable Housing?

Housing that is environmentally sustainable and accessible to moderate and low-income families. Lowers utility costs which lessens housing burden.

The Green Affordable Housing Movement began in after it was shown that low-income communities are disproportionately effected by health hazards due to out of date homes. This idea gained international attention at the United Nations' 1992 Earth Summit (Green America). Here international leaders discussed the importance of community-lead projects theat address the intersection of sustainability and equity. Investment into these projects has been proven to offer health benefits for residents, improved sustainability and resilience, and fill the gap in affordable housing with disproportionately impacts minority communties.

One study completed in Virginia by Southface and the Virginia Center for Housing Research, titled "The Impact of Green Affordable Housing" provides some impressive findings on the benfits of green building certification programs for affordable housing. Some of these include: Families saving around \$100 a year on energy costs, Owner-paid utility savings of around \$5,000 a year Overall 5% less in total construction costs compared to non-green developments, Operations and Maintenance costs reduced by 15%

The aim of this portion of the project is to provide a solution to the outdated and inefficient Uptown housing stock by explaining the benefits of investing in Green Affordable Housing Practices. I plan to do this by establishing four primary pillars, understanding the existing literature on this topic, detailing the benefits and challenges to multiple approaches, describing green building technologies, financing opportunities, and community participation and engagement practices.

Primary Pillars of Green Affordable Housing:

-  Housing Affordability and Access
-  Social Equity
-  Environmental Sustainability
-  Community Participation and Education



Image 5



Image 6

Examples

SOLARA- California

Solara is a 56-unit multifamily affordable apartment complex in Poway, California. It was created by Global Green and the nonprofit Community Housing Works in 2007. This project incorporates energy-efficient appliances, sustainable construction practices, energy monitoring, access to natural resources, and creates on-site solar energy that account for 87% of the buildings energy needs. It was financed using Low Income Housing Tax Credits and utility incentives (Green America). Images 7 and 8, on the right, are from Community Housing Works and show Solara.

Image 7



Image 8



ARGENTA- Arkansas

This project is a community of detached single-family affordable homes in Argenta, Little Rock Arkansas, that utilizes green building technologies. This project was developed following LEED-H (LEED for Homes) standards. It was created by the Argenta Community Development Corporation who worked with the Arkansas Chapter of the U.S. Green Building Council. Some of the technologies utilized here are double pane windows, water-conserving plumbing, EnergyStar appliances, efficient heating and cooling, sustainable construction materials and paint (Cowan, 2008). Image 9 shows an example of one of the homes in this development.

Image 9



EAST VILLAGE PLACE- Canada

In Canada, affordable housing projects are being updated to improve their quality and sustainability. Across the country public-private partnerships are being used to retrofit outdated housing projects, rather than tearing them down which would cause more displacement. This example, in Calgary, was completely renovated, extending the building life an additional 30-40 years (Entuitive, 2020). This method has been proven to reduce greenhouse gas emissions up to 70%. They also state that the initial investment pays itself back within 20 years in utility and maintenance cost reductions (Entuitive, 2020). Image 10 shows the building during renovation and image 11 shows the finished project.

Image 10



Image 11



RAVENSWOOD- Chicago

This is an example of a single-house retrofitting project in the Ravenswood neighborhood of Chicago. This home was originally built in the 1890s, but was updated with green building technologies (Walsh, 2021). Although this particular house is not designated as affordable, it is a great example of sustainable technologies being used to extend the life and reduce emissions of existing buildings. As many of the 2030 district's buildings are over 50 years old, these projects could be used to update the housing stock. Image 12 shows a before and after of the house in Ravenswood, Chicago.

Image 12





Housing Affordability and Access

The first pillar is housing affordability and access. The affordability aspect refers to connecting public funding resources to building owners to incentivize development. Additionally, this pillar connects tenants to affordable housing and rental assistance programs. The second aspect of this is increasing access, meaning creating more affordable units in the area. I have divided this into two categories, new housing and retrofitting housing (further explained on next page). If residents have access to safe housing that is within their budget they will be able to focus more on their families, education, and job. This gives households more economic and social mobility. Overtime this public investment into low income communities will result in less reliance on government programs, as basic needs will be provided for.



Environmental Sustainability

The second principle is environmental sustainability. Here is where the existing 2030 district's goals of reducing emissions are implemented. This includes updating the existing inefficient housing with water and energy-saving technologies and ensuring any new housing is built utilizing sustainable construction practices. Some of these technologies include LED lighting, insulation, solar panels, geothermal heating, dual-flush toilets, energy star appliances, and double pane windows. Reduced energy and water emissions improves the natural ecosystems of urban areas. It also helps mitigate climate change effects, such as rising urban temperatures. The Uptown 2030 district could become an example for other 2030 district to bring their sustainability goals to the single home level.



Social Equity

The third principle is social equity. This includes the importance of investing in minority and low-income neighborhoods due to many communities being historically excluded from the housing market. Housing discrimination has greatly contributed to the cycle of poverty many minority communities face, as a home is the number one source of household wealth in the U.S. This could be implemented through education on housing discrimination and advocacy for more funding for affordable housing. Additionally, housing policy at the local, state, and national level should promote the inclusion of affordable housing and fair housing principles. Communities should have access to resources if they are being discriminated against. The Uptown 2030 district has a significant and vibrant minority population that would greatly benefit from increased investment into green affordable housing in this area.



Community Participation + Education

The fourth and final principle is community participation and education. This refers to the ongoing community participation that should take place during the implementation of any urban planning initiative. Many residents of the Uptown 2030 district are unaware of the 2030 district's goals and do not know about the history of affordable housing in this country. Therefore, I have created a website with a summarized version of the issues and topics discussed in this document that could be more easily understood by community members. Included in this website is two guides on how to access affordable housing in the community. These are divided into one for tenants and one for building owners. I have further elaborated on this pillar on page 13 of this document.

New Housing

New Green Housing Projects include the construction of new units utilizing energy and water efficient technology. These homes have the highest energy saving opportunity as their are designed with sustainability and resilience in mind from the start. This includes following green construction guidelines that utilize recycled materials and an ecological impact study of the area before building begins. These buildings can have great benefits to a community. These include **reduced operating and maintenance costs over time, better tenant health outcomes, resilience against climate change effects, and help mitigate other urban issues such as the urban heat island effect.**

The U.S. Department of Housing and Urban Development created a Green Housing Development Guide. It states that it costs around 1,917 additional dollars to create a new housing unit following all of their criteria, when compared to the average cost per unit (HUD, Green Housing Development Guide). However, the technologies not only paid for themselves over time but produced excess returns for building owners.

However, the challenge with focusing only on the construction of new units, is it **neglects the existing affordable units** that low-income residents currently live in. Additionally, this approach has a very **high up-front cost**, so it can be difficult to convince developers to invest. There is also a **societal stigma** against low-income housing developments, due to the U.S.'s unfortunate history of low quality housing developments that created pockets of poverty in urban centers.

The key to creating new Green Affordable Housing Units is understanding the need in the community first, and then tailoring the approach to each community. In the Uptown 2030 District there is limited space for the construction of larger housing developments without tearing down much of the existing housing stock. This should not be the goal as this impacts the history, character, and feel of the entire community. This would also cause more displacement. Therefore this approach should only be used in areas where affordable housing is needed and there is room for new development. However, all future housing developments in this area should include affordable units, to help bridge the affordable housing gap, and adhere to green building practices to push all buildings in this district closer to the 2030 district's goals.

Retrofitting Housing

Retrofitting existing affordable housing to make it adhere to Green Housing practices includes updating outdated technologies and reducing energy emissions through targeted appliance and feature replacements. The primary benefits of this method is it **preserves the existing building and extends the use of existing infrastructure. It also improves resiliency against severe weather, reduces maintenance and utility costs, and benefits the environment making a neighborhood more sustainable.**

The benefit of retrofitting is being recognized at the national level in President Biden's American Jobs Plan. This was released in March 2021 and works to create more access to affordable housing and high-speed internet to make the job market more inclusive. It allocates funds to "Build, preserve, and retrofit more than two million homes and commercial buildings, modernize our nation's schools and child care facilities, and upgrade veterans' hospitals and federal buildings."(The American Jobs Plan, 2021). This shows that retrofitting houses for the purpose of affordability and sustainability is proven to have a positive effect on low income communities. Now, while this funding is available, should the Uptown 2030 district take the opportunity to update the housing stock.

Challenges to this approach include convincing to developers to invest in these technologies, when it is often the low income resident benefitting. This can be overcome by connecting private investors to public funding resources, such as Biden's initiative explained above. **Another challenge could be restrictive zoning regulations.** Some of the buildings in the 2030 district are historic and would require permits to retrofit. This process could be made easier with a re-evaluation of Cincinnati's zoning code to allow for green technologies to be more easily implemented.

Overall, retrofitting housing in this district would allow residents to have better indoor air quality, save on utility costs, and contribute to the larger sustainability network in this area. I found this to be a better suited approach for the area as it would allow residents to stay in their existing housing units. Additionally, this will increase the affordability of many units as building owners will see decreased utility, maintenance, and operations costs making affordable housing more attractive to investors.

Green Building Technologies



Solar Panels



Insulated Roof



LED and HID Lighting



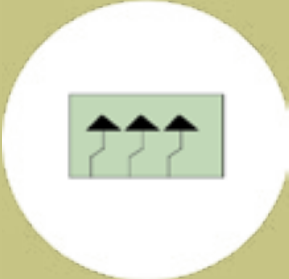
External Wall Insulation



Image 13



Double Pane Windows



Geothermal Heating



Energy Star Appliances



Temperature Controls

The construction and renovation of the Uptown housing stock will incorporate many sustainable technologies. Some of these are shown in the graphic on the left. Implementing green building technologies on the single home level is how to solve the 2030 District's issue of inefficient and expensive housing. A study performed by the Green Build Alliance states that buildings in the U.S. account for 39% of energy use, 68% of electrical consumption, 30% of landfill waste, and 38% of carbon dioxide emissions (Green Built Alliance). One of the organizations working to bring these green building technologies is the U.S. Green Building Council with their LEED certification program. This programs offers ratings to buildings that are sustainable, and they have a classification for homes called LEED-H. "On average, certified homes use 20 to 30 percent less energy than non-green homes, with some homes saving up to 60 percent." (LEED for Residential Design and Construction). These homes include the technologies on the left as well as many more careful sustainability methods.

Solar panels are one of the most well-known forms of green energy generation. Implementing solar panels on the roofs of affordable units can help offset energy costs. In some larger developments with solar panels excess energy is created and put back into the energy network. This greatly reduces carbon emissions and utility costs. Insulated roofs, external walls, and double pane ensure that heating and cooling systems aren't working overtime to account air that has escaped. Old insulation can release particulate matter into indoor air, meaning its replacement has health benefits for residents. Geothermal heating is an alternative heating method that draws up warmth from the inner Earth. This is a renewable form of heating. EnergyStar appliances are guaranteed to use less energy and water than standard household appliances. They are also known to pay themselves back in lower utility and maintenance costs. Specific temperature controls allow rooms that are in use to be adjusted and saves energy by preventing the entire home from fluctuating to slight temperature changes. Although these technologies are great separately, they work best when used in conjunction with each other. This creates a network of green technologies throughout the home that allows for optimal performance and be most sustainable outcome.

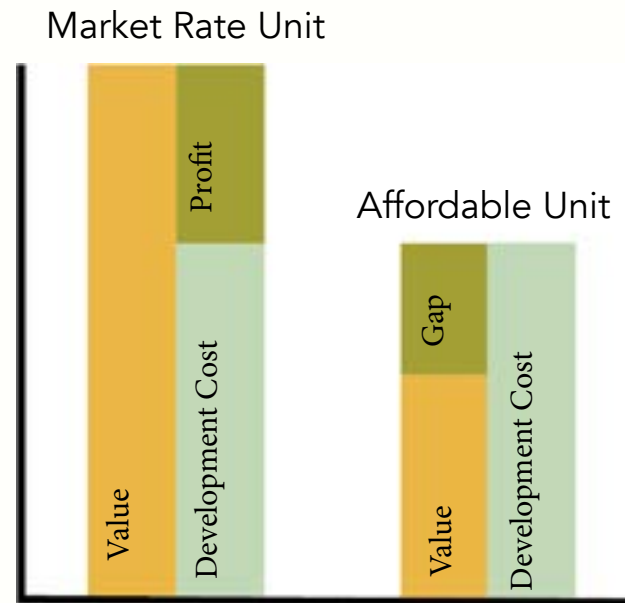
Financing

Affordable Housing Assistance

The primary drawback for investors investing in affordable housing is the high up-front cost and low return due to the unit being under market rate rent.

Fg. 7, on the right, shows how constructing a market rate unit generates a profit, while an affordable unit creates a funding gap.

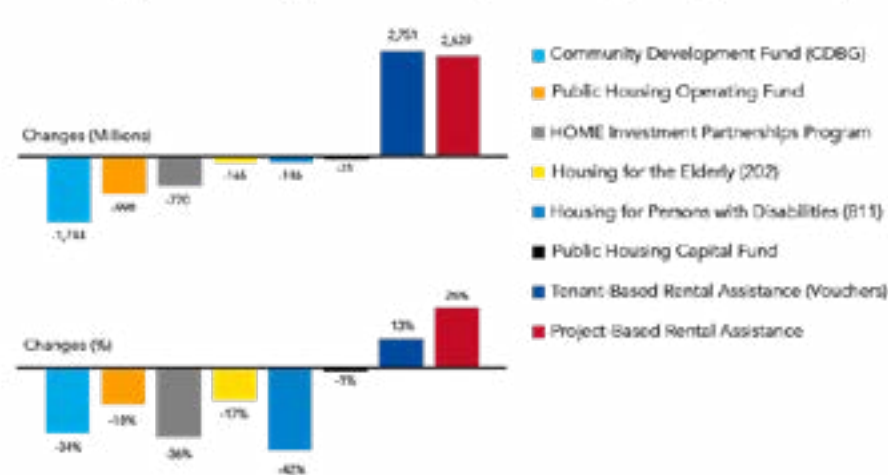
There are a variety of funding sources available for individual developers and communities in need of green affordable housing.



Fg. 7

Figure 8, shows the recent trends in federal spending on affordable housing. This graphic was created by the National Low Income Housing Coalition and shows that the focus of funding is primarily on Tenant and project based rental assistance. This includes the Housing Choice Voucher program. This however was met with a reduction in spending for many other vital financing sources.

Changes in Funding Levels for Key HUD Programs (FY10-FY20)



Note: Adjusted for inflation

Fg. 8 <https://nlihc.org/federal-budget-and-spending>

Financing Resources for Green Affordable Housing

Public funding for Green Affordable Housing is spread across many programs. Some of these include Low Income Housing Tax Credits, Local Initiative Support Corporations, Community Development Block Grants, the National Affordable Housing Trust Fund and Project Based Section 8. **Low Income Housing Tax Credit (LIHTC)** is the most commonly used funding source for the creation of new affordable housing. This initiative is used to incentivize private developers to invest in affordable housing. These tax credits are distributed to State Housing Agencies by the IRS. At least 20% of the units have to be available to those under 50% of the AMI. At least 60% has to be for households under 60% of AMI (Impact of green Affordable Housing). "In March 2018, Congress passed an omnibus spending bill that increases Low Income Housing Tax Credit (LIHTC) allocations by 12.5 percent each year for four years (2018-2021). While this increase certainly helps grow affordable housing, it falls short of the large-scale investments we need at the local, state and federal level to meet our nation's needs." (Green America).

Local Initiative Support Corporations (LISC) allows for more focused projects, such as the inclusion of green building technologies. LISC is stated as saying, "We finance sustainable, "green" construction and rehabilitation, which makes for lower operating costs and has been proven to boost health outcomes for occupants and entire neighborhoods." ("LISC Housing") **Community Development Block Grants (CDBG)** are often used to create units for households at 80% of an area's median income. States and localities can apply for these grants for property acquisition, rehabilitation, and economic development. Although this is a valuable source it doesn't address the fact that the largest gap in units is for those who make 30% of less of the AMI. **The National Affordable Housing Trust Fund** acts as a block grant for states. It is focused mostly on extremely-low income households, with 70% of funding going to that group. **Project-Based Section 8** are deep subsidies and can be used to build units. They can either be managed by private companies or local Public Housing Agencies. These funds are facilitated by the Rental Assistance Demonstration Program.

Community Participation and Education

One of the most important parts of addressing any urban issue is engaging the community in the process. This includes making sure they understand the larger institutional issues present and how to access the resources they require. For this I decided to create two housing guides, one for building owners and one for tenants. The Building owner's guide describes what affordable housing is and how it could be beneficial to implement these practices. This includes a breakdown of technologies utilized in green affordable housing projects. Additionally, the greatest challenge for these types of projects is convincing private investors this is economically profitable. That is why I decided to break down some of the incentives available in the Uptown 2030 district.

The second guide I created was aimed at tenants. The people living and working in the community are the ones who should reap the benefits of the 2030 districts goals, but up until now have been left out of its sustainability framework. To start of the guide I provided simple definitions of housing issues that might be unknown to the larger community. I also provided a simple method of calculating rent burden. From here residents can see if they are eligible for affordable housing in Cincinnati. It was important for me that residents understood that this is a larger community issue of the government Iacking in providing basic needs, and not the residents fault for not making enough income for their housing costs to be affordable. Next I listed some of the methods green buildings use to be more energy efficient and then how implementing these would help the residents of the Uptown 2030 district. Finally, I provided links to other local resources that deal with rental assistance, housing discrimination, and other topics I've mentioned throughout this report.

Overall, the complementary public-facing portion to this project was designed to give residents the information they need to improve their homes sustainability and resilience while decreasing their rent burden. However, I acknowledge that this is an ongoing process and neither guide I provided is all inclusive of housing issues in this district and is subject to change based on policy shifts.

Building Owner's Guide

What is Green Affordable Housing?

Green Affordable Housing is environmental sustainable housing that is accessible to low and moderate income households.

Many governments and zoning laws require developers to include some affordable units into housing development projects.

A lot of buildings are inefficient and contributing to the Green House Gas effect, causing climate change. These climate change effects include higher temperatures, more frequent severe weather events, and more natural disasters. In order to ensure that your building is resilient to these changes, it is vital to update technologies

Tools for Evaluating Your Building's Green Potential

Technologies to Improve Efficiency



LED and HID Lighting



Insulated Roof



Solar Panels



External Wall Insulation



Temperature Controls



Energy Star Appliances



Geothermal Heating



Double Pane Windows

Available Incentives for Developers:

- Conditional Land Donations**
Local governments can donate land to developers who plan to implement Green Affordable housing into their development
- Specialized Grants and Loans**
Grants are available to help offset the higher construction and renovation costs that come with green technologies
- Fee Waivers**
Often permit fees and other bureaucratic costs are waived for Affordable Housing Projects
- Energy Performance contracting**
Allows owner to implement energy saving technologies with no upfront cost, usually paid over a 7-15 year period
- Energy-Efficient Mortgages**
Packages cost of buying home and implementation of green technologies in one mortgage
- Property Assessed Clean Energy (PACE) Financing**
Local government loans, tied to the property not the owner

[Click here for additional information](#)

Benefits for Investors

- Government Tax Credits
- Lower Operating Costs
- Increase Economic development and job availability
- Increased Property Value

Tenant Housing Guide

Green Affordable Housing is accessible to low income households and is environmentally sustainable.

Rent burden is when you pay more than 30% of your monthly income on Housing costs. Rent is considered affordable when it is 30% or less of a family's monthly income.

Affordable Housing Programs help families in the low and moderate- income range by filling the gap between 30% of their monthly income and the median rent in that area.

Are you Rent Burdened?



Are You Eligible for Affordable Housing?

Income Range of 1 Person Households Eligible for Assistance:

Extremely Low Income 30% AMI	\$ 17, 950
Very Low Income 50% AMI	\$ 29, 900
Low Income 80% AMI	\$ 47, 850

For up to date income ranges and larger household sizes, visit: [Hamilton County](#)

Applying for Green Affordable Housing

Apply for a Housing Choice Voucher

A Housing Choice Voucher is a federal program for very-low income families. It is given to a person and fills the gap between 30% of their income and the cost of a rental unit at 40% of the average rent in a certain area. The benefit of this option is it creates mixed-income neighborhoods that given residents more economic and educational opportunities.

How to Make Your Home More Sustainable:

- Implement Green Technologies:** insulate exterior walls and roof, energy efficient appliances, solar panels, rain barrels, double-pane windows, and LED lighting
- Turn off lights and appliances when not in use**
- Monitor water usage**
- Invest in reusable products**
- Avoid single use plastics**

[Calculate your Household Carbon Footprint](#)

Benefits of Green Affordable Housing

- Provides safe and affordable housing for low-income households**
- Lower energy and water emissions lead to lower utility costs**
- Lower operations and maintenance costs**
- Health benefits for residents**
- Community becomes more economically and environmentally resilient**
- Job opportunities for the operation of green technologies and construction of units**

Additional Community Resources:

[United Way of Greater Cincinnati](#)

This is a non-profit organization that provides immediate assistance with 24/7 hotline (211).

Can speak with professional about housing issues and they will connect you with essential community services.

[Cincinnati Metropolitan Housing Authority](#)

Offers rental assistance through the Housing Choice Voucher Program.

Owns and manages properties in Cincinnati area where the resident pays affordable rent.

[HUD Ohio](#)

Resource for rental assistance programs, housing discrimination reports, climate action plan, and many other publicly funded programs.

Conclusion and Key Takeaways

This course was framed in the geographic boundaries of the Uptown portion of Cincinnati's 2030 District. We were then given four guiding topics of technology, sustainability/resilience, pandemic, and equity. This project idea came to me during my initial research into this district. I immediately noticed the focus on the larger industrial buildings and the general neglect of any issues that truly impacted the community living in this area. I chose Green Affordable housing as a way to incorporate all of the requirements given to us in a way that would have a truly beneficial impact on the Uptown community.

My initial research into the housing stock revealed that it is both outdated and too expensive for the residents in this neighborhood. I was shocked to see that 61% of residents were rent burdened, and many of these homes were run down and contributing greatly to Cincinnati's urban carbon emissions. From there I researched examples of existing green affordable housing projects and established four broad principles to guide this style of development. As this area has a high density of buildings, with little room for large scale developments I decided to split my approach into creating new housing and retrofitting old buildings to meet new sustainable standards.

Throughout my work on this project I learned a lot about affordable housing in the U.S., minority exclusion from the housing market, green building technologies, development financing methods, and how to identify and offer practical solutions to an urban issue. Moving forward from this Capstone I hope to take the analytical skills as well as the practical knowledge I have gained about affordable housing and implement that into my future work as an urban professional.

Green Affordable Housing can...

- be accessible to low and moderate income families.
- reduce carbon emissions and make communities more resilient.
- be financed through public funding programs.
- help bridge the gap in affordable units.
- increase educational attainment, food security, and health.
- create a more equitable and inclusive community.
- lower operations and maintenance costs.

Green Affordable Housing is the future of housing in the Uptown 2030 district. Investment into these practices will ensure a resilient, sustainable, equitable Uptown district where all residents have access to the quality of housing they deserve.

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All Images, other than those noted in the text, I took myself walking around the Uptown 2030 district.