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Making Sustainability Accessible: Green Affordable Housing Development in the South Bronx

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Green Affordable Housing Development in the South Bronx

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Figure 1. The Via Verde residential development in the South Bronx
Abstract
This paper addresses green affordable housing initiatives in the South Bronx and the contemporary policy and development practices which support its rise. Additionally, it argues that this type of infrastructure is an effective measure in bridging the gap between affordability and sustainability in low-income neighborhoods, making sustainable and livable lifestyles more accessible to people who have been unable to access it up to this point. Correlating housing and income data with patterns of personal sustainability practices, this paper examines the South Bronx and the rise of the development of affordable housing projects that champions sustainability there. In the first two chapters, I explore rates of sustainability in low-income neighborhoods and historic conditions of housing in the Bronx, respectively. In the third chapter, I discuss the contemporary New York City housing and planning policies and developer’s benefits that motivate affordable sustainability. In the fourth chapter, I discuss green architectural and developmental practices that make sustainable living tangible and examine a contemporary South Bronx green housing project, Via Verde in Melrose. The concluding chapter argues that there must be more outside action in fostering the development of green affordable housing in South Bronx, a historically neglected and disadvantaged community which could become a mecca of sustainable living options in the future.

Key words: affordable housing, subsidized housing, urban housing, housing development, housing policy, environmental policy, green/sustainable architecture, sustainable lifestyles, South Bronx, Bronx, New York City


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Bibliography
Introduction: The Privilege of Sustainable Lifestyles

The South Bronx is not a place of privilege. The poorest congressional district in the United States, this area, geographically the southwestern portion of the Bronx borough generally thought to be confined between the Harlem River to the south and west, the Bronx River to the east and Fordham Road to the north, is an area of economic and social strife that has been widely reported to have some of the worst environmental health within New York City. In the current period, considered to be a housing crisis, it is difficult for many people to find a sense of security in this community; housing rents are rising rapidly and affordable housing stock is diminishing.

Above anything else, the district needs new affordable housing development which addresses the economic and environmental concerns that existing housing stock and societal injustice have created for the residents. Older, decrepit buildings contribute to the environmental decline of the area and also prohibit many residents from practicing sustainable lifestyles; the contemporary infrastructure which generates sustainable actions is not easily accessible to all people in the South Bronx. There must be more green affordable housing initiatives within the South Bronx which address aspects of environmental sustainability and be accessible to everyone, most importantly low-income people who are statistically more affected by environmental degradation.

This issue can be addressed through green architecture. Green architecture is construction and design that is environmentally responsible by limiting atmosphere emissions, energy and water use, and allowing residents to have access to green spaces, proper waste disposal, cleanly-generated energy, and environmental education, among other aspects. There are many grassroots efforts in the South Bronx to both improve building technology and provide environmental education but without supporting infrastructure widely available, these efforts are not
proportional to the population of the district. In the current economic climate, it is a privilege to be able to make sustainable and responsible lifestyle choices. For many, green affordable housing will give access to once unattainable environmental sustainability.

There are different affordable housing strategies in New York, most of which provide low-income\(^1\) New Yorkers with privately developed homes at below-market rates,\(^2\) often requiring renters or buyers to pay no more than thirty percent of their annual income towards rent or mortgage payments.\(^3\) Public housing as well as housing paid for in part with vouchers, while types of housing that is affordable, is generally considered separate from affordable housing since it is owned and managed by the city itself and has its own unique set of issues (see Appendix A). New York’s affordable housing is extremely competitive, with New Yorkers having to enter lotteries and contend with waitlists that have few openings. For those who are most desperate, affordable housing is often inaccessible.

Over the past decade, the city of New York has created dual sets of policies promoting the development of both affordable and sustainable infrastructure.\(^4\) This climate creates an opportune time to push for the development of green affordable housing in areas like the South Bronx. All things considered, the rate of rapid development and the policies in place could make the Bronx a new center of sustainable infrastructure.

In chapter one, this paper will quantitatively examine the correlation between housing, income, and environmental sustainability standards, globally and within the Bronx. In the second

\(^1\) In this case, ‘low income’ is used to describe people who make between 30%-60% of the Area Median Income of the census-designated New York City area. This median takes family size into account. For a single person in New York seeking affordable housing, annual income has to be between $21,930 and $43,860 to be eligible. An eligible family of four would have a combined income between $31,290 and $62,580 a year (See Appendix A).
\(^3\) “New York City’s Affordable Housing Programs,” Metropolitan Council on Housing (Accessed on October 1, 2018).
chapter, this report will look at the historic living and environmental conditions and urbanization within the South Bronx since the 1970s. In the third chapter, this paper examines New York City policies that encourage affordability and sustainability so to understand how the concepts can work in tandem. In separate sections, the fourth chapter explores different topics in how the development of green affordable housing has come to fruition. Finally, this report will propose political and community actions which could further the development of this projects in the South Bronx. The South Bronx, as it is today, is a desert of green living options but intelligent urbanization could greatly improve many aspects of livability in the Bronx.

**Chapter 1. The Impact of Housing and Urbanization**

Housing is a universal human right and the way that it is built, maintained, and lived in has huge implications for the communities they are located within. Housing infrastructure as it is created today does not always address the concerns and needs of the residents. This is most prevalent in communities experiencing an affordable housing crisis, a lack of housing accessible for the masses, in which most people have little choice in where and how they live. Housing also has a large environmental impact and contributes to climate change and energy demand. This impact, compounded by growing rates of urban population and demand for new housing, has created a trying time which asks housing developers to carefully consider how they will continue to build homes. New housing projects must now recognize environmental impact and accessibility in rapidly urbanizing cities and how they can afford their residents aspects of sustainable livability. This predicament is especially present in the development of a megacity like New York which is experiencing a gigantic housing crisis and, most notably in a poorer borough like the Bronx, has a high demand for more affordable housing units. Now, as demand and development of residential buildings is high and years of rapid urbanization are occurring,
sustainability and affordability must be addressed; housing development has a responsibility toward the greater environment as well as to fostering particular lifestyles, namely one which practices environmental sustainability.

Examining housing with the United Nations’ Millennium Ecosystem Assessment, a report which examines the consequences of ecosystem change and how it may affect human beings, the industry is put in a harsh light, showing that the low-income population is most negatively impacted by environmental degradation. The assessment examines how ecosystem services, that is, services provided by the natural environment, are affected by a change and how this change affects health, social relations, security and the freedom of choice of human beings. The UN delineates four types of ecosystem services, provisioning services which are goods that directly benefit human beings like energy sources, regulating services which are services which regulate environmental condition, such as the natural cycles that regulate the climate and its changes, cultural services like the ability to recreate outside as well as the mental and physical health benefits a particular environment can provide, and supporting services, the services of the environment which provide for all other ecosystem services including the effects of biodiversity and nutrient cycling.

Low-income people are less likely to benefit from ecosystem services due to the degradation of their community. In a highly urbanized and dense city like New York, many people are not privileged enough to experience these ecosystem services first-hand despite benefiting from them. Regardless of their distance from nature, the degradation of the greater New York City ecosystem has notably had a significant impact on poorer Bronx communities.

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6 Millennium Ecosystem Assessment, v.
and how they live. The lack of accessibility to various services extends into how low-income Bronxites have experienced the New York housing crisis. These people have less and less ability to access and *choose* to access different resources.

The housing crisis is supported by both an increased demand for living in New York and the lessening of purchasing power for most New Yorkers. Many long-time residents are being priced out of their neighborhoods by these factors which can also manifest in more nuanced ways like gentrification and foreign property holding.

However, the largest issue faced by the city is the population growth over the next few decades. According to the 2010 US Census, New York City had a population of 8,175,133 residents, with a 2017 count estimating an additional 446,565 New Yorkers, a 5.47 percent increase over seven years. It is estimated that by 2040, New York City could have an unprecedented nine million residents. The Census also reported that at the time there were 3,371,062 housing units within the city, of which only 3.8 percent of units available to rent or buy at the time. Current projections of housing unit development suggest an increase of nine percent by 2040, bringing the unit count to 3,696,000. This rate matches the rate of population increase, indicating that the city will continue to experience a housing shortage for years to come. Despite being within one of the smallest boroughs, the Bronx has a very large population.

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The Census estimates a current population of 1,471,160 people and has found that the Bronx has the largest population growth of any borough, growing at a rate of 6.2 percent since 2010.\textsuperscript{12,13}

Generally, increased demand for housing in New York and the Bronx will lead to more development and higher levels of urbanism. This development could easily foster more environmental strain. The United Nations has said that “sustainable urbanization is key to successful development”. As the world urbanizes, successful management practices must be enacted, especially in low-income and lower-middle-income communities and countries. Well-managed urbanization maximizes the social and environmental benefits of living more densely; it generates economic growth that matches urban growth while also minimizing the degradation of ecosystem services and the general well-being tied to them. But these benefits cannot only aid more economically secure people. There needs to be access to these benefits to create successful cities, with infrastructure development focused on vulnerable groups like the urban poor who need housing facilities as well as health care and education opportunities to be available.\textsuperscript{14}

High rates of housing development will continue for decades in New York City and this must be closely monitored as housing can be incredibly detrimental to the environment if built irresponsibly. Every year, the global population uses 2.3 percent more energy and creates 2.4 percent more carbon dioxide, nearly five metric tons per capita.\textsuperscript{15} Much of this environmental demand comes from residential buildings. Housing generates 20.9 percent of the energy use in the United States and is on the rise nationally and globally.\textsuperscript{16} Additionally, the heat island effect

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\textsuperscript{12} “Community Facts: Bronx Borough, Bronx County, New York” (\textit{United States Census Bureau} online, accessed on October 1, 2018).
\textsuperscript{13} “Current and Projected Populations” (\textit{NYC Department of Planning} online, last modified July 2017).
\textsuperscript{14} \textit{World Urbanization Prospects: The 2018 Revision (Key Facts)}.
\end{flushleft}
in large cities like New York warms the local atmosphere approximately two to five degrees Fahrenheit and can increase energy demand up to ten percent.17 Even more significantly, and surprisingly to many people, residential buildings contribute 20.8 percent of the United States carbon dioxide emissions.18 Unsustainable building design can also be attributed to increased water use, more impervious surfaces, and heightened amounts of personal waste.19

Improving housing to be more environmentally responsible is possible and developing properties with high performance in mind will bolster both ecosystem services and the homeowners and renters themselves. In the United States, developers have used housing standards and certificate programs to generate environmentally responsible buildings and improve the overall environmental health of an area and the wellbeing of the individuals residing within. However, the implementation of environmental standards in residential development projects is still a relatively new idea and thus developments do not tend to make a large impact on the direct area around a project.

Inferior housing infrastructure is damaging but so is an unsustainable lifestyle by residents. Living in green, responsible housing will provide healthier living arrangements and will also encourage people who might be more unfamiliar with the practices of a green lifestyle to act more sustainably in their day-to-day life.20 Developing sustainable affordable housing will also give Bronxites the right to choose environmental sustainability. When people have more choice over where they live, their ability to choose how they live increase as well. The Millennium Ecosystem Assessment argues a healthy ecosystem is the origin of human well-

20 Millennium Ecosystem Assessment, 22-23.
being, one of the most significant constituents of this being “the freedom of choice and action”.

Individuals should be able to achieve what our current society deems significant, and less privileged people like many of those living in the South Bronx are not encouraged or have the opportunity to practice sustainability in their life. Advocating for direct and indirect drivers of change like equal access to social and technological advances which intervene in the degradation of nature would greatly improve the lives of those living in the Bronx, especially if they were accessible in affordable housing developments.

Fortunately, there is opportunity to create more affordable housing which could integrate sustainable design. Currently, the city is pushing for 25,000 below-market new units to be created per year. However, this does not seem to be affecting the lack of accessibility to housing; rents are rising across the city on average by 31 percent, with poorer neighborhoods being hit the hardest. The extremely competitive affordable housing climate is indicating that the city may need to build 800,000 more units to meet demand, a nearly impossible feat.

By urbanizing in an unsustainable manner, the city is not adequately providing for a vital portion of its population and diminishing the people’s well-being.

The Bronx is undergoing a period of great economic development, with a reported $3.27 billion spent in 2016 alone by the borough on capital investments, a large portion of which was put toward affordable housing projects that benefit both the environment and the community.

The borough has more than 512,000 housing units currently and is expected to see the biggest percent increase in total housing unit count in the next twenty years, a 14.5 percent increase to

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21 Millennium Ecosystem Assessment, vi.
586,000 units.\textsuperscript{24,25} The borough president’s office has ensured that capital funding is directed in large part toward affordable housing and since 2010 has created 7,772 units of affordable housing itself.\textsuperscript{26}

It is still too early to say whether the push by the city government will benefit low-income neighborhoods overall since, more often than not, these efforts do not protect the accessibility of existing housing stock. Much of the South Bronx is being rezoned to create high-rises, replacing longstanding homes and business, begging the question whether this method of urbanization is effective in improving the overall well-being of residents of the South Bronx.\textsuperscript{27}

Within the global, national, and Bronx context, it seems that the only ethical solution to this housing and urbanization problem is to generate more housing that is accessible and environmentally sustainable. This is not to say that the urbanization efforts in the city are all irresponsible. Affordable housing is increasing, and the South Bronx is the proud home to two highly publicized LEED-certified affordable housing developments, the Arbor Houses and Via Verde, as well as some significant but less well-known projects. Additionally, new sustainable developments are in different stages of progress now. The environmental effects of urbanization and population growth can be effectively managed by creating economically and environmentally sustainable infrastructure for city residents to use. It is in developer’s best interest to focus on improving housing in low-income communities as its effects will benefit the whole city for years to come and, significantly, give South Bronxites the ability to choose to embody a sustainable lifestyle.

Chapter 2. Historic South Bronx Living Conditions and Practices

\textsuperscript{24} “Community Facts: Bronx Borough, Bronx County, New York”.
\textsuperscript{25} New York City Population Projections by Age/Sex & Borough, 2010-2040, 11.
\textsuperscript{26} Diaz, Jr., Ruben, xiii.
\textsuperscript{27} Kaysen, Ronda.
The ability to practice a sustainable lifestyle is intrinsically connected to the living conditions available to the practitioner; a person’s living condition is one of the most significant factors in establishing a certain quality of life and creating opportunities for choice. However, many people in the South Bronx have not been continually afforded this opportunity due to the degradation of the borough over the past one hundred years. A string of economic and social crises decimated have the South Bronx and greatly diminished the living and environmental conditions of residents there, a great social injustice. This chapter examines the history of the South Bronx, the living conditions that have existed within it, and the environmental sentiments that developed concurrently.

To understand the history of the area, it is important to understand exactly where and what the “South Bronx” is. The South Bronx is an informal district which emerged in the 1960s as a one-square-mile neighborhood characterized by crime and arson. This district quickly spread to include the adjacent neighborhoods of Mott Haven, Melrose, and Port Morris as each neighborhood became stricken by cycles of poverty, drugs, and crime.\textsuperscript{28} By 1980, the term “South Bronx” was used to designate everything in the Bronx south of Fordham Road and west of the Bronx River.\textsuperscript{29,30}

\textsuperscript{30} Some Bronxites argue against this broad neighborhood designation, believing the South Bronx, at least in name, should be centered around only the few original neighborhoods. However, most city officials and development groups employ the more modern and larger understanding of the South Bronx as will this paper. Every community that was greatly affected by wide degradation and disorder in the twentieth century is important to consider.
The South Bronx’s history is defined by a continuation of societal change, population movement, and urban development, which has created cycles of social and environmental decay and resurgence. What began as a borough of middle-class New Yorkers looking to achieve their American dreams was ultimately done in by unjust economic control by the rich, damaging political decisions and an always-changing demographic composure of the borough.\textsuperscript{31}

The Bronx began to be widely settled by New Yorkers in the late 1800s, beginning as a bucolic area dominated by farming estates and dotted with small village settlements. By the turn

\textsuperscript{31} Gonzalez, 1-2.
of the century, rapid development began on the southern tip of the borough and was affected by developments like public transit infrastructure and the much-admired Grand Concourse. Many who settled between 1890 and 1920 considered the South Bronx as a luxury community and the Bronx experienced rapid growth. During this period, the Bronx was known as the “Wonder Borough,” filled with homes, parks, and universities. The South Bronx was dominated by five- and six-story tenement buildings. Many were along the Grand Concourse where buildings are defined by crown moldings, marble flooring, and grand lobbies. For many, the homes here were considered better than those in Manhattan and Brooklyn and symbolized modern urban living.32

An influx of immigrants began flooding the area in the 1920s, more than in any other borough. At first, the immigrant population was dominated by Eastern Europeans and Russians but over the following two decades the largest immigrant groups became Italians and Irish Catholics.33 By 1930, the borough had more than a million residents, nearly ninety percent contained in the South Bronx.34

It was during this time that the Bronx began a social and economic decline. Signs of slum living made a rapid appearance and this dereliction was exacerbated by the Great Depression. A study from 1939 found that the area’s housing did not meet “the minimum standards for decent safe and sanitary housing which [were] a legal requirement”.35 By 1940, the conditions of homes were inadequate for middle-class residents and the borough became a place for immigrants.36 At the same time, the Bronx saw a steep rise in Black American and Puerto Rican families in the

32 Gonzalez, 3-6.
33 Gonzalez, 98.
34 Gonzalez, 4-5.
35 Gonzalez, 101.
36 Gonzalez, 6.
community, establishing its multi-ethnic reputation. By the mid-1970s, more than seventy-five percent of residents of the South Bronx were Black, Puerto Rican, or Hispanic.\(^{37}\)

However, it was the practice of redlining which doomed residents. Beginning in the 1930s, bankers outlined areas of the city which were considered too risky for mortgages because of the neighborhoods ethnic and racial mix. Almost all of the South Bronx was redlined, quite literally in red pen on maps. Some state loans and city tax incentives were available to residents but they were few and far between. Thus, South Bronx landlords “typically saw no advantage in improving their structure in low-income rent-controlled neighborhoods”. In response, public housing had to be developed by New York ‘master-builder’ Robert Moses as private companies did not want to develop lower middle-income properties. In the 1950s, Moses oversaw the development of five housing projects in the South Bronx, often tearing down existing neighborhoods in the process as “slum clearing.” Public housing was not always accepted by the community, especially in denser neighborhoods in the Bronx, despite the dearth of housing stock it created. However, these projects did little to remedy many of the problems the borough faced and, “by the late seventies, this newly defined South Bronx had become the most extensively abandoned piece of urban geography in the United State”.\(^{38}\)

Ultimately, the decline in home and community conditions was the result of the discrimination through redlining, the subsequent decline and aging of tenement buildings, a rapidly growing immigrant population, mostly poor, and the flight of more well-off residents to the suburbs, many prompted by the subsidies provided to veterans and their families to move out to the suburbs post-World War Two.\(^{39}\)

\(^{37}\) Gonzalez, 118.
\(^{38}\) Gonzalez, 109-112.
\(^{39}\) Gonzalez, 101-102.
This launched a period known later in the century as when ‘the Bronx was Burning,’ the community became one of the most dangerous and poorest districts in the country, dominated by gangs and drug use and marked by property destruction. Tenements sustained significant damage from arson perpetrated by landlords and homeowners trying to receive insurance claims for their property as it otherwise had very little value. A New York Times report from 1969, reported that residents of the Hunts Point neighborhood were “literally living in a state of siege”. The devastation was especially bad throughout the 1970s and came to a head during the July 1977 New York power blackout where some neighborhoods were decimated by desperate community members.40

A surprise visit in 1977 by then-President Jimmy Carter to the South Bronx put the nation’s focus on the urban and environmental collapse of the area and more outside effort was put into resurrecting it. By 1981, there was a lessening of crime and arson in large part due to small Bronx grassroots organizations, many of which were led by local clergy members.

While the diminishing of crime and gang activity helped usher in an era when adolescents spent more time partaking in street culture like breakdancing, rapping, and graffiti, the South Bronx was not without problems.41 The following decades were heavily impacted by the crack epidemic in which drug overdoses killed more than 5,000 Bronxites; nearly, 12,500 deaths are attributed to AIDS contracted via drug use from 1985 to 2000.42 However, the borough has maintained an upswing and has slowly recuperated since the 1970s. Building cranes began to dot the skyline in the Bronx, rebuilding many of the homes that were previously destroyed, and

40 Gonzalez, 115-122.
41 Jonnes, 8-9.
42 Jonnes, 390-398.
campaigns by the city and local organizations worked to change the mass public’s perception of the Bronx.\textsuperscript{43}

The housing conditions here are the product of the environment they exist in. That is, the living and social conditions are innately linked with the particularly degraded environment there. In response to the decline of the community, more focus has been put on intervening environmentalist work.

The environmentalism movement began in the 1970s in America, and while it made waves in central New York City, the efforts led by large city organizations did not ripple out to the city’s forgotten borough. Like the movement which helped revitalize the Bronx after it burned, small Bronx grassroots organizations have been a significant resource to the Bronx community in improving the conditions of its urban environment. The particular efforts in the Bronx explicitly correlate to the environmental degradation and needs found within it. The Bronx is often subjected to hosting New York City’s most undesirable infrastructure. This is in part due to “…antiquated zoning and land use regulations still used to justify putting polluting facilities in [a] politically vulnerable community.”\textsuperscript{44} Robert Moses paved a path of destruction through the heart of the South Bronx when he built the Cross-Bronx Expressway to improve shipping and transportation between New Jersey, Upstate New York, and Long Island. Additionally, four power plants and numerous solid waste facilities, including a sewage sludge pelletizing plant are located in the Bronx.\textsuperscript{45} The world’s largest food distribution center, as well as other industrial plants, are located in the borough and bring more than 55,000 diesel trucks into the area, severely

\textsuperscript{45} Carter, Majora, “Greening the Ghetto” (lecture presented at the 39th Trinity Institute National Theological Conference, New York, NY, 2010).
deteriorating to public health. At the same time, the South Bronx has one of the lowest ratios of parks to people in the city.\textsuperscript{46}

However, the people who live in the Bronx do not have the power needed to prevent degradation from occurring in the neighborhood nor the development of similar environmentally-detrimental industrialization. There is a general lack of environmentalist sentiment within the Bronx community because its residents have more pressing issues that they need to address like being able to pay their monthly rent. Thus, there is an ever-growing need for ‘environmental solutions that will not compromise the lives of low-income communities of color in the short term and will not destroy their lives in the long term.’ This is being addressed by grassroots organizations that have begun to fill the persistent need of environmental advocates. Organizations like The Bronx is Blooming, Green Bronx Machine, and the Bronx Green Up program at the New York Botanical Garden run outreach and education programs on the environment, while the Bronx River Alliance head up area restoration efforts. One innovative organization, Sustainable South Bronx, has been providing green job training for over a decade, among other efforts; founded by Bronxite Majora Carter, the organization earned Carter a MacArthur Fellowship and ‘Genius Grant’ in 2005.\textsuperscript{47,48} The degradation of the living environment has not historically been addressed by the city nor by private developers and Bronx natives have needed to take control of the community atrophy engendered by outsiders.

Since the period of arson, housing stock has rebounded and in the past few decades, redevelopment has boomed in large part due to the demand but also due to government incentive, especially where affordable housing is concerned. A 1995 \textit{New York Times} editorial declared that

\textsuperscript{46} Carter, Majora, “Sustainable Solutions,” 24.
\textsuperscript{47} Carter, Majora, “Sustainable Solutions,” 25-27.
\textsuperscript{48} Carter, Majora, “Greening the Ghetto.”
the South Bronx “has clawed its way back and is rapidly becoming a borough of middle-class homeowners… While small patches of desolation remain, the vast empty stretches have all been renewed… The signs of promise are abundant”.49 Contemporarily, various development projects are underway by private developers and they are being more responsibly developed than the homes a century before. While waiting time for city-sponsored affordable housing placement generally averages more than a ten-years, there is more housing than ever which provides higher living conditions for lower prices to community members. The Bronx is even experiencing some of its first luxury residential building developments at this time. Now, one of the biggest fears in the South Bronx is not crime but gentrification and the borough is trying to avoid the fate of Brooklyn, protecting its residents from another cycle of housing insecurity.50 Developers are already trying to rebrand the Bronx to more snooty New Yorker as SoBro, a name dripping with the sentiment of gentrification.51

The Bronx is providing the best conditions ever to residents but it is still not enough in creating a great opportunity for choice. Affordable and safe housing continues to remain mostly unavailable and this prevents Bronxites from truly being able to live a life they want, especially in the sense of practicing sustainability, a concept that is not too common and often gets pushed to the side when money is tight. The historic patterns of development, and underdevelopment, in the South Bronx must be overturned so that the place that is the South Bronx no longer defines the lives of its people. Ultimately, the poor housing stock that in which most South Bronxites reside, in combination with the urban decay and few economic and social resources available, has created an unhealthy urban environmental and living conditions.

Chapter 3. Green Affordable Housing Policy and Development

How do we develop new housing for low-income people in the South Bronx that meet certain levels of sustainability while being a safe and attractive home for the consumer and cost-efficient for developers to create? This question summarizes the setting of green affordable housing development; it is very complicated and requires many outside agencies working together, as well as adept funding schemes to make the product affordable for a homeowner. However, the bigger question here might be why affordable housing developments are built in the first place. The main motivators to develop green affordable housing in the South Bronx is city policy, namely, that of the city plans PlaNYC and OneNYC, as well as private housing developer’s personal interest in economic savings and sustainability goals. This chapter will discuss these factors so to better understand the development patterns of green housing in New York.

New York City Policy

New York has established itself as a national leader of effective urban policy during the past fifteen years. Former mayor Michael Bloomberg ushered in an era of ambitious urban renewal policies in the 2000s, notably pushing forward an environmentally sustainable city plan that facilitated one of the county’s most aggressive housing policies, among other initiatives. After the impact of Hurricane Sandy during the end of his tenure, he also addressed major resiliency efforts, further forwarding environmental regulation. Current Mayor Bill de Blasio has also introduced bold sustainability goals for the city in his effort to support policies that encourage equity, building on top of the precedent set by and expanding on the work of Bloomberg administration.

52 Cohen, Steven, et al., Case Study: Sustainability Planning in New York City, (The Earth Institute Columbia University, 2015), 1.
However, in the decades following the fallout of the city’s economic decline of the 1960s and 1970s, city politicians struggled to support the decaying city as they do today. While the US environmental movement began to gain momentum in the 1960s and 1970s, New York City politicians did little policy-wise, more concerned with the symptoms of the urban environment. If anything, this period was defined by the lack of policy. In 1985, for example, the city committed to building and rehabilitating 252,000 housing units for poor and low-income people with what would become the Ten Year Plan for Housing. The ten-year plan was stretched over thirty years and three mayoralities and in this time span only 75,000 units were constructed or rehabbed in the entire borough of the Bronx. The city struggled in these decades, and the people of the South Bronx suffered more than most. Constructing sustainable infrastructure was definitely not a priority of policy-makers at the time.

**PlaNYC and Michael Bloomberg**

Michael Bloomberg changed all this. Walking into the mayor’s office in 2002 as one of the richest people in the world with a keen business sense and big plans for the city, Bloomberg enacted ambitious policy for New York’s infrastructure, culminating in the influential 2007 city plan PlaNYC. Compared to many other global cities at the time, this plan was radically structured around improving the environment and addressing climate change. Bloomberg was an outspoken proponent for climate action on the global stage and urged the private sector to make sustainable action. His eight years of mayoralty provided critical leadership in moving New York towards a sustainable future. His Office of Long-Term Planning and Sustainability developed and monitored the city with *PlaNYC 2030: A Greener, Greater New York*, released in

55 Cohen, 3.
2007. This plan was a landmark for urban sustainability planning and changed the trajectory of New York City policy forever.

PlaNYC’s primary goal was to reduce New York City’s greenhouse gas admission by thirty percent by 2030, an ambitious forward-thinking goal for a city that was already considered one of the most carbon-efficient cities in the United States. PlaNYC brought together over twenty-five city agencies and spurred some of the first city-wide housing and neighborhood initiatives since the 1980s, preserving a much higher rate of housing units than before and encouraging developers to build more energy-efficient buildings. The overt environmental sustainability goals in PlaNYC and its efforts to promote urban economic development were very successful and by the end of Bloomberg’s tenure in 2013, greenhouse emissions had been reduced by nineteen percent of the city’s 2005 levels. Ultimately, 132 initiatives were created and more than 400 milestones were reached by city agencies.

PlaNYC sought urban economic growth for New York and recognized the economic value of a clean urban environment. Billions of dollars were invested in sustainability initiatives such as fortifying public infrastructure, planting a million trees in the metro area, improving and protecting water supplies and coastal areas, investing in public transit, especially biking infrastructure, and creating policies to lessen harmful chemical usage.56

Housing and neighborhood policy played a significant role in promoting greener, more affordable living to New Yorkers. Standards for building developers that were set in place by the city encouraged the development of affordable residential properties to meet certain efficiency and environmental standards, with many achieving one of the LEED sustainable design certifications. Other goals outside of the housing initiative benefitted sustainable living as well,

especially those initiatives that focused on outreach on an individualized level. An effort on updating waste management in the city and the diversion of waste to recycling and organic waste (compost) centers was very effective in encouraging personal sustainability in families and individuals. The city opened a new Material Facility Recovery Center and expanded the breadth of curbside recycling programs for the first time in twenty years, as well as piloted a residential drop-off and curbside organic waste program. Recycling and environmental education in public schools were also expanded citywide.\textsuperscript{57} However, a cultural shift towards these particular behaviors has had slow progress, especially in many of the poorer city neighborhoods. Overall, PlaNYC has made more sustainability resources and infrastructure available to its residents, recognizing the need to create more efficient infrastructure and in encouraging the behavioral change to address environmental concerns on an individualized level.

PlaNYC was not without criticism. Community group and constituents across the five boroughs called out the Bloomberg administration upon the plan’s 2007 release, claiming that the city did not involve them in the formation of its initiatives. Notably, the community activists of the South Bronx felt that their concerns were not being addressed nor represented within the plan.\textsuperscript{58} There did not seem to be the necessary understanding of racial and economic disparity in its implementation.

**OneNYC and Bill de Blasio**

Mayor Bill de Blasio made sure to address these concerns when he came into office, painting his administration as one that was most concerned with equity and which recognized the connection between inequality and environmental change.\textsuperscript{59} However, when de Blasio began in

\begin{footnotes}
\item[57] Cohen, 7.
\item[58] Cohen, 4.
\item[59] Cohen, 1-2.
\end{footnotes}
the Mayor’s Office on the first day of 2014, it was still unclear to many of his constituents what
the environmental stance of his mayoralty would be.

In the first year of his tenure, de Blasio worked significantly on strengthening climate
change resiliency efforts as New York was still struggling to rebound from the impact of
Hurricane Sandy and continued to follow PlaNYC. The first sign that de Blasio might make
major environmental strides was the 2014 creations of the large and comprehensive Office of
Sustainability. This office ushered in a new era for New York City when it published a new city
plan in 2015, One New York: The Plan for a Strong and Just City (OneNYC).\textsuperscript{60} OneNYC has
been instrumental in meeting the goals set out by PlaNYC and building upon them. Under de
Blasio, the city of New York is on track to meet Bloomberg’s 2030 greenhouse emission goal by
2025 and sustain a continued reduction of emissions for decades to come. In some ways, even
though Bloomberg was instrumental in making the city more environmentally sustainable, de
Blasio has been more ambitious and stringent with his environmental policy.\textsuperscript{61} OneNYC was a
created to expand the scope and impact of PlaNYC and planned extensive environmental
initiatives that included strengthened waste stream, air quality, and emission goals in
combination with what was deemed as an unprecedented goal of lifting 800,00 New Yorkers out
of poverty.

The core goals of New York City executive government, as laid out in OneNYC, fall
under the umbrellas of strength, equity, sustainability, and resiliency, and include initiatives to
expand the availability of jobs and housing stock, improve the city’s infrastructure and economic
resilience to climate change events, and better the overall environmental health of the city. In

\textsuperscript{60} OneNYC was released on Earth Day in 2015 and has released progress reports every year since then. A reported
update to the plan is updated sometime in 2019.

\textsuperscript{61} Cohen, 8-9.
regards to housing policy\textsuperscript{62}, de Blasio planned to create 240,000 new housing units by 2025, and an additional 250,000 to 300,000 by 2040, as well as diminish the possibility of long-term displacement of residents due to future “shock events”. Policies beneficial to sustainable living include the city’s Zero Waste initiative, sending zero waste to landfills by 2030, improving the economic situations of those under or near the poverty line and reducing the Social Vulnerability Index for neighborhoods city-wide.

The particular methodology of the newer plan was beneficial to the Bronx, especially as the South Bronx took center stage; notably, the plan used the Bronx River Corridor as its primary community example throughout to highlight the necessity and expected impacts of different initiatives, recognizing the distinct inequity the community experiences compared to the rest of the city; more than thirty percent of South Bronxites lived under the poverty line at the time and were subjected to the most extreme effects of environmental and racial inequality.\textsuperscript{63}

OneNYC was generally applauded by city groups. The plan is aggressive and strives for a greater New York City for every resident. And opposed to PlaNYC, OneNYC was heavily influenced by community feedback.\textsuperscript{64} To this day, the homepage of OneNYC’s websites centers around a community survey. Ultimately, the policies being enacted by the city of New York are no mere steps but strides towards a more sustainable future for all.

\textbf{Private Development: Affordability and Sustainability of Green Buildings}

While ‘affordability’ implies that cost-cutting measures are used to build homes under market-price, this does not mean that housing units are developed cheaply or unsustainably. On the contrary, affordable housing development benefits from government incentive programs,


\textsuperscript{63} The City of New York,\textit{ One New York: A Plan for a Strong and Just City}, 3.

\textsuperscript{64} The City of New York,\textit{ One New York: A Plan for a Strong and Just City}, 18-21.
efficiency measures, and increasingly accessible ways to foster and meet standards for a green home.

Affordable housing developments are projects most often supervised by private building development companies who hire architects to meet certain standards for their projects. In seeking to create efficient housing units, developers will often create better-built units that are more energy efficient. While the main motivation of developers building new homes like this and installing green technologies is as a commitment to sustainability, many also choose to do this because it often leads to reduced operating costs. A study of developers of affordable housing in North Carolina found that 63 percent of developers built green housing to reduce utility bills, 59 percent did so to reduce operating and maintenance costs, and 48 percent did so to create a longer housing unit lifecycle. Developers were also motivated to meet sustainability standards to receive rebates or incentive to offset the cost or meet a financial program requirement.  

The other leading motivation to build to certain green building standards is to achieve a specific rating or certification. This could be to meet a requirement for financing, to use as a marketing tool, or to satisfy the requirement of a prospective owner or user. In the United States, the most popular sustainability housing rating programs are Energy Star Homes, the U.S. Green Building Council’s LEED (Leadership in Energy and Environmental Design) Green Building Rating System, Enterprise’s Green Community Initiative, EarthCraft Houses, and Green Globes. Notably, the Green Communities Initiative is the first U.S. green building program for affordable housing.  

The most popular certificate program is Energy Star Homes. Developers are more

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65 Trachtenberg, Alex et al., *The Impact of Green Affordable Housing*, Atlanta: Southface Energy Institute and the Virginia Center for Housing Research, 2016, 36.
than three times more likely to seek the Energy Star certification than one associated with LEED, the second most popular rating system.\textsuperscript{67} This is likely because it is one of the easier ratings to achieve, with less stringent building regulations. Ultimately, building certification programs are voluntary exercises in environmental performance that do not challenge developers to achieve to the highest level of sustainability; most green building programs have minimal fixed performance requirements and do not have mandatory operating standards. While a building might achieve a high level of one particular green building standards, say energy efficiency, and achieve a certification, it might perform poorly in any other given green category.\textsuperscript{68}

This does not mean that all developers are meeting the bare minimum only to achieve government payouts or prestige. Like many consumers, developers can be motivated to build sustainably for the sake of environmental sustainability. Take, for example, the New York City-based Jonathon Rose Company whose mission is to develop mixed-use, mixed-income, transit-accessible projects, most often for low-income people.\textsuperscript{69} Conclusively, it is a development company’s responsibility to generate green affordable housing. User demand is not a significant component of generation, which is why policy and certification standards are so important to put in place. Developing green affordable housing projects is a complicated process. However, there are more support systems in place than ever before to encourage their construction.

The Reality of the South Bronx

Living sustainably in a city is achievable for New York residents. The policy and benefits for developers created by the city have pushed both the public and private sectors toward

\textsuperscript{67} Trachtenberg, 35.
developing housing that meets a particular environmental standard and this is especially noticeable with new construction in the last decade. This trend will ultimately better the low-income housing market where historically home renters and buyers do not have a lot of choice on the conditions of their home; their home becomes what they can afford. Integrating green technologies that are financially accessible to a private developer allow people living in affordable housing to practice sustainability and further encourages sustainable, beginning a pattern of responsible behavior. Ultimately, green affordable housing provides low-income people, who are disproportionally affected by environmental issues, an accessible way to live affordably, sustainably, and consciously.

However, the issue remains: poorer neighborhoods in New York are not benefitting as much from sustainable housing policy as those who are middle- or upper-class. Communities like the South Bronx are just not privy to the same advances that city-wide policy has afforded other neighborhoods. The economic and housing climate which exists there is a testament to this. It is difficult to grapple with the fact that New York prides itself in being one of the most sustainably-minded cities in America when many of its innovations are disproportionally benefitting economically-advantaged people. Can New York continue to denominate itself as the standard of large, sustainable urban centers when it is obviously not helping the people of the Bronx, which experienced many of the greatest environmental and affordability concerns to begin with? The only hope for the city is to maintain the momentum of OneNYC and deliver on its promise; as de Blasio wrote in his letter included in OneNYC, the city must “build on New York City’s global leadership when it comes to growth, sustainability, and resiliency—and embrace equity as central to that work.”

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70 The City of New York. One New York: A Plan for a Strong and Just City, 3.
Chapter 4. Design and Development in Action

Witnessing affordable housing development take physical form is by far the most important step of sustainable housing development, much more so than any political or social action. The following chapter examines the construction of sustainable buildings and the technologies that are utilized to foster environmental sustainability, the patterns of development within New York and the South Bronx, and the crown jewel of New York City’s green affordable housing projects, Via Verde, so to better understand the implementation of these projects.

Sustainable and Affordable Building Design

The most critical barrier to entry of sustainable living is its upfront cost. Balancing a scheme of affordability and sustainability requires a great level of knowledge and capability. In short, affordable housing is a combination of using more inexpensive building practices with new financing models, like life-cycle pricing. However, affordable housing in urban environments also lends itself to sustainability. For one, the density of housing units in these projects tends to be both affordable and efficient; multi-family dwellings reduce energy use on a square foot basis and encourage the use of shared community facilities. Overall, in dense housing projects, people take up less space, fewer resources, and contribute to an overall reduced building envelope, that is, the combined exterior components of a building. For these reasons, “affordable integrated design” will grow to be one of the most significant components of sustainable cities.

There are many design practices which architects follow to meet standards of sustainability, the most common being usefulness, effectiveness, the least capital investment, and

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71 Farr, 192.
72 Farr, 50-51.
the cost-benefit of building in a particular way. The most important aspects of promoting the sustainability of buildings and the growth of the people who live in them are building high-quality products that will last a long time for the user, produce a return for the community, and be easier to manage as it ages.\textsuperscript{73} The most environmentally-conscious buildings are those that are designed efficiently from the beginning. While it is important for the sake of sustainability to reuse old housing stock, new construction creates buildings which are operated the most sustainably and are more cost effective.\textsuperscript{74} Overall, it is more common now for developers to integrate green technologies into their housing developments, even if they are not seeking a green building certification; the green building industry has diffused into a traditional building and design practices for its cost-efficiency alone.\textsuperscript{75,76}

There are three aspects of housing development that involve sustainability best practices: pre-development, structural and building envelope development, and interior design and utilities. All promote levels of energy efficiency; energy efficiency is the most sought-after aspect of a home, independent of a sustainability status because it is financially advantageous to both developers and homeowners. Likewise, green affordable housing units are “by definition energy-efficient and significantly reduce the amount of electricity and natural gas consumed by the occupants”.\textsuperscript{77}

Sustainable housing development begins years before breaking ground. Successful green developers first bring together large teams which include stakeholders to develop an integrated design approach. This approach includes creating a design for a development that is compatible


\textsuperscript{74} ULI–the Urban Land Institute, \textit{ULI Community Catalyst Report Number 7}, 9.

\textsuperscript{75} Trachtenberg, 34-43.

\textsuperscript{76} However, the perception of the cost-benefit of sustainable housing by developers is contradictory of this; Trachtenberg notes on page thirty-seven that in regards to a positive financial payback of green technologies only thirty-two percent agree (thirty-two percent of surveyed developers are neutral, and twenty-eight percent disagree).

\textsuperscript{77} ULI–the Urban Land Institute, \textit{ULI Community Catalyst Report Number 7}, 15.
with its neighborhood. This means determining its location and orientation, to site the building so to maximize southern exposure, for example, and creating an integration of the building and its landscape. Creating a development that is compatible with its surroundings also aids neighbors in accepting a new project, especially when it is an affordable housing unit. Another aspect of predevelopment construction is planning mixed-income housing, which is the mix of market-rate and subsidized units that are often better received by local governments and neighbors than projects that are all below market rate. Additionally, research on materials is important as the quality of green products varies drastically and is often obscured by greenwashing efforts.\textsuperscript{78} Having sustainable materials integrated into a housing project can be very influential for the users and their habits. It is also very important to consider at this stage the green community practices to be put in place. A sustainable housing development is more than an energy-efficient building. A green building promotes human services that further promote sustainability such as access to services that encourage recycling and composting, alternatives to car use, and green education programs or orientations for residents.\textsuperscript{79} Arguably, the pre-development of a green housing project is the most important planning step to establish environmental sustainability.

It is easier than ever to construct green buildings affordably and this is in large part due to the increased availability and accessibility to green home components for the exteriors and interiors of housing developments. The design emphasis on green buildings is often placed on the construction of the building envelope, as a well-designed envelope best enhances building efficiency. The optimal design of a sustainable home is highly efficient in energy use and retention in aspects of the home and its materials and construction. Sustainability best practices incorporate high-efficiency double-paned windows, low-flow plumbing features that conserve

\textsuperscript{78} ULI–the Urban Land Institute, \textit{ULI Community Catalyst Report Number 7}, 11-16.
\textsuperscript{79} ULI–the Urban Land Institute, \textit{ULI Community Catalyst Report Number 7}, 18.
water use, and efficient roofs and insulation that focuses on lessening energy use. A sustainably built development also makes use of recycled or reused materials when it can and, when accessible, installs or employs renewable energy systems like rooftop photovoltaics. The interiors of these properties are equally important and include the installation of efficient mechanical equipment like gas-fired, tankless boilers and hydronic (central air) space heating. High-efficiency utilities like Energy Star-rated appliances are becoming very common in new developments, even in properties not seeking a “green status.” According to one study, ninety-three percent of all affordable housing developers install Energy Star products in their units; these appliances include dishwashers, washing machines, and air conditioning units. One component many people who are interested in sustainability measures are advocating for is individual electricity metering systems; generally, older housing developments have only a few meters for an entire building; newer developments install an individual meter for every unit to help residents understand their personal energy usage.

The exterior natural environment of buildings in dense urban environments are often thought of as secondary but maintaining a healthy environment outside of a residence is important in preserving the benefits of available ecosystems services. The sustainable development of natural systems can involve managing stormwater runoff and harvesting rainwater, maintaining natural drainage systems or installing porous pavement, and the preservation of plants and trees. While a typical urban environment suppresses nature, sustainable urbanism fosters nature and its relationship with human beings, supporting connections with daylight, fresh air, and strategies for outdoor living. The home is part of an individual’s environment and should be viewed with as much care as the natural environment. Every design decision should be considered in the

80 Trachtenberg, 38.
81 Farr, 48-49.
construction and outfitting of a green housing development so to benefit both the future resident and the environment.

Building an environmentally sustainable building is very complicated but by many standards it is just as intricate of a process as constructing a traditional building; the difference here is almost entirely intention. Developing green housing is very feasible and while it may still not be the norm is growing in popularity. In the South Bronx, for example, the past ten years have produced a significant amount of housing developments that embrace sustainable technologies in some way (see Appendix B).

**Understanding Development Patterns in the South Bronx**

Since 2010, 100 distinct building projects in the borough of the Bronx have been registered with the U.S Green Building Council, the body which grants LEED certifications. 82 37 of these buildings are new affordable housing developments, nineteen of which have been granted some level of LEED certification, whether Platinum, Gold, Silver, or Certified. The remaining eighteen projects are currently working towards their certifications. 83

The aforementioned Housing New York plan was released in 2014 and since then a tremendous amount of affordable housing complexes have been developed throughout New York City. As of April 2019, a newly constructed or rehabilitated building has been created for every 2400 people in the city.

To compare and understand the rate of green affordable housing development, the number of publically registered LEED buildings rated under the LEED Building Design +

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82 This is a public listing where individual projects must register their own developments and are not automatically listed when seeking to achieve a LEED Certification. Thus, it is safe to assume that there is a sizable population of buildings that are LEED Certified but not listed i.e. all LEED Certified buildings on Fordham University’s campus. The following data exclusively reflects projects that are publically listed.

Construction (BD+C) Multifamily Midrise rating system are compared with the total affordable housing developments completed. This is because the Multifamily Midrise rating system is most commonly used for New York style affordable housing projects in the outer boroughs of New York and for the sake of simplicity.

807 of New York’s affordable housing buildings have been constructed in the Bronx since 2014, with a new building created for every 1800 people. Of these new buildings, 12 have achieved a LEED Multifamily Midrise Certification, or 1.49 percent. This is a higher percentage than Brooklyn and Queens, which are urbanized in similar ways to the Bronx; these boroughs have respectively developed 1.41 percent and 0.24 percent of all new buildings to meet these LEED standards (see Figure 3). These figures do not reflect the actual rate nor number of LEED Certified building developments in the city but rather reflect the likelihood of green housing development for each borough.

Thus, the development of green affordable housing in the South Bronx is relatively high when compared to the rest of the city and access to affordable housing projects that champion

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85 “Projects.”
sustainability is marginally more likely in this area than in most other communities in New York City. This is so important because the residents of the South Bronx are some of the least sustainably conscious people in the city and they are now provided infrastructure to address this issue.  

Case Study: Via Verde / The Green Way

To best understand how a green affordable housing development comes to be, this paper looks to the Via Verde project, likely the most publicized green affordable housing project in the South Bronx. Via Verde is highly praised and awarded development that opened in 2012 to much fanfare. Known officially as Via Verde / The Green Way, this visually distinctive, 60,000 square foot, mixed-use building has 222 units, 151 of which are reserved for low-income households. 7,500 square feet of the building is dedicated to retail and community space and there are an additional 40,000 square feet of open space, including green roofs.

As a LEED-Gold certified housing development, Via Verde champions sustainability and human health and makes taking part in a green lifestyle second-nature. The building is stepped and a green rooftop connects low-rise townhomes to a 20-story tower, integrating nature with the city; the green roof provides open space for residents and also harvests rainwater and is used to grow food; the rooftop garden is substantial and in its first operating year almost 1000 pounds of

86 To understand this statement, indicators of sustainability that are dependent on personal action and not infrastructure were compared e.g. waste diversion rates. For example, the people of the South Bronx recycle much less than those in any other borough. The diversion of recycling from traditional waste streams is telling as waste disposal is a very common action that depends on more personal action. The diversion rate of the Bronx as of April 2019 is 63.2 percent, many points lower than a similar borough like Queens which diverts 74.5 percent of its waste. In fact, of the 59 community districts in New York City, the six districts that make up the South Bronx are in the bottom eleven for waste diversion rates, with Bronx Community District 1, which comprises parts of Morrisania, Melrose, and Mott Haven, having the lowest diversion rate in the city at 45.8 percent.
fruits and vegetable were harvested (see Figure 4). While Via Verde is easily visually identified as a sustainable building by technologies like this, its more passive and inconspicuous innovations are what make it such an environmentally-friendly space. The building cools itself with technologies like solar shadings and cross-ventilation, heavily uses efficient and sustainable building materials, and had highly efficient mechanical systems and energy-saving appliances. High-tech temperature sensors are located throughout the building and provide feedback to a responsive heating system; systems like this are not often found in large housing projects. For its small roof surface area, Via Verde has an abundance of photovoltaic panels which supply 15 to 20 percent of all common power needs; in total, the panels save the building more than $12,000 annually in electricity cost.

Figure 4. The rooftop of Via Verde

90 “Via Verde / The Green Way – Bronx, New York.”
One of the most powerful aspects of Via Verde is that it has built-in educational programming. Much of it addresses human health and general wellness as well as community concerns. For example, initial programming for the rooftop was provided on-site by New York-based sustainability organization GrowNYC.\textsuperscript{92}

The Via Verde project was developed by the aforementioned Jonathon Rose Companies with non-profit co-developer Phipps House in response to the New Housing New York Legacy Competition, an architect-developer design competition for affordable housing and sustainable development in the city. Designed by Grimshaw Architects and the high-profile Dattner Architects, Via Verde was constructed on a city-provided site in Melrose.\textsuperscript{93} The four organizations worked with the community board Bronx and with community members at local workshops to create a building that was both needed and wanted.\textsuperscript{94} Development and construction costs amounted to $98.8 million and were subsidized by special tax bond and affordable development subsidies to make the project conceivable.\textsuperscript{95}

Via Verde was highly praised after its completion and accrued a litany of design and urban development accolades including those from the American Institutes of Architects (AIA) Multifamily Award, the AIA New York, Andrew J. Thomas Housing Award, the AIA/U.S. Department of Housing and Urban Development, Secretary’s Housing and Community Design Award for Excellence in Affordable Housing Design as well as an Urban Land Institute Global Award for Excellence and the Sustainability in Design Award from the Society of American Registered Architects of New York.\textsuperscript{96}

\textsuperscript{93} “Silver Medal Winner Via Verde–The Green Way,” 7.  
\textsuperscript{95} “Silver Medal Winner Via Verde–The Green Way,” 180-185.  
\textsuperscript{96} “Via Verde / The Green Way – Bronx, New York.”
Altogether, it is reported that city officials see the sustainable development aspects as “spectacular” and believe that Via Verde is an excellent and welcome affordable housing site, especially since it addresses two distinctive aspects of green design, environmental benefits and lower energy costs, as well as general health.97 Residents have continued to enjoy living there, and vocalize the benefits that the building has provided to them personally and in their homes.98 The project has also provided numerous socio-economic benefits to the Melrose neighborhood and *New York Times* architecture critic Michael Kimmelman expresses that Via Verde “makes as good an argument as any new building in the city for the cultural and civic value of architecture.”99

The development of green housing projects is happening in and around the Bronx, despite the general lack of publicity and pomp. New projects in the South Bronx open every few months now and will continue to open for years to come. Slowly, the Bronx will be populated by green housing options like Via Verde, as it is a physically attainable practice and one becoming more popular to developers looking to build in the South Bronx.

**Chapter 5. The Future of the South Bronx**

The South Bronx has experienced decades of deterioration and is an excellent venue for green urbanization efforts. The conditions set up by city policy and the eagerness of private developers to build within the South Bronx may create a perfect storm of interest in the forgotten borough. A large-scale environmental rejuvenation of the community may be in its grasp, especially if Bronxites take control of the development and environmental narrative.

The earlier chapters of this paper examined the rapid growth and urbanization of New

99 Kimmelman.
York City. The demand for housing is at its highest and in the South Bronx, which is growing faster than any other community in New York, housing stock is deteriorating and new developments are not always affordable. Unfortunately, poor housing conditions are nothing new here. The Bronx had a rough past century and its homes reflect this. Grassroots organizations are protesting the conditions of the environment and housing, and challenging the city to be better to its people. The city of New York is working to address this but policymakers, while big on ideas, have a more difficult time enacting their policy; improvements on infrastructure and the natural environment are far and few between, especially in the South Bronx. Despite this, the city has been more supportive of low-income people in the past decade and is creating the policies needed to promote private companies to build and improve housing. Developers are finding more and more reason to build subsidized housing or to build sustainably, and the processes to do so have become more affordable and thus more attractive to them each year. There is reason to believe that now, more than ever before, New York City will see housing developments which provide attractive and safe places for low-income people to live which do not further degrade the community and promote sustainable personal practices.

However, this is not the case. Despite the conditions which exist in the South Bronx, relatively few sustainable affordable housing projects have been developed in the past decade, even if it may be proportionally more development than elsewhere in the city. More sustainable projects are in the works but it is clear that the small amount of high-quality affordable housing is disproportionate to the needs of the Bronx. Why is the city failing its people in this way?

First and foremost, there must be more official recognition of the degraded urban environment in poor communities of New York. The city must speak out for communities that others do not listen to. The city of New York must publicly and explicitly recognize the
continuing blight in the South Bronx and the degraded environment and living conditions that exist there; they must identify that this issue is in large part the fault of city politics and predatory infrastructure placement. Furthermore, the city must promise to do its best in preventing both public and private enterprises from taking advantage of the borough for the time being because it does not yet have the power to prevent damaging industrialization itself.

Secondly, the city of New York must create an addendum to its city plan which explicitly marries the concepts of affordability and sustainability; the two must work together if city planners and politicians want to make sure its environmental improvements are equitable throughout the city. In short, a policy must come out in support of fostering the private development of green affordable housing and additionally put aside funding for these projects like these throughout the five boroughs.

Finally, city planners must consider the opportunity to redevelop the South Bronx as a future, informal eco-community. With the rate of development experienced by the Bronx, in combination with existing open land parcels and new efficient technologies, the South Bronx would make a great setting for an urbanization project that champions urban environmentalism in a low-income community. Eco-communities, idealistic communities which are built around strict environmental goals and efficiency standards, exist around the world. Some of these are areas that were developed long before environmentalism and are retrofitted over time to meet new standards. I believe that this is an opportune time to informally begin this process in the Bronx, strengthening the community and subverting traditional patterns of environmental behavior.

In conclusion, the South Bronx is an underserved community of people who have little choice in where or how they live. It does not have to be this way. The South Bronx community
does not deserve to continue to live in a substandard state. One of the first steps in amending this is by providing the option for Bronxites to live affordably in green homes.

Appendix A. Understanding Affordable Housing in New York City

The term *affordable housing* is generally used as a catch-all to describe a type of subsidized housing for low-income people, but in New York City this term has a specific definition. An affordable housing project is one which provides housing for someone who makes only 30-60% of a census-designated Area Median Income (AMI), which is adjustable for family size.\(^{100}\) Affordable housing is privately financed housing development which receive public subsidies like the Low Income Housing Tax Credit to subsidize the cost of building and maintenance and thus are able to offer rents which are lower than the average competitive price. Public housing, sometimes referred to as ‘the projects,’ are city-owned and -operated developments for people anywhere below 80% of the AMI, most importantly those deemed ‘extremely low income,’ making below 30% of the area AMI. There is also the term ‘subsidized housing’ which has general and specific uses as well;\(^ {101}\) ‘subsidized’ includes affordable housing but also includes homes which are afforded via vouchers like the Housing Choice Voucher program (Section 8).\(^ {102}\)

In the case of this paper, low-income is used to describe people who make between 30%-60% of the AMI of the entire census-designated New York City area. An eligible single person in New York seeking affordable housing will have an annual income between $21,930 and $43,860. An eligible family of four would have a combined income between $31,290 and

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\(^{100}\) “What is Area Median Income in NYC?” *Street Easy*, May 2018, https://streeteasy.com/blog/area-median-income-nyc/.


$62,580.103 Extremely low income people who make under 30% of the AMI are ineligible for affordable housing projects financed by NYC Housing and Development Corporation (NYCHDC) and the US Department of Housing and Urban Development (HUD) but have other options like New York City Housing Authority (NYCHA) public housing and Section 8 vouchers.104

Appendix B. Sustainable Housing Developments in the Souths Bronx

The following is a list of notable green housing developments completed through 2018. These projects are deemed notable by achieving sustainable building certifications, significantly a LEED certification, or by setting important sustainability milestones in the borough. For example, Taino Plaza was the first housing development in the Bronx to implement solar energy technology, and MLK Apartments and Intervale Green, respectively, are the first and largest Energy Star-rated high-rise housing developments in the country; technology-wise, The Eltona has mounted wind turbines installed on its roof, Arbor House has a very large greenhouse, and the Morris Avenue Apartments have Passive Housing certification.

Additionally, the following projects may have achieved a combination of standards set by Energy Star, Enterprise Green Communities, and NYSERDA's Multifamily Performance Program, as well as the National Green Building Standard and the American Cancer Society Healthy High Rise Building Standard.

South Bronx Green Affordable Housing

Listed by year constructed/opened

Listed as: Housing development (specialty, if any), neighborhood (region if not in the South Bronx), year. *LEED-certification*, if any.

- Bedford Green House, University Heights, 2005.
- Cedar House/Fox Hall (Senior and Supportive Housing), Morrisania, 2009. *LEED-Gold.*
- Fox Point (Supportive Housing), Morrisania, 2009. *LEED-Gold.*
- Lenninger I & II (Supportive Housing), Tremont, 2011. *LEED-Gold.*
- Lindenguild Hall (Supportive Housing), Crotona Park, 2013. *LEED-Platinum.*
- 3361 Third Avenue (Supportive Housing), Morrisania, 2015. *LEED-Gold.*
- Arthur Avenue Residence (Supportive Housing), Belmont, 2015. *LEED-Silver.*
- Promesa West Tremont Residence (Senior Housing), Morris Heights, 2015. *LEED-Silver.*
- Lynn’s Place (Supportive Housing), Morrisania, 2018. *LEED-Gold.*

**Other Projects of Note**

**Green Public Housing (NYCHA) in the Bronx Borough**

- Bronx River House, Soundview (Southeast Bronx), 1951, renovation 2011–Present.
- La Preciosa, Morrisania, 2015. *LEED-Gold*

**Green Affordable Housing Elsewhere in the Bronx**

- Mosholus Gardens (Supportive Housing), Norwood (Northwest Bronx), 2013. *LEED-Silver.*
- Van Cortlandt Green (Senior Housing), Riverdale (Northwest Bronx), 2016. *LEED-Gold.*
Bibliography

Introduction: The Privilege of Sustainable Lifestyles


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Appendix A. Understanding Affordable Housing in New York City


Appendix B. Sustainable Affordable Housing Projects in the Bronx

