

**Affordable Housing Production in the Metropolis: Potential Options and Implications of Successors to New York City's 421-a Tax Exemption**

By

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## ABSTRACT

On June 15, 2022, the 421-a(16) Affordable New York Housing Program, expired. It is New York City's largest tax incentive to build affordable housing. The 421-a program offered private capital increased returns through a tax abatement in exchange for a number of affordable units at varying levels of affordability. 421-a gave those with low incomes access to affordable homes in neighborhoods typically out of reach. With no legislative agreement for renewal or modified future program, the pipeline of affordable housing development will be diminished in New York City.

This thesis offers an analytical tool and framework to determine outcome potentials for a successor program to 421-a. Using two case study financial analyses in neighborhoods representative of the range in market-rate rents citywide, this thesis: (1) comparatively examines returns based on the recently lapsed 421-a program, the Governor of New York's proposal for a replacement, and a completely market-rate development without subsidy, (2) performs a sensitivity analysis determining outcome returns for private capital at a range of affordability requirements, (3) tests these outcomes for industry feasibility, (4) aggregates and analyzes survey response data to develop a conceptual threshold of program requirements and find the optimal policy point at which the greatest number of units and deepest affordability is feasible for private capital to consider for development.

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# 01 Thesis Introduction

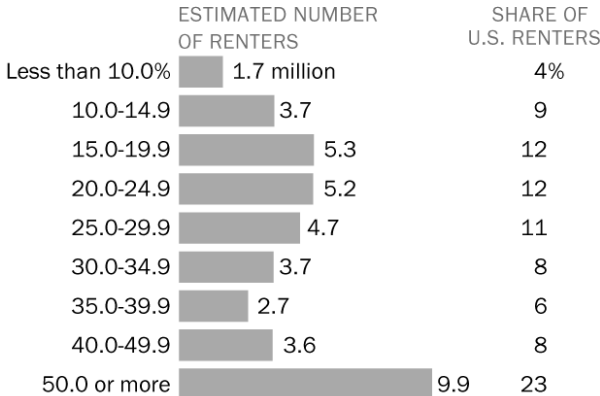
## Introduction

421-a, the most significant subsidy for private development of affordable housing in New York City, expired on June 15, 2022. This comes at a time when the need for affordable housing continues to intensify. The United States alone is short 1.5 million homes (*The White House*, 2022). The housing crisis has been years in the making from constrained housing production following the 2008 Great Recession. It has intensified from the mismatch of income growth to housing prices, land shortage, labor costs, inflation, and supply chain issues.

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### How much of their incomes American renters spent on housing costs in 2020

Share of renters spending \_\_\_\_ % of their income on housing costs in 2020



Source: U.S. Census Bureau, American Community Survey.

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Figure 1: Percent of Incomes American Renters Spent on Housing Costs, 2020 (Schaeffer, n.d.)

From 1985 to 2020, rent prices increased 149 percent, while income grew just 35 percent, highlighting the stagflation that has impacted so many renter households (Bessler, n.d.). This has been further emphasized in New York City, with rental prices achieving two milestones during



the writing of this thesis. First, average Manhattan rental prices surpassed \$4,000 for the first time in May 2022 (*Elliman Report May 2022*, 2022). Then, just a month later, in June, average Manhattan rental prices surpassed \$5,000 (*Elliman Report June 2022*, 2022). The jumps in rent are pricing out many renters who also face more considerable inflationary pressure, further reducing their disposable income. In June 2022, the U.S. inflation rate rose to 9.1 percent.

The significant inflationary environment is also causing rising interest rates. The extra capital cost of high-interest rates contributes to the real estate industry's inability to produce more affordable housing, as it impacts their returns possibly to the point of not being feasible or meeting investment criteria. Problems for those searching for affordable housing are being deepened from both sides: rental prices skyrocketing and affordable housing production diminishing. In order to address these problems, federal and local policies must address the housing crisis.

## Background and Context

Government-funded affordable housing is a long and arduous process. New York City has had a policy in place to increase the attractiveness for private capital to develop affordable housing without capital contributions from the city. The 421-a program expired on June 15, 2022, with no decision on a successor program or renewal plan.

This program, 421-a, set minimum requirements for the inclusion of affordable housing in residential properties in exchange for a tax abatement, increasing returns for private capital. The 421-a tax exemption significantly reduces property taxes that new residential development pays. The property owner pays a portion of the tax based only on the assessed value of the property, prior to any construction, for a certain amount of time during the "full exemption" period, and then the full tax (based on the property's assessed value following any construction) is phased in over an additional timeframe.

The tax incentive provided to eligible projects by 421-a attracted private capital to develop affordable housing within market rate properties by significantly reducing the tax burden of new development. Those opposed to 421-a renewal believe it gives real estate developers too large of an incentive for an insufficient quantity and depth of affordability required. Real estate

industry groups argue that without 421-a or a similar program, there will be no production of affordable housing as it will not be financially feasible. The main point of conflict is the magnitude of the incentive compared to the breadth and depth of required affordable housing.

## Research Question

This thesis focuses on determining a potential framework for analyzing the optimal level of affordable housing requirements for a potential 421-a successor. It also examines potential outcomes for a no-renewal scenario.

The main research questions explored in this thesis are:

- What is the optimal breadth and depth of affordable housing required by a successor to the 421-a program?
- What is the maximum quantity and level of affordability that the city can require given the tax exemption that is still feasible and attractive to real estate developers and investors?
- In the event that there is no new program or renewal, what is the effect on affordable housing production and supply in New York City?

## Research Approach

A mixed-method approach was used in this study to understand the outcome possibilities of the research questions and their potential implications. This thesis started with a literature review of peer-reviewed research, policy, and reports to contextualize the research questions and form a research approach. Alongside the literature review, the author of this thesis conducted interviews with policy researchers working within academia or trade groups. These interviews were used to better understand policy mechanisms at play in regard to 421-a, the current state of policy considerations, and the limitations of this research.

The initial research through literature review and interviews helped develop the framework for the research design of this thesis. The research design approach was intended to financially analyze the implications of a potential successor to 421-a program requirements, then test their feasibility through a survey of industry professionals.

This thesis then undertook a quantitative analysis of two residential rental case studies in different submarkets, Chelsea and Bushwick, within New York City. This study performed a financial analysis using the two base cases under the options of 421-a, the governor's proposal for 485-w, and without subsidy. The assumptions for this case study were vetted by industry professionals familiar with the types of developments studied. Then, a sensitivity analysis was undertaken to understand the resultant capital return implications at varying requirements for area median income (AMI) caps and the percentage of affordable units.

The options and outcomes of the sensitivity analysis became the basis for a scenario survey to test the feasibility with opinions from the professional real estate community. The survey process included interviews to understand the decision-making process of participants and their thoughts surrounding this tax exemption. The survey results and interviews were then analyzed to form conceptual thresholds to determine an optimal point for future policy, where the maximum depth and breadth of affordability in projects remains attractive for private capital to pursue. Lastly, based on all the research of this study, from literature review and policy interviews to quantitative and qualitative analysis, a series of policy recommendations are given.

## Rationale and Significance

The 421-a program in New York City expired on June 15, 2022, during the research of this thesis. The lapse in the program presents an opportunity for potential successor programs to change the program requirements for the greatest benefit to the most vulnerable New Yorkers. The research carried out for this thesis was intended to explore options for a successor program and the feasibility of their outcomes. The topical nature of this research in relation to the expiration of 421-a makes the impact of this thesis timely and significant.

During the last expiration of 421-a, NYU's Furman Center released a policy brief in 2015 entitled "The Latest Legislative Reform of the 421-a Tax Exemption: A Look at Possible Outcomes" (Stern et al., 2015). The purpose of that research was to weigh the possible impacts of new legislative reform to 421-a. This thesis presents a similar line of inquiry into the latest lapse and policy proposal by the Governor of New York.

By exploring the consequences of different potential policy requirements, this thesis provides a framework for analysis of new and reformed tax abatement in exchange for affordable housing policy. While the scope of this thesis is limited to 421-a in New York City, the research process can be applied to other municipalities contemplating similar programs or restructuring existing ones.

# 02 Literature Review

## Overview

As of July 2022, housing affordability remains one of the most significant issues facing New Yorkers. Sales and rental prices have skyrocketed; according to a recent report from Douglas Elliman, the median rent in Manhattan surpassed \$4,000 per month in May 2022, up 25 percent from a year prior (*Elliman Report May 2022*, 2022). As a result of rising prices and a shortage of available, affordable housing, roughly one-third of New Yorkers are severely-rent-burdened, meaning they spend more than 50 percent of their income on rent (*NYCHVS*, 2022). Housing instability contributes to social inequities and may lead to overcrowding, worsened physical and mental health, developmental delays in children, and homelessness (Chetty et al., 2016; Desmond, 2012). Abundant, affordable housing is a solution that addresses the needs of the most vulnerable New Yorkers.

Many studies have examined affordable housing development outcomes mainly focusing on three types of federal programs: public housing, Housing Choice Vouchers (HCV), and the Low-Income Housing Tax Credit (LIHTC). These three programs assist millions of individuals and families with housing across the United States (Diamond & McQuade, 2019; Fischer et al., 2021; *HUD's Public Housing Program*, 2017). The programs work to reduce production costs for developers in exchange for setting aside affordable units or directly subsidizing housing costs for low-income tenants.

On top of these federal programs, New York City's Housing and Preservation Department (HPD) has many policies in place to try and build and retain affordable housing. Zoning and tax incentives have been leveraged to entice developers to build mixed-income housing as well as convert existing buildings into affordable housing. Many of New York City's programs allow for developers to gain federal incentives like LIHTC on top of New York City-specific ones (*HPD ELLA Term Sheet*, 2021; *Mixed Income Program: Mix & Match Term Sheet*, 2021; *Neighborhood Construction Program (NCP) Term Sheet*, 2021; *Open Door Term Sheet*, 2021; *Senior Affordable Rental Apartments (SARA) Program Term Sheet*, 2021; *Supportive Housing Loan Program (SHLP) Term Sheet*, 2021).

# The Need for Housing Affordability

According to the National Low Income Housing Coalition (NLIHC), the U.S. has a shortage of 7 million affordable and available rentals for extremely low-income renters, whose household incomes are at or below the poverty guideline or 30 percent of their area median income. Only 36 affordable and available rental homes exist for every 100 extremely low-income renter households. This shortage for extremely low-income renters extends to every state and every metropolitan area. In New York state, there are about 36 affordable and available rental homes for every 100 extremely low-income renter households (NLIHC, n.d.-a).

In 2017, the NYU Furman Center released a report on national rental housing, focusing on the 53 largest metropolitan areas. The study found that 47.7 percent of households were rent-burdened or spent more than 30 percent of their gross income on rent. Severely rent-burdened households, or those who spend more than 50 percent of their gross income on rent, were at 24.4 percent. The study also disaggregated the data by AMIs per metropolitan area. For households earning between 80 percent and 120 percent of AMI, the share that was rent burdened was 21.2 percent in 2015. But for households earning less than 50 percent of AMI, that share was 79.0 percent (Chan & Jush, 2017).

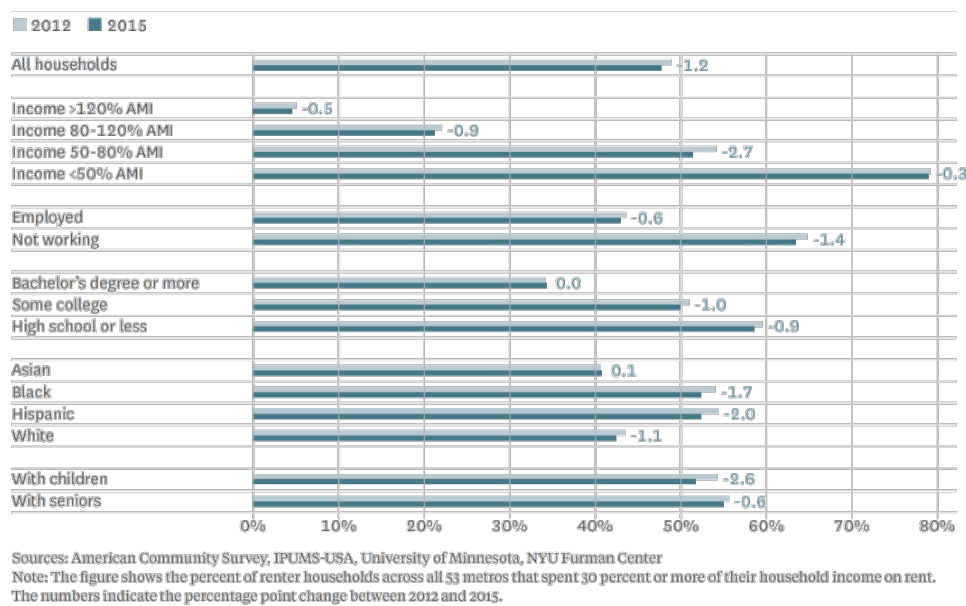


Figure 2: Share of Renter Households Rent Burdened by Household Characteristics (Chan & Jush, 2017)

# National Affordable Housing Policy and Practice

## Public Housing

### Overview

Public housing, on a national level, was established to provide reliably decent and safe rental housing for eligible low-income households. Today, public housing comes in all sizes and types, from scattered single-family houses to high-rise apartments for elderly families. There are approximately 1.2 million households living in public housing units managed by some 3,300 Public Housing Agencies (PHAs). PHAs are local offices responsible for administering housing programs (*HUD's Public Housing Program, 2017; Public Housing, n.d.*).

Though there have been many successful examples of affordable housing, professor and historian Ed Goetz states that “the story of American public housing is one of the quiet successes drowned out by loud failures” (Semuels, 2015). Some government officials suggested completely demolishing public housing developments as a result of allegations of neglect. Between 1978 and 1989, around 15,000 units were torn down, and funding for public housing projects continued to decline (Woo & Joh, 2015). The National Commission on Severely Distressed Public Housing was established by Congress in 1989. It discovered that just 6 percent of projects could be deemed “severely distressed” (*NLIHC, n.d.-a*). However, in response to the commission’s recommendations, Congress established the HOPE VI program in 1993 to promote further demolition of public housing (*HUD's Public Housing Program, 2017; NLIHC, n.d.-a*). After demolition, residents of these housing projects were supposed to receive vouchers for other housing options, but some never received this help. Only around 15 percent of residents returned to newly redeveloped properties, while some were forced to move to more impoverished areas. According to Goetz, it was “quite clear from the record that this, in practice, was never really about improving the lives of residents. It was really about reactivating real-estate markets in central cities that were beginning to be rediscovered” (Semuels, 2015).

One factor in the unfavorable opinion some people have of affordable housing is the history of public housing and specific instances of failed housing initiatives. As a result of the eventual lack of care and money for public housing, as well as the subsequent demolition of

units, Section 8 and LIHTC have largely taken the place of public housing and are the focus of the majority of current research. These two more recent programs have had the chance to learn from the issues that plague public housing, such as high crime rates and a lack of security.

### Perception

A survey from 2021 revealed that the public is deeply concerned about the housing affordability crisis and favors decisive government action. 89 percent of respondents believe the role of government is important when it comes to making sure there is enough affordable housing (*NLIHC*, n.d.-b). Individuals who oppose affordable housing are sometimes the most vocal, though their opinions may not always reflect the majority of the population. For instance, while the majority of attendees at Massachusetts city council meetings claimed to be opposed to new affordable housing complexes, the majority of the state's people claimed to be in favor of them. (Einstein et al., 2019).

Affordable housing may be opposed by some people because they feel it concentrates poverty in one location. Because low-income households would be situated further from high-quality employment possibilities, and their kids would attend underfunded schools with few educational options compared to their classmates in wealthier neighborhoods, there is concern that these initiatives will aggravate economic segregation. The overall implication is that a family's "upward economic and social mobility" would be restricted by the lack of affordable housing (Freedman & Owens, 2011). Affordable housing, on the other hand, offers refuge to underprivileged populations, potentially reducing poverty over time. As new construction in an area is an indication of healthy economic growth, new developments may also draw more business and, consequently, resources for inhabitants in the future (Freedman & Owens, 2011).

Researchers encourage developers to carefully evaluate the opposition some people have to affordable housing for a variety of reasons. First, the issues raised by communities are frequently personal (Woo et al., 2021). Current empirical research may not support their worries about property values, crime, or other problems. Furthermore, individuals who are most vocally opposed might not be aware of the connections between the social effects of housing and health. Families with higher incomes, for instance, frequently voice their opposition to public housing. Even though empirical research has repeatedly demonstrated a link between housing security and



personal health, these same community members are less likely to think so (Chetty et al., 2016; Desmond, 2012; Ludwig et al., 2005; Warren & Font, 2015). Deliberating over how much emphasis to give public resistance is also necessary because giving in to it “undermines 50 years of progress towards residential racial integration” (Tighe, 2012). Although not all opposition to affordable housing is indicative of opposition to racial integration, blocking the construction of affordable housing can hinder low-income households, a disproportionate number of which are people of color, from certain segments of society (Tighe, 2012).

## Housing Choice Vouchers (Section 8)

Housing Choice Vouchers (HCV), also known as Section 8, was created by HUD as Section 8 Certificates in 1974 and Section 8 Vouchers in 1983. Legislation formally replaced both the Section 8 Certificates and Vouchers with the HCV program in 1998 (*Multifamily Housing - Section 8 Background Information - HUD*, n.d., p. 8). The program requires that at least 75 percent of vouchers go towards households with incomes below 30 percent area median income (AMI), and the remaining vouchers go towards households with incomes at or below 80 percent AMI. These vouchers are estimated to assist around 2 million households (Fischer et al., 2021).

There are two types of subsidy vouchers under the HCV program, which are tenant-based vouchers and project-based vouchers. Project-based vouchers are used for subsidized rental units in a specific project where the owner agrees to either rehabilitate or construct the units, or the owner agrees to set aside a portion of the units in an existing development. These units are rented to those with lower incomes, and rent is subsidized back to the property owner. Tenant-based vouchers are beneficial in that individuals and families can have autonomy in choosing where to live, renting from the private market with subsidized payments. Housing that landlords provide must meet HUD standards and requirements, ensuring quality housing. Households using these vouchers generally pay 30 percent of their income, the threshold for rent burden, to the landlords, while the government pays the remaining amount up to Fair Market Rent (FMR).

The FMR is determined by the 40<sup>th</sup> percentile of the rent that recent movers paid in non-luxury units. In New York City, the FMR for FY 2022 is \$2,018 for an efficiency unit, \$2,054 for a one-bedroom unit, \$2,340 for a two-bedroom unit, \$2,952 for a three-bedroom unit, and

\$3,173 for a four-bedroom unit (*FY 2022 Fair Market Rent Documentation System — Calculation for New York, NY HUD Metro FMR Area*, n.d.). Those who live in units above Fair Market Rent must pay the difference. Those who are unable to find housing at these rent levels are subject to being forcefully rent burdened. Given that the median rent in Manhattan surpassed \$4,000 per month in May 2022, then surpassed \$5,000 per month in June 2022, many households may find themselves without any other option (*Elliman Report June 2022, 2022; Elliman Report May 2022, 2022*).

## Low Income Housing Tax Credit (LIHTC)

Established in 1986, the Low-Income Housing Tax Credit (LIHTC) is one of the largest federal programs to encourage affordable housing development. The federal government considers this program to be the “primary policy tool for encouraging the development and rehabilitation of affordable rental housing” (Keightley, n.d.). The number of credits grows by around 100,000 each year, and the program funded over 20 percent of all multifamily developments between 1987 and 2008 (Diamond & McQuade, 2019). LIHTC is the most widely used and one of the most effective forms of developing and improving affordable housing (Woo et al., 2016).

LIHTC provides a reduction in federal income tax liability for investors in rental housing that serves very low-income and low-income households. LIHTC comes in two forms. There are 9 percent credits and 4 percent credits, which refer to the percentage of allowable development costs (eligible basis) that may be credited against the taxes of investors. 9 percent credits are awarded to affordable housing developers on a competitive basis. 4 percent credits are provided as-of-right when a project is financed with tax-exempt bonds. Once awarded LIHTC credits, the developer is able to syndicate (or sell) tax credits to corporate investors to raise equity that is used towards the construction of the project. Tax credit investors receive a reduction in corporate federal income taxes for ten years. The result of a tax credit investment is usually a significant percentage of equity in the project development that reduces the remaining development costs that require financing (*Low-Income Housing Tax Credit – Directory of NYC Housing Programs*, n.d.).

Rather than being solely administered through federal agencies like public housing or HCVs, LIHTC is administered by the IRS and state housing finance agencies (HFAs). New York City's HFA is New York City Housing Preservation and Development (HPD). In order to receive the funding, the HFA must create a qualified allocation plan (QAP), and the plan must prioritize both low-income households and the maintenance of affordable rent for as long as possible. HPD makes its QAP available to the public. Typically, HPD allocates \$12-14 million in credits per year to 20 or more projects creating approximately 1,000 low-income units (*LIHTC - HPD*, n.d.). The process of receiving these tax credits is highly competitive, as states receive two to four times more requests than there is funding available (Baum-Snow & Marion, 2009; Diamond & McQuade, 2019). In New York City, 421-a projects were eligible under some Options for LIHTC credits. The Governor of New York's proposal for 485-w allowed all projects to receive LIHTC credits and remain eligible for tax exemption.

## Outcomes of Affordable Housing

### Poverty and Social Impact

Household wages have not kept up with the cost of housing (Dickler, 2021). Those who earn less are more likely to be burdened with housing costs (*NYCHVS*, 2022). Families who cannot afford housing experience negative societal implications. Though the relationship between poverty and well-being is difficult to prove, households that suffer through poverty and housing instability are more likely to have mental and physical health issues, as well as limited residential mobility (Desmond, 2012; Medina et al., 2020). Eviction rates rise when housing gets more costly since many tenants are unable to afford rent hikes. Families that are unable to locate or afford a place to live fear becoming homeless (Medina et al., 2020).

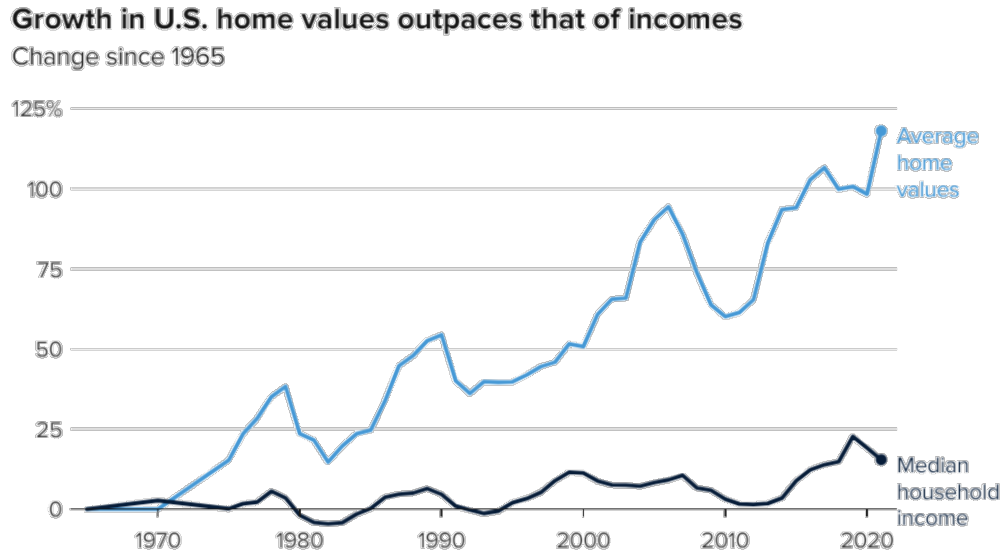


Figure 3: Growth in U.S. Home Values vs. Income (Dickler, 2021)

## Property Values

In the past, it has been challenging to gauge how affordable housing affects the property values of its surroundings. This was a consequence of ineffectual approaches and inadequate sample sizes. Additionally, since property values often rise, researchers find it difficult to establish a link between the presence of an affordable housing community and changes in property values. (Ahrentzen, 2008; Woo & Joh, 2015). Numerous studies compared the values of blocks with affordable housing projects to blocks without these developments in comparable or nearby communities, using observations of hundreds or thousands of sales transactions or developments (Deng, 2011; Diamond & McQuade, 2019; Ellen et al., 2007). Furthermore, research on property values for affordable housing analyzed LIHTC developments specifically, occasionally in addition to other program types (Ahrentzen, 2008; Baum-Snow & Marion, 2009; Diamond & McQuade, 2019; Ellen et al., 2007).

The studies examined found either no statistically significant effects on values or a statistically significant increase in nearby property values, typically in low-income areas. The direction of the influence on property prices varied depending on the sorts of neighborhoods, like many other effects of affordable housing that have been researched, and others observed that

communities nearest to the developments in issue had bigger gains in property prices (Ahrentzen, 2008; Baum-Snow & Marion, 2009; Diamond & McQuade, 2019).

Affordable housing projects typically raised the property prices of the surrounding neighborhoods in low-income communities (Baum-Snow & Marion, 2009; Diamond & McQuade, 2019; Ellen et al., 2007). In one study using collected data on 16 million transactions that occurred within 1.5 miles of a LIHTC development, property prices in 129 counties across 15 states discovered that within 0.1 miles of the development, local property prices rose by 6.5 percent in areas with a median income of less than \$26,000 (Diamond & McQuade, 2019). However, when property values rise in troubled neighborhoods, it may become harder for low-income families to stay in or migrate there, which would have a negative impact on their quality of life (Ikeda, 2018).

Another study showed that property values were favorably impacted by LIHTC developments; however, values were negatively impacted by public housing or developments with project-based Section 8 housing (Ellen et al., 2007). Homes within 2,000 feet of a finished LIHTC property had values that were 3.8 percent higher than those farther away. However, properties next to family-oriented public housing sold for 13.1 percent less than homes within the same census tract. The research revealed that over time, the difference in pricing between properties closer to Section 8 developments or public housing and homes farther away diminished. Three years after construction was finished, the authors discovered that the price difference between public housing communities and the control group had completely disappeared (Ellen et al., 2007).

Property values may rise in various locations for a variety of reasons. One is that upgrading aging housing complexes or creating brand-new housing communities can improve an area's aesthetic appeal (Ahrentzen, 2008; Diamond & McQuade, 2019). New construction indicates positive economic growth and can create vibrancy and attractiveness in otherwise aging communities. Whether developers choose to renovate old structures or create new affordable housing complexes, the effects on values may be the same (Diamond & McQuade, 2019).

One of the most crucial elements of developing high-density or affordable housing is blending the aesthetics of the building with the surroundings. One explanation for this would be

that some higher-income households prefer "neighborhood homogeneity"; therefore, if inexpensive housing is built to appear like other projects, there might be less flight from the area. (Diamond & McQuade, 2019). An emphasis on effective property management and maintenance is critical to preserving neighborhoods' cleanliness and appeal for these households (Ahrentzen, 2008). It is feasible to integrate a project with the neighborhood, as several affordable housing developments have demonstrated. Some locals might not even be aware that a development is a project for affordable housing.

The diversity of incomes may also be contributing to the rise in property values. Market-rate and rent-restricted housing are frequently combined in LIHTC buildings. If LIHTC promotes the relocation of moderate-income households, other higher-income people may follow suit (Diamond & McQuade, 2019). Additionally, this may increase the accessibility of services for local individuals with lesser incomes.

There are several reasons for potential declines in property values in some areas. According to various research, having too many affordable housing units in one place may have a neutral or detrimental impact on values, but because every community is different and has its own features, it is challenging to determine what the threshold is (Ahrentzen, 2008; Baum-Snow & Marion, 2009; Deng, 2011). One study speculated that the high turnover in the communities they analyzed might have been caused by widespread stigma since they discovered that while the AMI fell, the proportion of owner-occupied units remained stable (Baum-Snow & Marion, 2009). In addition, a study of the impact of LIHTC on property prices discovered that depreciation was more likely to happen in towns with a high White population (Diamond & McQuade, 2019). After 1940, Black migration to the metropolis was causally related to White flight to the suburbs, as found in two studies (Boustan, 2010; Boustan & Margo, 2011).

## Social Impact Outcomes

When families obtain certain affordable housing subsidies, such as HCVs, they realize numerous positive social impacts. The studies examined here compared voucher recipients to control groups, which were often people who lived in public housing, in order to assess the social effects vouchers had on families (Carlson et al., 2012; Chetty et al., 2016; Ludwig et al., 2005; Nguyen et al., 2017). These studies utilized data from HUD, social assistance, and historical

data. Some conducted research that followed families for three to ten years in order to assess the long-term consequences on families (Carlson et al., 2012; Chetty et al., 2016). The research found that families using HCVs benefited more than families living in homeless shelters, rapid rehousing, or project-based voucher housing (Nguyen et al., 2017). Vouchers are advantageous because they can help families achieve improvements in their income, which enables them to better care for their kids and leave shared housing (Carlson et al., 2012). HCV families were more likely to obtain their own place to live and less likely to return to a homeless shelter than families living in public housing or shelters. Furthermore, families with HCVs are more likely to relocate to places with greater opportunities for economic mobility, resources, and access to services (Carlson et al., 2012).

Moving to Opportunity, or MTO, was a 10-year, randomized experiment carried out by HUD in 1994 (NBER, n.d.). 4,600 families living in public housing were given tenant-based vouchers as part of this experiment; however, the study mandated that one of the experimental groups only spend their vouchers in low-poverty regions (NBER, n.d.). A significant amount of research has concentrated on this particular initiative because it offered some of the most informative data about the impact of relocating families from high-poverty to low-poverty areas. Allowing families to relocate to better areas has a few statistically significant advantages (Ludwig et al., 2005). After relocating to low-poverty areas, families utilized welfare 11 to 16 percent less frequently than families that stayed in high-poverty areas. Additionally, families in low-poverty areas had a higher likelihood of not receiving assistance. The MTO trial also revealed that it enhanced people's physical and emotional wellness as moving to a safer area might also increase safety and the perception of wellbeing (Ludwig et al., 2005).

Children can also benefit from the MTO experiment's related research findings. Children who relocated from high- to low-poverty neighborhoods can see a \$100,000 gain in their future incomes (Diamond & McQuade, 2019). Children who obtained housing vouchers in better neighborhoods had lower high school dropout rates, greater salaries, and higher college attendance rates than children living in public housing (Chetty et al., 2016). As a result of these vouchers, kids were less likely to grow up in high-poverty regions, which aided in reducing "the intergenerational persistence of poverty and generate positive returns for taxpayers" (Chetty et al., 2016). There is also a correlation to a decrease in teen violence, which has "benefits to

society on the order of \$22,900 for each family allocated to the experimental group and \$20,600 for the Section 8-only group" at the time the MTO trial was undertaken (Ludwig et al., 2005).

## New York City Housing Affordability Analysis

### Availability and Need

According to the New York City Housing and Vacancy Survey (NYCHVS), initial findings released in May 2022 by New York City Housing Preservation and Development and conducted in tandem with the U.S. Census Bureau, the number of available apartments for low- and middle- income New Yorkers reached a 30-year low in 2021 (*NYCHVS*, 2022). Less than 1 percent of all apartments priced below \$1,500 per month sit empty, an “extreme vacancy shortage” and the lowest rate since 1991 (*NYCHVS*, 2022). Citywide, about 4.5 percent of New York City’s roughly 2.3 million apartments were vacant and available for rent last year, up from 3.63 percent the last time the survey was conducted in 2017. Under state law, a vacancy rate below 5 percent allows New York City to declare a “housing emergency” and triggers the continuation of rent-stabilization for more than 1 million apartments citywide. The vacancy rate has never surpassed 5 percent since the survey began in 1965 (*NYCHVS*, 2022).

The median monthly asking rent on vacant apartments was \$2,750 during the survey period, from February to July 2021, meaning household income would need to top \$110,000 for a tenant to pay less than 30 percent of their earnings on rent, the threshold at which a tenant is considered “rent-burdened” (*NYCHVS*, 2022). More than half of New York City renter households met that threshold last year, the report found. At least 13 percent of tenants reported missing at least one rent payment (*NYCHVS*, 2022). The findings also mean that the median household income for renters, \$50,000, would have to more than double to keep up with the median asking rent (*NYCHVS*, 2022).

The survey exemplifies the affordable housing crisis in New York City, with units at the lowest end of the market, priced below \$900 per month, just 0.86 percent vacant, and available for rent. Similarly, only 0.93 percent of apartments priced between \$900 and \$1499 were vacant. Conversely, 12.64 percent of units priced above \$2,300 were vacant and available for rent.



The disparities in vacancy rates are a reflection of the overall declining availability of affordable housing citywide. The survey indicated that between 2017 and 2021, New York City lost about 96,000 units priced below \$1,500 per month while adding about 107,000 units renting for \$2,300 or more (NYCHVS, 2022). That dramatic loss of affordable housing continues a 30-year trend across the five boroughs, in which New York City has lost about 500,000 units priced below \$1,500 since 1991 while adding about 500,000 priced at \$2,300 or more (NYCHVS, 2022).

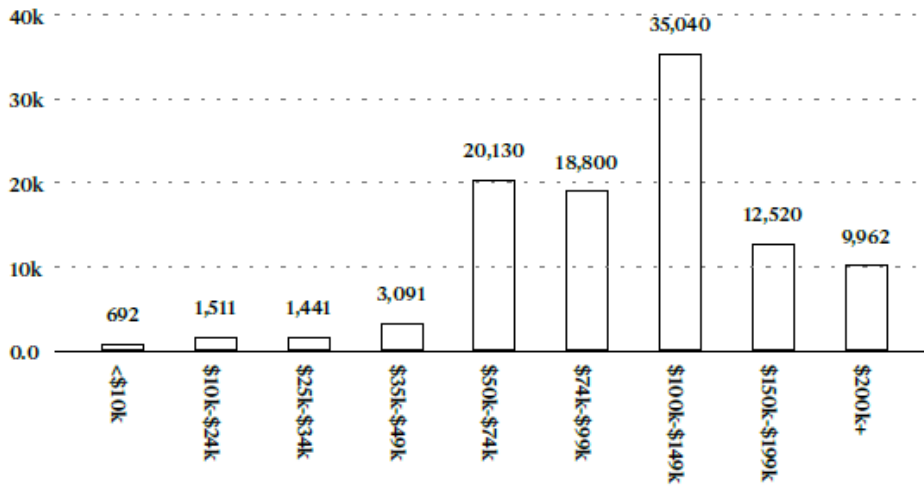


Figure 4: Incomes Needed to Afford Vacant Units Available for Rent (NYCHVS, 2022)

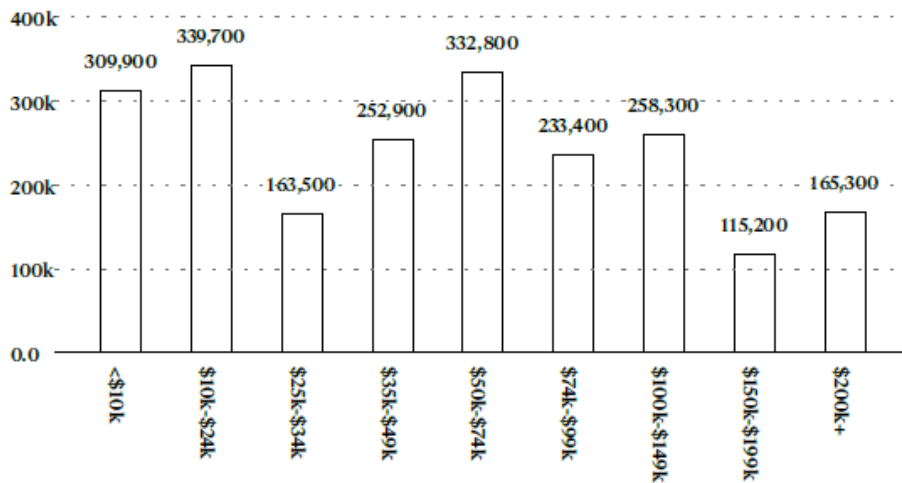


Figure 5: Household Income of Renters (NYCHVS, 2022)

## Rent Burden and Prices

Rent burden has long been an issue for an overwhelming number of New York City residents. The New York City Housing and Vacancy Survey (NYCHVS) has underscored a longstanding trend of dwindling affordability. Many New York City renters struggled to make ends meet, with 13 percent of renter households reported missing a rent payment in the last year at the time of the survey. The survey also indicates that since 2011, the level of rent-burdened households has remained high, with half of the city’s renter households rent-burdened or spending more than 30 percent of their income on rent. One-third of the city’s renters are severely rent-burdened or spend over half of their income on rent (*NYCHVS*, 2022). 85 percent of households with a household income below \$24,999 are severely rent burdened (*NYCHVS*, 2022).

	Renter Households								
	Severely Burdened		Moderately Burdened		Not Burdened		Means-Tested Housing		Total
	%	MOE	%	MOE	%	MOE	%	MOE	
<b>Citywide</b>	28%	±1%	18%	±1%	40%	±1%	14%	±1%	100%
<b>Missed Rental Payments</b>									
1+ Times Last Year	17%	±2%	12%	±2%	9%	±1%	19%	±3%	289,300
Still Owed Rent at Time of Interview	39%	±6%	21%**	±8%**	22%**	±8%**	28%	±6%	84,300
<b>Alternate Rental Payments</b>									
1+ Alternate Payment Method	19%	±2%	14%	±3%	13%	±2%	15%	±2%	328,400
Paid out of savings	13%	±1%	10%	±2%	10%	±2%	7%	±1%	221,700
Borrowed money	6%	±1%	3%**	±1%**	3%	±1%	5%	±1%	91,200
<b>Total Units</b>	598,600	±32,880	399,600	±26,130	875,700	±29,090	297,100	±11,760	2,171,000

Figure 6: Inability to Pay Rent by Levels of Rent Burden (NYCHVS, 2022)

	Renter Occupied Households not in Means-Tested Housing									Total
	Severely Rent Burdened			Moderately Rent Burdened			Not Rent Burdened			
	Estimate	MOE	%	Estimate	MOE	%	Estimate	MOE	%	
<b>Householder Characteristics</b>										
<b>Race/Ethnicity</b>										
White Non-Hispanic	187,100	±16,890	28%	147,200	±14,490	22%	343,300	±25,500	51%	677,600
Black Non-Hispanic	130,700	±15,060	36%	70,380	±10,570	19%	163,600	±15,200	45%	364,680
Hispanic	190,100	±17,380	36%	119,300	±14,120	23%	216,400	±16,840	41%	525,800
Asian Non-Hispanic	82,870	±12,760	29%	56,560	±10,520	20%	142,900	±15,040	51%	282,330
Other or Two or More Races	**	**	**	6,117**	±3,233**	2%**	**	**	**	23,453
<b>Nativity</b>										
Foreign-Born	233,400	±21,840	32%	167,500	±17,180	23%	317,900	±23,070	44%	718,800
<b>Household Characteristics</b>										
1+ Older Adult	185,800	±17,490	40%	98,990	±13,760	21%	179,400	±16,470	39%	464,190
1+ Child	114,800	±14,230	30%	75,420	±10,370	20%	187,500	±16,740	50%	377,720
Single Person	343,000	±23,910	43%	186,800	±17,670	23%	276,200	±19,730	34%	806,000
1+ Person with a Disability	132,300	±14,290	42%	60,620	±10,170	19%	123,900	±13,580	39%	316,820
<b>Household Income</b>										
< \$24,999	393,600	±26,690	85%	30,870	±9,548	7%	38,680	±7,694	8%	463,150
\$25,000-\$49,999	154,700	±15,150	44%	145,100	±13,580	42%	48,350	±9,771	14%	348,150
\$50,000-\$99,999	44,090	±9,635	8%	182,500	±18,750	34%	306,800	±20,140	58%	533,390
\$100,000+	**	**	**	41,180	±8,349	3%	481,900	±28,450	38%	1,281,468
<b>Citywide</b>	<b>598,600</b>	<b>±32,880</b>	<b>32%</b>	<b>399,600</b>	<b>±26,130</b>	<b>21%</b>	<b>875,700</b>	<b>±29,090</b>	<b>47%</b>	<b>1,873,900</b>

Figure 7: Rent Burden by Household Composition and Income (NYCHVS, 2022)

## Residential Crowding

One option of retaining shelter for those with the lowest income in a city without available, affordable housing is by having residents share rooms. Overcrowding is defined by more than one occupant per living space, excluding bathrooms and most kitchens. The NYCHVS shows that 8 percent of renter households live in overcrowded conditions. For households with one or more children, this jumps to 26 percent.

Householder Characteristics	Occupied Households			Total
	Crowded			
	Estimate	MOE	%	
<b>Race/Ethnicity</b>				
White Non-Hispanic	57,210	±10,100	5%	1,144,000
Black Non-Hispanic	38,510	±7,753	6%	670,100
Hispanic	85,610	±9,880	11%	810,800
Asian Non-Hispanic	60,880	±10,750	12%	491,200
Other or Two or More Races	**	**	**	40,510
<b>Nativity</b>				
Foreign-Born	149,900	±14,220	12%	1,209,000
<b>Household Characteristics</b>				
1+ Older Adult	64,050	±10,030	6%	1,050,000
1+ Child	174,900	±16,150	26%	680,300
1+ Person with a Disability	45,470	±7,267	7%	659,100
<b>Household Income</b>				
< \$24,999	41,260	±7,872	5%	808,100
\$25,000-\$49,999	46,880	±9,172	9%	526,000
\$50,000-\$99,999	69,970	±9,772	9%	794,200
\$100,000+	87,550	±10,800	9%	1,029,000
<b>Citywide</b>	<b>245,700</b>	<b>±20,030</b>	<b>8%</b>	<b>3,157,000</b>

Figure 8: Crowding by Household Composition and Income (NYCHVS, 2022)

## Legacy of Racial Segregation

Racial segregation's effects are still being felt in housing in New York City, as in many other parts of the country. This mainly stems from redlining, a term described as the "practice of denying a creditworthy applicant a loan for housing in a certain neighborhood even though the applicant may otherwise be eligible for the loan" (*Fair Housing Act*, n.d.). The phrase originates from government homeownership initiatives established as part of the New Deal in the 1930s. In order to prevent a major wave of foreclosures following the Great Depression, the programs offered government-insured mortgages for homeowners (Jackson, 2021).

Beginning in 1935, the Homeowners Loan Corporation set criteria for evaluating and screening residences and homeowners who would qualify as these programs expanded. In more than 200 American cities and towns, they utilized color-coded maps to rate the credit quality of areas. From least hazardous (and White) to most risky, the neighborhoods were ranked from "A" to "D." The federal government designated "D" regions as locations where property values were most likely to decrease, and the areas were highlighted in red, indicating that these communities were unsuitable for inclusion in homeownership and financing programs. By design, Black people predominantly lived in neighborhoods ranked "D" (Aaronson & Mazumder, 2017; Jackson, 2021).

For example, an area was labeled yellow, "largely because the school for white children is in the negro area, D-8, and because the negroes of D-8 pass back and forth for access to William Byrd Park which lies to the west" (Gaffud, 2021). The blatant racism of these maps has had lasting economic consequences. Redlining and its rating system were prohibited by the Fair Housing Act in 1968 (*Fair Housing Act*, n.d.). However, research on 149 major U.S. cities discovered that detrimental impacts persisted in the areas where these borders were set as late as 2010 (Aaronson & Mazumder, 2017). The study discovered that decades after the boundaries were created, neighborhoods that were previously designated "C" and "D" had lower property values, lower homeownership rates, lower rent costs, and greater vacancy rates. Additionally, this study found higher rates of racial segregation between the formerly "C" and "D" neighborhoods (Aaronson & Mazumder, 2017). This segregation can have an impact on equality of opportunity.

One study shows that in New York City, redlined areas have a direct correlation to areas that experience higher poverty rates, life expectancy, and obesity problems in the city today (Gaffud, 2021). This study also showed that these areas, still with high densities of Black people, are in areas of higher heat vulnerability. Given that in New York City, Black people die of heat-related illnesses at disproportionately high rates, this correlation is significant (Gaffud, 2021). It is beneficial to look at past redlining in relation to the current housing crisis since doing so highlights the connection between housing and instances of social vulnerability.

In 2019, a report on New York City's affordable housing lotteries was released after two years of lawyers for New York City fighting to keep it secret. They argued that its release would insert an unfavorable and "potentially incorrect analysis into the public conversation." (Beveridge, n.d.; Goodman, 2019). It found that the city's policy of giving preference to local residents, by zip code, for new affordable housing helps perpetuate racial segregation. The study analyzed data from 7.2 million affordable housing applications for 10,245 city-subsidized apartments from 2012 to 2017, along with demographic and other information about applicants, comparing that to census data for the areas surrounding the apartments on offer (Beveridge, n.d.). In every instance, the study found that the predominant racial group of an area had a strong advantage over others, exacerbating racial segregation.



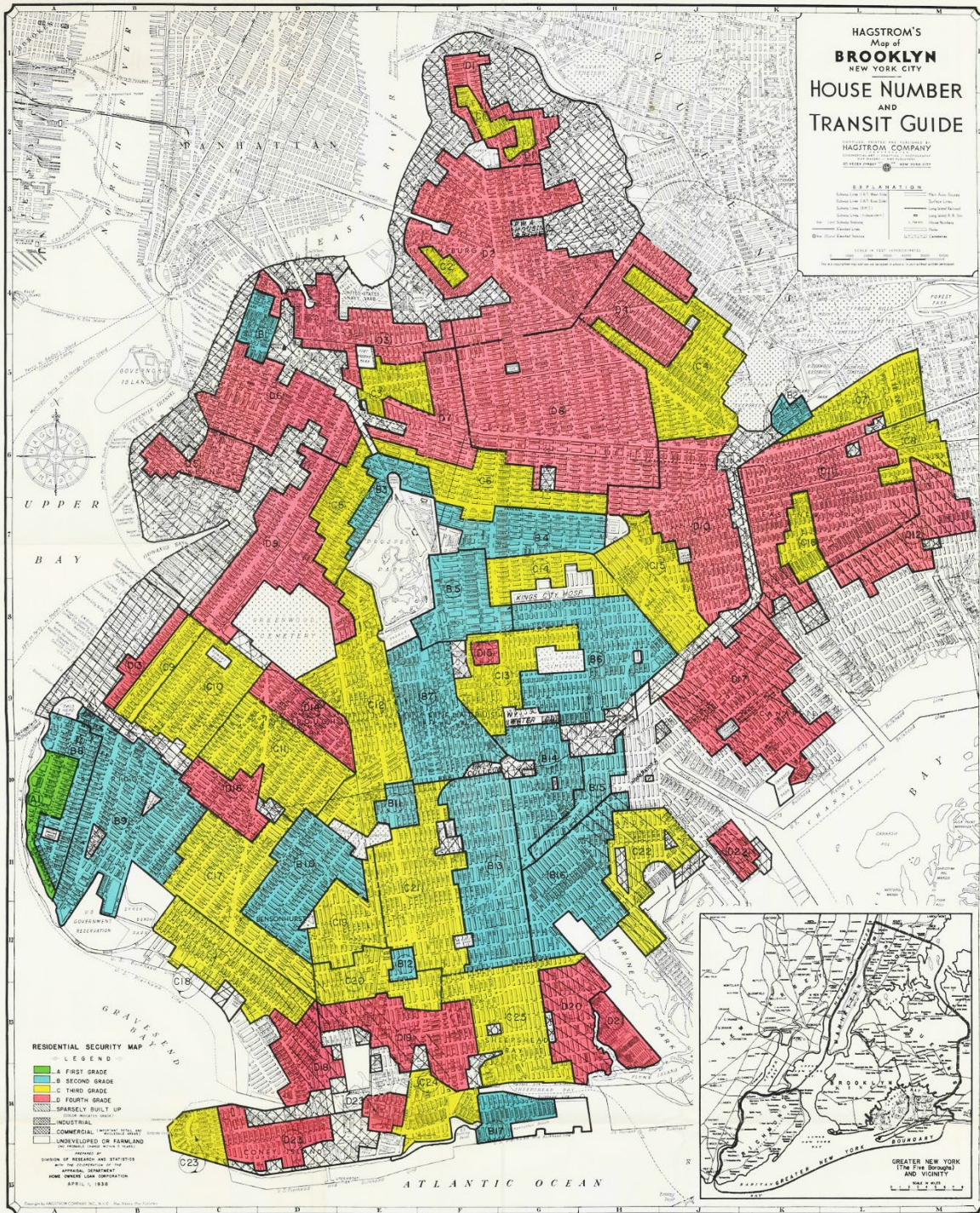


Figure 9: The 1938 Home Owners' Loan Corporation Map of Brooklyn (Jackson, 2021)

## Types of Residential Rental Units

Most rental units in New York City can be characterized into three broad categories: private unregulated, private regulated, and subsidized (*NYC Rent Guidelines Board*, n.d.). Private unregulated units make up about 937,000 of New York City's 2.2 million rental units. These are available on the private market without any regulation as to how much rent can be charged, whether a lease is offered, and how much the rent can raise upon release. Unregulated private market units are also called market rate units (*NYC Rent Guidelines Board*, n.d.).

Private regulated market units are rent-regulated housing that includes both rent-controlled units and rent-stabilized units. For these units, rent increases are set by a government agency, and tenants have greater legal protections compared to those living in market-rate housing.

Rent-controlled units are subject to an older form of rent regulation and are generally in pre-war buildings where the current occupants or their successors have been in continuous residence since before July 1, 1971 (*NYCHVS*, 2022). Rent-stabilized units are subject to rent regulation through the Emergency Tenant Protection Act (ETPA) or as a result of participation in affordable housing or tax incentive programs.

Subsidized housing makes up about 258,000 of New York City's 2.2 million units. The rental rates in these apartments may be tied to income and may include other qualifying conditions, such as age or disability. Units in this category include Section 8, Mitchell-Lama, public housing, and affordable housing (*NYCHVS*, 2022; *NYC Rent Guidelines Board*, n.d.)



## Area Median Income (AMI)

Area median income (AMI) is used in determining eligibility for affordable housing programs at the federal and sometimes local levels. It is a particularly powerful measure that affects millions of people that may be impacted by any policies that leverage AMI or AMI levels (*Area Median Income - HPD*, n.d.). AMI is set by the U.S. Department of Housing and Urban Development and based on the U.S. Census Bureau's American Community Survey median family income estimates. HUD calculates the median family income (MFI) at 100 percent and then extrapolates the 30 percent, 50 percent, and 80 percent limits for use with the Section 8 program.

The final HUD 30 percent, 50 percent, and 80 percent boundaries, however, sometimes differ from the outcomes obtained by multiplying the area MFI by 30 percent, 50 percent, or 80 percent. According to the law, except in areas with particularly high housing costs compared to median incomes, the very low income (50 percent) area limit cannot exceed 80 percent, and the 80 percent limit cannot exceed 100 percent of the national median family income (MFI). When housing costs are particularly high or low, HUD changes the limit by lowering it if it is higher than what is needed to afford the fair market rent (FMR) at 30 percent of income and raising it if it is lower than what is needed to afford 85 percent of the FMR at 35 percent of income (*CHPA*, 2011). An area's very-low-income limit cannot be lower than 50 percent of the non-metropolitan MFI for a state. A new HUD guideline that went into effect in 2010 limits annual increases and decreases in area limitations to 5 percent or, if more, twice the annual percentage change in the national median income. Its previous "hold harmless" policy, which precluded reductions in yearly income limitations, is replaced by this. HUD first determines the 50 percent restriction, then determines the 80 percent and 30 percent limits based on the 50 percent limit (i.e., multiplies the 50 percent limit by 1.6 or 0.6), and then compares the outcomes to the other statutory requirements (*CHPA*, 2011).

New York City uses HUD's determination of 100 percent AMI for a three-person household as the basis for its local programs. The 2022 AMI for the New York City region is \$120,100 for a three-person family (100 percent AMI) (*Area Median Income - HPD*, n.d.). From there, the City determines AMIs from 30 percent to 165 percent.

<b>Family Size</b>	<b>30% AMI</b>	<b>40% AMI</b>	<b>50% AMI</b>	<b>60% AMI</b>	<b>70% AMI</b>	<b>80% AMI</b>
<b>1</b>	\$28,020	\$37,360	\$46,700	\$56,040	\$65,380	\$74,720
<b>2</b>	\$32,040	\$42,720	\$53,400	\$64,080	\$74,760	\$85,440
<b>3</b>	\$36,030	\$48,040	\$60,050	\$72,060	\$84,070	\$96,080
<b>4</b>	\$40,020	\$53,360	\$66,700	\$80,040	\$93,380	\$106,720
<b>5</b>	\$43,230	\$57,640	\$72,050	\$86,460	\$100,870	\$115,280
<b>6</b>	\$46,440	\$61,920	\$77,400	\$92,880	\$108,360	\$123,840
<b>7</b>	\$49,650	\$66,200	\$82,750	\$99,300	\$115,850	\$132,400
<b>8</b>	\$52,830	\$70,440	\$88,050	\$105,660	\$123,270	\$140,880

<b>Family Size</b>	<b>90% AMI</b>	<b>100% AMI</b>	<b>110% AMI</b>	<b>120% AMI</b>	<b>130% AMI</b>	<b>165% AMI</b>
<b>1</b>	\$84,060	\$93,400	\$102,740	\$112,080	\$121,420	\$154,110
<b>2</b>	\$96,120	\$106,800	\$117,480	\$128,160	\$138,840	\$176,220
<b>3</b>	\$108,090	\$120,100	\$132,110	\$144,120	\$156,130	\$198,165
<b>4</b>	\$120,060	\$133,400	\$146,740	\$160,080	\$173,420	\$220,110
<b>5</b>	\$129,690	\$144,100	\$158,510	\$172,920	\$187,330	\$237,765
<b>6</b>	\$139,320	\$154,800	\$170,280	\$185,760	\$201,240	\$255,420
<b>7</b>	\$148,950	\$165,500	\$182,050	\$198,600	\$215,150	\$273,075
<b>8</b>	\$158,490	\$176,100	\$193,710	\$211,320	\$228,930	\$290,565

Figure 10: Table of New York City Area AMI  
(Area Median Income - HPD, *n.d.*; FY 2021 Income Limits Documentation System -- Summary for New York, NY HUD Metro FMR Area, *n.d.*)

Once the AMIs have been set, New York uses the rent-burden factor of 30 percent to determine a maximum affordable monthly rent for each AMI at each unit size (*Area Median Income - HPD, n.d.*).

<b>Unit Size</b>	<b>30% AMI</b>	<b>40% AMI</b>	<b>50% AMI</b>	<b>60% AMI</b>	<b>70% AMI</b>	<b>80% AMI</b>
<b>Studio</b>	\$700	\$934	\$1,167	\$1,401	\$1,634	\$1,868
<b>One Bedroom</b>	\$750	\$1,001	\$1,251	\$1,501	\$1,751	\$2,002
<b>Two Bedroom</b>	\$900	\$1,201	\$1,501	\$1,801	\$2,101	\$2,402
<b>Three Bedroom</b>	\$1,040	\$1,387	\$1,734	\$2,081	\$2,428	\$2,775

<b>Unit Size</b>	<b>90% AMI</b>	<b>100% AMI</b>	<b>110% AMI</b>	<b>120% AMI</b>	<b>130% AMI</b>	<b>165% AMI</b>
<b>Studio</b>	\$2,101	\$2,335	\$2,568	\$2,802	\$3,035	\$3,852
<b>One Bedroom</b>	\$2,252	\$2,502	\$2,752	\$3,003	\$3,253	\$4,129
<b>Two Bedrooms</b>	\$2,702	\$3,002	\$3,302	\$3,603	\$3,903	\$4,954
<b>Three Bedrooms</b>	\$3,121	\$3,468	\$3,815	\$4,162	\$4,509	\$5,723

*Figure 11: Table of 2022 New York City Area Affordable Monthly Rents (Area Median Income - HPD, n.d.)*

New York also sets income bands from “Extremely Low-Income” to “Middle Income” based on AMI for use in determining eligibility criteria and tenant selection criteria for certain programs (*Area Median Income - HPD, n.d.*).

<b>Income Band</b>	<b>Percent of AMI</b>
<b>Extremely Low-Income</b>	0-30%
<b>Very Low-Income</b>	31-50%
<b>Low-Income</b>	51-80%
<b>Moderate-Income</b>	81-120%
<b>Middle-Income</b>	121-165%

*Figure 12: Table of 2022 New York City Area Income Bands and Percent of AMI (Area Median Income - HPD, n.d.)*

## Policies and Practices

The scope of this thesis is focused solely on one policy measure, 421-a, which gives building owners a tax abatement in exchange for providing a number of affordable units within a market rate residential development. There are almost twice as many buildings receiving 421-a abatements compared to the next most common type of residential subsidy, with 68 percent of residential buildings with four or more units receiving 421-a tax exemptions (Raetz & Murphy, 2022).

New York City provides a number of other programs to private real estate developers. Some of these programs can be used in conjunction with 421-a on projects to essentially double-up on subsidies or density bonuses, making returns even more attractive. The following programs are administered by New York City Housing Preservation and Development (HPD) and could be used under some options of 421-a:

### **Extremely Low & Low-Income Affordability (ELLA)**

ELLA funds the new construction of low-income multifamily rental projects in which a minimum of 80 percent of the units are at low-income rents affordable to households earning up to 80 percent AMI. Up to 20 percent of the units may have rents affordable to moderate-income households earning between 90 percent to 100 percent AMI. At least 15 percent of units must be set aside for formerly homeless households (*HPD ELLA Term Sheet, 2021*).

### **Inclusionary Housing Program (IHP)**

IHP is designed to preserve and promote affordable housing within neighborhoods where zoning has been modified to encourage new development through either Voluntary Inclusionary Housing, in areas where development may receive a density bonus in return for the new construction, substantial rehabilitation, or preservation of permanently affordable housing or Mandatory Inclusionary Housing in rezoned areas (*Inclusionary Housing - HPD, n.d.*).

### **Mixed-Income Program (Mix & Match)**

Mix & Match funds the new construction of mixed-income multifamily rental projects in which 40 percent to 60 percent of the units are at low-income rents affordable to households earning up to 80 percent AMI, and the other 40 percent to 60 percent of units have rents affordable to moderate and/or middle-income households earning up to 120 percent AMI (*Mixed Income Program: Mix & Match Term Sheet, 2021*).

### **Neighborhood Construction Program (NCP)**

NCP funds the new construction of infill rental housing with up to 30 units affordable to low, moderate, and middle-income households earning up to 165 percent AMI (*Neighborhood Construction Program (NCP) Term Sheet, 2021*).

## **Summary**

The focus of the literature on national affordable housing policy is generally on one of three types: (1) Public Housing, (2) Housing Choice Vouchers, or (3) Low Income Housing Tax Credits (LIHTC). Public housing is fully government-funded residential properties subsidized for

those with low incomes. Public housing programs and units are managed and administered by local Public Housing Agencies (PHAs). Housing Choice Vouchers (HCVs), also known as Section 8, come in two types: (1) tenant-based vouchers and (2) project-based vouchers. Tenant-based vouchers subsidize rent payments and allow individuals and families to have autonomy in where they live, renting from the private market. Project-based vouchers are subsidies given to specific projects to construct or rehabilitate units set aside for those with low income. LIHTC is a federal program that provides a tax credit to the construction of new or substantially rehabilitated residential projects that include affordable units for low-income households. 421-a projects, the focus of this thesis, are eligible to pursue LIHTC credits under certain Options.

New York City also has a number of programs designed to make affordable housing more feasible for developers and more abundant for low-income households. The focus of this thesis is 421-a which is explained in depth in the following chapter. Other New York City programs, administered by New York City Housing Preservation and Development (HPD), can sometimes be used in tandem with 421-a projects, allowing developers to essentially double-up on subsidies.

Social outcomes and property values in relation to federal programs have been heavily studied. Affordable housing projects, particularly LIHTC projects, typically raise surrounding property values. Low-income families generally enjoy a richer quality of life, health, wealth creation, and education when given access to affordable housing. This is particularly true when given the ability to find affordable housing in neighborhoods generally out of reach. 421-a projects are typically in these neighborhoods, and residents may have similar outcome benefits.

# 03 Background on 421-a

## Concept

The largest single source of revenue for local governments in New York State is the real property tax (*OSC*, 2013). Property tax exemptions reduce real property tax bills by excluding all or a portion of a property's assessed value from the tax base (*OSC*, 2013). Tax abatements come in many forms, including tax exemption for government properties and for properties owned by non-profit organizations (*OSC*, 2013). However, residential tax exemptions, generally partial tax exemptions in the state of New York, make up the vast majority of real property tax exemptions (*OSC*, 2013).

The most widely discussed tax abatement in New York City is 421-a. There are almost twice as many buildings receiving 421-a abatements relative to the next most common type of residential abatement. In residential properties of four or more units, 68 percent benefitted from 421-a, 21 percent used a separate program that provided property tax relief, and the remaining may not have used any form of property tax relief. (Raetz & Murphy, 2022)

The original 421-a tax abatement program, named after section 421-a of the New York Property Tax Law, began in 1971. The 421-a exemption keeps property taxes for the developer steady during construction and for a period of time (i.e., exemption period) after construction. This helps to decrease the large tax burden that an increased valuation of the property would create for the developer. The program was meant to encourage developers to build multifamily residential buildings on underutilized land.

Over time, an emphasis on affordable housing was folded into the program, as described in the following sections. The goal of affordable housing inclusion was to increase affordable housing production without the direct use of city capital. The municipality avoids direct capital infusions by incentivizing private capital returns through tax abatements to private developments. The majority of 421-a rental buildings with affordable units are situated in the most affluent parts of the city. As a result, the subsidy needed to make these apartments accessible to low-income New Yorkers is disproportionately large. By subsidizing affordable

units in more prosperous neighborhoods, the city helps to deconcentrate poverty and promote neighborhood diversity, but at a cost (*NYU Furman NYC Housing 10 Issues*, 2013).

## History of 421-a

### Introduction of 421-a, 1971-1984

Residential housing construction declined in the 1970s as more people moved from cities to suburbs. In response, to incentivize residential development during this period of stagnation, 421-a was introduced in 1971 (Bindelglass, 2016). The original program offered developers zero property taxes for the construction period, after which began a ten-year exemption period. This exemption period began with two years of full exemption from increases, followed by a 20 percent decrease every following two years (Perlman, n.d.). This meant that beginning at year three, the project was 80 percent exempt, at year five the project was 60 percent exempt, and so on. After the tenth year, the developer would begin paying property taxes in full, mandated for the total value of the property (Perlman, n.d.).

In 1976, the state legislature passed amendments preventing New York Housing Preservation and Development (HPD) from rescinding 421-a for projects started on or after July 1, 1976 (Konopko, n.d.). The program was extended for another four years in 1977. In 1978, the requirement that privately owned buildings must contain at least six dwelling units was removed. Amendments in 1981 made non-condominiums subject to rent stabilization laws (Husock & Armlovich, 2015). This was a change from when non-condominiums were only temporarily subjected to stabilization laws. Amendments also allowed HPD to restrict access to the program for areas that did not need tax incentives or for sites that should be used for non-residential purposes (Konopko, n.d.). In 1983, certain cities were permitted to limit, restrict, or condition the benefits of 421-a. This set of amendments also rescinded the 421-a exemption for multifamily dwellings that were converted to non-residential use (Konopko, n.d.). Amendments in the early 1980s allowed for legislation to fold affordable housing requirements into the program in 1984 (Husock & Armlovich, 2015; Konopko, n.d.).



## Geographic Exclusion Area and Affordable Housing Requirements, 1984

Changes made to 421-a in 1984 mandated that the New York City Board of Estimate review all local restrictions on 421-a benefits for approval (Konopko, n.d.). The State also passed laws that officially restricted benefits for projects in Manhattan. Areas in Manhattan that were considered eligible for exemption were reduced, and previously non-commercial sites now had to be underutilized for three years prior to construction to become eligible for the 421-a tax exemption. Further, in 1985, projects located in the restricted areas, or Geographic Exclusion Areas (GEA), could only benefit from the 421-a exemption if they received financial assistance from any level of government or had 20 percent of housing units certified by HPD to be affordable. At that time, the restricted area was roughly bounded on the south by 14th Street and 96th Street to the north (Konopko, n.d.). Outside of this restricted zone, projects still had an “as-of-right” exemption between 10 and 15 years. Projects were allowed a 25-year exemption if they were in a neighborhood preservation area, eligible for mortgage insurance made available by the mortgage insurance corporation, or received funding under the Neighborhood Reinvestment Corporation Act. This legislation also defined the “construction period” to have a limit of three years or less (Husock & Armlovich, 2015; Konopko, n.d.).

## Geographic Exclusion Area Expansion, 2006

In 2006, the Geographic Exclusion Area (GEA) expanded to include neighborhoods outside of Manhattan. The tax exemption still applied to the entire city, but requirements for affordable housing only affect construction projects in the GEA. The GEA generally included areas located where housing prices were the highest and where affordable housing was the most needed. The entire GEA was in New York City, with none in the rest of New York State. For the portion of the GEA in Manhattan south of 110th Street, developers had to provide affordable housing in order to get any 421-a tax benefits (Husock & Armlovich, 2015). For such projects, a ten-year tax exemption could be obtained through building affordable units offsite via a “negotiable certificate” from HPD or a 20-year tax exemption for building affordable on-site units. In the rest of the GEA, there was a 15-year exemption off-site and a 25-year on-site. Outside of GEA, negotiable certifications were prohibited, with a 15-year exemption allowed for

any residential project and a 25-year exemption if affordable housing was built in the building (Husock & Armlovich, 2015).

## 421-a (16) Affordable New York, 2016-2022

### Affordable New York, 2016

In 2015, the New York State government agreed to renew 421-a, extending it for another four years. The state extended the program conditionally, setting a requirement that workers and developers come to an agreement on whether workers on 421-a projects would be paid union-level wages. Developers stated this would increase construction costs dramatically. New York City's Independent Budget Office estimated that union-level wages would increase the cost of Mayor DeBlasio's affordable housing plan by \$2.8 billion (Stefanski, 2016). The extension would be void if an agreement was not reached by January 15, 2016.

An agreement was not made in time, and the 421-a program lapsed on January 15, 2016 (Bindelglass, 2016). Governor Cuomo brought together union leaders and real estate executives to create a deal on paying union-level wages on 421-a projects. Policy makers and industry leaders went back and forth until November 2016, when an agreement was finally made to pay \$60 per hour on covered projects in Manhattan and \$45 per hour on covered projects within a mile of the East River waterfront in Queens and Brooklyn (Bindelglass, 2016; *HPD 421-a*, n.d.).

The 421-a program was officially renewed in 2017 as part of the passage of New York State's budget with various program changes and a new name, Affordable New York. Chapter 59 of the Laws of 2017, which took effect on April 10, 2017, renamed tax exemptions issued pursuant to Real Property Tax Law Section 421-a as the Affordable New York Housing Program, also known as Affordable New York (*HPD 421-a*, n.d.). The renewed 421-a was retroactively available to projects that started between January 1, 2016, and June 15, 2022, and are completed on or before June 15, 2026 (*HPD 421-a*, n.d.). This change also legislatively established requirements regarding minimum average hourly wage requirements for construction workers in rental projects containing three hundred or more dwelling units (Stein & Chatterjee, 2022). The 2017 version of 421-a also allowed some building owners with expiring 421-a exemptions to extend their benefits for up to 35 years (Stein & Chatterjee, 2022).

Changes at this time also established a new 421-a tax program, provided that the new program would not come into effect until representatives of residential real estate developers and construction labor unions signed a memorandum of understanding regarding wages of construction workers performing work on 421-a projects that contain more than 15 units.

## Housing Stability and Tenant Protection Act (HSTPA)

In June 2019, Governor Cuomo signed the Housing Stability and Tenant Protection Act of 2019 (HSTPA) which made permanent a series of reforms to the rent laws. The HSTPA established rent stabilization as an option for localities statewide and repealed high vacancy deregulation, high-income deregulation, and vacancy decontrol (*NY HCR HSTPA*, 2020). It also reformed the rent increase system for rent control tenants and established stronger tenant protections statewide with changes to security deposit regulation and eviction guidelines (*NY HCR HSTPA*, 2020). Tenant groups cheered the passage of HSTPA, while landlord groups worried that some provisions might undermine their ability to build and maintain residential rental buildings. Following the passage, some housing advocates called for the repeal of 421-a, citing that developers were benefitting excessively relative to the amount of affordable housing being built (*NYDN*, n.d.).

### 421-a(16) Eligibility Requirements

421-a(16) Affordable New York was available to projects that commenced between January 1, 2016, and June 15, 2022, when it expired. Under this iteration of the program, residential developments had seven options to meet the requirements for tax exemption. Six of these options are shown in Figure 13: 421-a Options A, B, C and Figure 14: 421-a Options E, F, G. One of these options, Option D, is omitted because it is specifically for homeownership projects which fall outside the scope of this thesis (*HPD 421-a*, n.d.).

The tax exemption provided by 421-a(16) is an exemption of increases in tax resulting from the development. The incentive provided by 421-a(16) is specifically for the additional tax base incurred due to increased valuation of a property as a result of new development or major improvements. The taxes levied against the building owner remain at the level they were preceding the development; if it was an empty lot before, the taxes are based on that empty lot.

Without this exemption, property taxes typically increase based on the development on a piece of land. 421-a(16) gives a full 100 percent exemption on these development improvements for 25 years with a 10-year phase-out for Options A, B, and C and a full 100 exemption for 35 years on projects with over 300 units qualifying for Options E, F, and G (*HPD 421-a*, n.d.).

All income-restricted rental units under 421-a(16) are required to remain affordable and rent-stabilized for 35 years from the building's completion which is the same length as the exemption and phase out. However, for buildings with 300 or more units in the Enhanced Affordability Areas (Options E, F, G) units are required to remain affordable and rent-stabilized for 40 years from the building's completion (*HPD 421-a*, n.d.).

The 421-a (16) Affordable New York program expired on June 15, 2022, during the writing of this thesis.

<b>Option</b>	<b>A</b>	<b>B</b>	<b>C</b>
<b>Dwelling Units</b>	6+	6+	6+
<b>Wage Requirements</b>	No	No	No
<b>Geographic Availability</b>	Citywide	Citywide	The project cannot be located south of 96th Street in Manhattan or in any other area established by local law
<b>Affordability Requirement</b>	25% of the units must be affordable: at least 10% at up to 40% of AMI, 10% at up to 60% of AMI, and 5% at up to 130% of AMI	30% of the units must be affordable: at least 10% at up to 70% of AMI and 20% at up to 130% of AMI	At least 30% of the units must be affordable at up to 130% of AMI
<b>Allowed Additional Subsidy</b>	The project cannot receive any government subsidies other than tax-exempt bond proceeds and 4% tax credits	Allowed	The project cannot receive any government subsidies
<b>Tax Exemption Period (After Construction Period)</b>	Years 1-25: 100% Years 26-35: 25%	Years 1-25: 100% Years 26-35: 30%	Years 1-25: 100% Years 26-35: 30%

Figure 13: 421-a Options A, B, C  
(HPD 421-a, n.d.)

<b>Option</b>	<b>E</b>	<b>F</b>	<b>G</b>
<b>Dwelling Units</b>	300+	300+	300+
<b>Wage Requirements</b>	Yes	Yes	Yes
<b>Geographic Availability</b>	This option is available within enhanced areas, including Manhattan below 96th Street, Brooklyn Community Boards 1 & 2 and Queens Community Boards 1 & 2	This option is available within enhanced areas, including Manhattan below 96th Street, Brooklyn Community Boards 1 & 2 and Queens Community Boards 1 & 2	This option is available within Brooklyn Community Boards 1 & 2 and Queens Community Boards 1 & 2
<b>Affordability Requirement</b>	25% of the units must be affordable: at least 10% at up to 40% of AMI, 10% at up to 60% of AMI, and 5% at up to 120% of AMI	30% of the units must be affordable: at least 10% at up to 70% of AMI and 20% at up to 130% of AMI	At least 30% of the units must be affordable at up to 130% of AMI
<b>Allowed Additional Subsidy</b>	The project cannot receive any government subsidies other than tax-exempt bond proceeds and 4% tax credits	Allowed	The project cannot receive any government subsidies
<b>Tax Exemption Period (After Construction Period)</b>	Years 1-35: 100%	Years 1-35: 100%	Years 1-35: 100%

Figure 14: 421-a Options E, F, G  
(HPD 421-a, n.d.)

## 485-w

In early 2022, New York State Governor Kathy Hochul proposed an end to 421-a, replacing it with a similar tax exemption program dubbed 485-w or Affordable Neighborhoods for New Yorkers (ANNY). In a policy book accompanying her State of the State address, Hochul lays out goals of this program including, to “create deeper affordability that services lower income households than 421-a” and extending the term of affordability (Hochul, 2022). Governor Hochul’s 485-w proposal would accomplish this by reducing the highest limit of affordable units from 130 percent AMI to 90 percent AMI. Additionally, 485-w would require permanent affordability for properties with 30 units or more and permanent rent stabilization for sites with fewer than 30 units, whereas 421-a stipulates that income-restricted units only maintain affordability for the duration of the exemption (Hochul, 2022; Maniere & Raetz, n.d.). Similar to 421-a, in the Governor’s proposal, 485-w, Option C is specifically for homeownership projects and again falls outside of the scope of this thesis.

<b>Option</b>	<b>A</b>	<b>B</b>
<b>Dwelling Units</b>	30+	6-29
<b>Wage Requirements</b>	Yes only if 300+ DU	No
<b>Geographic Availability</b>	Citywide	Citywide
<b>Affordability Requirement</b>	25% of the units must be affordable: at least 10% at up to 40% of AMI, 10% at up to 60% of AMI, and 5% at up to 80% of AMI	20% of the units must be affordable: at least 20% at up to 90% of AMI
<b>Allowed Additional Subsidy</b>	Allowed	Allowed
<b>Tax Exemption Period (After Construction Period)</b>	Years 1-25: 100% Years 26-35: 25%	Years 1-25: 100% Years 26-35: 20%

*Figure 15: 485-w Option A, B*  
(Kramer Levin, 2022)

## Controversy and Criticism

Many stakeholders take issue with the city subsidizing developer profits, either through waived taxes or direct subsidies, and believe city funds could be better spent elsewhere. Current market economics in cities like New York make affordable housing production difficult, if not impossible, without some form of subsidy. Stakeholders on both sides of 421-a are not arguing for doing away with any kind of subsidy. It is that the two sides are opposed on levels and permanence of affordability as well as magnitude and depth of tax exemption.

### **\$1.7 Billion Dollars Lost?**

One statistic that kept appearing in research for this thesis is that New York City loses out on \$1.7 billion a year in taxes due to 421-a. In speaking to policy researchers at both the NYU Furman Center and the New York State Association for Affordable Housing (NYSFAH), this number is generally not contextualized when used in news stories and Twitter posts. There are two main reasons for this. The first is that even if 421-a ended today, it would not retroactively affect the projects that have received 421-a over the last few decades who would still benefit from reduced taxes. Secondly, \$1.7 billion is based on the buildings built under subsidy. If this tax exemption did not exist, there is no way to know if these buildings would have been developed or the extent to which they would be taxable.

A report prepared by the New York City Independent Budget Office (IBO), a publicly funded agency that provides information about New York City's budget to city officials and the public, found that even with no successor program after June 15, 2022, the existing 421-a exemptions will 'cost' the city a projected \$25.7 billion (in 2022 dollars) from fiscal year 2023 through fiscal year 2056, when the last of the current exemptions would cease (Owusu-Ansah, 2022).

### **Property Tax Reform**

Some opponents of 421-a have called for major tax reform instead of a new program. The New York City Comptroller Brad Lander has been especially outspoken on this topic, releasing a report in March 2022 entitled "A Better Way Than 421-a: The High-Rising Costs of New York City's Most Unaffordable Tax Exemption Program" (Lander, 2022). In this report, Lander



argues that 421-a is an expensive and inefficient use of foregone property tax as “most of the income-restricted units are unaffordable to the vast majority of New Yorkers, and especially to the residents of the neighborhoods where they are built” (Lander, 2022). He goes on to say that the expiration of 421-a presents an opportunity for property tax reform and recommends letting 421-a lapse with a deadline for structural property tax reform. His recommendations for tax reform include sales-based valuation for small property assessments and equalization of tax treatment for new residential construction. He also recommends a “new, targeted affordable housing tax incentive that would match the tax benefit granted to a building to the level needed to achieve the specific, genuine affordability the development will offer,” but provides no framework for determining this amount (Lander, 2022).

## Industry Opinion

The Real Estate Board of New York (REBNY) is the trade group that advocates for and represents real estate professionals in New York City. REBNY works to promote industry-backed policies, and its members frequently speak before government bodies to boost New York's economy, encourage the development and renovation of real estate, increase the city's appeal to investors and residents, and facilitate property management (*REBNY*, n.d.-b).

REBNY President James Whelan released the following statement in response to Governor Kathy Hochul’s State of the State Address housing proposals (*REBNY*, n.d.-c):

“New York City needs far more rental apartments, particularly at lower rents – and it’s clear the private sector must continue to play a key role in producing it. We support Governor Hochul’s sensible proposals for addressing the city’s housing crisis by eliminating density limits so the City can rezone areas with good mass transit, pursuing commercial-to-residential conversions, and creating a new program that incentivizes the development of rental apartments and produces more affordable housing for New Yorkers.”

REBNY has long been one of the biggest proponents of 421-a and claims that some tax relief is necessary for New York to produce and maintain affordable housing because land, construction costs, and property taxes are so high. After the 2016 lapse of 421-a, REBNY released a report analyzing projected housing built using 421-a (*REBNY*, n.d.-a). In making their

case, the report's conclusion stated that losing the 421-a program "would be devastating to the production of multifamily rental housing, including middle income and affordable units, and would leave the City with skyrocketing property tax levies under which the housing market would be hard-pressed to operate successfully" (*REBNY*, n.d.-a).

# 04 Research Methodology

## Overview

This thesis is centered around the incentives for for-profit multifamily housing developers to increase the depth and/or percentage of affordable housing units within their new developments. The “carrot and stick” approach is generally used in negotiations between communities and developers for affordable housing production within new developments. The 421-a program emphasizes the “carrots,” or incentives, the magnitude of which has gained controversy in comparison to the breadth and depth of affordability in units provided.

The purpose of this study was to explore, through interviews with policy researchers, developers, and investors, a case study financial analysis, and a scenario survey of real estate developers and investors, the implications of 421-a’s expiration on June 15, 2022, and the potentials for a succeeding policy. The research was conducted in order to examine the viability of the continued production of affordable housing in NYC. This research was done under the belief that examining the potential effects of no future subsidy, Governor Hochul’s proposal of 485-w, and possible alternatives and subsequently understanding this analysis through informed perspectives could have positive implications for future legislation within New York City and potentially numerous cities around the globe for whom housing affordability is a critical issue.

In seeking to understand what an optimal breadth and depth of affordability could be required through a succeeding program, this study addressed three main areas of research: the policy considerations of the future and potential renewal to 421-a, an analysis of financial implications of breadth and depth of affordability requirements, and the subsequent industry perception of these potential policy successors to 421-a and their financial implications.

## Conceptual Framework

The main driver for a city to implement tax abatements is for more affordable housing to be created as-of-right, with private capital and without the need for governmental support. Government-funded projects are a very long and arduous process due to politics, budget, and capacity of city agencies. With as-of-right tax abatement programs like 421-a, the city does not need to expend direct capital contributions of tax payers' dollars to create affordable housing. Private capital comes in. However, private sector capital demands a higher return be incentivized to create affordable housing. The tax abatements incentivize private sector capital to produce affordable housing within market rate properties. By incentivizing projects through tax abatements, the municipality foregoes potential future tax revenue for a period of time but does not decrease its tax base on properties from years prior.

Multifamily real estate development is funded through a wide range of developer and investor types, from large pension funds and sovereign wealth funds managing the financial interests of universities and countries to individuals seeking to buy or develop single-family homes. This thesis focuses on commercial multifamily development in scale with typical larger developments in New York City of 100 units and more. Approximately 13,700 units were completed under 421-a(16) between 2016 and 2021, but just over a fifth of units built were in properties with 25 or fewer units (Raetz & Murphy, 2022). The vast majority of properties are large residential rental developments.

For affordable housing policy, there is a cyclical framework of levers that affects production. Policies are introduced through legislation, whether federal or local. These policies affect housing production based on the feasibility to developers, owners, and investors. Housing is then produced at levels in line with feasibility and provided to tenants. Then research is undertaken, by academia, trade groups, and the government to understand how policies worked as intended or not.

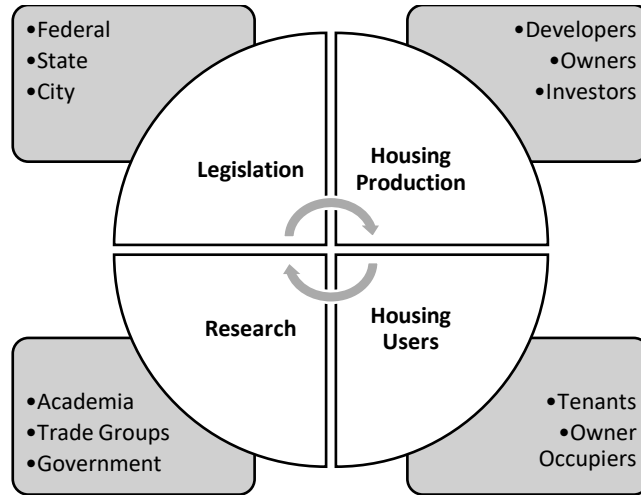


Figure 16: Conceptual Framework for Affordable Housing Policy

The research design used in this thesis was based on this framework. First, a wide understanding of the policy research and context through literature was undertaken. From there, this study prepared a financial analysis mimicking potential legislative outcomes. Those outcomes were then tested by a survey of those in the real estate industry to analyze their ability to provide affordable housing to tenants at varying levels and depths of affordability.

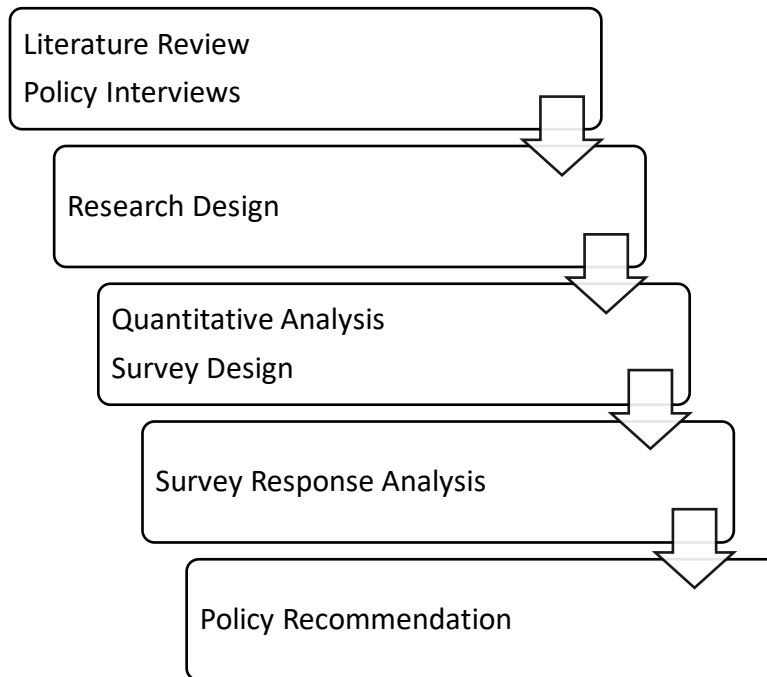


Figure 17: Research Process

## Research Design and Methodology

The proposal for this thesis included a basic outline, literature review list, anticipated methodology, and hypotheses related to affordable housing in New York City. This proposal was approved by the MIT Center for Real Estate in the Spring of 2022.

Preceding the research design for this study, an extensive review of policy and literature was undertaken. Peer-reviewed literature was selected to understand the broader context surrounding the research of affordable housing policies and outcomes, as well as to understand the history of how similar legislation has played out nationwide. Policy, both national and specific to New York City, was compiled. Reports on the current state of housing in New York City and previous lapses and notable events related to 421-a were studied.

The literature review was to give this study an understanding of the general context of affordable housing nationwide to understand the role 421-a takes amongst other policy and housing types. One of the biggest benefits of 421-a for New York City is its contribution to positive outcomes for residents of its affordable units. Because most 421-a units are within market-rate developments, residents benefit from well-maintained buildings, often in affluent areas, increasing diversity both within buildings and within neighborhoods. By being able to affordably live in these developments, residents may be subject to more positive outcomes than other policy-driven affordable housing, like public housing.

After compiling and analyzing peer-reviewed literature, policy, and numerous reports, the author of this thesis interviewed several policy researchers and industry practitioners, both from within the New York City government, trade groups, academia, and the private real estate industry. Insight from these experts shaped the research design for subsequent portions of this research. Based on insights from those initial interviews, this study built out a financial analysis of case study scenarios under the (1) 421-a program, (2) the 485-w proposal, and (3) with no subsidy. Assumptions for this case study were vetted and verified through interviews with industry participants. Opinions on these assumptions vary and this thesis does not purport the assumptions used as accurate, but instead as a reasonably realistic base case for this analysis. After this initial underwriting of these scenarios, this thesis then performed a sensitivity analysis

on possible other program limits, varying the level of AMI and the percentage of affordable units required.

The financial analysis and sensitivity analysis were then inserted into scenario survey cards to understand the industry's perspective on these outcomes. Given the time constraints of this study and other limitations clarified in Chapter 07, this thesis received and analyzed ten survey responses from private real estate professionals' experiences with residential rental development in New York City. These survey responses were undertaken alongside interviews to understand the thought process behind the responses and what material issues sway the interviewees' responses. These survey responses were then analyzed in aggregate to gain an understanding of what limitations of affordability breadth and depth could be achieved through potential successors to 421-a.

## Ethical Considerations

The Committee on the Use of Humans as Experimental Subjects (COUHES) is the Institutional Review Board (IRB) platform at the Massachusetts Institute of Technology (MIT). Prior to the start of this study, the author completed the CITI Program course through COUHES for Human Research under requirements set by MIT, receiving a certificate of completion (Record ID 48356339). The training provided the author of this thesis with an understanding of research ethics in practice, outlining procedures and processes needed to ensure adherence to standards put forth for the study of human subjects, including participant confidentiality and informed consent (COUHES, n.d.).

Participants of the scenario analysis survey gave positive informed consent for their responses to be used anonymously and in aggregation before inclusion in this thesis. This study used measures to ensure the protection of participants, even though it was believed that no substantial ethical concerns exist, such as an employer leveraging survey responses against the participants. Aggregation and anonymity were used in order to provide protection to participants. This thesis used no directly citable quotes. Consequently, authorization to use specific names from particular organizations was not requested. Cautionary measures were taken to secure anonymity in the shared data through the erasure of identifying information. Only the author of this thesis has access to the original data.

## Summary

The magnitude of tax incentive compared to affordability requirements of 421-a has gained controversy, which has contributed to the lack of decision on a plan for renewal or reform to 421-a since its lapse on June 15, 2022. 421-a incentivizes private capital to produce affordable housing within market-rate projects to ease the burden and inefficiencies present within directly government-funded affordable housing projects. The benefits of such a program are numerous. Municipalities do not need to put up front capital into projects, and the affordable housing created is often in centrally located neighborhoods, generally out of reach for those with the lowest income. The developments are generally more well maintained than public housing as the bulk of units within them are market-rate and the increased diversity and equity is a benefit to all New Yorkers.

The research design of this thesis and subsequent undertaking are based on a policy study and decision-making process. The framework for this study provides policy makers with a tool to gain an understanding of outcomes and limitations associated with successor programs to 421-a. First, initial research was done through a literature review and interviews with policy researchers. Then, quantitative analyses for two case studies were performed, providing baseline return metrics. Various policy possibilities were tested through these analyses to provide sensitivity tables. The sensitivity tables were then reviewed by industry professionals in surveys designed to the highest ethical research standards to gain insight into the feasibility of the different policy proposal schema. Finally, all of the research, quantitative and qualitative, is used to develop conclusions to the potential requirements most optimal for a successor program to 421-a.



# 05 Quantitative Analysis and Findings

## Overview

### Framework for Understanding Policy Threshold

Scenario testing future implications of policy potentials necessitated a financial case study analysis. Much like how acquisition valuations are undertaken in the real estate industry, a pro forma was modeled using Microsoft Excel to form the basis for these case studies. The assumptions input into the model were vetted by industry professionals familiar with New York City residential real estate. To test the relationship between a project having no tax abatement, 421-a, or 485-w, these case studies had varied inputs for their tax assessments, building income variability of the ratio between market rate and rent-regulated to various levels of AMI according to the 421-a Option met by the case studies, the 485-w Option met by the case studies, and with all market rate, but no tax exemption.

From there, a clearer picture of the relationship between these policies could be understood through their resultant IRRs. To understand the impact to IRR of potential future successors to 421-a, a sensitivity analysis was done. This sensitivity analysis showed the resultant IRRs comparatively, from a variety of AMIs and quantity of units made affordable. The sensitivity tables produced were then used in the subsequent scenario survey to determine potential feasibility from the industry side.

### Unlevered IRR

Real estate developers employ a variety of techniques to assess the feasibility and attractiveness of investing in a specific project, depending in part on their time horizon for owning the property and their expectations for changes in rents or sale prices by the time the building would be finished and ready for occupancy. To determine the economic viability of a project, individual developers may heavily rely on one method or prefer a combination of ways.

In order to shed some light on how developers might react to changes in the 421-a program, this thesis uses one of the most widely used financial return indicators in the industry.

This analysis determines an internal rate of return (IRR), which accounts for both the initial costs of land and construction and the income stream accrued over time through net operating income. This study assumes a sale of the property at the end of year 10 at a price adjusted for the remaining property tax exemption. This analysis calculated an unlevered IRR, or the IRR without debt financing, taken into consideration. Unlevered IRR analysis simplifies the comparisons. At the time of writing this thesis, interest rates are going through a period of large adjustment. When the financial analysis was undertaken, interest rates were still below 4 percent, whereas by the time this study received its final survey response, interest rates had jumped to over 5 percent. Comparing the IRR unlevered gives a more holistic return measure than making a single instance assumption on what would be available to a project.

## Submarkets

This thesis analyzed two scenarios in two different submarkets of New York City. Because neighborhoods in New York City vary greatly in demography, it was necessary to analyze policy changes as they might play out through differing scenarios. The neighborhoods of Chelsea, in Manhattan's core, and Bushwick, an outer borough neighborhood in Brooklyn, were used. Chelsea is indicative of particularly strong markets in New York City, while Bushwick represents a moderate, working class, but growing area. Policy changes to 421-a affect the entire city (and state) and therefore need to be compared under scenarios to gain a holistic understanding of how housing production may be affected. The financial cases in these two neighborhoods vary greatly and are detailed more in the assumptions of each case study presented in this chapter.

	<b>Chelsea Submarket</b>	<b>Bushwick Submarket</b>
<b>Median Household Income</b>	\$126,360	\$69,640
<b>Median Sales Price Per Unit (Condominiums)</b>	\$1,700,000	\$607,500
<b>Median Gross Rent</b>	\$2,110	\$1,790
<b>Median Rent Asking Price for Units on the Market July 2022</b>	\$5,388	\$2,700
<b>Total Number of Properties using 421-a tax exemption</b>	69	157
<b>Total number of units in properties using 421-a tax exemption (including affordable and market rate units)</b>	22,979	4,000

*Figure 18: Submarket Demography Comparison*

(US Census Bureau, 2020; Zumper, *n.d.-a*; Zumper, *n.d.-b*; NYU Furman, *n.d.-a*; NYU Furman, *n.d.-b*)

# Assumptions

To build and perform the case study financial analysis, it was necessary to make a number of assumptions. Given the fluctuating market conditions and supply chain issues, the assumptions used in this analysis were vetted through initial interviews which often had differing opinions. The selected assumptions were chosen to fall within the bounds articulated by the industry side participants so they may provide a reasonable idea of the direction of the impact of the policy alternatives and be as close to realistic as feasible within the timeframe of this study. However, due to the changing nature of these figures and specific project-dependent criteria, this thesis does not purport these assumptions to be accurate.

Assumptions listed below as used in the case study financial analysis as Year 0 figures with growth assumptions for the succeeding years. Based on conversations with industry professionals, the following annual growth rates were used in this financial analysis with a straight line growth year over year:

<b>Rental Income</b>	3.0%
<b>Parking Income</b>	3.0%
<b>Operating Expenses</b>	3.0%
<b>Replacement Reserves</b>	2.0%
<b>Capital Expenses</b>	2.0%

*Figure 19: Case Study Growth Rate Assumptions*

## Project Site and Building Size

In Chelsea, near Hudson Yards, C6-4 zoning is prominent. C6-4 zoning has an R10 residential equivalent which is what this analysis considered as a base as-of-right zoning. The lot size used here was 16,500 square feet. This allowed for the assumption of a 20-story, 300-unit apartment building with around 230,000 gross square feet (GSF) to meet the lot coverage and FAR requirements.

High-Density Non-Contextual Residence District													
R10 QH		Lot Area	Lot Width	Rear Yard	Lot Coverage		FAR	Base Height	Building Height	# of Stories	DU Factor	Required Parking	
		min.	min.	min.	Corner	Other Lot	max.	min.-max.	max. (w/QGF)	max. (w/QGF)		Basic	IRHU
Basic	Narrow Street	1,700 sf	18 ft	30 ft	100%	70%	10.00	60-125 ft	185 ft	n/a (21)	680	40% of DU	12% of IRHU
	Wide Street							125-155 ft	200 (215) ft				
Inclusionary	Narrow Street						12.00	60-155 ft	210 (215) ft	21			
	Wide Street						125-155 ft	230 (235) ft	23				

Figure 20: R10 Zoning Regulations  
(NYC Planning, n.d.-b)

In the Bushwick submarket scenario, R-6 zoning was assumed. R-6 makes up a large swath of this neighborhood. The lot size for the Bushwick scenario used was 10,000 square feet. This allowed for the assumption of a 6-story, 100-unit apartment building with around 76,000 GSF to meet the lot coverage and FAR requirements.

Medium-Density Non-Contextual Residence District							
R6		FAR	Open Space Ratio	Sky Exposure Plane	DU Factor	Required Parking	
		max.	range			Basic	IRHU
Height Factor	Basic	0.78-2.43	27.50-37.50	Starts at 60 ft	680	70% of DU	25% of IRHU

Figure 21: R6 Zoning Regulations  
(NYC Planning, n.d.-a)

## Land Value

The land value was based on a per zoned square foot basis. To simplify the scenarios, these models were assumed with as-of-right zoning, so there were no risks here associated with zoning. The per zoned square foot figures were based on data from CoStar and industry participant interviews.

	<b>Chelsea Case Study</b>	<b>Bushwick Case Study</b>
<b>Per Zoned SF</b>	\$700	\$300
<b>Acquisition Price</b>	\$160,533,333	\$22,800,000

*Figure 22: Case Study Land Values*

## Configuration of Units

Unit mix configuration was determined through initial discussions with industry participants. There were varying responses for how to determine unit type ratios. The figures above are what were assumed in the financial case studies.

	<b>Chelsea Case Study</b>	<b>Bushwick Case Study</b>
<b>Studio</b>	21.0% (63 units)	25.0% (25 units)
<b>One Bedroom</b>	42.7% (125 units)	37.0% (37 units)
<b>Two Bedroom</b>	25.0% (75 units)	25.0% (25 units)
<b>Three Bedroom</b>	12.3% (37 units)	13.0% (13 units)

*Figure 23: Case Study Configuration of Units*

## Construction Costs

Construction costs are typically bifurcated into ‘hard’ and ‘soft’ costs. Hard costs are the costs generally associated with the physical construction of a building, such as materials, labor, site improvements, utility installation, finishes, and HVAC. Soft costs are the costs generally

associated with the planning, design, and permitting of a building, such as architecture fees, engineering fees, legal fees, and permit costs. The hard cost assumptions in this study were given by industry participants based on the level of luxury a building in these submarkets would likely need to be to command the market rent used. Soft costs were calculated based on feedback from industry participants at 15 percent of hard costs.

	<b>Chelsea Case Study</b>	<b>Bushwick Case Study</b>
<b>Hard Costs (per SF)</b>	\$900	\$500
<b>Soft Costs (per SF)</b>	\$135	\$75

Figure 24: Case Study Construction Costs

## LIHTC

This study assumed the use of four percent Low Income Housing Tax Credits (LIHTC) in all options that were available to it. It also used the same four percent LIHTC for the sensitivity analysis. As explained in the literature review, LIHTC generally involves using tax-exempt bonds. In order to estimate the value of LIHTC credits in this scenario analysis, the hard and soft costs were multiplied by 0.95 (an approximation of costs that would be eligible), 0.20 (percent of units affordable to households at 60 percent AMI or lower), .03 (credit amount), \$0.95 (value of credit in syndication based on market risk), 10 (the number of years the credit is provided), and .9999 (the amount raised). In these models, 25 percent of LIHTC equity comes in at year one, 25 percent in year two, and the remaining 50 percent in year three.

## Operating and Management Costs

There are many operating costs when analyzing a property. This includes advertising and promotions for lease-up, payroll and benefits for on-site employees like doormen and maintenance, a management fee for property management, utilities for common areas, contracted services for any necessary repair due to normal wear and tear, parking operating expenses, insurance, and replacement reserves. Operating and management cost assumptions were determined through interviews with industry participants.

<b>Advertising and Promotions</b>	\$ 200 per unit
<b>Payroll and Benefits</b>	\$ 1,000 per unit
<b>Management Fee</b>	3% of revenue
<b>Utilities</b>	\$ 1.00 per RSF
<b>Contracted Services</b>	\$ 100 per unit
<b>Parking Operating Expenses</b>	\$ 1,000 per parking space
<b>Insurance</b>	\$ 500 per unit
<b>Replacement Reserve</b>	\$ 700 per unit

Figure 25: Case Study Operating and Management Costs

## Property Taxes

This study calculated the base tax liability using the 2022 New York City Class 2 property tax rate of 12.235 percent. For the Chelsea submarket case study, an assessed land value of \$315 per square foot was used, while in the Bushwick submarket case study, \$135 was used. For the 421-a and 485-w scenarios, the base tax liability was calculated by using these assessed land values and multiplying them by the property tax rate of 12.235 percent.

The scenarios for each case study that received no subsidy were subject to full property tax. The tax liability was calculated based on the process used by the New York City Department of Finance (DOF) as outlined in the New York City Residential Property Taxes guide for Class 2 properties (*NYC DOF, 2022*). Beginning the first full year of operation within the pro forma, the building's net operating income was divided by a total cap rate of 12.3 percent (6.8 percent cap rate plus a 5.5 percent tax adjustment), which is a rate as shown on property tax bills used by DOF for market-rate construction, to calculate the market value. The market value was then multiplied by 45 percent, which is the assessment level for Class 2 properties, to determine the actual assessed value. Then, the increase in actual assessed value since the previous year was divided by five, which is used to phase in the increased assessed value over five years. The



phase-in value was then added to the previous year’s assessed value, additive for the five-year phase-in. The property tax liability was calculated by multiplying the transitional assessed value by the 2022 Class 2 property tax rate of 12.235 percent. For the purposes of this analysis, this tax rate was used for every future year, though it is possible the rate could be adjusted each fiscal year (*NYC DOF, 2022*).

## Building Revenue

Market rental rates were initially taken from CoStar data for submarket area median rents. A 15 percent premium was added to these rates to adjust for higher rents achieved by new construction developments. These subsequent rates were vetted by the industry participants as realistic. Using these figures, under a fully market rate scenario, the Chelsea submarket case study averaged about \$9.25 per square foot monthly rent, and the Bushwick submarket case study averaged about \$4.52 per square foot monthly rent.

	<b>Chelsea Case Study</b>	<b>Bushwick Case Study</b>
<b>Studio</b>	\$3,953	\$2,512
<b>One Bedroom</b>	\$5,113	\$2,781
<b>Two Bedroom</b>	\$6,912	\$3,177
<b>Three Bedroom</b>	\$10,196	\$3,368

*Figure 26: Case Study Market Rate Rents*

Affordable rental rates are detailed in Figure 11: Table of 2022 New York City Area Affordable Monthly Rents for the rents used for affordable units. In the Bushwick submarket case study, at higher AMIs, the “affordable” rent exceeded the market rent used. This model used the lower of the two numbers. In many cases, owners will rent units below the set “affordable” level in order to compete for tenants in the market.

General vacancy and credit loss are adjustments used to factor in vacancy loss due to market conditions and expected credit loss due to tenants’ failure to pay rent. A general vacancy

and credit loss rate of 5 percent was used in all scenarios of both case studies to account for. Loss-to-lease is an adjustment used to factor in the difference between rents based on the market (or given for affordable units) and actual rents charged when leased. A 1 percent loss-to-lease was used in all scenarios of both case studies. These figures were in line with feedback from industry participants.

## Parking Revenue

New York City Planning Zoning Resolution 25-163 limits off-street parking in R-8 districts, used for the Chelsea submarket scenario, to a maximum of 1 space for every 225 square feet of lot area. New York City Zoning Planning Resolution 25-162 limits off-street parking in R-7 districts, used for the Bushwick submarket scenario, to a maximum of 1 space for every 300 square feet of lot area. For simplification in this analysis, a 15 percent parking ratio was used for both scenarios, which is under the limit specified by the Zoning Resolution. Parking was allocated at this rate with the understanding that one story of subgrade parking would be sufficient. Construction cost dramatically increased to multiple levels of subgrade parking and was therefore not considered.

	<b>Chelsea Case Study</b>	<b>Bushwick Case Study</b>
<b>Per Spot Per Year</b>	\$7,200	\$4,800

*Figure 27: Case Study Parking Revenue*

## Exit Cap Rate

The exit cap rate used for both case studies was 4.0 percent which was estimated based on CoStar data and interviews with industry participants. Because the housing market significantly changed through the course of this study and continues to be in flux, this thesis acknowledges that this figure may not be a realistic exit cap rate used in the near future.

## Case Study 1: Chelsea Submarket

	<b>No Subsidy</b>	<b>421-a Option E</b>	<b>421-a Option F</b>	<b>485-w Option A</b>
<b>4% LIHTC</b>	No	Yes	Yes	Yes
<b>Percent of Units at Market</b>	100%	75%	70%	75%
<b>Affordability</b>	N/A	10% at 40% AMI 10% at 60% AMI 5% at 120% AMI	10% at 70% AMI 20% at 130% AMI	10% at 40% AMI 10% at 60% AMI 5% at 80% AMI
<b>Full Exemption</b>	N/A	Years 1-35	Years 1-35	Years 1-25
<b>Exemption Phase Out</b>	N/A	N/A	N/A	Years 26-35: 25%
<b>IRR (Unlevered)</b>	<b>1.53%</b>	<b>7.94%</b>	<b>7.64%</b>	<b>7.77%</b>

*Figure 28: Chelsea Case Study Under Various Program Scenarios*

The Chelsea submarket case study analyzed the potential outcomes of a 300-unit residential development in the neighborhood of Chelsea in Manhattan. Without any affordable housing component or tax exemption subsidy, this project yields a very low IRR of 1.53 percent. This indicates the project would unlikely be feasible for private development without a program to subsidize returns. Under 421-a, two options that this project would qualify for (because it is 300 units) are analyzed, Option E and Option F. Option E yielded a slightly higher return of 7.94 percent than Option F, which yielded 7.64 percent. While Option E requires deeper affordability, Option F requires more affordable units. This comparison indicates that this scenario is more greatly affected by the loss of market-rate units than the level of AMI that the affordable units are subject to.

Under the governor’s proposal for 485-w, the Chelsea development scenario would be eligible for Option A, which is for buildings of 30 units or more. Under this proposal, the case study yielded a 7.77 percent unlevered IRR. This return is between the two 421-a options previously available to this project. The 485-w proposal is not a significant sway of return for this scenario from the previous 421-a program but lowers the highest AMI level from 130 percent AMI to 80 percent AMI.

## Case Study 2: Bushwick Submarket

	<b>No Subsidy</b>	<b>421-a Option A</b>	<b>421-a Option B</b>	<b>485-w Option A</b>
<b>4% LIHTC</b>	No	Yes	Yes	Yes
<b>Percent of Units at Market</b>	100%	75%	70%	75%
<b>Affordability</b>	N/A	10% at 40% AMI 10% at 60% AMI 5% at 120% AMI	10% at 70% AMI 20% at 130% AMI	10% at 40% AMI 10% at 60% AMI 5% at 80% AMI
<b>Full Exemption</b>	N/A	Years 1-25	Years 1-25	Years 1-25
<b>Exemption Phase Out</b>	N/A	Years 26-35: 25%	Years 26-35: 30%	Years 26-35: 25%
<b>IRR (Unlevered)</b>	<b>0.29%</b>	<b>6.85%</b>	<b>8.23%</b>	<b>6.56%</b>

*Figure 29: Bushwick Case Study Under Various Program Scenarios*

The Bushwick submarket case study analyzed the potential outcomes of a 100-unit residential development in the neighborhood of Bushwick in Brooklyn. Without any affordable housing component or tax exemption subsidy, this project yields an incredibly low IRR of 0.29 percent. This indicates the project would unlikely be feasible for private development without a

program to subsidize returns. Under 421-a, two options that this project would qualify for because it is 100 units are analyzed, Option A and Option B. Option A yielded a significantly lower return of 6.85 percent than Option B, which yielded 8.23 percent. While Option E requires deeper affordability, Option F requires more affordable units. This comparison indicates that this scenario is more greatly affected by the level of AMI that the affordable units are subject to than the loss of market-rate units. Unlike the Chelsea scenario, this is likely due to the fact that market rates for rent are significantly closer to affordable rates.

Under the governor's proposal for 485-w, the Bushwick development scenario would be eligible for Option A, which is for buildings of 30 units or more. Under this proposal, the case study yielded a 6.56 percent unlevered IRR. This return is lower than the two 421-a options previously available to this project. The 485-w proposal has the highest AMI level, from 130 percent AMI to 80 percent AMI. As indicated by the difference in return between 421-a Option A and Option B, the level of affordability is a determining factor for this case study. Therefore, lowering the maximum AMI level with the 485-w proposal negatively affects returns for this project.

The implication then is that in lower income and more naturally affordable neighborhoods, lowering the AMI requirement has greater negative implications than in higher income and higher market rate rent areas. Changes to the number of affordable units required for a tax exemption have significantly more negative effects in higher market rate rent neighborhoods. The closer that a neighborhood's market rate rents are to affordable rents, the less of a negative impact of requiring a greater amount of affordable units.

## Sensitivity Analysis

Using the above financial analysis as a base, this thesis undertook a sensitivity analysis for possible future scenarios of a renewed tax exemption program based on interviews with industry participants and policy researchers. For this analysis, an assumption of retaining the 10 percent of units up to 40 percent AMI and 10 percent of units up to 60 percent AMI was used with variability in the amount of units and level of AMI beyond that. This follows form to 421-a(16), which used 10 percent of units up to 40 percent AMI, 10 percent of units up to 60 percent AMI, and 5 percent of units up to 120 to 130 percent AMI for Options A and E. The 421-a(16) scenario outcome is highlighted in orange in Figure 29 and Figure 31. It also mirrors Option A of Governor Hochul's 485-w proposal, which sets limits as 10 percent up to 40 percent AMI, 10 percent up to 60 percent AMI, and 5 percent up to 80 percent AMI. The 485-w scenario outcome is highlighted in blue in Figure 29 and Figure 31. Based on conversations with policy researchers, this thesis focuses on likely variability in future policy on the highest AMI cap and depth.

This thesis studies the breadth from requiring 5 percent to 30 percent affordable units at a given AMI and depth from requiring these units at 70 percent AMI to 130 percent AMI. For both scenarios, a full tax exemption until disposition and LIHTC funding was used. Other assumptions remained the same as presented in the preceding section.

# Chelsea Submarket Sensitivity Analysis

Total Affordable	10% up to 40% AMI, 10% up to 60% AMI, Y% up to X% AMI							
		70%	80%	90%	100%	110%	120%	130%
25.00%	5%	7.73%	7.77%	7.81%	7.85%	7.90%	7.94%	7.98%
30.00%	10%	7.14%	7.22%	7.30%	7.39%	7.47%	7.55%	7.63%
35.00%	15%	5.93%	6.11%	6.28%	6.45%	6.61%	6.78%	6.94%
40.00%	20%	3.87%	4.22%	4.56%	4.88%	5.21%	5.52%	5.83%
45.00%	25%	0.55%	1.23%	1.87%	2.48%	3.07%	3.64%	4.18%
50.00%	30%	-5.03%	-3.58%	-2.28%	-1.10%	-0.02%	0.99%	1.92%

Figure 30: Chelsea Submarket Unlevered IRR Sensitivity Analysis

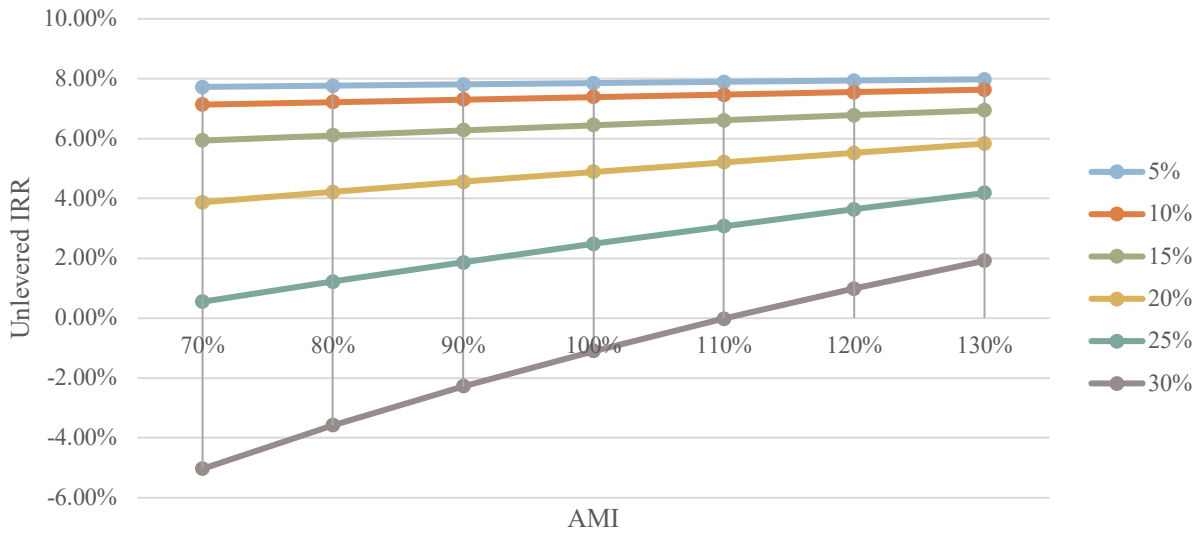


Figure 31: Chelsea Submarket Spread of Resultant Unlevered IRRs

The sensitivity analysis for the Chelsea submarket case study (Figure 31) yielded a very different spread from that of the Bushwick submarket case study (Figure 33). In the Chelsea scenario, the change in IRR was more heavily dependent on the number of affordable units rather

than the level of affordability. This is because the spread from market rate to affordable rent is a much bigger gap than between levels of affordability or AMI. For example, a developer in this scenario would yield higher returns with a lower number of affordable units with lower AMI requirements than by providing more affordable units at a higher AMI. It is evident that for the loss of each expensive market rate unit, for instance, a one-bedroom which can achieve \$5,113 in market rent leasing at only \$1,751, or the affordable rent at 70 percent AMI would result in a loss of \$3,362 per unit. On the other hand, the requirement of 421-a to provide 130 percent AMI units being decreased to 70 percent AMI units makes less of a difference. In this scenario, the change from a 130 percent AMI one bedroom that rents for \$3,253 being reduced to 70 percent AMI at \$1,751 is a loss of \$1,502. Across a 300-unit building, the missed income adds up to significantly reduced IRRs as the building requires more affordable units.

### Bushwick Submarket Sensitivity Analysis

Total Affordable	10% up to 40% AMI, 10% up to 60% AMI, Y% up to X% AMI							
		70%	80%	90%	100%	110%	120%	130%
25.00%	5%	6.45%	6.56%	6.68%	6.78%	6.85%	6.85%	6.85%
30.00%	10%	6.16%	6.35%	6.55%	6.73%	6.85%	6.85%	6.85%
35.00%	15%	5.61%	5.96%	6.30%	6.62%	6.84%	6.85%	6.85%
40.00%	20%	4.65%	5.29%	5.90%	6.46%	6.83%	6.85%	6.85%
45.00%	25%	3.20%	4.29%	5.31%	6.22%	6.82%	6.85%	6.85%
50.00%	30%	1.33%	3.07%	4.61%	5.94%	6.80%	6.85%	6.85%

Figure 32: Bushwick Submarket Unlevered IRR Sensitivity Analysis

Because the lower of either affordable or market rate rent was used in the Bushwick submarket sensitivity analysis, it becomes clear that when market rent is below affordable rents set at higher AMI levels, unlevered IRR is not subject to change when providing more affordable units.



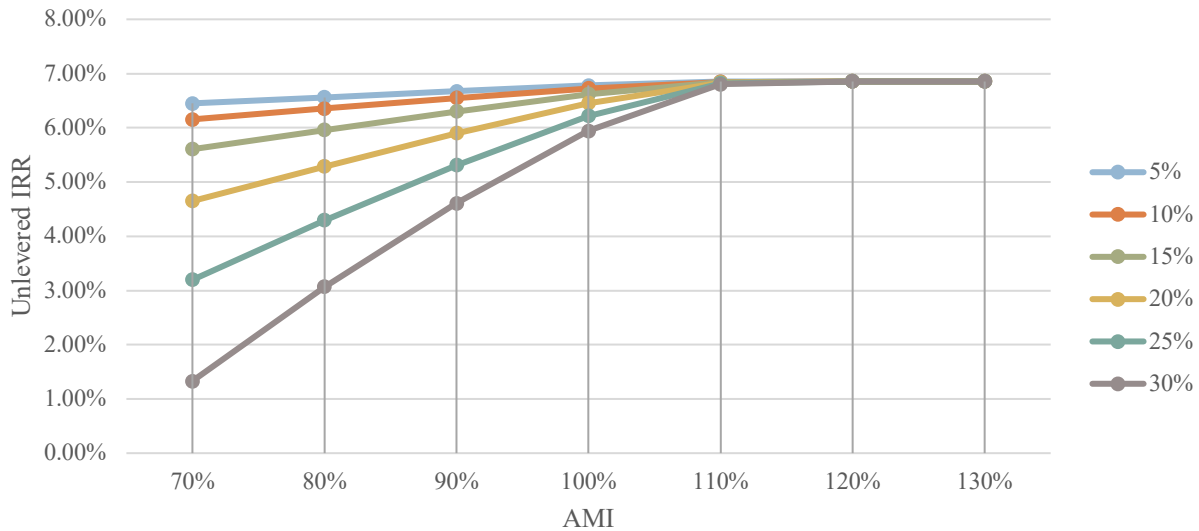


Figure 33: Bushwick Submarket Spread of Resultant Unlevered IRRs

The sensitivity analysis performed on the Bushwick submarket case study yielded slightly different relational results. Similar to the Chelsea scenario, the level of affordability makes very little change to the resultant IRRs. The difference here is that the number of affordable units provided only affects the IRR significantly when below 100 percent AMI. This is because, at higher AMI levels, the affordable rent meets and exceeds the market rent. Because the lower of the two is used, at 120 percent and 130 percent AMI where the affordable rents for all unit types exceed market rent, the IRR remains the same no matter the quantity of affordable provided. This stagnant IRR relationship is theoretical, as in the real world, limitations that were not modeled may exist, such as longer lease-up phases for affordable units or market rate growth beyond the given growth rate due to gentrification.

## Comparative Analysis

Similar to what was yielded in the financial analysis comparing 421-a options to the proposal for 485-w, lowering the AMI requirement has greater negative implications for the Bushwick scenario. The Chelsea scenario is more affected by the number of affordable units required. The spread of unlevered returns was significantly greater in the Chelsea scenario. At its lowest, with 10 percent of units affordable to 40 percent AMI, 10 percent of units affordable to

60 percent AMI, and 30 percent of units affordable for 70 percent AMI, the IRR dropped to -5.03 percent. At its highest, with 10 percent of units affordable to 40 percent AMI, 10 percent of units affordable to 60 percent AMI, and 5 percent of units affordable for 130 percent AMI, the project yielded a 7.98 percent IRR. The range of returns in the Chelsea scenario is 13.01 percent. In Bushwick, this range was significantly smaller at just 5.52 percent. This substantial difference in range indicates that in neighborhoods with market-rate rents significantly greater than affordable rents, the requirements of potential successors to 421-a are more impactful.

Considering one of the greatest benefits of this program is creating affordable housing in attractive neighborhoods generally out of reach for those with lower incomes, the implications of the effect on wealthier neighborhoods are significant. In neighborhoods where market-rate rents meet affordable rents, there is less demand for affordable units. Units in lower-income neighborhoods are more naturally affordable, or affordable to lower incomes without government programs or subsidies. It should be noted, however, that as rents continue to rise citywide and gentrification continues expanding into lower-income areas, the production of sustained affordable housing in these neighborhoods is also valuable. The requirement for units to remain affordable for the length of the subsidy, as with 421-a, or permanently, as with 485-w, can have a lasting impact on affordable housing in every neighborhood.

## Summary

A financial case study analysis was undertaken on two scenarios in different neighborhoods and scales of projects in New York City. The first scenario is a 300-unit residential rental tower development in the neighborhood of Chelsea. Chelsea is a high-income neighborhood in the Manhattan core with high market rental rates. The second scenario is a 100-unit residential development in the Bushwick neighborhood. Bushwick is a working-class neighborhood in Brooklyn where affordable housing rental rates exceed market rates at high AMIs. These two scenarios were chosen to be representative of the range of residential projects and neighborhood types citywide.

For each of these scenarios, a pro forma was built out to determine the unlevered internal rate of return (IRR) under 421-a, 485-w, and with all market rate units without tax exemption. Under two options of 421-a that this project would be eligible for, and under one option of 485-w

that this project would be eligible for, the returns for the Chelsea scenario were quite similar, with the IRR from 485-w in between the IRRs for the two 421-a options. Without any tax exemption, the project suffered from significantly reduced returns. In the Bushwick scenario, 421-a Option B received much higher returns than under 485-w or 421-a Option A. This scenario also received significantly reduced returns without a tax exemption.

The financial analyses were then run through sensitivity analyses, comparing different breadths and depths of affordability requirements and their resultant returns. The Chelsea scenario displayed a wider range than the Bushwick scenario. The Chelsea scenario was much more dependent on the quantity of affordable units than the affordability. For the Bushwick scenario, at high AMIs where the affordable rate exceeded the market rate, the returns plateaued since the lower rent of the two was used. In the Bushwick scenario, the quantity of affordable units was much less affected than in the Chelsea scenario.

# 06 Scenario Survey Analysis and Findings

## Procedure

From the financial analysis and subsequent sensitivity analysis, scenario cards were designed to present to real estate developers and investors for response and comment. The feasibility of these program scenarios in practice is critically important. Developing policy that intends to incentivize developers to build housing is important but ultimately useless if not attractive for private capital to put into practice.

The presented surveys can be found in Appendix B. This survey gave participants the assumptions laid out in two case study scenarios, one for the Chelsea submarket analysis and the other for the Bushwick submarket analysis. Participants were then tasked with determining at which levels of affordability and resulting unlevered IRRs they would be likely to pursue the case study development. Before this study released the initial scenario cards, they were vetted through conversations with those who contributed to the financial analysis assumptions and were not participants of the survey.

From there, the author of this thesis reached out to a number of potential survey participants through academic and professional connections, LinkedIn, email, and phone calls. For those who responded, initial interviews were set up with candidates for the survey. These initial interviews included receiving informed consent, explanations of the background of this thesis, laying out the process for survey collection and data aggregation, and to gather information about the participants for inclusion in this study. Ten of these candidates were good fits for this study based on their work experience in New York City with residential rental developments and understanding of the types of projects subject to potential successors of 421-a

The survey was emailed to these participants for response and comment. Participants were given the time they requested, from one day to nine days to submit responses. Variability in the time required was dependent on work and personal commitments as well as their ability to evaluate and react to the survey.

Follow-up interviews were conducted with the six participants available, while the other four sent follow-up comments via email. The follow-up comments and interview responses have been taken into consideration in the analysis of these survey responses and in the conclusions drawn from this research.

The data collected from respondents' likeliness to pursue the developments in these case studies were aggregated and analyzed to form conceptual thresholds for development under the scenarios. The IRRs presented under the two case studies, as shown in the sensitivity analysis in the previous chapter, varied greatly in their range and relationship. The likeliness to pursue varying breadth and depth of affordability, in turn, yielded greatly different threshold results. The thresholds from the two case studies were overlaid to understand the aggregate effects of citywide policy changes. The point of intersection was understood to be a potential optimal indicator for policy successors to 421-a.

## Survey Design

The two case studies, Chelsea and Bushwick, were presented as development opportunities. The surveys included information on the neighborhood, project size, number of units, acquisition price, unit mix, and market rate rents. It also laid out the resultant IRRs from the financial analysis for options from 421-a, 485-w, and without subsidy. These assumptions and IRRs were included to give an overview of the type of project and returns from completely market-rate scenarios and programs familiar to the participants. These were also given so the participants could comment on the assumptions, giving opinions of other opportunities they saw to increase returns or where they felt undervalued, which could decrease the returns.

The main part of the survey to fill out was a presentation of the sensitivity analysis for each case study. Under each policy scenario, the participants were given three options for likeliness to consider pursuing the development: (1) Likely to Consider, (2) May or May Not Consider, and (3) Unlikely to Consider.

# Participants

To provide anonymity to the sample of participants and their organizations, this study provides an aggregated overview for reference. The participants represent a range of firm types who work with New York City real property, including real estate private equity (REPE), real estate investment management, private real estate development, and publicly-traded real estate investment trust (REIT), and commercial real estate brokerage. Individuals who participated in this survey represented a wide range of working experience from 5 years to over 40 years in practice.

Seven of the ten individuals surveyed had experience with 421-a professionally, though every participant’s organization or previous employment had worked with 421-a. Individuals with professional experience with 421-a came from both the development and investment sides of the industry. In both professions, participants analyzed real estate development opportunities for residential rental buildings with 421-a. Of those with experience with 421-a, individuals working on the investment side had analyzed properties or portfolios with already developed projects that were receiving tax exemptions under 421-a.



Figure 34: Types of Real Estate Firms Represented

# Chelsea Submarket Scenario Analysis

## Likely to Consider: Number of Respondents

Total Affordable	10% up to 40% AMI, 10% up to 60% AMI, Y% up to X AMI							
		70%	80%	90%	100%	110%	120%	130%
25.00%	5%	10	10	10	10	10	10	10
30.00%	10%	10	10	10	10	10	10	10
35.00%	15%	0	0	1	3	5	6	6
40.00%	20%	0	0	0	0	0	0	0
45.00%	25%	0	0	0	0	0	0	0
50.00%	30%	0	0	0	0	0	0	0

## May or May Not Consider: Number of Respondents

Total Affordable	10% up to 40% AMI, 10% up to 60% AMI, Y% up to X AMI							
		70%	80%	90%	100%	110%	120%	130%
25.00%	5%	0	0	0	0	0	0	0
30.00%	10%	0	0	0	0	0	0	0
35.00%	15%	4	5	6	6	5	4	4
40.00%	20%	0	0	0	0	4	4	4
45.00%	25%	0	0	0	0	0	0	0
50.00%	30%	0	0	0	0	0	0	0

## Unlikely to Consider: Number of Respondents

Total Affordable	10% up to 40% AMI, 10% up to 60% AMI, Y% up to X AMI							
		70%	80%	90%	100%	110%	120%	130%
25.00%	5%	0	0	0	0	0	0	0
30.00%	10%	0	0	0	0	0	0	0
35.00%	15%	6	5	3	1	0	0	0
40.00%	20%	10	10	10	10	6	6	6
45.00%	25%	10	10	10	10	10	10	10
50.00%	30%	10	10	10	10	10	10	10

Figure 35: Chelsea Submarket Response Analysis Count

Multiple responses noted that the stability offered by Manhattan core real estate allowed them to accept a lower IRR threshold than in other areas. One respondent declared that Manhattan rentals are likely the most desirable class in commercial real estate today.

## Conceptual Threshold

Using the survey responses, a conceptual threshold (Figure 35) was mapped of where policy limits may exist along the area where respondents may or may not consider pursuing the development scenario. Above and to the right of the threshold line represents points at which a developer is likely to find the policy implications feasible for the case study development project. Below and to the left of the line represents points at which a developer is unlikely to find the policy implications feasible. For the Chelsea scenario, this threshold is nearly horizontal. This horizontality indicates that the threshold is more dependent on the number of affordable units required rather than the level of affordability, measured by AMI.

The Chelsea scenario is indicative of high-income neighborhoods, which are attractive for this kind of residential affordability program. There are 22,979 units in Chelsea currently receiving the 421-a tax exemption (*NYU Furman*, n.d.-b), which is a large number in comparison to lower-income neighborhoods like Bushwick. It is important to incentivize developers to build the greatest number and depth of affordability in wealthier areas, bringing equity, diversity, and access to those who typically face barriers to living in these neighborhoods.

### Conceptual Threshold: Chelsea

Total Affordable	10% up to 40% AMI, 10% up to 60% AMI, Y% up to X AMI						
	70%	80%	90%	100%	110%	120%	130%
25.00%	5%						
30.00%	10%						
35.00%	15%						
40.00%	20%						
45.00%	25%						
50.00%	30%						

Figure 36: Chelsea Submarket Conceptual Threshold for Affordability



## Bushwick Submarket Scenario Analysis

### Likely to Consider: Number of Respondents

Total Affordable	10% up to 40% AMI, 10% up to 60% AMI, Y% up to X AMI							
		70%	80%	90%	100%	110%	120%	130%
25.00%	<b>5%</b>	0	5	5	8	9	9	9
30.00%	<b>10%</b>	0	0	5	5	9	9	9
35.00%	<b>15%</b>	0	0	0	5	9	9	9
40.00%	<b>20%</b>	0	0	0	0	9	9	9
45.00%	<b>25%</b>	0	0	0	0	9	9	9
50.00%	<b>30%</b>	0	0	0	0	9	9	9

### May or May Not Consider: Number of Respondents

Total Affordable	10% up to 40% AMI, 10% up to 60% AMI, Y% up to X AMI							
		70%	80%	90%	100%	110%	120%	130%
25.00%	<b>5%</b>	8	4	5	2	1	1	1
30.00%	<b>10%</b>	2	6	4	5	1	1	1
35.00%	<b>15%</b>	2	2	6	4	1	1	1
40.00%	<b>20%</b>	0	0	2	8	1	1	1
45.00%	<b>25%</b>	0	0	0	4	1	1	1
50.00%	<b>30%</b>	0	0	0	2	1	1	1

### Unlikely to Consider: Number of Respondents

Total Affordable	10% up to 40% AMI, 10% up to 60% AMI, Y% up to X AMI							
		70%	80%	90%	100%	110%	120%	130%
25.00%	<b>5%</b>	2	1	0	0	0	0	0
30.00%	<b>10%</b>	8	4	1	0	0	0	0
35.00%	<b>15%</b>	8	8	4	1	0	0	0
40.00%	<b>20%</b>	10	10	8	2	0	0	0
45.00%	<b>25%</b>	10	10	10	6	0	0	0
50.00%	<b>30%</b>	10	10	10	8	0	0	0

Figure 37: Bushwick Submarket Response Analysis Count

One respondent noted that in this scenario, and other neighborhoods where affordable higher AMI rents are near or above market rents, it is very challenging to secure tenants, even when asking rent for these units is lowered to market rate. They went on to explain that the challenges of a lengthy and complex housing lottery make it difficult to attain tenants who can presumably afford other units. This then results in a longer average upfront absorption period. For this reason, the industry participants responded to higher AMIs in this scenario with a “May or May Not Consider,” but similar IRRs for lower AMIs with a “Likely to Consider.”

There are currently 4,000 units in Bushwick currently receiving the 421-a tax exemption, the bulk of which are from the recent past, unlike in Chelsea (*NYU Furman*, n.d.-a). In the working-class but gentrifying neighborhoods like Bushwick, it is important to provide affordable housing which will remain affordable in the future. In neighborhoods where the affordable rent associated with higher AMIs exceeds the market rent, providing “affordable” housing at these levels is not efficient or impactful to those trying to access housing. However, at lower AMIs, the project becomes significantly less feasible for private capital in these areas. Like the controversy surrounding 421-a, finding the appropriate balance of depth and breadth of affordability is difficult but key in successor programs.

## Conceptual Threshold

### Conceptual Threshold: Bushwick

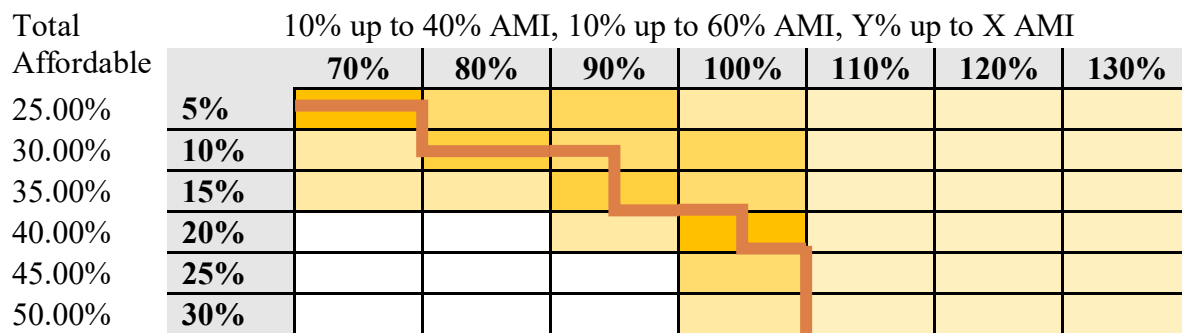


Figure 38: Bushwick Submarket Conceptual Threshold for Affordability

The conceptual threshold for the Bushwick scenario is significantly more diagonal than in the Chelsea scenario. This indicated that the policy requirements regarding both the depth and

breadth of affordability are impactful for this scenario. The diagonality breaks into a vertical line at 110 percent AMI, where affordable rents meet or exceed the market rate rents.

The Bushwick scenario is representative of working-class neighborhoods in the outer boroughs that are subject to gentrification. Residents in Bushwick are a mix of long-time, lower and middle-income families, college students, and young professionals. Because this neighborhood has transit access and rents are still low relative to Manhattan, gentrification has the potential to push rents higher, exceeding typical growth rates, in the future. Bringing long-term and permanently affordable housing to neighborhoods like Bushwick is important to continue the diversity that brings life to these types of neighborhoods.

## Post-Survey Interview Analysis

The follow-up interviews and comments yielded insights into the decision-making for responses to the survey. One of the comments received by multiple participants was that they are more used to analyzing project returns through levered IRRs. Participants understood why unlevered was used here but reacted that it likely affected their decision-making. One respondent noted in relation to their responses that in this inflationary environment and because of current interest rates and where they are headed, they would want higher than typical returns measured by unlevered IRR. Two respondents who received the survey towards the end of the survey period when inflation and interest rates were high commented that none of the IRRs for either scenario would meet their current investment criteria hurdles but gave responses under the assumption that they had different pools of equity to invest with or if the developer fee was substantial. In these cases, they would respond in the way they did, which would allow for sufficient returns that enabled them to add to their track record, retain employees, and wait for a better economy or set of projects.

Most respondents commented that they appreciated the two case studies of neighborhoods with very different profiles and outcomes. Some respondents prefer Manhattan for stability, and a few respondents saw an opportunity in the Bushwick scenario for future rent growth beyond the assumptions of this analysis through further gentrification, which would have the potential to increase IRR. The foresight into potential returns beyond the flat line growth assumptions of the study could be analyzed for further research. Bushwick has seen tremendous

rental rate growth over the past decade. If this trend continues or spikes upward, especially if market rate rent at higher AMIs exceeds affordable rent, the returns for the Bushwick scenario could be vastly different.

In terms of project size, one respondent noted that they prefer larger deals to smaller ones, assuming one is not capital constrained, as projects of a certain size and larger take a similar amount of effort. Therefore, they stated that more capital could be put to work with larger projects. This respondent appreciated that the survey, in testing for feasibility, used case studies of buildings with 100 and 300 units. Projects that are feasible for this type of tax abatement program and can also make an impact by providing significant affordable housing are typically larger in size. This contributes to why 485-w has very different requirements for buildings under 30 units, as well as why 421-a has different requirements for buildings that have 300 or more units.

Lastly, in terms of affordability beyond the scope required by policy, one respondent noted that if the threshold by a policy is lower, they would be willing to take a slightly lower return, producing affordability beyond what is required if it allowed them better ability to negotiate with the City in terms of zoning density or timing. This comment presents an opportunity for tiered policy-making in which incentives increase as the requirement for affordable housing increases.

## Conceptual Threshold and Optimal Policy Point

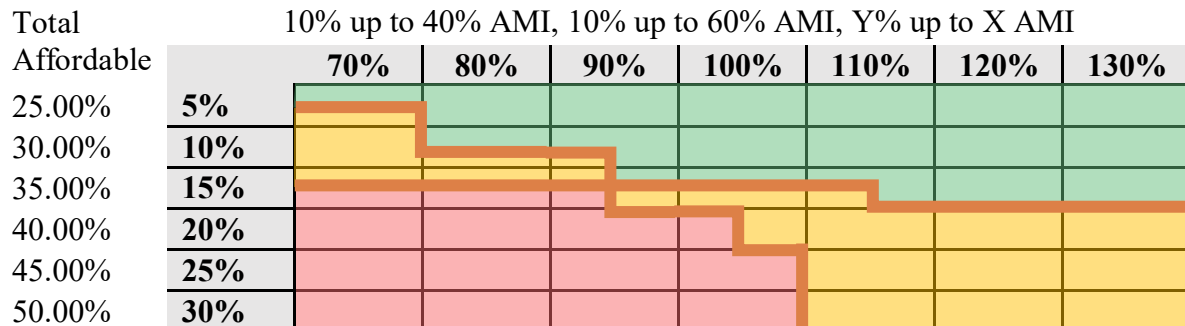


Figure 39: Aggregated Conceptual Threshold for Affordability

The vast majority of multifamily buildings in New York City that were finished between 2010 and 2020 were constructed under a 421-a exemption. In residential properties with four or more units, 68 percent of the units were constructed with the 421-a tax exemption, 21 percent made use of a different program that offered property tax relief, and the final 10 percent might not have made use of any type of property tax relief at all (Raetz & Murphy, 2022). The impact of no renewal or successor program to 421-a could be devastating to affordable multifamily development in New York City.

Between 2016 and 2021, over 13,700 units were finished under the most recent version of 421-a. Although the aggregate number of income-restricted apartments increased over this time, the advertised rents for affordable units in buildings that use 421-a have changed from being affordable to low-income households to more affordable to middle-income households. If we assume a similar production of units given a new program governed by the conceptual thresholds found in this research, we could lose the production of 13,700 housing units over the next five years if there is no succeeding program. If the required affordable unit quantity of these buildings is 25 percent, the city could lose out on over 3,400 affordable units. By implementing a policy attractive to developers but still requiring a meaningful depth of affordability, the city could increase the number of affordable units produced.

In the scenario of a larger quantity of affordable housing, 35 percent project-wide, with 10 percent at 40 percent AMI, 10 percent at 60 percent AMI, and 15 percent at 120 percent AMI, the city could realize 1,370 units at 40 percent AMI, 1,370 units at 60 percent AMI, and over 2,000 units at 120 percent AMI. This would increase the quantity of affordable housing produced with a similar split in unit affordability mix as with 421-a(16) while maintaining its attractiveness to the private real estate industry.

At the other end of the spectrum, in a scenario with further affordable depth, 25 percent project-wide, with 10 percent at 40 percent AMI, 10 percent at 60 percent AMI, and 5 percent at 70 percent AMI, the city could realize 1,370 units at 40 percent AMI, 1,370 units at 60 percent AMI, and 685 units at 70 percent AMI. This scenario would produce a similar quantity of affordable housing as with 421-a(16) but further the depth of affordability while remaining attractive to the private real estate industry.

A comparison of case studies in these two neighborhoods shows the point of intersection at 15 percent affordable at 90 percent AMI. This would require buildings to have 35 percent of units affordable, an increase of 5 percent over the amount of affordable units required by 421-a Options B, C, F, and G and an increase of 10 percent over 421-a Options A and E and 485-w Option A. 90 percent AMI also represents lower caps on affordability than all of the 421-a options, but 10 percent higher than the highest 80 percent cap in 485-w Option A. While this study analyzed only two neighborhoods, these neighborhoods are indicative of the range of neighborhoods in which residential development may seek a tax exemption in exchange for affordable housing. Chelsea represents the wealthier neighborhoods that would benefit from the increased returns of a tax exemption while retaining value in its market-rate units. Bushwick represents working-class neighborhoods in which affordable rents at higher AMIs exceed market rents but which are subject to future growth increases in market rent due to gentrification.

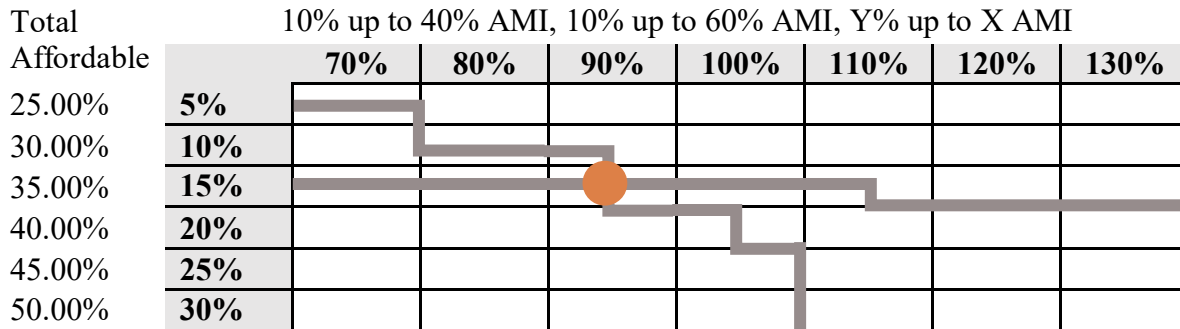


Figure 40: Theoretical Optimal Policy Requirements

While this study does not purport its findings to be an accurate measure for citywide policy, it does intend to provide a framework and analytical tool to determine the potential viability of successor programs to 421-a.

## Summary

This study presents a framework that leverages a sensitivity analysis comparison tested for feasibility by industry participants to find the optimal policy constraints to determine affordability requirements for a successor to 421-a. By analyzing two neighborhoods that inherently function differently due to their locale, market-rate rents, and resident types, the analysis is understood for the purpose of this study to be representative of the diversity in New York City neighborhoods and buildings prime for residential rental development under a citywide policy for affordable rental housing within market-rate developments.

The survey responses for each case study scenario, Chelsea and Bushwick, were used to determine the conceptual thresholds for participating in development under the presented conditions. Overlaying the two conceptual thresholds created what is understood to be the optimal point for future policy to require the greatest uniform depth and breadth of affordability while remaining feasible to private capital. In future research, this framework may be expanded to encompass significantly more neighborhoods. In that case, a best-fit point, weighing the quantity of potential units produced, could be used.

Follow-up interviews represented a number of substantial considerations by the private real estate industry that should be considered in policy decision-making and future research using a similar framework as this study. In times of less inflationary expansion, future use of this framework may consider using unlevered IRR for ease of understanding for industry participants. Growth assumptions may be further refined to account for gentrification in neighborhoods like Bushwick. Higher growth rates may push market-rate rents at higher AMIs in neighborhoods like this beyond affordable rents in the future. Another notable comment was about the size of the project. If a company is not capital constrained, larger projects are more attractive since a similar IRR produces a greater dollar figure return. Projects that typically most benefit from tax abatement programs are larger in nature. Future studies may also take into consideration smaller building sizes.

The result of this study, given its limited scope and time constraints, indicates an optimal policy point that requires 10 percent at 40 percent AMI, 10 percent at 60 percent AMI, and 15 percent at 90 percent AMI. This resultant policy requirement is a greater amount of affordable units required than 421-a or 485-w. The depth of affordability is close to 485-w, requiring a maximum cap of 90 percent AMI versus the 80 percent in the proposal. Both 485-w and the result of this study require deeper affordability than 421-a, which had a maximum cap of 130 percent AMI.



# 07 Conclusion

## Overview

Affordable housing is not just an investment to address today's housing insecurity but an investment for housing insecurity for decades to come. Upfront capital constraints, political battles, and ongoing maintenance costs make siloing affordable housing to publicly built projects unsustainable and inefficient. Incentivizing private capital through incentives to come in and bear some of the financial burdens of affordable housing production helps municipalities spend fewer taxpayer dollars and gets those most vulnerable to housing precarity into homes that are in well-maintained buildings and thriving neighborhoods. Access to neighborhoods typically out of reach for those with lower incomes fosters diversity and equity for families and future generations. Local municipal programs to address housing affordability must be devised with great rigor and care, as the effects are lasting.

The intention of this study was not to naively pursue all the answers to the affordable housing crisis in New York City. Instead, this thesis aims to create and test in practice a framework and analytical tool to help determine a potential optimal point for policy successors to the 421-a program. The resultant framework was a multistep mixed-method research analysis. First, a financial analysis was undertaken in two neighborhoods representative of citywide implications to the program using an industry-standard return metric, internal rate of return (IRR). From there, a sensitivity analysis examining the varying possibilities for breadth and depth of affordability was created. This sensitivity analysis was then used as the basis for understanding industry opinion on feasibility through a survey. The data from survey responses for each case study submarket was then aggregated into conceptual thresholds. These two conceptual thresholds were overlaid to determine the optimal point of affordability requirements at which private capital is likely to consider development.

Given the two scenarios analyzed in this study, the framework yielded an optimal policy requirement of 10 percent of units affordable at 40 percent AMI, 10 percent of units affordable at 60 percent AMI, and 15 percent of units affordable at 90 percent AMI. This study was limited in a number of capacities clarified in the Limitations section within this chapter, which indicates

this “optimal point” may not be indicative of an actual optimal point for 421-a policy successors. However, the framework used to come to this conclusion is beneficial for testing future policy decisions for New York City and beyond. This research provides a potential guide to understanding outcomes for localities pursuing programs in which subsidies that improve the returns for private capital are given to incentivize the creation of affordable housing within market-rate residential rental developments.

## Recommendations

The framework designed and undertaken in this study is presented as a way to determine the optimal policy point at which the widest quantity at the deepest affordability remains feasible for private capital to pursue. The result of this study shows, given its limitations described in Chapter 7, that the optimal point at this moment in time for New York City is at 10 percent at 40 percent AMI, 10 percent at 60 percent AMI, and 15 percent at 90 percent AMI. This resultant policy requirement is a greater amount of affordable units required than the current proposal, 485-w, and the previous program 421-a. The depth of affordability is close to 485-w, requiring a maximum cap of 90 percent AMI versus the 80 percent in the proposal. Both 485-w and the result of this study require deeper affordability than 421-a, which had a maximum cap of 130 percent AMI. While this may not, in reality, be the exact optimal point, the process by which it was found could be used with larger data sets to gather a more accurate conclusion. This thesis recommends policy makers undergo a similarly rigorous process for determining the optimal policy point for a successor policy to 421-a.

Under conversations with industry participants, the hold period for residential rental projects that are eligible for 421-a is relatively short compared to the 35-year tax abatement. Under 421-a, the length of time the apartments must remain affordable mirrors the length of their abatement. The loss of revenue in requiring projects to remain permanently affordable due to this short period before disposition is minimal. Permanent affordability addresses both short and long-term housing needs for New Yorkers. This thesis recommends that future policy require permanently affordable units under the successor to 421-a.

## Limitations

The limitations described here are constraints on the ability of this thesis to draw generalizations from its results. This thesis acknowledges these limitations as an opportunity for future research to build upon.

One of the main limitations of this study is its insufficiency of sample size in the survey analysis. Due to the small sample size, the results of the survey are imprecise but are nevertheless useful in gaining some industry insight. A larger sample size of industry participants would ensure a more representative population. The precision of analysis from the industry side is an area ripe for further research.

Because of the small sample size of respondents, there is the possibility of self-selection bias in the results. All attempts possible were made to reach out to a larger and more diverse respondent set, but those who have chosen to participate may carry some bias towards affordable housing. Those who generally responded are those very familiar with the lapsed 421-a program.

Assumptions for the case studies have been clearly laid out in the Quantitative Analysis and Findings section to ensure the study can be replicated. Because of variability based on individual projects as well as differing opinions from industry participants, this thesis does not purport accuracy in these assumptions. Instead, the assumptions are used as a tool for understanding the relationship of differences in outcomes based on varying policy measures.

The financial analysis of this thesis used the unlevered IRR metric for the case study comparisons between program requirements and outcomes of 421-a, 485-w, and without tax exemption. Unlevered IRR does not take into account financing considerations from debt payments or a lower upfront cost of capital. During the time period in which this thesis was researched and written, there were changes in capital markets that led to significant fluctuations in interest rates, from below 4 percent to over 5 percent. Using a levered IRR or a return metric that does take into account financing would have resulted in very different outcomes over the course of this period. Unlevered IRR was used to give a more holistic return metric considering the fluctuations. When the financial analysis was put to the test through the surveys of industry participants, responses changed slightly due to interest rate increases as time went on. In a period

of steady interest rates, future research may consider using this framework with the levered IRR return metric.

This thesis focused solely on the potential changes to the requirements in affordability of the 421-a program and its potential successors. This study did not examine changes to the level of the tax credit, such as 50 percent exemption of taxation for improvements, or the length of the tax credit, such as 20 years as opposed to 35 years. The case studies here assumed a disposition at year 10, so any reduction in tax credit length between year 10 and year 35 would not affect the outcome.

Given the limited scope of this thesis, future research might explore incorporating analyses on the tax abatement incentive amount and length. How could return outcomes change based on limiting the tax exemption to less than 100 percent, such as at 50 percent? How could the return outcomes change based on changing the number of years or phase-out periods of the tax exemption? Incorporating these scenarios into the analysis could open new potential policy pathways for New York City.

## Final Conclusion

This thesis does not purport to have found the optimal policy point for a successor to 421-a, but instead provides a framework for studying the implications of future affordable housing in exchange for a tax abatement policy. The decision regarding policy program successors to 421-a is not to be taken lightly, as the effects will last for decades to come. As made clear by the findings of this study, determining policy requirements takes rigorous study and must consider the feasibility of a program to private capital while striving for the greatest breadths and depths of affordability. New York City's affordable housing crisis, highlighted by the New York Housing and Vacancy Survey (NYCHVS), will not solve itself. Implementing a successor program, whether it is similar to 421-a and 485-w or a complete redrawing, is valuable to the residents of New York City. A continuation towards incremental procedural change, which makes affordable housing production attractive for private development, has the opportunity to make an impact on the affordable housing crisis while also encouraging diversity and equity for those with the lowest incomes.

# 08 Appendices

## A. Definitions of Key Terminology

**Area Median Income (AMI):** Area Median Income is an income statistic set by the U.S. Department of Housing and Urban Development (HUD) for purposes of determining the eligibility of applicants for certain federal housing programs. It is based on the U.S. Census Bureau's American Community Survey median family income estimates. New York City uses HUD's determination of 100 percent AMI for a three-person household as the basis for its local programs (*Area Median Income - HPD*, n.d.; *FY 2021 Income Limits Documentation System -- Summary for New York, NY HUD Metro FMR Area*, n.d.; *CHPA*, 2011).

**Fair Market Rent (FMR):** Fair Market Rents are used to determine standard payment amounts for the Housing Choice Voucher program. The U.S. Department of Housing and Urban Development (HUD) annually estimates FMR by metropolitan area as the 40<sup>th</sup> percentile of gross rents for regular, standard quality units and units that have been built in the last two years. FMR rent data is typically taken from recent moves rather than long-term tenants. FMR includes core utilities, like water and power (*Fair Market Rents (40th PERCENTILE RENTS) | HUD USER*, n.d.).

**Housing Unit:** A housing unit is an apartment, a house, a group of rooms, or a single room occupied or intended for occupancy as separate living quarters. Housing units must meet both of the following qualifications: 1) separateness, meaning occupants live separately from any other occupants in the building, and 2) direct access, meaning that the entrance to the living quarters must be directly from the outside of the building or through a common hall (*NYCHVS*, 2022).

**Median Family Income (MFI):** The Median Family Income refers to the median household income for the last year. It is set by the U.S. Census Bureau each year and is based on the American Community Survey (*Median Household Income*, n.d.).

**Public Housing Agency (PHA):** A public housing agency is the local government department that is allowed to engage in or assist in the development or operation of public housing (*Public Housing Agency*, n.d.).

## Types of Units by Rent Regulation

**Rent-Controlled Units:** A rent-controlled unit is an occupied unit subject to rent control (“rent-controlled”). Units of this type are subject to an older form of rent regulation and are generally in pre-war buildings where the current occupant(s) or their successors have been in continuous residence since before July 1, 1971. Rent control only applies to occupied units; therefore, there is no vacancy rate for this segment of the housing stock (*NYCHVS, 2022*).

**Rent-Stabilized Units:** A rent-stabilized unit is a unit subject to rent stabilization. Rent stabilization generally applies to units in buildings built before 1974 with six or more units through the Emergency Tenant Protection Act (ETPA). Other units subject to rent stabilization are a result of participation in affordable housing or tax incentive programs, including 421-a. Units may exit rent stabilization if they meet certain criteria, though legislation enacted in 2019 limited the circumstances under which housing units could be decontrolled (*NYCHVS, 2022*).

**Private, Unregulated Units:** Private, unregulated units, also referred to as “market-rate units,” are privately owned units where rent is not regulated. This includes units in newer buildings that are not subject to rent stabilization as a result of participation in affordable housing or tax incentive program, units in smaller buildings where rent stabilization does not apply, and units that were previously decontrolled and not subject to rent stabilization by some other means. Private, unregulated units also generally include units in condominiums and cooperative buildings that are renter-occupied, either as a sponsor unit rented after construction or conversion or as a sublet by the unit’s owner (*NYCHVS, 2022*).

**Public Housing Units:** Public housing units refer to housing units owned and operated by the New York City Housing Authority (NYCHA) (*NYCHVS, 2022*).

**Units Regulated in Some Other Way:** Units regulated in some other way refer to rental units that are part of the Mitchell Lama program, units subject to the New York City Loft Board, *in rem* units, and other affordable housing rental units not otherwise subject to rent stabilization (*NYCHVS, 2022*).

## B. Survey Scenario Cards

### Chelsea Submarket Scenario

You have been presented with the opportunity to develop a residential property in Chelsea. You have determined you will be able to build ~193,000 RSF with 300 units. Given the nature of your company, if you move forward, you plan to dispose at year 7.

#### Assumptions

Acquisition Price: \$161,466,900 (\$700/Zoned SF)

Unit Mix and Average Rents (15% over area average):

63 Studios: \$3,953

125 One Bedrooms: \$5,113

75 Two Bedrooms: \$6,912

38 Three Bedrooms: \$10,196

#### Resultant Unlevered IRRs

**421-A Option E:**

**7.94%**

10% at up to 40% AMI

10% at up to 60% AMI

5% at up to 120% AMI

**421-A Option F:**

**7.64%**

10% at up to 70% AMI

20% at up to 130% AMI

**485-W Option A:**

**7.77%**

10% at up to 40% AMI

10% at up to 60% AMI

5% at up to 80% AMI

**No Subsidy:**

**1.53%**

100% Market Rate

Suppose a new version of the tax incentive was passed with 10% at up to 40% AMI, 10% at up to 60% AMI, and Y% at up to X AMI (see chart below), Given the resultant Unlevered IRRs, at which points would you consider moving forward with the project?

Total Affordable		70%	80%	90%	100%	110%	120%	130%
25.00%	5%	7.73%	7.77%	7.81%	7.85%	7.90%	7.94%	7.98%
30.00%	10%	7.14%	7.22%	7.30%	7.39%	7.47%	7.55%	7.63%
35.00%	15%	5.93%	6.11%	6.28%	6.45%	6.61%	6.78%	6.94%
40.00%	20%	3.87%	4.22%	4.56%	4.88%	5.21%	5.52%	5.83%
45.00%	25%	0.55%	1.23%	1.87%	2.48%	3.07%	3.64%	4.18%
50.00%	30%	-5.03%	-3.58%	-2.28%	-1.10%	-0.02%	0.99%	1.92%

Likely to Consider

May or May Not Consider

Unlikely to Consider

Example		Y1%	Y2%	Y3%	Y4%	Y5%	Y6%	Y7%	Y8%
X1+20%	X1%	3%	4%	5%	6%	7%	8%	9%	10%
X2+20%	X2%	2%	3%	4%	5%	6%	7%	8%	9%
X3+20%	X3%	1%	2%	3%	4%	5%	6%	7%	8%

Figure 41: Chelsea Submarket Survey

**Bushwick Submarket Scenario**

You have been presented with the opportunity to develop a residential property in Bushwick. You have determined you will be able to build ~64,000 RSF with 100 units. Given the nature of your company, if you move forward, you plan to dispose at year 7.

Assumptions

Acquisition Price: \$22,800,000 (\$300/Zoned SF)

Unit Mix and Average Rents (15% over area average):

63 Studios: \$2,512

125 One Bedrooms: \$2,781

75 Two Bedrooms: \$3,177

38 Three Bedrooms: \$3,368

Resultant Unlevered IRRs

**421-A Option A:**  
**6.85%**

10% at up to 40% AMI  
10% at up to 60% AMI  
5% at up to 130% AMI

**421-A Option B:**  
**8.23%**

10% at up to 70% AMI  
20% at up to 130% AMI

**485-W Option A:**  
**6.56%**

10% at up to 40% AMI  
10% at up to 60% AMI  
5% at up to 80% AMI

**No Subsidy:**  
**0.29%**

100% Market Rate

Suppose a new version of the tax incentive was passed with 10% at up to 40% AMI, 10% at up to 60% AMI, and Y% at up to X AMI (see chart below), Given the resultant Unlevered IRRs, at which points would you consider moving forward with the project?

Total Affordable		70%	80%	90%	100%	110%	120%	130%
25.00%	5%	6.45%	6.56%	6.68%	6.78%	6.85%	6.85%	6.85%
30.00%	10%	6.16%	6.35%	6.55%	6.73%	6.85%	6.85%	6.85%
35.00%	15%	5.61%	5.96%	6.30%	6.62%	6.84%	6.85%	6.85%
40.00%	20%	4.65%	5.29%	5.90%	6.46%	6.83%	6.85%	6.85%
45.00%	25%	3.20%	4.29%	5.31%	6.22%	6.82%	6.85%	6.85%
50.00%	30%	1.33%	3.07%	4.61%	5.94%	6.80%	6.85%	6.85%

Likely to Consider

May or May Not Consider

Unlikely to Consider

Example		Y1%	Y2%	Y3%	Y4%	Y5%	Y6%	Y7%	Y8%
X1+20%	X1%	3%	4%	5%	6%	7%	8%	9%	10%
X2+20%	X2%	2%	3%	4%	5%	6%	7%	8%	9%
X3+20%	X3%	1%	2%	3%	4%	5%	6%	7%	8%

Figure 42: Bushwick Submarket Survey



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