

Bigger Houses, Fewer Homes:

Dwelling Unit Consolidation in New York City

Adam Brodheim

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*250 West 73rd Street mid-conversion
This is the third row house to be converted from an apartment
building to a single family home on the street where I live*

Adam Oscar Brodheim | ab4522@columbia.edu

Advisor: Carol Clark | cac35@columbia.edu

Graduate School of Architecture, Planning and Preservation | Columbia University

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Abstract

Dwelling unit consolidation, whereby two or more housing units are combined, is an understudied aspect of housing in New York City. While previous research has identified the practice historically, particularly in relation to “brownstoning” and early gentrification in New York City, the full historical and modern extent of the practice has not been studied or quantified. Over the past 70 years, over 50,000 small multi-family buildings have been converted to one or two-families, resulting in a loss of approximately 100,000 units of housing. Concurrently, many larger multi-unit apartment buildings have seen decreases in their overall number of units, as adjacent apartments are combined. This study uses archival building records and contemporary building permits to identify cases of dwelling unit consolidation in New York City. Geospatial methods are employed to identify clusters of the practice, quantify the overall impact, and describe the demographic characteristics of areas where the activity is most common. It shows that dwelling unit consolidation disproportionately occurs in historic districts (both historically and currently), and that the activity primarily occurs in census blocks that are whiter and wealthier than the surrounding neighborhood. It concludes with a discussion of policy responses to dwelling unit consolidation in other cities. Ultimately, this thesis finds that dwelling unit consolidation is an “unintended consequence” of historic preservation, and that policy makers must actively engage with such negative externalities to historic preservation going forward.

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Introduction

Dwelling Unit Consolidation and Historic Preservation

Most historic preservationists believe that historic preservation saves housing. In New York City, it is generally believed the practice not only helps neighborhoods retain housing units, but can even help produce new ones. In their idealized vision, preservation stops rapacious developers from evicting families and adaptive re-use projects bring new residential life to formerly commercial buildings. However, these ideas belie a darker reality—New York City’s historic districts have in fact lost housing units over the last decade as row houses have been converted to single-family homes and adjacent apartments are combined to create larger units. In the period from 2010 through the first half of 2022, New York City historic districts shrank by 4,000 housing units.

New York City has seen over 50,000 multi-family buildings converted to one or two-family over the last 70 years. These buildings likely account for over 100,000 units of lost housing—a tremendous number in a city facing a dire housing shortage. In the face of this crisis, conversation in historic preservation circles continues to focus on demolition and new construction. These discussions overlook the less apparent loss of housing behind the walls of existing buildings. It is these changes that this thesis discusses.

New York City’s housing stock has never remained static. The number and type of dwelling units contained within a building’s walls constantly changes as neighborhoods become more or less fashionable and as living preferences evolve. The city’s housing crises and economic downturns are reflected in divided apartments and converted buildings. Yet the consolidation of dwelling units, whereby two or more housing units are combined, is a relatively new phenomenon dating only to the second half of the twentieth century. It follows a much longer history of the opposite trend, whereby apartments and row houses were split up into multiple units to serve New York’s growing population. Dwelling unit consolidation is a largely opaque process. It is only visible in the

disappearance of apartment buzzers and mailboxes at building entrances. While demolition and new construction are the dramatic evidence of a changing city, dwelling unit consolidation goes mostly unseen.

In the real estate sections of New York City newspapers this activity is lauded, as owners “save” a row house by putting it “back the way it was” in the “Land of the Multi-No-Longer Family House.”¹ What happens behind the walls of an apartment building is a restoration, with no comment made to 146 units turning into just 70.² It is only when a building is torn down, and subsequently replaced with a new building of fewer units, that New York’s paper of record, *The New York Times*, bites and notes that “the Upper East Side lost more housing units than any other community district in the city, primarily through the combination of smaller apartments and demolitions.”³ Consolidation of dwelling units is treated as an individual, building-by-building and owner-by-owner choice. Yet at the macro level it leads to a shrinking housing supply in the midst of a chronic housing shortage. A continued focus on only what is easiest to observe—demolitions and new construction—neglects the role of alterations in driving declining housing unit counts.

Understanding the challenge of dwelling unit consolidation is key to making progress against New York City’s immense housing shortage. Examining why and where dwelling unit consolidation occurs is necessary to help shape policy responses. This thesis takes a historic preservationist perspective on dwelling unit consolidation, looking at both the longer history of consolidation (beginning at scale in the 1950s), as well as focusing explicitly on the practice in historic districts. The reason for focusing specifically on historic districts is two-fold: first, historic districts are

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1. Joanne Kaufman, “How Brooke Shields Created a London-Style Home in the West Village,” *The New York Times*, November 22, 2022, sec. Real Estate, <https://www.nytimes.com/2022/11/22/realestate/brooke-shields-nyc-home.html>; John Freeman Gill, “Land of the Multi-No-Longer Family House,” *The New York Times*, October 5, 2012, sec. Real Estate, <https://www.nytimes.com/2012/10/07/realestate/cobble-hill-brooklyn-living-in-land-of-the-multi-no-longer-family-house.html>.
 2. Other papers have covered the topic better including *The City* which ran an article in 2021 following the release of a key DCP dataset titled: “NYC’s Wealthy Enclaves Lost Housing in Past Decade as Combining of Apartments Outpaced New Construction.” Ultimately, as this thesis will show this DCP dataset undercounted the loss of housing in wealth enclaves as it did not actually include all apartment combinations. Tim McKeough, “Prewar, With a Twist,” *The New York Times*, December 8, 2017, <https://www.nytimes.com/2017/12/08/realestate/prewar-with-a-contemporary-twist.html>.
 3. Stefanos Chen, “Taller Towers, Fewer Homes,” *The New York Times*, September 23, 2022, <https://www.nytimes.com/2022/09/23/realestate/nyc-apartments-housing-shortage.html>; Rachel Holliday Smith, “NYC’s Wealthy Enclaves Lost Housing in Past Decade as Combining of Apartments Outpaced New Construction,” *The City*, February 8, 2021, <https://www.thecity.nyc/housing/2021/2/8/22273634/nycs-wealthy-enclaves-lost-housing-in-past-decade>.

more challenging environments for new construction, and as such units lost through dwelling unit consolidation are harder to replace. Second, as this thesis demonstrates, buildings in historic districts are disproportionately more likely to be the sites of dwelling unit consolidation. However, both the geospatial methodology presented and overall findings are generalizable across all New York City neighborhoods.

This thesis looks to explain both the history of dwelling unit splitting and of dwelling unit consolidation. In doing so it will use a variety of sources to trace these complex histories. Ultimately, this project is focused on answering specific questions about dwelling unit consolidation in historic districts through an examination of both historic archival data as well as through contemporary data from municipal agencies. Where has dwelling unit consolidation occurred historically and is it concentrated in certain neighborhoods or historic districts? How does historic designation potentially impact the rate of conversions? What are the demographic characteristics of the areas where consolidation occurs? What is the overall impact of dwelling unit consolidation?

For a discipline that is founded on the importance of cultural heritage being tied to specific physical spaces, there is a surprising lack of geospatial methodology used in historic preservation practice. Geospatial tools are used mostly to catalog and conserve, and only rarely applied to discover new insights—let alone interrogate the field, as this thesis aims to do. As American preservation enters the second half of its first hundred years it is critical to understand the complete impact of preservation on communities. Geospatial and cartographic tools allow for the quantification of historic preservation and can also provide valuable new visualizations through mapping. The historical transformation of neighborhoods from multi-family to single-family homes may no longer be apparent at the surface level, but maps can show how this activity has shaped cities.

This thesis' first chapter begins with a discussion of the existing literature about historic preservation in New York City, with a specific focus on the relative lack of robust data-based analyses. It then turns to the use of geospatial analyses in historic preservation more generally to show that NYC is not unique in the lack of geospatial reviews in studying the city. Finally, it turns

to the growing literature of the “unintended consequences” of preservation, to discuss the ways in which academics have interrogated the potential downsides to preservation—as this thesis does.

A brief history of row houses and apartment splitting and combination follows in Chapter 2 in order to set up Chapters 3, 4, and 5 which each use a different dataset to examine the different histories of dwelling unit consolidation. Each method is unique in order to examine different time periods in order to answer different questions. Chapter 3 looks at the history of row houses and how they have been converted from single-family to multi-family and now are being converted back to one and two-family. It identifies over 50,000 such conversions and in particular it shows that these conversions are more concentrated in historic districts. Chapter 4 analyses a smaller set of these conversions from the past two decades in order to determine if historic designation changes the frequency at which conversions occur, finding that it does not. Finally, Chapter 5 uses detailed NYC Department of Buildings records to track individual unit changes inside and outside of historic districts to quantify the overall impact on dwelling unit conversions over the past decade. It finds that conversions tend to occur in whiter and wealthier neighborhoods and are more common in historic districts.

The first analysis uses proto-certificate of occupancy records called I-Cards to identify which New York City row houses were multi-family in the first half of the twentieth century. These records are then compared with contemporary land use data in order to identify where multi-family dwellings have been converted to one or two-family in New York City over a ~70-year period. The second uses property tax information to identify conversions in buildings that have switched between multi-family and one or two-family tax classes. The final analysis uses individual building permits to track unit changes. Across these three analyses longer time periods (from 70 years to 20 years to 12 years) are traded for more granularity and detail about when a conversion occurred and the extent of the conversion.

Finally, Chapter 6 discusses the current policy landscape in New York City including ongoing discussions around legislation to regulate construction that results in a net loss of units. It then looks at a few potential models for managing dwelling unit consolidation based on examples in

other municipalities. In particular, Chicago’s deconversion ordinances and Portland’s new historic preservation laws offer examples for how dwelling unit consolidation can be regulated.

This thesis finds no evidence that historic designation causes dwelling unit consolidation. However, this project does show that the number of homes in historic districts is decreasing because of dwelling unit consolidation and that such activity is disproportionately taking place in historic districts. According to New York City’s enabling legislation, historic preservation “is a public necessity and is required in the interest of the health, prosperity, safety and welfare of the people.”⁴ This thesis does not deny that claim. It does however suggest that historic preservation has a hidden cost—the prevention of new development. That cost may be reasonable when historic districts remain constant, neither contributing new units to quell New York City’s housing shortage nor actively exacerbating it. But it is harder to justify the current practice of historic preservation in New York City when historic districts act not only as de-facto exclusionary zoning, but are also losing housing units, and in the process of doing so becoming less equitable.

4. “New York City Administrative Code Title 25 Chapter 3 Section 25-304” (1965)

Chapter 1

Literature Review

The first American municipality to enact a historic preservation ordinance was Charleston, South Carolina in 1931. Since then, over 3,500 local governments have adopted historic preservation ordinances in the United States.¹ A large body of literature continues to grow around the both implementation and impact of such policies and ordinances. For most of the twentieth century it was primarily economists and urban planners who used data to examine historic preservation, with a particular focus on investment and property values. It is only recently that these studies have begun to rigorously study more than just the economic impact of historic preservation. Growing concerns over housing affordability, racial justice, and exclusionary zoning are leading to new studies that take a more critical eye towards preservation. In tandem with these desires, the improved accessibility of geospatial software and availability of government datasets has facilitated such studies. The study of historic preservation in New York City, as well as globally, is now increasingly including data driven, cartographic, and geostatistical methods to examine all aspects of preservation. These studies have the potential to meaningfully benefit preservation policy.

Historic Preservation in New York City

New York City has nearly 38,000 buildings and lots that are protected as designated landmarks. These buildings' exteriors can only be altered with permission of New York City's Landmarks Preservation Commission (LPC). While smaller exterior changes might only require a staff approval, larger scale interventions require a certificate of appropriateness from the commissioners of the LPC, who are appointed by the mayor and serve three-year terms. These commissioners are focused primarily on preserving the built environment of New York City as laid

1. Sara C. Bronin and Leslie Irwin, "Regulating History," SSRN Electronic Journal, 2023, <https://doi.org/10.2139/ssrn.4396040>.

out in New York City's Landmarks Preservation Law. They can designate both individual landmarks (of which there are nearly 1,500) and historic districts, groups of buildings spatially collocated. The vast majority of the 38,000 buildings that are designated are in New York City's 155 historic districts. It is on these historic districts that this thesis mostly focuses. While the LPC is able to regulate the interior of buildings under its legislative authority, it can only do so via designating interiors landmarks, of which there are fewer than 150. As such, the vast majority of designated buildings in NYC are regulated by the LPC based only on their exteriors. What happens inside is controlled only by the Department of Buildings and City Planning.

If there ever was a city to epitomize how historic preservation policy research can be motivated by political goals it is New York City. Over the half century that the city has had a local preservation ordinance, a tremendous amount has been written about the impact of the landmarks law by academics, government agencies, and a wide variety of interested lobbying and non-profit organizations. While some of this research has been of high quality, (primarily that associated with the Furman Center, New York University's joint urban planning and law program), the vast majority has been lacking. This is particularly true of the series of reports and retorts from the early 2010s as landmark preservation organizations fought a war of words with the Real Estate Board of New York (REBNY), the city's leading real estate trade and lobbying group. This section is not meant to relitigate those debates, but instead contextualize the present work within the broader framework of research on New York City and preservation policy. In doing so it will show that dwelling unit consolidation as a topic never appears, despite housing being the central focus of all parties.

In 2013, REBNY published two pieces of research discussing the impact of historic preservation policy on Manhattan. The papers sought to demonstrate that, "the proliferation of Historic District and individual landmark designations throughout the City imposes real costs to property owners, limits the City's ability to grow, and will have adverse impacts on housing, tax revenue, and job creation" based on a fairly simplistic analysis of which community districts have the highest share of landmarked properties.² These initial reports were rebutted in a report

2. Real Estate Board of New York, "An Analysis of Landmarked Properties in Manhattan," June 2013; Real Estate Board of New York, "The Impact of Landmarking on Housing Production in Manhattan," September 2013.

commissioned by the Citizens Emergency Committee to Preserve Preservation: *A Proven Success: How the New York City Landmarks Law and Process Benefit the City*.³ The responding report essentially argued that correlation is not causation, which while true, belies the fact that it also possible that historic preservation policy is partially responsible for what happens in its designated neighborhoods.

The battle between preservation organizations and REBNY would continue the following year as New York City celebrated the 50th anniversary of the Landmarks Law in 2015. REBNY's 2015 report *Landmarking, Housing Production and Demographics in NYC* expanded on the previous analysis to show that landmark districts are less diverse than the city as a whole and produce less new housing units, and in particular affordable housing units.⁴ This analysis in turn was criticized for conflating the impact in Manhattan, where districts are whiter and wealthier, and the impact in the outer boroughs, which are more diverse. A year later the New York Landmarks Conservancy would fire back with a report: *Historic Preservation: At the Core of a Dynamic New York City*.⁵ This report drew heavily from the Furman Center's report, *Fifty Years of Historic Preservation in New York City*, which refrained from moralizing and to some degree settled the fervor of unproductive research in New York City.⁶

In 2016's *Preserving history or restricting development? The heterogeneous effects of historic districts on local housing markets in New York City* researchers affiliated with the Furman Center used a detailed statistical model to examine the impacts of historic designation in New York City.⁷ The researchers found that a "lower share of new construction takes place in historic districts" post designation, although it is unclear if that is driven by historic preservation decreasing housing production or if there is a comparative increase in production outside each district. The authors also found that designation of a district increased the sales price for both properties within the district, as well

3. Gregory Dietrich, "A Proven Success: How the New York City Landmarks Law and Process Benefit the City," June 2014.

4. Real Estate Board of New York, "Landmarking, Housing Production and Demographics in NYC," 2015.

5. PlaceEconomics, "Historic Preservation: At the Core of a Dynamic New York City," April 2016.

6. Ingrid Gould Ellen, Brian J McCabe, and Eric Edward Stern, "Fifty Years of Historic Preservation in New York City" (Furman Center, March 2016).

7. Vicki Been et al., "Preserving History or Restricting Development? The Heterogeneous Effects of Historic Districts on Local Housing Markets in New York City," *Journal of Urban Economics* 92 (March 1, 2016): 16–30, <https://doi.org/10.1016/j.jue.2015.12.002>.

as those in a 250-foot buffer surrounding the district, but that this impact was less so in “historic district designation in places where developers could build tall buildings in the absence of historic districts.”⁸

This research was a robust and city-wide follow-up to Edward Glaeser’s 2010 *Preservation Follies* which was one of the first articles to publicly attack preservation for its deleterious impact on housing supply in Manhattan.⁹ Two key elements of Been et al.’s work are worth highlighting in particular: first the focus on “heterogeneity” is important when examining the large and wide-ranging impacts of preservation policy across the five boroughs of New York City. Second, the use of buffers to examine the impact of historic districts outside their exact borders is interesting, but potentially flawed due to the varied conditions outside historic districts in terms of building typology, ownership type, or other factors. The use of directional distributions (*standard deviation ellipses*) would perhaps be a better methodology to examine this topic in the future.

The Furman Center’s objective in issuing *Fifty Years of Historic Preservation in New York City* was to “study and describe the differences” rather than determine if differences were “caused” by district designation.¹⁰ The report’s data has in turn been used by numerous researchers, potentially at the expense of more rigorous analyses that would have better supported their specific research projects.¹¹ Relevant to this present study, the Furman Center researchers found that (1) historic districts were more likely to have multi-family properties, (2) within the same community district there was no difference in the rate of renovations for designated and non-designated properties, and (3) lower rates of new construction in historic districts, but that (4) historic districts were built to a higher portion of allowable densities. Throughout the report they noted that there was meaningful variability between the differences inside and outside of historic districts in Manhattan versus other boroughs.

8. Been et al.

9. Edward Glaeser, “Preservation Follies,” *City Journal*, December 23, 2015, <https://www.city-journal.org/html/preservation-follies-13279.html>.

10. Ellen, McCabe, and Stern, “Fifty Years of Historic Preservation in New York City.”

11. Aaron Passell, *Preserving Neighborhoods: How Urban Policy and Community Strategy Shape Baltimore and Brooklyn* (New York: Columbia University Press, 2021).

A final report from Furman Center researchers is 2016's *Does Preservation Accelerate Neighborhood Change? Examining the Impact of Historic Preservation in New York City* which sought to better characterize demographic and population changes as a result of designation.¹² In this report McCabe and Ellen found that (1) socioeconomic status rose post designation, either from attracting new residents or pricing out lower-income residents, (2) there were minimal changes in racial composition post designation, and (3) homeownership rates rose post designation. This last finding is most relevant to the present work as they note this change in homeownership rate could potentially be caused by the conversion of multi-family rental buildings into single-family homes.

Historic Preservation and Geospatial Analysis

Research on historic preservation in New York City mirrors broader research on preservation in its relative lack of geospatial and strong empirical methods. In the literature referenced above, geospatial methods are employed in only a few of the most recent papers—be it the 250-foot buffers in Been et al. or the mapping of demographic data on historic districts in McCabe and Ellen.¹³ The deficiency in geospatial methods in historic preservation research is well articulated by Jennifer Most who wrote that “it is time for data analysis (and geospatial analysis) to become more integrated into the professional practice of historic preservation.” By doing so she explained that preservation can “do much more than play defense,” and instead actively explore, expand and investigate its impact on the world.¹⁴ While geospatial methods have a long history in preservation, they have primarily been used to catalog resources, conduct field surveys, and examine the potential impacts of new development. Until recently mapping was otherwise only used to build data sets that examined the impact of preservation on property values.

12. Brian J. McCabe and Ingrid Gould Ellen, “Does Preservation Accelerate Neighborhood Change? Examining the Impact of Historic Preservation in New York City,” *Journal of the American Planning Association* 82, no. 2 (April 2, 2016): 134–46, <https://doi.org/10.1080/01944363.2015.1126195>.

13. Been et al., “Preserving History or Restricting Development?”; McCabe and Ellen, “Does Preservation Accelerate Neighborhood Change?”

14. Jennifer L. Most, “The Case for Data Analytics in Preservation Education and Practice,” in *Preservation and the New Data Landscape, Issues in Preservation Policy* (New York: Columbia Books on Architecture and the City, 2019).

Today the uses of geospatial analysis in preservation are broader, but strong rigorous geostatistical analyses by trained preservationists still take a back seat to those of urban planners, especially in matters of public policy.¹⁵ By developing a new methodology that uses geospatial methods to examine how populations interact and change habitation models within historic districts, this thesis aims to open up a new field within preservation study. While other research has examined the use of historic tax credits, this thesis, with its primary focus on changes in dwelling unit counts, suggests models for other researchers to examine renovation rates in historic districts in order to understand how populations adapt, use, and shape historic environments. Further, this thesis' innovative use of both historical data and newer government provided 'open-data' presents a model for future research on other subjects in other cities.

Geographic Information Systems (GIS) are “tools for managing, describing, analyzing, and presenting information about relationships between what happens and where it happens.”¹⁶ They are much more than just instruments for making maps. Computerized GIS were developed in the 1960s and by the 1980s, software was increasingly commercially available. In 1999 Frederick Limp noted that early uses of GIS in heritage conservation expanded beyond just “computerized cartography” to analyze the distribution of archeological sites and classify them into relevant populations. Other analyses from the 1980s and 1990s sought to understand patterns of historic farm community development or the probable location of future archeological sites. The use of GIS for impact analysis, whereby future development is mapped against existing elements of the built environment (including historic resources), began in the early 1990s with a study of 150 U.S. Civil War battlefields.¹⁷ A 2001 article in the National Trust for Historic Preservation's journal echoed impact analysis as the primary role for GIS along with organizing documentation and assisting in geolocated documentation efforts via Global Positioning System (GPS).¹⁸ Similarly, at

15. Most.

16. Leah Meisterlin, “Geographic Information Systems Syllabus: Fall 2022,” 2022.

17. W. Fredrick Limp, “Geographic Information Systems in Historic Preservation,” *Archives and Museum Informatics* 13, no. 3–4 (September 1999): 325–40, <https://doi.org/10.1023/A:1012472528263>.

18. Deidre McCarthy, “Applying GIS Technology to Preservation Planning,” *Forum Journal* 15, no. 4 (Summer 2001).

an international level, GIS was initially suggested as a tool for supporting preservation planning for world heritage in a 1997 paper for ICOMOS (a professional body of preservationists).¹⁹ Across both of these early documents on heritage preservation and GIS there is minimal emphasis on the analytical possibilities of GIS to interrogate the results of preservation.

Some papers in the 2000s would begin to use GIS to evaluate the impacts of historic designation on neighborhoods. Coulson and Leichenko, looked at the role of designation in Fort Worth, Texas and found minimal change in demographics from designation.²⁰ However it has only been in the last decade that questions have really emerged concerning the impact of historic preservation beyond those of property values—requiring the building of a geospatial dataset for analysis.²¹ Other recent research, including Foster’s 2021 master’s thesis employ a GIS as a tool for examining equity in historic designations. Her geospatial analysis of historic designation and Home Owners’ Loan Corporation (HOLC) redlining maps found that none of her six case study cities had “achieved equitable spatial representation” in the cities’ use of historic designation.²² Specific to New York City, Avrami et al. examined heritage policy’s relationship to energy codes and used a GIS to connect these disparate impacts to demographic information about affected populations.²³

For a field that is undeniably spatial, the vast majority of analyses focus primarily on money. In Ryberg-Webster and Kinahan’s 2014 literature review of historic preservation research they note that “evaluations of the economic impact of historic designation on property values and sales price dominate contemporary urban preservation research.”²⁴ For the share of literature on preservation

19. Roberta Hardy, “Geographic Information Systems for World Heritage Preservation” (University of Michigan, 1997).

20. N. Edward Coulson and Robin M. Leichenko, “Historic Preservation and Neighbourhood Change,” *Urban Studies* 41, no. 8 (2004): 1587–1600.

21. Foster notes numerous uses of GIS to spatialize a non-geospatial analysis. For example, Been et al. (2013) built a complex statistical model to examine property value changes with designation in New York City and used a simplified GIS to “spatialize the statistical results.”

22. Katlyn M. Foster, “Redlining History: The Geographies of Historic Preservation” (New York, Columbia University, 2021), <https://doi.org/10.7916/d8-vqq3-g133>.

23. Erica Avrami et al., “Energy and Historic Buildings: Toward Evidence-Based Policy Reform,” *Journal of Cultural Heritage Management and Sustainable Development* 13, no. 2 (January 1, 2021): 379–404, <https://doi.org/10.1108/JCHMSD-06-2021-0112>.

24. Stephanie Ryberg-Webster and Kelly L. Kinahan, “Historic Preservation and Urban Revitalization in the Twenty-First Century,” *Journal of Planning Literature* 29, no. 2 (May 1, 2014): 119–39, <https://doi.org/10.1177/0885412213510524>.

that is empirical in nature it is even more weighted towards economics. In a 2005 review of existing papers on preservation and economics Mason writes: “Nearly any way the effects are measured, be they direct or indirect, historic preservation tends to yield significant benefits to the economy” and that specifically property values are positively impacted by historic district status.²⁵ However as Mason acknowledges, most of the work is “weighted heavily toward [the] advocacy” of preservation. More recent papers have come from a wider variety of authors and countries. Zahirovic-Herbert and Gibler (2014), Koster and Rouwendal (2017), and Zhou (2021) all find similar conclusions that historic designation increases property values.²⁶ Others however, including Noonan and Krupka (2011) and Ahlfeldt et al. (2017) suggest there is less of a connection between landmark designation and property values, or perhaps even a negative correlation.²⁷

Still, given the wider impact on housing policy, it is not surprising that economics is a central focus of historic preservation research. One of the primary ongoing debates about historic preservation is its relationship to housing affordability. In her 2020 article “Connecting Historic Preservation and Affordable Housing” Caroline S. Cheong notes the “scant research-based literature” on the subject.²⁸ She specifically cites claims by Edward Glaeser, “preservation’s most vocal critic,” who has consistently argued that an increase in the value of landmarked properties comes at the expense of more affordable properties due to a decrease in overall supply.²⁹ These debates are complex and potentially intractable and this thesis does not seek a definitive answer to a complex and varied phenomena. However, this thesis does seek to discuss the relationship between

25. Randall Mason, *Economics and Historic Preservation: A Guide and Review of the Literature*, Metropolitan Policy Program (Washington, D.C.: Brookings Institution, 2005), http://www.brookings.edu/metro/pubs/20050926_preservation.pdf.

26. Velma Zahirovic-Herbert and Karen M. Gibler, “Historic District Influence on House Prices and Marketing Duration,” *The Journal of Real Estate Finance and Economics* 48, no. 1 (January 1, 2014): 112–31, <https://doi.org/10.1007/s11146-012-9380-1>; Hans R.A. Koster and Jan Rouwendal, “Historic Amenities and Housing Externalities: Evidence from the Netherlands,” *The Economic Journal* 127, no. 605 (2017): F396–420; Yang Zhou, “The Political Economy of Historic Districts: The Private, the Public, and the Collective,” *Regional Science and Urban Economics* 86, no. C (2021), <https://ideas.repec.org/a/eee/regeco/v86y2021ics0166046220302684.html>.

27. Douglas S. Noonan and Douglas J. Krupka, “Making—or Picking—Winners: Evidence of Internal and External Price Effects in Historic Preservation Policies,” *Real Estate Economics* 39, no. 2 (2011): 379–407, <https://doi.org/10.1111/j.1540-6229.2010.00293.x>; Gabriel M. Ahlfeldt et al., “Game of Zones: The Political Economy of Conservation Areas,” *The Economic Journal* 127, no. 605 (October 1, 2017): 421–45, <https://doi.org/10.1111/eoj.12454>.

28. This author takes umbrage to the inclusion of “graduate thesis research” as less relevant to the literature about housing affordability and preservation.

29. Glaeser, “Preservation Follies.”

historic designation and the loss of housing units, some portion of which are naturally occurring affordable housing (NOAH).

The Unintended Consequences of Historic Preservation

Ultimately, this thesis aims to contribute to the growing literature on the “unintended consequences” of preservation, as Brian McCabe calls it.³⁰ Recent scholarship has increasingly sought to understand both the positive and negative impacts of preservation. Erica Avrami’s 2020 edited volume *Preservation and Social Inclusion* included multiple articles that discuss how “landmark and district designation impact neighborhoods” from not only an economic, but also demographic perspective.³¹ This thesis suggests that the impact of designation may be seen not just in a neighborhood’s home values or inhabitants, but also in the character of dwelling units hidden behind a regulated and largely unchanging built environment facade.

As mentioned above, Brian McCabe has identified a literature of “unintended consequences” of which housing affordability is one. Others include Ryberg-Webster (2014) and Kinahan’s (2019) work on rehabilitation tax credits, Gotham’s (2005) work on tourism in New Orleans, Avrami et al.’s work on energy codes, Grevstad-Nordbrocka and Vojnovic’s (2019) work on gentrification in Chicago, and the varied works on the impact of preservation in New York City from researchers affiliated with the Furman Center.³² Important to this thesis, some of these researchers have specifically identified dwelling unit consolidation as a concern in historic districts.

30. Brian J. McCabe, “Protecting Neighborhoods or Priming Them for Gentrification? Historic Preservation, Housing, and Neighborhood Change,” *Housing Policy Debate* 29, no. 1 (January 2, 2019): 181–83, <https://doi.org/10.1080/10511482.2018.1506391>.

31. Erica Avrami, ed., *Preservation and Social Inclusion, Issues in Preservation Policy* (New York: Columbia Books on Architecture and the City, 2020), <https://www.arch.columbia.edu/books/catalog/503-preservation-and-social-inclusion>.

32. Stephanie Ryberg-Webster, “Preserving Downtown America: Federal Rehabilitation Tax Credits and the Transformation of U.S. Cities,” *Journal of the American Planning Association* 79, no. 4 (October 2, 2013): 266–79, <https://doi.org/10.1080/01944363.2014.903749>; Kelly L. Kinahan, “The Neighborhood Effects of Federal Historic Tax Credits in Six Legacy Cities,” *Housing Policy Debate* 29, no. 1 (January 2, 2019): 166–80, <https://doi.org/10.1080/10511482.2018.1452043>; Kevin Fox Gotham, “Tourism Gentrification: The Case of New Orleans’ Vieux Carre (French Quarter),” *Urban Studies* 42 (n.d.): 1099; Avrami et al., “Energy and Historic Buildings”; Ted Grevstad-Nordbrock and Igor Vojnovic, “Heritage-Fueled Gentrification: A Cautionary Tale from Chicago,” *Journal of Cultural Heritage* 38 (July 1, 2019): 261–70, <https://doi.org/10.1016/j.culher.2018.08.004>.

In discussing the potential for preservation fueled gentrification in Chicago, Grevstad-Nordbrocka and Vojnovic write:

Rooming houses were being converted into larger and more expensive apartments. There were also cases of two- and three-flats in Lincoln Park being converted into large, upscale residences. As the conversions took place over time, affordable apartments and single-occupancy units slowly disappeared from the neighborhood.³³

Similarly, McCabe and Ellen (2016) find that:

In response [to designation], property owners may convert two- to four-family rental buildings into single-family homes. Such conversions naturally reduce the supply of rental housing and may specifically reduce the supply of low-rent units.³⁴

This thesis aims to quantitatively investigate these claims about the conversions of multi-family to single-family. It will demonstrate that it is not just two- or four-family rentals, but much larger buildings that are being converted to one or two-family homes—with vast consequences for a city’s housing stock.

The questions this thesis seeks to answer require methods drawn from other fields. In asking questions about where things happen, how neighboring properties differ, and what the overall impact of these changes is, this thesis not only uses existing datasets, but creates new ones and looks to combine and examine datasets in unique ways. By examining both New York City’s last century and its past decade it seeks to set a foundation for future policy interventions. In doing so it attempts to ensure that policies are not needlessly reactive, but enable the city to respond to the ebb and flow of its residents’ changing needs and desires. Finally, this thesis seeks to make the histories of neighborhoods apparent to New Yorkers. There is a complex story to how New York City’s buildings have evolved to house more, and now fewer, residents. The ultimate goal of this project is to make those changes visible.

In their chapter *Five Things to Do* John Monchaux and Mark Schuster outline that there are exactly “five things that governments can do...to implement urban design policies.”³⁵ In

33. Grevstad-Nordbrock and Vojnovic, “Heritage-Fueled Gentrification.”

34. McCabe and Ellen, “Does Preservation Accelerate Neighborhood Change?”

35. J. Mark Davidson Schuster, John De Monchaux, and Charles A. Riley, *Preserving the Built Heritage: Tools for Implementation* (Hanover, NH: University Press of New England, 1997).

examining government heritage policy, they tie policy outcomes to the specific choice of tool. Moncahux and Schuster cite regulation as the second most powerful tool governments have, second only to ownership. It is a tremendously powerful tool and has been wielded throughout New York City. It is important to remember that the regulatory designation of a neighborhood only protects it by precluding an infinite number of other outcomes for that area. As such, the preservation community, both policy makers and activists, are responsible for what happens in those neighborhoods, even when the outcome is unintended.

This thesis puts forward a repeatable model of strong data driven research in order to better serve public policy in this realm. It acknowledges that New York City is not a monolith and that shifts both geographically and temporarily play a critical role in understanding the impact of historic preservation. However, the author does not believe that things “just happen” to historically designated neighborhoods. While correlation is certainly not causation it is also not a reason to avoid examining the changes that take place within a historic district. In working to designate a historic district, preservationists must be held accountable for that district—for both good outcomes and bad. It is critical that government officials, policy makers, non-profit organizations, and private individuals and developers take responsibility and engage with these difficult challenges as they seek to shape the future built environment.

Chapter 2

Splitting and Combining: Histories of Dwelling Unit Consolidation

A Brief History of the Row House

The focus of this section is the varied histories of New York City's row houses. Originally built as single-family homes, they mirror the city's most popular residential districts as they expand northward up Manhattan and eastward across to Brooklyn. In the 150 years' of their uniqueness, roughly 1780 to 1930, the row house evolved from the homes of upper-class merchants to mass housing for middle class households.¹ Yet as the neighborhood preferences of New Yorkers shifted and as commercial development surged northward, once fashionable row house districts were converted to rooming houses, commercial use, or demolished. The few row houses that remain in vastly changed neighborhoods trace the development of New York's urban fabric: a lone row house between apartment buildings tells the story of the development of a neighborhood from low scale single-family homes to apartment buildings.

The New York City row house has taken many forms, evolving from Federal style to later Revival styles (including coming full circle back to Colonial Revival). Though exteriors changed with the fashion its general form has remained unchanged—a two to five story building, often with a stoop over a raised basement. Originally built as individual projects, later developments of row houses were constructed in speculative rows of three or more, with shared party walls. The row house is not endemic to New York City with similar forms appearing across both the Northeast coast of the United States as well as globally in cities such as London. Despite this, it has been

1. Charles Lockwood, *Bricks & Brownstone: The New York Row house, 1783-1929, an Architectural & Social History*, [1st ed.] (New York: McGraw-Hill, 1972).

closely associated with New York City, especially for the mid-nineteenth century row houses built with a readily available brown sandstone, colloquially known today as “brownstones.”

Charles Lockwood’s *Bricks & Brownstone* is the definitive history of the row house as a single-family home.² His later book, *Manhattan Moves Uptown*, discusses the transformation of row houses into buildings with multiple dwellings—both legal and illegal conversions. As early as the 1820s older row houses had been converted to hotels, rooming houses, brothels or other commercial use. These conversions pre-dated building codes and were generally believed to produce substandard housing units. As much as reformers loathed tenements, they were thought to be better than poorly converted row houses. The first laws around legalized conversion of single-family homes to multiple dwelling unit buildings date to the post World War I era housing crisis in New York City. In 1919, two pieces of statewide legislation allowed the conversion of three and four-story buildings into tenement houses.³ At the most sophisticated end is the basically new apartment building detailed in a 1936 *Brooklyn Daily Eagle* article where the stoop was removed and a new colonial revival facade placed on an existing single-family brownstone. At the other end of the spectrum were those row houses where the stoop was simply lopped off or the interior was divided into as many as 15 small apartments.

Figure 2.1: 415 Clermont Ave. after and before renovation



Brooklyn Daily Eagle *It Pays to Modernize Old Residence* (June 14, 1936)

2. It should be noted that not all row houses were built initially as single-family homes. For example the row of buildings on the North side of 9th Street between 8th Avenue and Prospect Park West are two-family row houses that “give the appearance of single-family townhouses.” See: New York City Landmarks Preservation Commission, “Park Slope Historic District Designation Report,” 1973, <http://s-media.nyc.gov/agencies/lpc/lp/0709.pdf>.

3. “Four-Family Flats. New Law Permits Conversion of Four-Story Dwellings,” *The New York Times*, June 22, 1919.

Yet, even as row houses were being converted to multi-family the opposite was happening in some neighborhoods. Andrew Dolkart's *The Row House Reborn* details the early twentieth century gentrification of some Manhattan neighborhoods as row houses, previously converted to boarding houses, were returned to single-family use. Architects added new updated facades to older buildings and gut renovated their interiors.⁴ However, such a trend was limited only to the upper-classes and specific neighborhoods in New York City.

By 1950, many of the row houses in New York City had been converted to multiple dwelling buildings with varying degrees of sophistication. The row house never completely fell out of fashion, but it was in a profound downward trend until the late 1950s and 1960s when young, upper-middle class New Yorkers began to re-discover the row house. As detailed in Suleiman Osman's *The Invention of Brownstone Brooklyn* the process of 'brownstoning' became increasingly popular whereby individuals bought deteriorated row houses in Brooklyn Heights and neighboring areas to restore them.⁵ The gentrification of row house neighborhoods was embraced by both elected officials, preservationists, and city planners as the trend grew through the 1970s and 1980s. In the midst of a New York City struggling with a near bankruptcy, the "revitalization" of these neighborhoods was a lone bright spot.

A key part of this activity was converting multiple dwelling unit buildings back into one or two-family homes. Although most nineteenth century row houses were originally built as single-families, these twentieth century restorations frequently included a small second rental apartment in either the basement or attic. As a City Planning Report from 1969 explains, brownstoners' "frontier is to be found in brownstone rows that have gone badly to seed as rooming houses" accompanied with a map of the row house neighborhoods of New York City that had become popular.⁶ However, the darker side of this type of activity, namely displacement, largely goes unmentioned,

4. Andrew Dolkart, *The Row house Reborn: Architecture and Neighborhoods in New York City, 1908-1929* (Baltimore: Johns Hopkins University Press, 2009).

5. Suleiman Osman, *The Invention of Brownstone Brooklyn: Gentrification and the Search for Authenticity in Postwar New York* (Oxford ; New York: Oxford University Press, 2011).

6. City Planning Commission, "The Brownstone Revival" (MIT Press, 1969), New York Public Library, Lionel Pincus and Princess Firyal Map Division, <https://digitalcollections.nypl.org/items/c430145e-1688-0abe-e040-e00a18061ff6>.

even as books from the era such as *You Don't Have to be Rich to Own a Brownstone* detail how to evict tenants.⁷

Figure 2.2. “Brownstone areas of the city”



“The great reservoir is in Brooklyn” City Planning Commission map in *The Brownstone Revival* (1969)

New York’s preservation policy actively supported the rehabilitation of row houses. New York City’s first historic district was in Brooklyn Heights, the center of the brownstoning movement. It was designated in 1965, within the first year of the Landmark Preservation Commissions (LPC) existence. Other support came in more interesting forms such as Project SAVE (Salvage of Architecturally Viable Elements) an LPC warehouse which sold building elements (e.g., banisters, railings, doors) that could be used in “helping New Yorkers maintain their old homes and buildings, as a form of preservation beyond designation.”⁸ But likely the most significant support was from New York State’s Historic Homeownership Rehabilitation Tax Credit from the early 1980s, which provided a tax credit on eligible renovations to federally recognized historic

homes (those listed on the National Register of Historic Places).⁹ All of these programs helped support the restoration of row houses back into one or two-family homes.

7. Joy Wilkes and Paul Wilkes, *You Don't Have to Be Rich to Own a Brownstone* (New York: Quadrangle/New York Times Book Co., 1973); The cultural power of the Brownstoning movement is immense as seen in both the continuing existence of the publication *Brownstoner* or in other publications such as a children’s book about the importance of brownstones: Hila Colman, *Peter’s Brownstone House* (New York: Morrow, 1963).

8. Allison Arlotta, “Locating Heritage Value in the Reciprocal Relationship Between Preservation and Waste Management” (Columbia University, 2018), <https://doi.org/10.7916/D8JM3TH0>.

9. Diane Henry, “Talking: How to Get Restorer’s Tax Credit,” *The New York Times*, July 25, 1982, <https://www.nytimes.com/1982/07/25/realestate/talking-how-to-get-restorer-s-tax-credit.html>.

Today's media still lauds the conversion of multi-family buildings back into single family homes. When located in historic districts these projects often breeze through land use committee meetings with little discussion given to the loss of housing units inside. As recently as 2017 *Brownstoner* wrote about "How to Convert a Multi-Unit Building into a Single-Family Home."¹⁰ Residents find that such conversions allow for more space and are economical as properties are worth significantly more as single-family rather than as multi-family buildings. In most cases properties undergo meaningful renovations, but in others the new owners merely start occupying a multi-family property as the only residents. The former are glorified in glossy spreads in interior design and architecture magazines, while the latter go unnoticed and unrecorded in city land use records. The following chapters will discuss the extreme prevalence of this activity in New York City.¹¹

A Brief History of the New York City Apartment

If there is a New York City housing typology more iconic than the row house it would be the pre-war apartment building.¹² The focus of this section expands beyond row houses to include the splitting and combining of individual apartments. The two share a similar history, with initial legal transformations beginning in the 1920s and accelerating through the 1930s. The number of apartments created through these conversions were at times immense, with the number of units tripling or more. Alwyn Court, a grand 1908 apartment house, was converted in 1938 from 22 apartments to 75.¹³ The Dorilton, on West 71st, shows the full path of a turn-of-the-century

10. Jennifer Hirshlag, "How to Convert a Multi-Unit Building Into a Single-Family Home," *Brownstoner*, June 20, 2017, <https://www.brownstoner.com/interiors-renovation/certificate-of-occupancy-nyc-convert-multi-family-to-single-family-brooklyn/>.

11. This phenomenon is not unique to New York City. In November of 2022 twitter user Leonard Bonarek posted an image of three removed electricity meters on the exterior of a formerly four-family house with the caption "this* is what gentrification looks like folks." (<https://twitter.com/LenniBug/status/1593645422370848777>)

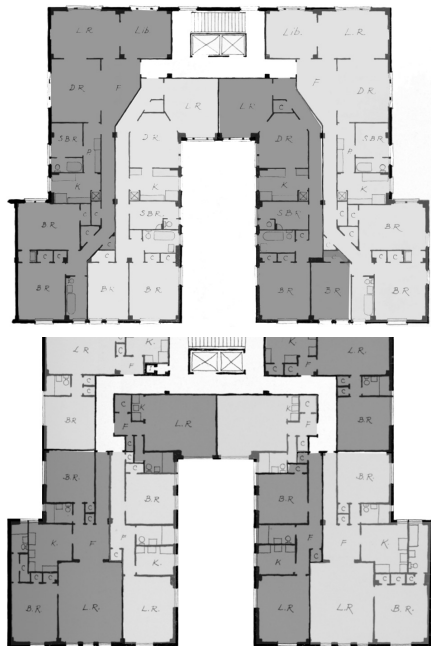
12. Some quibble at the term "pre-war" as there are apartment buildings built before both WWI and WWII, but for the context of this work, pre-war refers to pre WWII.

13. "Alwyn Court Changes Bring Out Sentiment: Former Resident to Get Row of Stone Lions; Sisters Lease Space Which They Once Occupied Alwyn Court in the Old Days," *New York Herald Tribune (1926-1962)*, April 3, 1938; Robert A. M. Stern, Gregory Gilmartin, and Thomas Mellins, *New York 1930: Architecture and Urbanism between the Two World Wars* (New York: Rizzoli, 1987).

apartment house: originally built with 48 apartments it would later have as many as 72 before declining to today's 46 units—fewer than it had when originally constructed in 1902.¹⁴

Vivian Ducat's 2007 master's thesis discusses in detail the "Cutting Up" trend of the 1930s whereby apartment house owners subdivided large apartments into smaller apartments to meet both changing tastes and declining incomes in response to the Great Depression.¹⁵ Known as "apartment modernization" it involved not only creating smaller one and two bedroom apartments, but also improved plumbing or electrical service. The practice appeared as early as 1919 as detailed

Figure 2.3 509 Cathedral Parkway before and after modernization



Prior to modernization 509 Cathedral Parkway had four apartments per floor. After modernization it had eight.

in an article "Remodeling Apartment Buildings" in *Building and Building Management*, a journal that was a significant promoter of apartment building modernization.¹⁶ The 1930s however saw the greatest number of conversions with Ducat identifying almost 200 applications for apartment alterations between 1930 and 1939 in Manhattan, with many applications "for the cutting up of multiple units on multiple floors in a building." The trend of splitting apartments did not conclude in 1940. Instead, it extended through the 1950s and 1960s as a post-war housing shortage encouraged further subdivision of large apartments. Records from this period detail the ad-hoc conversion of a floor or two at a time—compared to the building wide conversions such as Alwyn Court seen in the 1930s.

14. "West Side Still Active Center Of Flat Trading: Frederick Brown Purchases Twelve-Story Dorilton, at Broadway and 71st Street; Many Other Houses Sold," *New York Tribune*, February 28, 1923; Claudie Benjamin, "The Much-Loved Dorilton," October 27, 2022, <https://www.landmarkwest.org/the-much-loved-dorilton/>; "Buyers to Modernize Broadway Apartment," *The New York Times*, 1956, sec. Business & Finance.

15. Vivian S. Ducat, "Two for One: The Cutting Up Trend--Apartment Modernization in 1930's Manhattan" (Columbia University, 2007), <https://doi.org/10.7916/D8Q81B18>.

16. This is one of the earliest articles where the practice occurs, albeit in Chicago. See: Charles Fellowes, "Remodeling Apartment Buildings," *Building and Building Management*, December 1919.

The exact year when this trend reversed and apartment combinations began to outnumber apartment splitting is difficult to pin down, but is likely sometime in the 1980s. A *New York Times* article from 1994 discussing the potential combination of two apartments, to restore an original layout at the Dorilton, cites a real estate broker who suggests that the late 1980s were “when the first flurry of combining apartments began.”¹⁷ The trend of combining apartments increased dramatically following the publication of Technical Policy and Procedure Notice (TPPN) #3/97 which allowed the combination of apartments in all building types without the expensive and complex process of receiving a new certificate of occupancy from the Department of Buildings.¹⁸ Prior to this action, combining apartments was only permitted in old and new law tenements as opposed to all multiple dwellings.¹⁹

A 1998 article refers to a “surge in the number of apartments being combined” following the introduction of the change.²⁰ The trend continues to this day with the *New York Times* still a devoted follower of the practice. The latest article on apartment combinations dates to December of 2022 and describes a family that were looking to add a third and fourth apartment to the two apartments that a previous owner had already combined.²¹ These articles tend to be light on the broader implications of apartment combinations. This is in part because neither the Department of City Planning nor the Department of Buildings formally and completely tracks the combination of units. The following chapters attempt to fully quantify apartment combinations in New York City from 2010 to the present.

17. Tracie Rozhon, “Breakthroughs That Conquer Space: Combining Two Apartments Is Gaining Favor. Apartment Breakthroughs That Conquer Space,” 1994.

18. New York City Department of Buildings, “Technical Policy and Procedure Notice #3/97,” November 3, 1997, <https://www.nyc.gov/assets/buildings/ppn/tpn397.pdf>.

19. The permitting of unit combination in old and law tenements dates to the introduction of the 1968 building code which superseded the 1938 building code. It also dates to a time when tenements were severely distressed and it is likely that allowing combination was seen as a way to bring needed investment to the buildings.

20. Trish Hall, “In Combining Apartments, 1 + 1 = 2+,” *The New York Times*, October 18, 1998, <https://www.nytimes.com/1998/10/18/realestate/in-combining-apartments-1-1-2.html>.

21. Tim McKeough, “They Dreamed of a Bigger Apartment. Little by Little, It Came True.,” *The New York Times*, December 27, 2022, <https://www.nytimes.com/2022/12/27/realestate/they-dreamed-of-a-bigger-apartment-little-by-little-it-came-true.html>.

Chapter 3

70 Years of Row House Conversions

Introduction

In 1889, developer Nelson M. Whipple finished a group of nine Romanesque Revival brownstone row houses designed by Joseph H. Taft on West 84th Street on the Upper West Side.¹ The buildings are elegant enough that they are featured on the cover of a Landmarks Preservation Commission historic district designation report, but are otherwise unremarkable. They were, like so many of the buildings in New York, speculatively built, single-family row houses designed for a growing middle class. Yet, they did not remain single-family. All nine buildings were eventually converted to multi-family usage, meaning that at one time they each had at least three families, but more frequently four to eight. Today the buildings once again differ: three have been converted back to single-family, three have been converted to two-family, and three remain multi-family with four to ten units. This variation in habitation is largely invisible. Unless you look for the door buzzers and mailboxes of these row houses they look not too different from when they were completed in 1889—an example of successful historic preservation at work.



**Figure 3.1 330-346
West 84th Street**

Frontispiece to Riverside-West End
Historic District. Christopher D. Braze,
staff photographer for LPC (2012)

1. Marianne S. Percival and Theresa C. Noonan, “Riverside-West End Historic District Extension I Designation Report,” ed. Mary Beth Betts, June 26, 2012, <http://s-media.nyc.gov/agencies/lpc/lp/2463.pdf>.

Whipple's row houses mirror the city as a whole. While today Manhattan's fanciest neighborhoods are filled with one and two-family brownstones, at one time 90% were occupied by three or more families. This interior history of row houses is the subject of this chapter. It seeks to understand the broader trends of conversion that have defined the row house in the second half of the twentieth century, as they increasingly return to habitation as one and two-family buildings following decades as multi-family dwellings. The true scope of this transformation from multi-family can be understood by merging historic data sources with modern day New York City Department of Finance (DOF) data. This chapter shows that over 100,000 units of housing have been lost due to dwelling unit consolidation in New York City. Row house conversions are located across all five boroughs, but Manhattan exhibits noticeably different patterns with evidence suggesting that nearly every row house was at one time multi-family. Finally, the chapter turns to historic designation, describing how row house conversions are disproportionately located and clustered in historic districts.

Methodology: Using historical data to identify dwelling unit consolidation

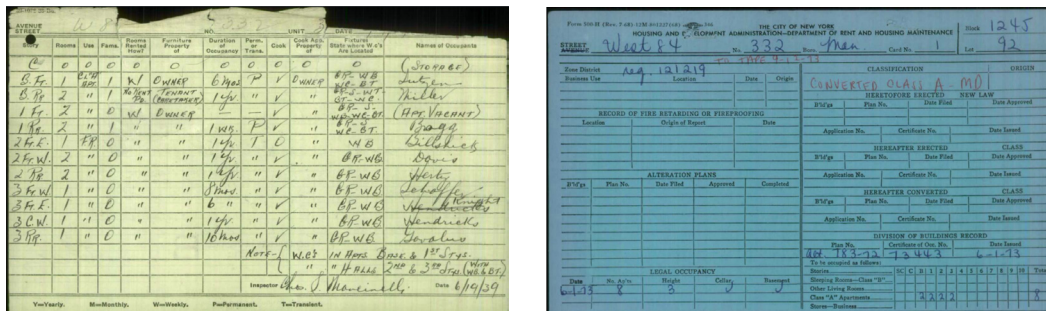
This analysis relies on a heretofore underutilized historic resource: the "I-Card." As part of the 1901 Tenement House Act ("New Law") all buildings of three or more units were required to meet new standards of habitability and sanitation. In order to track these requirements every building was meant to be inspected with an I-Card to track improvements to the buildings. Thus the "I" in the name refers to "improvement" as these cards were created as part of an attempt to assess all buildings.² Today these I-Cards are still relevant as they can be used in lieu of a Certificate of Occupancy if one has never been granted. This is likely why New York City's Department

2. Credit to this discover goes to the Citizen's Housing Planning Council and their extensive library wherein they found an explanation of "I-Card" in the first annual report of the Tenement House Department. See: "I-Card Mystery Solved," *CHPC New York* (blog), January 15, 2010, <https://chpcny.org/i-card-mystery-solved/>.

of Housing Preservation and Development (HPD) digitized all I-Cards and made them available through their HPD Online service.³

I-Cards have traditionally been used to understand the history and evolution of specific New York City buildings, as they often contain rudimentary floor plans and counts of the number of units. However, this present research does not utilize I-Cards for any information they contain, but rather as a digitized resource containing information about how a building was historically classified. As discussed above, I-Cards were required for all buildings with three or more units. As such, any building that has an I-Card *at one point was a multi-family building*. Further, any building that has an I-Card that is presently a one or two-family building was at one time multi-family and therefore is an example of a multi-family to one or two-family conversion. This thesis does not utilize digitized I-Card data for any of the specific information contained *in* the I-Card, but instead uses the existence of an I-Card as a binary indicator to identify those buildings which were at some point after 1901 classified as multi-family.

Figure 3.2 I-Cards from 332 West 84th Street.



I-Cards from 332 West 84th Street. Left shows 11 units in 1939; Right shows 8 units in 1973.

To return to Whipple’s townhouses we can examine one building: 332 West 84th. Today, the Department of Finance records it as a single-family home with one residential unit. This matches real estate records that have it selling in 2019 as a single-family for \$6.5 million. There are hints however that the building might have once been multi-family. HPD’s records still list the building

3. I-Cards can be found on HPD’s website and include multiple documents for every building including forms that replaced the I-Card. However, these forms only exist for buildings that were multi-family at the time of interaction with the Tenement House Department or Department of Buildings.

as an 8-unit building with at least one rent stabilized unit. Most importantly HPD has an I-Card for the building. The digitized I-Cards show the full history of the building as a multi-family, starting with a document from 1939 which records the building as having been occupied as a rooming house since 1937. A later document from 1973 shows it being converted from eleven Class B apartments to eight Class A apartments.⁴ Although today 332 West 84th Street presents as a single-family, the existence of an I-Card indicates that it was at one time multi-family.

A Freedom of Information Law (FOIL) request was made to the New York City Department of Housing Preservation and Development for a list of all addresses with I-Cards.⁵ This list was received as a text document and converted into a machine-readable tabular data format. It was then compared to a list of 320,777 New York City tax lots that were estimated to be row houses that conceivably could have been built as one or two-family dwellings, resulting in 220,121 matching addresses. These lots were selected based on their building class (see appendix A.1), having been built before 1941, and having at least two floors in DOF's Primary Land Use Tax Lot Output (PLUTO) dataset.⁶ Each lot's current PLUTO information could then be compared against the I-Cards.

As an example, this thesis returns to the eight Whipple row houses on West 84th Street. Each of these buildings has an I-Card, which is how they are known to have all been multi-family at one time. Three of the buildings are still multi-family and as such would be categorized as "Still Multi-Family." The remaining six buildings would be categorized as "Converted to Two-Family"

4. According to the Department of Buildings a "Class B multiple dwelling is a multiple dwelling which is occupied, as a rule, transiently, as the more or less temporary abode of individuals or families who are lodged with or without meals," but many New Yorkers live long-term in Class B apartments, especially single room occupancy or SROs. In the view of this thesis, the lack of a private bathroom or full kitchen does not preclude these apartments from counting as full dwelling units.

5. "HISTORICAL OCCUPANCY RECORDS (INITIAL INSPECTION CARDS) ("I-Card")", FOIL-2023-806-00083, <https://a860-openrecords.nyc.gov/request/view/FOIL-2023-806-00083>

6. While 1941 is late for most row house construction a number of prominent row houses were mis-identified in the PLUTO dataset. For example Strivers Row, a prominent 19th century row house development has construction dates in the 20th century. An egregious example is 223 West 139th Street constructed in 1891, but recorded as being constructed in 1926 in PLUTO. While PLUTO's data accuracy is ever improving it is still widely inaccurate. See: Andrew Dolkart, "The Challenges of Legacy Data in Preserving the Historic Built Environment," in *Preservation and the New Data Landscape*, Issues in Preservation Policy (New York: Columbia Books on Architecture and the City, 2019).

and “Converted to Single-Family.”⁷ Had one of the buildings lacked an I-Card, suggesting it had never been converted to multi-family it would be categorized as “Always Single-Family” or “Always Two-Family.” Finally, in some cases a multi-family building may lack an I-Card in which case it is classified as “Missing I-Card.”

Figure 3.3 330-346 West 84th Street building class and dwelling unit data

West 84th Street	Building Class	Maximum number of units (year of record)	2022 number of units (PLUTO)
330	Multi-family: Converted Dwelling or Rooming House	10 (1942)	8
332	One-Family: City Residence	11 (1939)	1
334	Multi-family: Cooperative	15 (1939)	4
336	One-Family: City Residence	11 (1939)	1
338	Two-Family: Miscellaneous	3 (1941)	2
340	One-Family: City Residence	Refused inspection (1941)	1
342	Two-Family: Miscellaneous	4 (1935)	2
344	Two-Family: Converted from One-Family	13 (1941)	2
346	Multi-family: Converted Dwelling or Rooming House	8 (1941)	10

Figure 3.4 Classification of Buildings (based on I-Card and current dwelling unit count)

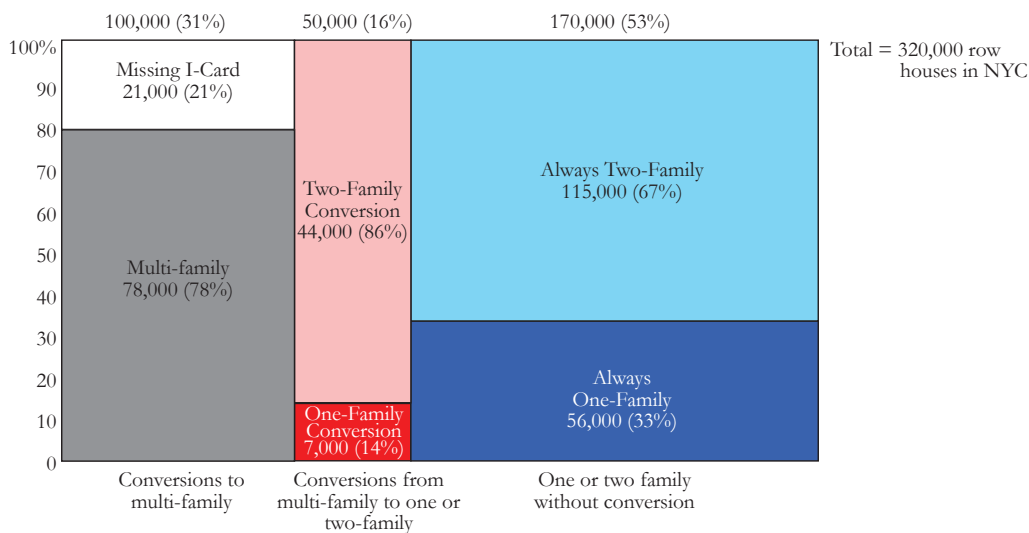
Number of Units (2022)	I-Card Found	Status
3 or more	Yes	Still Multi-Family
3 or more	No	Missing I-Card
2	Yes	Converted to Two-Family
2	No	Always Two-Family
1	Yes	Converted to Single-Family
1	No	Always Single-Family

7. Notably these conversions refer only to buildings that were multi-family prior to this conversion. There are many examples of single-family properties being converted to two-family, but the denotation “Converted to two-family” refers only to multi-family (3+ apartments) being reduced to only two apartments.

Findings

The comparison of current occupancy and historical occupancy records across New York City's five boroughs looked at 320,777 row houses. It identified 51,221 conversions of a multi-family dwelling to a one or two-family. The vast majority of these were conversions to two-family (44,002) versus conversion to single-family (7,219). Additionally, approximately 20,000 buildings representing 6.5% of the total sample of NYC row houses were identified as missing an I-Card.⁸ This is likely due to lost records, the date when a building was formally converted to multi-family (potentially after I-Cards had ceased to be used), or other reasons (such as the inclusion of commercial space). Ultimately, the analysis demonstrates that a significant share of extant one and two-family homes in New York City were previously occupied as multi-family.

Figure 3.5 Share of New York City row houses by conversion status



Nearly every row house in New York City started as a one or two-family building. Those in grey were converted to multi-family and remain multi-family; those in red were converted to multi-family, but have since been converted back to one or two-family, and those in blue have not undergone conversions

8. In order to determine if those properties with missing I-Cards were clustered, an average nearest neighbor test was executed for just the properties missing I-Cards versus all properties. The average nearest neighbor test examines whether features, in this case New York City row house lots, are found closer together than would be expected if they were randomly distributed within a study area. A value of less than 1 indicates that the properties are clustered, with average distance between neighbors smaller than would be expected in a random distribution. Those lots with a missing I-Card had an average nearest neighbor test of .28, compared to .26 for all lots (both with p-values of 0.0000). As such they share a fairly similar distribution and while there are visible clusters of lots that are missing I-Cards it was determined that they would have a minimal impact on the overall study.

How many units have been lost through dwelling unit consolidation?

The change from multi-family to one or two-family can have an immense impact on a neighborhood. Blocks that were at one time exclusively multi-family, have over the last seventy years, shifted towards one or two-family. While this has historically been seen as beneficial—revitalizing deteriorated neighborhoods and restoring historic structures—today it is increasingly viewed as problematic in the context of New York City’s housing crisis. Therefore, it is instructive to estimate the total number of units that these formerly multi-family buildings once had. As the Whipple row houses illustrate, single row houses can have as many as eight to ten apartments, if not more. As such, the 50,000 conversions identified represent far more than 50,000 units that have disappeared from New York City’s housing stock.

In order to estimate the number of lost units it was first necessary to estimate the average number of units in a non-converted New York City row house. In order to control for changing densities this was calculated on a borough basis by taking the median number of units in current multi-family row houses. This methodology provided a relatively fair measure of the average number of units in a multi-family row house without being affected by an extremely right skewed distribution and controlling for differences in row house composition by borough. It was then assumed that every converted building previously had this average number of units enabling the net number of lost units to be calculated. In the case of two-family conversions, the net was calculated off a present base of two units, while for single-family conversions it was calculated off of a base of one unit. In total ~100,000 units have been lost through dwelling unit consolidation in previously multi-family row houses. The vast majority of these lost units were found what are now two-family buildings in Brooklyn and Queens. However, nearly 15% of lost units (15,162) were located in just 2,000 one-family buildings in Manhattan. These 100,000 units represent more than 3% of New York City’s current total housing stock.

Figure 3.6 Estimated lost housing units due to dwelling unit consolidation in New York

	Median Number of Units	Two-Family		One-Family Conversions		Total Lost Units
		Number of conversions	<i>Lost units</i>	Number of conversions	<i>Lost units</i>	
Manhattan	8.0	2,029	<i>12,174</i>	2,166	<i>15,162</i>	<u>27,336</u>
Brooklyn	4.0	22,530	<i>45,060</i>	2,854	<i>8,562</i>	<u>53,622</u>
Queens	3.0	14,307	<i>14,307</i>	1,755	<i>3,510</i>	<u>17,817</u>
Bronx	3.0	3,487	<i>3,487</i>	306	<i>612</i>	<u>4,099</u>
Staten Island	3.0	1,649	<i>1,649</i>	138	<i>276</i>	<u>1,925</u>
Total		44,002	76,677	7,219	28,122	<u>104,799</u>

Median number of units represents the median number of dwelling units in New York City multi-family row houses, from PLUTO version 2022v3 by borough. Manhattan row houses were converted into significantly more units than those in the outer boroughs

What share of one and two-family row houses were once multi-family?

Examining the share of one and two-family homes that were at one time multi-family can indicate the relative degree to which buildings have gone through the historical trend of conversion to multi-family before conversion back to one or two-family. Nearly all Manhattan row houses were at one time multi-family with very few surviving without ever being converted. However, outside of Manhattan only a minority of one or two-family row houses (~30%) were ever formally converted to multi-family usage as identified by I-Card records. This is explained by a number of reasons. First, row houses in the outer boroughs were frequently narrower, making conversions more difficult. Second, some row houses in the outer boroughs were initially built as two-family lessening the need to convert to multi-family (three or more units). Finally, it is likely that row houses outside of Manhattan were regulated less stringently and therefore had a higher number of either undocumented conversions or usage as rooming or boarding houses without major renovation. In summary, the outer boroughs retained more one or two-family buildings as they were originally built (without a conversion to multi-family), while Manhattan row houses were almost universally converted to multi-family usage.

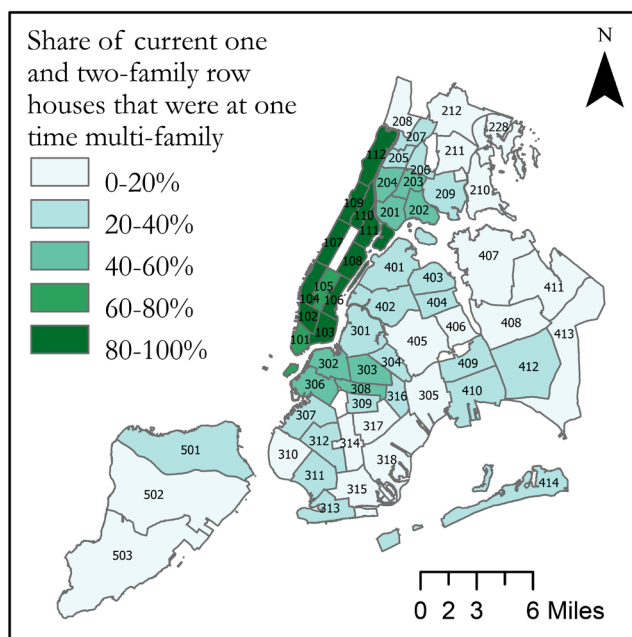


Figure 3.7 Prevalence of dwelling unit consolidation in one and two-family homes by community district

Darker green areas represent community districts wherein more current one or two-family row houses were at one time multi-family (e.g., areas with high rates of conversion to multi-family)

What share of multi-family row houses have been converted to one or two-family?

This contrasts heavily with the second way to measure row house conversion: the share of multi-family row houses that have been converted back to one or two-family. This is calculated by taking the share of all buildings that are now one or two-family from all row houses that were or still are multi-family. As the blue map shows Manhattan actually has the lowest rate of converting multi-family dwellings to single-family. Instead, the activity is most pronounced on a percentage basis in outlying neighborhoods in Brooklyn and Queens. Manhattan has been slowest to convert multi-family dwellings back to one or two-family usage compared to the outer boroughs. This is likely because the high rental rates in Manhattan make conversion to one or two-family less economically attractive or that more buildings in Manhattan are rent-stabilized.

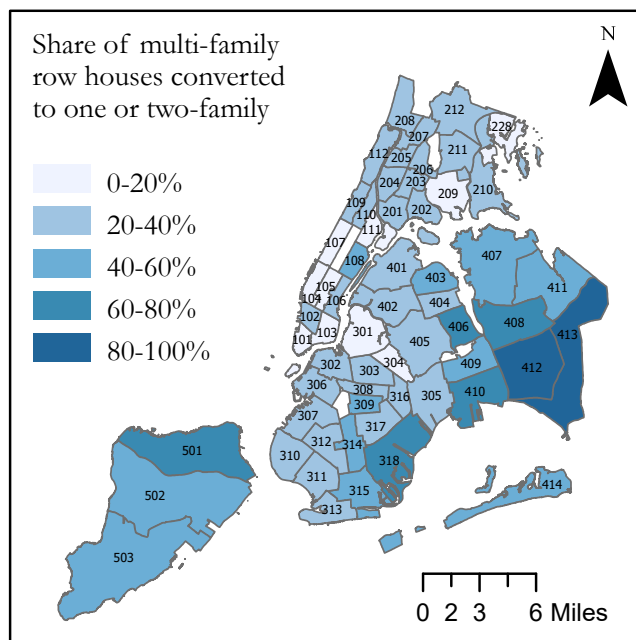


Figure 3.8 Conversion of multi-family row houses to one or two-family by community district

Lighter blue areas represent community districts where a lower portion of multi-family row houses have been converted back into one or two-family homes

Interestingly this phenomenon differs heavily by neighborhood. Brooklyn's Park Slope and Manhattan's Upper West Side and Upper East Side all share relatively similar characteristics being a mix of row houses and large-scale apartment buildings. However, they look remarkably different in terms of how row houses have been converted. The Upper West Side has retained a significant degree of its multi-family row houses. This compares markedly with the Upper East Side

which, especially in the area along Central Park, has seen nearly all of the multi-family row houses converted to single-family. Notably, some of these conversions are likely very early conversions back to single-family described in Dolakrt's *The Row House Reborn*. In both cases however the preference in this part of Manhattan is for one-family dwellings as there are vanishingly few two-families.

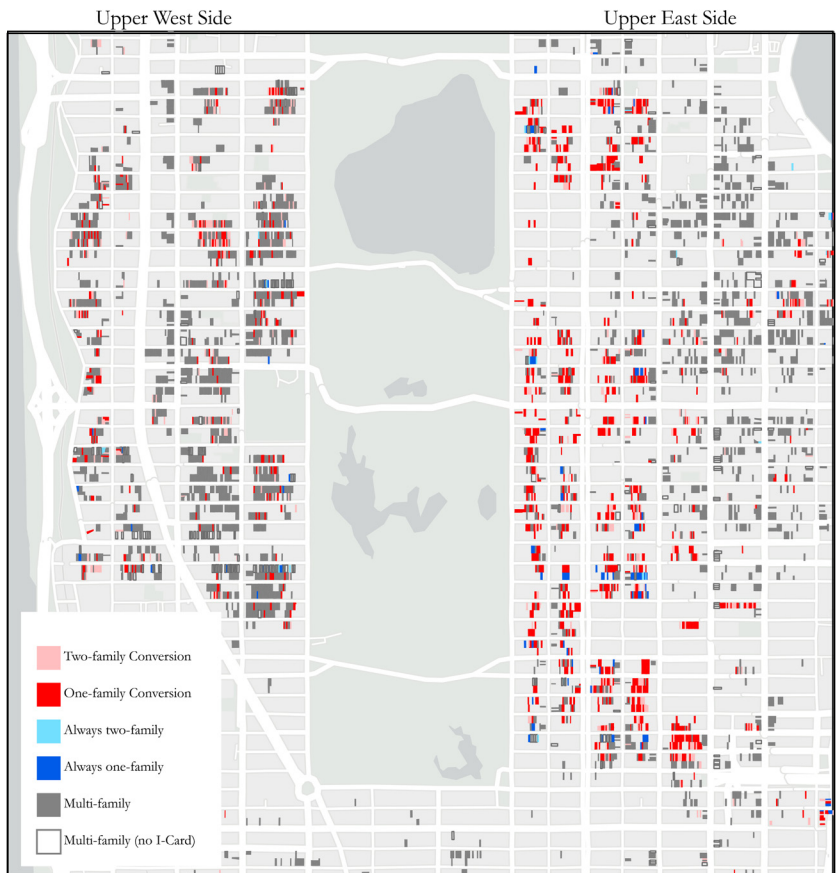


Figure 3.9 Manhattan row houses by conversion status

While the Upper West Side and East Sides of Manhattan have a similar quantity of row houses the two neighborhoods are very different in terms of the mixture of conversions and non-conversions. Large portions of the Upper East Side have seen row houses converted from single-family to multi-family before being deconverted back into single-family (red). By contrast, on the Upper West Side most row houses are still multi-family (grey).

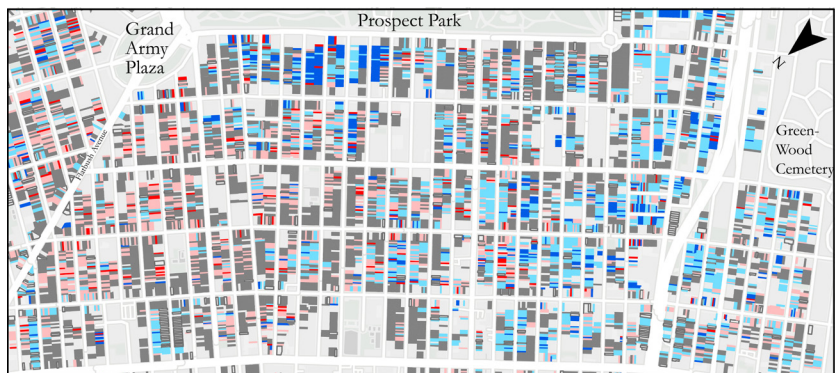


Figure 3.10 Park Slope row houses by conversion status

Park Slope is a neighborhood consisting predominantly of row houses. While today the multi-family row houses are evenly distributed throughout the neighborhood (grey) historically they were much more heavily concentrated in the northern part of park slope (left). This is seen in the high number of multi-family to single-family conversions in this area (red).

Manhattan has almost no original single-family homes as seen by the lack of blue lots. Park Slope in Brooklyn however shows a more uniform distribution of multi-family and one or two-family buildings as seen by comparing grey lots versus colored lots. In Park Slope however there is a clear transition as one moves southward. While the northern-most sections of Park Slope along Flatbush Avenue show a large number of multi-family to two-family conversions (red) the southern areas are almost exclusively original two-family homes (blue). It will be instructive for further research to investigate why the neighborhood transformed in such a manner. One potential method is the utilization of Census Bureau microdata from the first half of the twentieth century to ascertain whether these properties were in reality occupied as rooming houses, despite a lack of multi-family documentation.

What is the relationship between historic districts and row house conversions?

This chapter now turns to historic district designation and the location of conversions inside and outside of historic districts. Of the approximately 320,000 row houses included in this study only 7% were designated by the New York City Landmarks Preservation Commission. These designated buildings were not evenly distributed by borough with 85% of these designated buildings either in Manhattan (30%) or Brooklyn (55%). In the Bronx, Queens, and Staten Island less than 5% of row houses were designated.

In Brooklyn 8% of all row houses are in historic districts, compared to 42% in Manhattan. However, 13% of all Brooklyn row houses that have been converted from multi-family to one or two-family are designated. As such, conversions are significantly more likely to be found in historic districts compared to the overall population of row houses in Brooklyn. The story is more dramatic in Manhattan. Over 60% of conversions in Manhattan were designated, a significantly higher share than all row houses (42%) or row houses that remain multi-family (35%). It is clear that conversions are more likely to be in historic districts compared to the average Brooklyn or Manhattan row house.

Prior research, specifically Been et al. in 2016 has indicated that the area surrounding historic districts (defined as a “buffer”) potentially includes impacts from neighboring historic districts.

It should be noted that there are no land use or preservation regulations applied to structures within the buffer, instead it is purely used to examine the exogenous impacts from designation to neighboring properties.⁹ The distance of the buffer was defined at 250 feet from the border of each historic district in order to match existing research on historic district buffers and how they exhibit increased property values in New York City. An analysis of the prevalence of conversions was conducted to examine properties included in historic districts, within the 250-foot buffer surrounding historic districts, and properties outside historic districts.

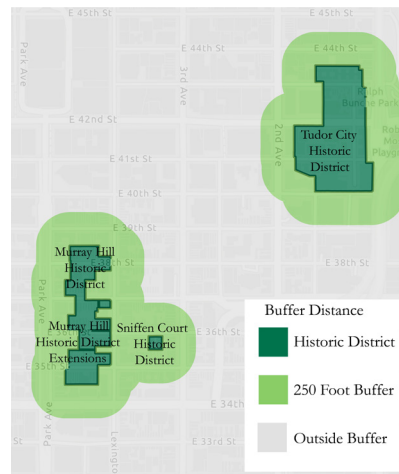


Figure 3.11 Historic districts and buffers in Midtown East

Historic District (dark green) and their associated 250-foot buffers (light green) for four historic districts in an area of Manhattan’s East Side.

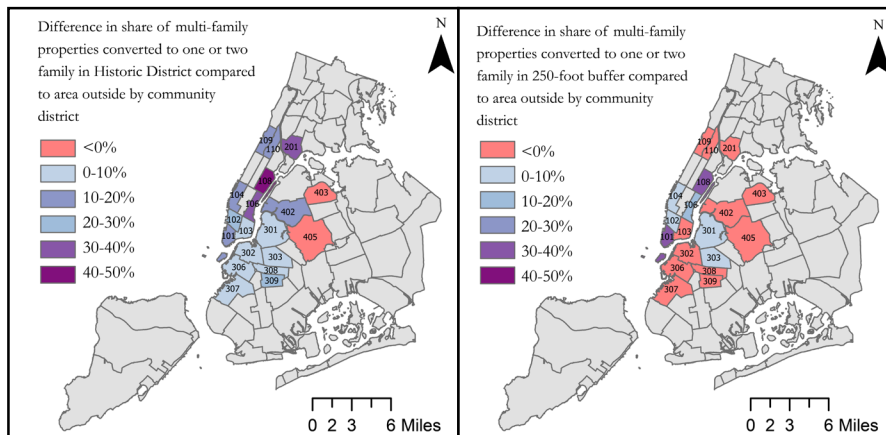
The total number of conversions, non-conversions, and remaining multi-family properties was aggregated for each historic district, buffer zone, and area outside the buffer zone. These in turn were aggregated by Community District (CD), a uniform and consistent political boundary commonly used for neighborhood level analyses in New York City. To ensure that a community district had a sufficient number of conversions, while still including the primary row houses neighborhoods of Manhattan, Brooklyn, and Queens, 19 community districts were selected that had at least 20 conversions inside designated areas within the community district and 10 conversions within the 250-foot buffer. Notably Community District 7, on Manhattan’s Upper West Side, was excluded as it lacked sufficient conversion within the 250-foot buffer as much of the district is

9. In some contexts of cultural heritage management, a buffer zone may be used to exclude or constrain development surrounding a historic site or landscape in order to preserve the broader character of the site. In the context of this paper buffer is exclusively used as a geoprocessing term to describe a spatial area uniformly defined in the context of another geographic area.

designated. The share of multi-family buildings converted to one or two-family was then calculated for each community district and distance threshold by dividing the total number of conversions by the sum of converted buildings and multi-family buildings. For each community district this provided three values: the share of multi-family properties converted to one or two-family in historic districts, in the 250-foot buffer surrounding historic districts, and outside both historic districts and the 250-foot buffer. The first two of these values were then compared to the final value to estimate the relative change between historic district areas, buffered areas, and the remaining area of the community district.

Excluding two community districts in Queens (3 and 5) every single community district saw higher rates of conversion within historic districts. This is unsurprising as Queens has both relatively few historic districts and relatively few conversions. The comparison values were noticeably higher in Manhattan historic districts compared to the areas outside those historic districts suggesting that designation is meaningfully correlated with conversion. The 250-foot historic district buffers saw far more varied results. While in most of Manhattan except Harlem (CD 9 and CD 10) and the Lower East Side (CD 3) the buffers also saw higher rates of conversion. In Brooklyn, Queens, and the Bronx the majority of community districts saw buffers having lower rates of designation. As such, similar to prior research it appears that Manhattan districts, and in particular their buffers, operate meaningfully differently from the outer boroughs.¹⁰

Figure 3.12 Difference in conversion rates of multi-family row houses to one or two-family inside and outside of historic districts



Left: Relative increase (purple) or decrease (red) in the rate of multi-family conversions in historic districts versus the area outside historic districts

Right: Difference between conversion rate in 250-foot buffer of historic districts versus the area outside historic districts

10. See: Been et al., "Preserving History or Restricting Development?"

One final analysis used a Getis Ord G_i^* analysis to identify the statistically significant clusters of blocks with particularly high and low numbers of multi-family to one or two-family conversions. In order to execute this analysis, the number of conversions per block was divided by the total number of row houses on the block. A total of approximately 18,000 blocks were analyzed and categorized based on their likelihood to be part of a spatial cluster of high values defined as a high share of converted row houses. A block was defined as being in a cluster if it was surrounded by other blocks with similarly high (or low) conversion rates. Clusters were calculated at a 95% confidence level using a fixed distance band of 250 feet to define neighbors. These blocks were then classified by whether or not they were in a historic district or outside the historic district.

Figure 3.13 Clusters of blocks with high rates of conversions in historic districts compared to overall share of blocks in historic district

	Share of clustered blocks within Historic Districts	Share of all blocks within Historic Districts
Manhattan	70%	33%
Brooklyn	23%	7%
Queens	1%	2%
Bronx	2%	2%
Staten Island	2%	1%

The majority of Manhattan clusters of blocks with high rates of conversion were located in historic districts (70%) despite blocks in historic districts only representing 33% of all Manhattan blocks in study. Clusters were identified using a 250 foot fixed distance band to define neighbors and calculated at a 95% confidence interval.

Similar to findings above it is clear that Brooklyn and Manhattan operate meaningfully differently from Queens, the Bronx, and Staten Island. In both Brooklyn and Manhattan historic districts have the highest rates of clustering within their boundaries. In Manhattan a full 70% of clusters were found within historic district. This is despite only 33% of blocks in this study lying within historic districts (an over two-times increase). In Brooklyn the numbers show a similar, albeit less extreme pattern. 23% of clusters were found in historic districts, approximately three-times the total number of included blocks which are designated. This suggests that not only do conversions disproportionately take place in designated areas, but that there is a spatial relationship as well—being close to other conversions makes a given building more likely to have also been converted.

Limitations

This chapter showed that there is a relationship between conversions and historic districts. However, it cannot distinguish between historic preservation and historic districts being a proximate cause of these conversions or if they are completely unrelated. In large part this is because there is no way to link the date of conversion and the date of historic designation. This potential relationship will be further examined in Chapter 4 with a different data set. There are a number of potential hypotheses that can explain some of the above results. First, it is possible that homeowners who have undertaken conversions are more likely to advocate for historic designation of their neighborhood. This may either be due to a belief in the ‘good’ of historic preservation, drawing from the ‘brownstoner’ movements of the 1970s and beyond, or from a more Fischel-esque self interest in protecting their investment through protections from new development.¹¹ Second, it is possible that historic designation, by limiting the potential redevelopment options for a potential property, shifts its economic highest and best use to one or two-family conversions and if it were not protected it would have been redeveloped into a different typology. Chapter 4 will attempt to address some of these limitations by examining datasets that include both date of conversion and date of designation.

The topline number of 100,000 lost units through conversion of multi-family to one or two-family is likely an undercount of conversions, as it includes only those conversions legally recognized by New York City. It also fails to reflect the combination of dwelling units in multi-family row houses. Two of the Whipple row houses discussed early had a significant decrease in unit counts (15 to 4 and 10 to 8) that are not reflected in this estimation. This analysis also neglects both the common practice of multi-family housing occupied by only a single-family and the many illegal conversions or doubling up of families in single dwelling units. Despite this, it is broadly indicative of the significant impact that dwelling unit consolidation has had in New York City.

11. William A. Fischel, *The Homevoter Hypothesis: How Home Values Influence Local Government Taxation, School Finance, and Land-Use Policies* (Cambridge, Mass.: Harvard University Press, 2001).

Finally, historic designation is not neutral. Historic districts do not represent a uniform and equitable cross-section of New York City's building stock. 7% of the 320,000 row houses included in this study were historically designated, but only 4% of residential buildings in New York City as a whole are designated. As such, there are broad limitations to the overall study as row houses are designated at a much greater rate than the residential buildings as a whole.

Chapter 4

Historic Preservation and Dwelling Unit Consolidation: Correlation or Causation?

Introduction

Chapter 3 worked to quantify the long history of New York City's row houses including their conversion to and return from multi-family dwelling status. A key question that analysis could not examine was the relationship between the date of historic district designation and the date of conversion from multi-family to one or two-family home. This is due to the lack of any dates associated with either the existence of an I-Card or digitized property records or tax assessments before 2002. This chapter seeks to remedy that gap by identifying properties that transitioned between building classes from 2002 and 2022. With this dataset two key questions can be addressed. First, conversion can be split into those that create units versus those that remove units and the aggregate impact of conversions can be calculated. Second, this approach can examine whether there is an increase in conversions following historic district designation. This analysis finds that the vast majority of buildings that transitioned classes transitioned from a smaller building class to a larger building class (e.g., from single-family to two-family, or two-family to multiple-dwelling). Further, it finds no evidence that historic districts tended to see an increase in conversions resulting in a loss of units after designation compared to the relative rate of conversions in the buffer surrounding a specific district. It does however suggest that after designation, historic districts see relatively fewer conversions that result in an increase in the available number of dwelling units.

Methodology: Using tax class data to identify dwelling unit consolidation

New York City's Department of Finance provides the underlying property information contained in the PLUTO (Primary Land Use Tax Lot Output) dataset. Included in this data set is a field called "Building Class," which designates the building by typology. These classes were previously used in Chapter 3 to identify row houses in New York City. This analysis hinges on the Department of Finance's comment that "there is a direct correlation between the Building Class and the Tax Class," as tax classes are determined in part by the number of units.¹ As such, it is expected that the building class field will be relatively accurate and that changes in building class will be reflective of actual changes in a buildings use.

New York City's PLUTO datasets were downloaded for every year from 2002 through 2022 from the BYTES of the BIG APPLE Archive.² The combined data set was then filtered to include only tax lots with complete building class information for all 20 years, those lots with a year built before 1999, and lots with non-apartment house building classes (e.g., A, B, C, S). Finally, building classes were compared from year to year to identify when a tax lot saw a change of use resulting in an increase or decrease in the number of units. This resulted in a data set of 25,573 buildings recording all change of uses in non-apartment house residential buildings from 2002 through 2022 identified in PLUTO.

In order to isolate the impact of historic district designation on conversions it was necessary to compare the rates of conversion inside and outside of historic districts before and after designation. 23 New York City historic districts were identified that were designated between 2008 and 2016, which allowed for a potential five years of data both before and after designation for comparison. Of these, ten had at least 25 conversions resulting in a loss of units in either the

1. New York City Department of Finance, "Property Assessment Data Dictionary v1.0 for Property Valuation and Assessment Data Tax Classes 2,3,4," August 3, 2020, <https://data.cityofnewyork.us/City-Government/Property-Valuation-and-Assessment-Data-Tax-Classes/8y4t-faws>.

2. 2006 was excluded from this analysis due to a large number of tax lots being misclassified as "N," which either refers to no building class or to "Asylums and Homes." In general, most tax lots classified as "N" in 2006 were normally classified as the same building class in 2005 and 2007.

district or the buffer surrounding the district. An additional district, the Wallabout Historic District, had sufficient conversion to be included, but no conversions were located inside the historic district.

For these ten historic districts, buffers were created at the 250, 500, and 1000 foot ranges in order to identify areas with similar characteristics that were not designated. The 25,573 conversions that were identified were then joined with these buffers in order to identify those in historic districts, in the three buffer areas, and completely outside historic districts. Importantly, conversions that were located in a historic district *other* than those ten being analyzed were excluded in order to create an unbiased sample. This was especially important for historic district extensions that neighbor existing districts, wherein the impact of that prior designation would confound any results from this analysis. Approximately 1,775 records of conversions were then grouped by occurring before or after designation.³

Findings

Approximately 25,500 conversions were identified. Of these, approximately 11,000 were for a conversion that resulted in fewer units, while 14,500 resulted in a greater number of units. No obvious trend emerges from examining the data longitudinally in aggregate, but there are some unique points worth calling out. In particular 2004 and 2005 saw the highest ever number of conversions followed by a major slowdown in 2007.⁴ Since then the trend has remained relatively more consistent with Queens seeing the highest number of conversions and with these primarily being increases in dwelling units. Only Manhattan saw net units consistently decline under conversions, with Brooklyn varying from year to year. Over the past decade there are generally 500 to 1,500 conversions a year resulting in 50 to 150 additional units.

3. Building class changes the year of a district's designation were considered to be after designation. For example, if a tax lot changed class between the 2009 and 2010 version of PLUTO it was categorized as a conversion in 2009. If it was located in a historic district that was designated in 2009 it would be classified as occurring after designation.

4. As 2006 was excluded the number of conversions in 2005 is somewhat inflated by the comparing 2005 to 2007, a two-year period versus a one year period.

Does dwelling unit consolidation change before and after historic district designation?

Turning to historic districts, only a minority of conversions (2,700) were in historic districts. However, most of these resulted in fewer units (2,000 conversions or ~75%). The vast majority of converted buildings in historic districts were in Brooklyn (~1,300) or Manhattan (~1,200) which mirrors buildings in historic districts overall. As such, in contrast to New York City as a whole, historic districts were noticeably more likely to see conversions result in fewer units rather than additional units.

For historic districts designated between 2008 and 2016 the aggregate number of conversions both before and after designation can be calculated to see if an area net added or lost units through conversions. The chart below shows the net number of conversions in historic districts designated between 2008 and 2016. In all but one historic district, net units were lost after designation. This is clearly demonstrative that historic districts tend to result in a loss of units from conversions after designation. However, even before designation the areas that would become historic districts were losing units. After designation four historic districts saw a meaningful change in the net number of conversions, six districts were more neutral, and one district saw a significant decrease. Excepting the Mount Morris Park Historic District Extension (which likely had spillover effects from the initial designation) most districts saw a shift towards lost units after designation.

Figure 4.1 Net conversions before and after designation in historic districts (2022-2022)

District Name	Net Conversions before designation	Net Conversions after designation	Delta
Bedford Historic District	25	-5	-30
Ridgewood North Historic District	22	4	-18
Crown Heights North III Historic District	8	-8	-16
Prospect Heights Historic District	-5	-20	-15
Park Slope Historic District Extension	-7	-14	-7
Crown Heights North II Historic District	5	-1	-6
Wallabout Historic District	0	0	0
Park Avenue Historic District	-1	0	1
Greenwich Village Historic District Extension II	-8	-4	4
Riverside-West End Historic District Extension I	-17	-12	5
Mount Morris Park Historic District Extension	-54	-6	48

Does historic district designation change the rate of dwelling unit consolidation?

One key aspect of using tax class data is that it can identify conversions located in or near historic districts designated between 2008 and 2016. This resulting analysis of ten historic districts designated in that time frame saw no consistent trend in terms of an increase in conversions of properties located in historic districts after designation compared to neighboring properties. To ascertain the impact of designation, conversions were identified in both historic districts and within the neighboring 250, 500, and 1000-foot buffers. Compared to Chapter 3 larger buffers were used in part to ensure that a high enough number of conversions was included for each tested area. It is assumed that the relative ratios between conversions in each of these areas would remain constant over time *if not for designation*. This is essentially a simplified difference-in-difference model whereby change from historic designation can be disaggregated from overall neighborhood change. As such, a meaningful change in these ratios—for example an increase in the share of conversions taking place *in* historic districts—would be indicative of designation increasing the likelihood of conversions. The Crown Heights North III Historic District will be used as an illustrative example.

Figure 4.2 Illustration of buffer distances

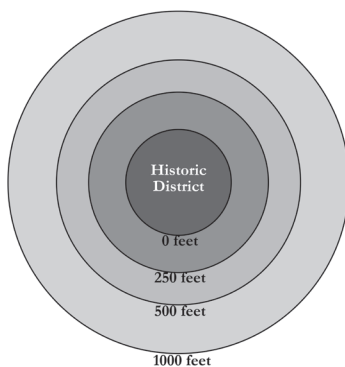


Figure 4.3 Number of conversions resulting in a net decrease in units in Crown Heights North III Historic District 2002-2022 (designated in 2015)

	In Historic District	In 250 Foot Buffer	In 250-500 Foot Buffer	In 500-1,000 Foot Buffer
Before designation	10	17	17	0
After designation	12	20	17	0

Conversions that resulted in fewer units (e.g., multi-family to two-family or two-family to one-family) were identified using changes in tax class data and mapped against four different buffers (*see left*)

The share of conversions in the historic district versus outside the district and only in the buffer can then be calculated for each area both before and after designation. Any change in the share of conversion inside the historic district compared to the expanding buffers is potentially indicative of the impact of designation. In the case of the Crown Heights North III Historic District, there was only an extremely slight increase (less than 2% points of change) in the share of conversions inside historic districts compared to outside them. As such it is likely that designation had no impact on the likelihood of converting a building to a use with fewer dwelling units.

Figure 4.4 Number of conversions resulting in a net decrease in units in Crown Heights North III Historic District 2002-2022 (designated in 2015)

	Share of conversions located in historic district compared to 250-foot buffer	Share of conversions located in historic district compared to 250 and 500-foot buffers	Share of conversions located in historic district compared to 250, 500, and 1,000-foot buffers
Before designation	37%	22.7%	22.7%
After designation	37.5%	24.5%	24.5%
<i>Change (percentage points)</i>	<i>0.5</i>	<i>1.8</i>	<i>1.8</i>

The full table of historic districts is on the following page and is grouped into three categories: those which had no clear impact from designation, those where the share of conversions decreased after conversion, and those where conversions increased after designation. The vast majority of districts (seven of ten) saw a minimal or varied change with no clear trend, two saw a decrease in conversions after designation, and one saw an increase in conversions after designation. Thus, this analysis finds no clear link between historic designation and an increase (or decrease) in conversions before and after designation.

Figure 4.5 Comparison of conversions resulting in a net decrease in units before and after designation in 10 historic districts and their buffer areas

	District Name		Count of conversions in historic district (HD) and buffers				Conversions located in HD compared to buffers (%)		
			HD	250	500	1,000	250	500	1,000
No impact or mixed impact	Park Avenue Historic District	Before Designation	3	19	14	23	14%	8%	5%
		After Designation	1	6	4	7	14%	9%	6%
		<i>Change (percentage points)</i>					<i>0.6</i>	<i>0.8</i>	<i>0.5</i>
	Crown Heights North III Historic District	Before Designation	10	17	17	0	37%	23%	23%
		After Designation	12	20	17	0	38%	24%	24%
		<i>Change (percentage points)</i>					<i>0.5</i>	<i>1.8</i>	<i>1.8</i>
	Riverside-West End Historic District Extension I	Before Designation	19	4	1	3	83%	79%	70%
		After Designation	13	3	0	2	81%	81%	72%
		<i>Change (percentage points)</i>					<i>-1.4</i>	<i>2.1</i>	<i>1.9</i>
	Greenwich Village Historic District Extension II	Before Designation	9	4	1	0	69%	64%	64%
		After Designation	7	3	1	3	70%	64%	50%
		<i>Change (percentage points)</i>					<i>0.8</i>	<i>-0.6</i>	<i>-14.3</i>
Mount Morris Park Historic District Extension	Before Designation	58	20	16	26	74%	62%	48%	
	After Designation	7	2	1	9	78%	70%	37%	
	<i>Change (percentage points)</i>					<i>3.4</i>	<i>8.3</i>	<i>-11.5</i>	
Ridgewood North Historic District	Before Designation	5	4	7	2	56%	31%	28%	
	After Designation	4	5	2	4	44%	36%	27%	
	<i>Change (percentage points)</i>					<i>-11.1</i>	<i>5.1</i>	<i>-1.1</i>	
Prospect Heights Historic District	Before Designation	14	17	7	24	45%	37%	23%	
	After Designation	32	26	30	21	55%	36%	29%	
	<i>Change (percentage points)</i>					<i>10.0</i>	<i>-0.5</i>	<i>6.8</i>	
Negative Impact	Park Slope Historic District Extension	Before Designation	13	8	10	20	62%	42%	25%
		After Designation	16	10	23	27	62%	33%	21%
		<i>Change (percentage points)</i>					<i>-0.4</i>	<i>-9.3</i>	<i>-4.4</i>
	Crown Heights North II Historic District	Before Designation	18	15	17	40	55%	36%	20%
		After Designation	8	9	8	49	47%	32%	11%
<i>Change (percentage points)</i>					<i>-7.5</i>	<i>-4.0</i>	<i>-9.2</i>		
Positive Impact	Bedford Historic District	Before Designation	12	8	14	0	60%	35%	35%
		After Designation	15	5	11	0	75%	48%	48%
		<i>Change (percentage points)</i>					<i>15.0</i>	<i>13.1</i>	<i>13.1</i>

Does dwelling unit consolidation change in historic district extensions after designation?

One challenge of the analysis above is that a number of historic districts included above are geographic extensions of existing districts. Historic District Extensions are not treated differently from the initial historic of the same name in terms of either designation or ongoing regulations. Instead, the addendum “extension” or use of roman numerals merely refer to the decision by the LPC to add additional properties to New York City’s list of regulated buildings in the same neighborhood. Such additional districts are given their own designation report, but are named in a manner that allows historic preservation to expand in existing neighborhoods.

Historic District extensions were a challenge in the prior analysis as those areas were necessarily excluded from the historic district extension’s buffer. However, by virtue of such historic districts being extensions, it suggests that they have similar characteristics to the original district, which can control for not only neighborhood level characteristics (as the buffers aim to do), but also building typology level characteristics. To examine this, the difference in number of buildings undergoing conversions between original historic district and extensions was calculated. Similar to the prior analysis, a significant change in the ratio between conversions in the original historic district versus the extension after designation would be indicative of designation having a significant impact on conversion rates. Similar to the prior analysis, which used buffers, there is no clear impact to the rate of conversions in districts after designation. While historic district designation is correlated with a trend towards conversions that result in fewer units, there is no clear evidence of causation.

Figure 4.6 Share of conversions in historic district extensions before and after designation

Historic District	Share of conversions in extension...		Absolute Change
	...before designation of extension	...after designation of extension	
Riverside-West End Historic District Extension II	17%	26%	9%
Park Slope Historic District Extension	5%	13%	8%
Park Slope Historic District Extension II	3%	10%	8%
Greenwich Village Historic District Extension II	3%	5%	2%
Riverside-West End Historic District Extension I	12%	9%	-3%
West End-Collegiate Historic District Extension	54%	46%	-8%
Mount Morris Park Historic District Extension	61%	48%	-13%

Share of conversions in historic district extensions compared to the original historic district

Limitations

As with any analysis based on municipal property tax records there are challenges. This analysis assumes that tax data is accurate, but there are numerous reasons why properties would be misclassified. Additionally, as this analysis relied on reclassifications to denote change, it is highly susceptible to interpreting corrections to property tax information as changes, rather than corrections. For example, the large spike noted in 2004 and 2005 may be reflective of increased accuracy on the part of the Department of Finance rather than a meaningful increase in conversions. Similarly, the large number of conversions in the Mount Morris Park Historic District mostly occurred in 2005 and may not actually reflect dwelling unit changes, but instead updates to New York City's records. Finally, these records only reflect what is captured by the tax system—conversions which are either illegal or reflect ad-hoc living situations are not represented in this data set or analysis.

Chapter 5

The Impact of Dwelling Unit Consolidation Today

Introduction

Chapters 3 and 4 primarily discussed row houses, single-family and two-family homes, and other small residential buildings. This chapter turns to residential units more broadly, as consistent uniform data on dwelling unit creation, demolition, and consolidation has been collected by the Department of City Planning (DCP) since January 1st 2010 based on building permit applications. This analysis cannot reflect activity not captured by building permits, particularly the large number of illegal conversions both to and from one and two-family homes. However, the data provided by DCP, and amended by this thesis, allow for a building-by-building review of how unit counts have changed from 2010 through 2022 across all building sizes. This chapter discusses the identification of an additional 4,000 building permits related to dwelling unit consolidation that had previously been missed by DCP, increasing the total magnitude of this activity by 30%. It looks at the demographics of where dwelling unit consolidation happens, showing that it occurs in whiter and wealthier areas—especially for those projects which are located in historic districts. It then discusses how dwelling unit consolidation is actively reducing the total number of housing units in historic districts across New York City and that consolidation is disproportionately likely to occur in designated buildings.

Methodology: Using building permit data to identify consolidation

In early 2021 New York City’s Department of City Planning (DCP) released their “Housing Database” which tracked all increases and decreases to the number of residential units in NYC from demolitions, new construction, and major alterations starting in January of 2010.¹ The database relied on analysis of Department of Buildings (DOB) published “Job Application Filings.” For the first time, detailed building by building information was available, documenting where housing was being added in the city. In addition to one-pagers and other information briefs, DCP also published an interactive website titled “Where is housing being added in New York City.” Importantly, the new dataset garnered press coverage for revealing that New York City’s wealthiest neighborhoods were actually seeing a net decline in units due to apartment combinations, the subject of this thesis.²

Yet the database was still incomplete. The NYC DOB has three major permit types of residential buildings: New Building, Demolition, and Major Alteration (Alteration Type 1 or “A1”). These are the three permit types that DCP used to construct their housing database as they require a new certificate of occupancy which, would reflect a change in unit count. However, because of TPPN #3/97, discussed earlier, it is possible for apartments to be combined under a fourth permit type: Alteration Type 2 (A2). This oversight was acknowledged by DCP staff during an interview with the author and is also reflected in an August 2022 post about the Housing Database on DCP’s Github page which noted that “[the] Housing Team found that some A2 jobs can bring about unit change.”³

As DCP is still working on including such A2 jobs in the Housing Database the author undertook an analysis to include such jobs for the purposes of this thesis. A copy of the Department of Buildings’ “Job Application Filings” was downloaded on January 23rd 2023 with

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1. Amanda Doyle, “Introducing DCP’s Housing Database, DCP’s Latest Open Data Product,” *NYC Planning Tech* (blog), June 1, 2021, <https://medium.com/nyc-planning-digital/introducing-dcps-housing-database-dcp-s-latest-open-data-product-b581aee97a51>.
 2. Holliday Smith, “NYC’s Wealthy Enclaves Lost Housing in Past Decade as Combining of Apartments Outpaced New Construction.”
 3. Anonymous, Interview with Senior City Planner at Department of City Planning, Video Call, December 1, 2022; NYCPlanning Github, “Enhancement 22Q2: A2 Jobs · Issue #549,” GitHub, accessed March 18, 2023, <https://github.com/NYCPlanning/db-developments/issues/549>.

the most recent update to the database dated January 20th 2023. A set of keywords and phrases were developed to flag completed A2 jobs that likely involved the combination of dwelling units (see appendix A.2). A total of 4,901 jobs were identified through this process. An additional 1,872 records were manually reviewed resulting in additional 1,201 A2 jobs. In total approximately 6,000 additional A2 permits were identified that likely resulted in a net loss of units between 2000 and 2023. In the period that mirrors the DCP housing database (2010-2022) only 4,000 jobs were identified. This count is likely an underestimate as initial conversations with DCP suggested they believed as many as 8,000 to 10,000 apartment conversions had been excluded from their database. Ultimately, in lieu of an updated database the presented analysis is the best one possible.⁴

Before these A2 records were combined with the existing DCP dataset, the Housing Database needed to be stripped to only relevant A1 permits. Only projects that were primarily residential both before and after construction were included. Further, this analysis includes the loss or conversion of both Class A and Class B dwelling units.⁵ While the vast majority of unit changes in New York City are through new construction and demolition, they are excluded to instead focus only on alterations that create or remove housing units.

Findings

Between the start of 2010 and the end of 2021 New York City lost 15,030 housing units through dwelling unit consolidation. While this may seem insignificant for a city with over 3.5 million housing units, these 15,000 units represent a meaningful drag on housing unit production. In those same eleven years New York City net added almost 245,000 units, representing a little over 7% growth for the whole city. Had New York City not lost units due to dwelling unit consolidation

4. It should be noted that this list of terms likely accidentally includes some apartment de-conversions. For example, a job description of “subdividing two apartments previously combined under TPPN 3/97” would be erroneously counted as an apartment combination under this methodology.

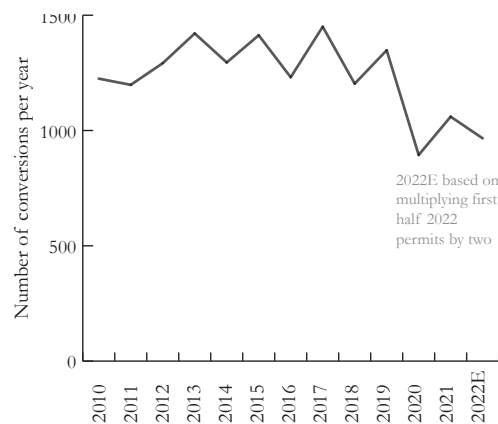
5. The loss of Single Room Occupancy (SRO) units is a tremendous challenge for New York City as they are no longer buildable under city laws. As such every lost SRO unit is an irreplaceable unit of naturally occurring affordable housing. Samuel Tran, “NYC Needs Diverse Housing Solutions. Start By Legalizing SROs,” City Limits, October 14, 2021, <https://citylimits.org/2021/10/14/opinion-nyc-needs-diverse-housing-solutions-start-by-legalizing-sros/>; Karrie Jacobs, “It’s Time for New York City to Bring Back SROs,” Curbed, June 24, 2021, <https://www.curbed.com/2021/06/sro-hotels-nyc-bring-back.html>.

it would be equivalent to an additional half percentage point of growth. These 15,000 lost units begin to approach the total number of units lost through demolitions (19,000)—the much more visible form of housing unit change.

Prior to the COVID-19 pandemic the number of net lost units through alterations had been between 1,200 and 1,400 per year. 2020 saw a significant drop to below 1,000 units which recovered slightly in 2021. As the existing DCP dataset is only updated through Q2 2022 there is only an estimate for 2022, but it suggests that the number remains depressed compared to before COVID. While this number seems small (1000 units per annum) they represent a meaningful overall decrease on the rate at which NYC is adding housing units. Most importantly, the impact is not evenly distributed across New York City, but focused in a number of relatively higher income neighborhoods that in general produce less new housing units. The impact of alteration permits which result in fewer housing units is most pronounced in Manhattan. This is seen by comparing the ratio of units lost through dwelling unit consolidation to the net number of units added through demolition, new construction, or alterations which add units. The higher this ratio, the greater impact that dwelling unit consolidation had on the community district.

Community District 8 in Manhattan had by far the highest ratio between lost units and added units at 0.95. In aggregate the district only added 101 net units of housing from 2010-2021, the lowest of any CD, despite having the highest population of any district in Manhattan, and the third highest overall in 2010.⁶ While the district did see the development of almost 3,000 units of new housing it was almost completely offset by demolitions (1,000 units) and dwelling unit consolidation (2,000 units). Similar situations arise in other community districts in Manhattan although

Figure 5.1 Alteration permits resulting in a loss of units per annum

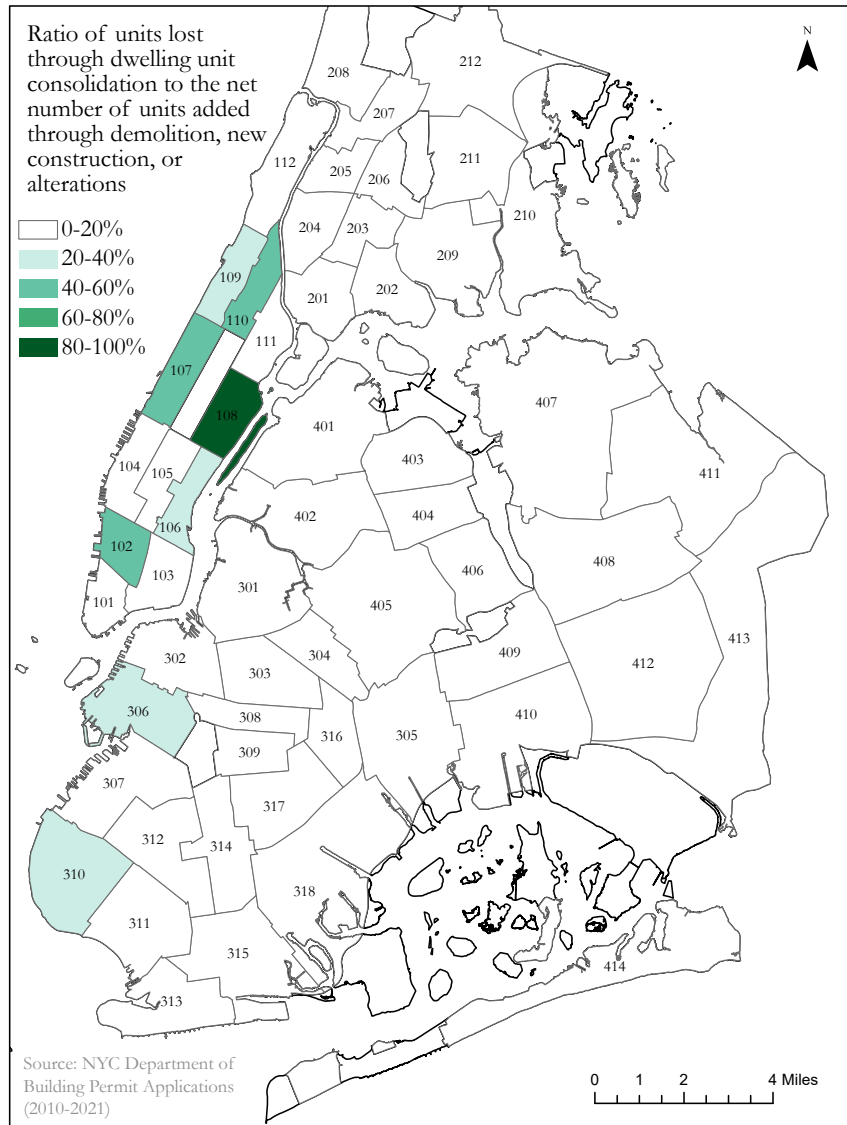


Source: NYC Department of Buildings Permit Applications (2010-2022)

6. Population Division - New York City Department of City Planning, “New York City Population By Community Districts,” June 2013.

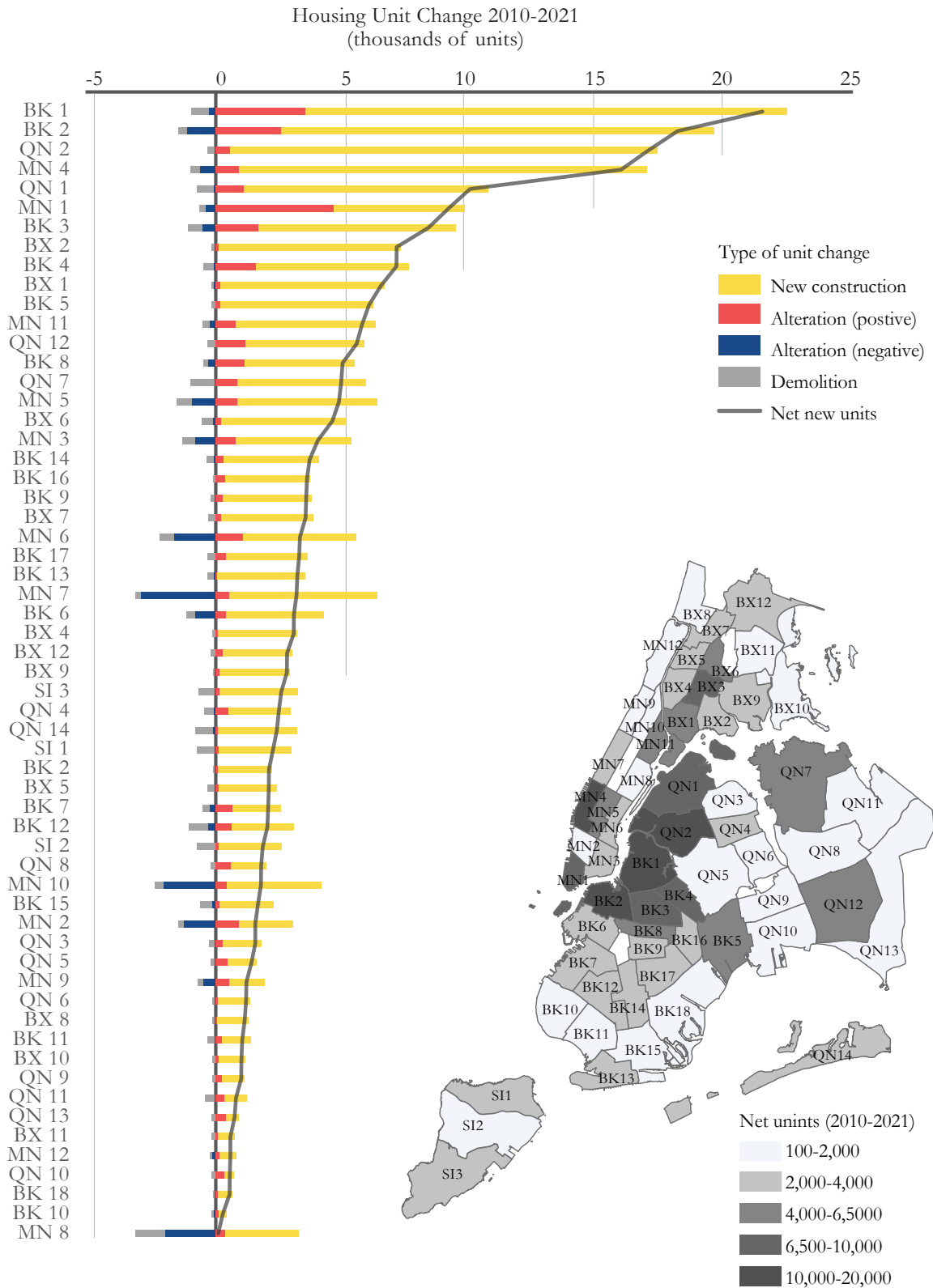
to a lesser degree. While every community district added net housing units during the period covered, many added only an insignificant amount after accounting for dwelling unit consolidation, particularly in Manhattan.

Figure 5.2 Impact of alteration permits on housing unit production by CD



White areas and lighter shades of green indicate community districts where the number of new units added was proportionally greater than units lost through dwelling unit consolidation. Conversely, darker shades of green indicate community districts where units lost through dwelling unit consolidation nearly equalled new construction.

Figure 5.3 Housing production and loss by community district (2010-2021)



Where is dwelling unit consolidation through alteration type 2 permits located?

The inclusion of additional 4,000 A2 permits had minimal impact on the overall production of housing units in New York City as between 2010 and 2022 New York City produced hundreds of thousands of new units. However, it represents a meaningful increase in the number of units lost through residential alterations. In particular, the inclusion of A2 permits increases the number of units lost through alterations by 35% compared to just including A1 permits. Importantly, the geographic distribution of A1 and A2 jobs that result in fewer units are not equitably distributed. While ~60% of A1 jobs that result in fewer units are located in Manhattan almost 90% of all A2 jobs are located in Manhattan. These A2 jobs are highly localized in particular neighborhoods. In particular, the Upper West and Upper East Sides of Manhattan have a high number of A2 jobs resulting in fewer units while Harlem sees almost none. This is likely due to the high number of buildings that can support such a conversion, namely large apartment buildings, which are located in these neighborhoods. This is seen in that 75% of all A2 permits that resulted in fewer units were located in mixed-use condominium buildings or elevator cooperatives. These typologies are by far the most common in Manhattan.

In aggregate, the exclusion of A2 jobs may seem to be of minimal importance as they represent relatively few units. However, because they are so highly clustered in certain community districts, the inclusion of A2 jobs can meaningfully change the overall narrative about a community district's housing production. In particular, the districts which had high ratios between units lost and units produced were heavily impacted by dwelling unit consolidation through A2 permits. As previously mentioned, CD 8 on Manhattan's Upper East Side only added 101 units in large part due to 1,070 units lost through A1 permits and an additional 945 units lost through A2 permits. Similarly, Manhattan CD 7 on the Upper West Side lost 2,986 units, 30% of which were through A2 permits. Only 4 other Manhattan community districts had great than 150 units lost through A2 permits: CD 6 (420 units), CD 2 (399 units), CD 5 (181 units) and CD 4 (172 units). Outside of these 6 Manhattan community districts A2 jobs had only a very minimal impact on community district housing production.

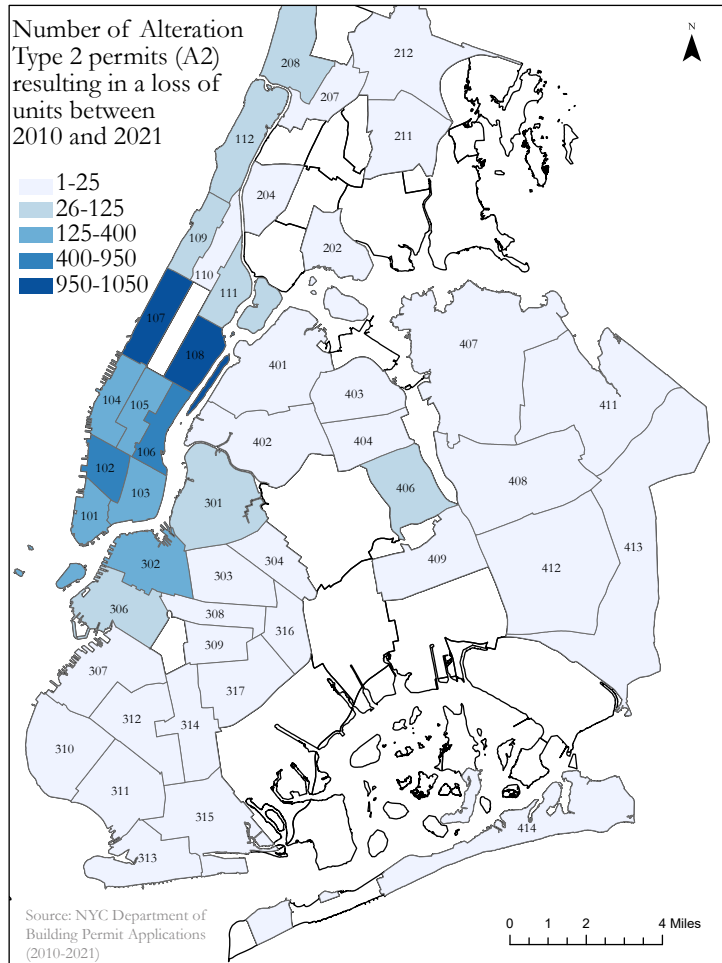


Figure 5.4 Count of alteration type 2 permits for dwelling unit consolidation by community district

Darker shades of blue refer to higher numbers of A2 permits that resulted in a decrease in units. Manhattan’s Upper East and Upper West Sides have by far the highest number of such permits.

What are the demographics of areas where dwelling unit consolidation is common?

A key challenge in New York City is the inequitable distribution of new housing units throughout the city. For example, the Furman Center has found that new income-restricted development is primarily in neighborhoods with higher Black and Hispanic populations and those with a higher share of lower income residents. Conversely, new market rate development is in higher income and whiter neighborhoods. As such there is a concern “that new development may be heightening income segregation.”⁷ The following analysis adds to this discourse by demonstrating that alteration projects with a net loss of housing units are primarily in census

7. Furman Center, “The Geography of New Housing Development 2021,” 2021, <https://furmancenter.org/stateofthecity/view/the-geography-of-new-housing>.

blocks that are whiter, wealthier, and have a higher portion of homeowners compared to the overall community district in which they are located.

The actual resulting impact on demographics of these projects is impossible to determine as the demographic characteristics of the tenants before and after a project are not available. However, it is extremely likely that tenants who inhabit larger units post conversion are wealthier than the tenants who inhabited the units previously. The same cannot be said however for renter versus ownership characteristics or racial characteristics, which are not determinable. Ultimately, the data suggests that such alteration projects are likely undertaken by whiter and wealthier populations compared to the surrounding community district. This has the potential impact of creating more exclusionary and segregated neighborhoods.

Census block level demographic data from the 2020 5-year American Community Survey was attached to all individual records of alterations resulting in a net loss of 1 to 15 units.⁸ Records were then combined by community district with demographic information (at the census block level) weighted by the number of alterations in each community district.⁹ This created a demographic profile of the parts of a community district where conversions occurred, which could then be compared to the overall demographics of the community district. Finally, a similar profile was created for the alterations located in historic districts for each community district. Overall census blocks where alterations occurred were 26% wealthier, 19% whiter, 26% less Hispanic, 19% less Black, and had 13% fewer renters compared to the overall demographics of the community districts where a project was located. For alterations in historic districts the results were even more dramatic: census blocks with alterations were 47% wealthier, 35% whiter, 53% less Hispanic and had 19% fewer renters than the community district as a whole. Interestingly, the share of the Black population was only 15% lower than demographics of the community district as a whole (compared to 19% for census blocks with conversions).

8. Projects that involved greater than 16 units were excluded from this analysis as they may have skewed any attempt at weighting demographic data by the total number of units lost. Additionally, these large-scale projects involve entire buildings and have meaningfully different drivers compared to smaller scale projects.

9. Only community districts with at least 30 conversions were included in this analysis.

These trends were uniform across community districts, but the magnitude varied district to district. In Manhattan median household incomes were on average 35% higher in census blocks with alterations although this varied from as low as 13% in CD 1 in lower Manhattan to as high as 80%+ in CDs 3 and 11, the Lower East Side and East Harlem respectively. Brooklyn saw similar variability with some districts seeing almost no change (CD 4 and 12) while others in the neighborhoods surrounding downtown Brooklyn (e.g., CD 1, 2, and 3) saw 30% increases. Relatively few districts were included in the Bronx, Staten Island, or Queens, but those that were varied in the degree to which conversions were located in wealthier census blocks from basically no change (CD 4 in Queens), to 75% in Far Rockaway (CD 14 in Queens).

In general, the trend was similar, but amplified for census blocks with conversions in designated buildings (e.g., even whiter, even lower rates of minority population, higher ownership rates). The few exceptions were lower median incomes in Manhattan CD 4, higher Hispanic populations in Manhattan CD 2, and higher Black populations in Manhattan CD 9 and Brooklyn CD 3. As such, it is clear not only that conversions take place in whiter and more financially well-off neighborhoods, but that these trends are even more pronounced for historic districts—potentially leading to greater levels of economic and racial segregation.

Figure 5.5 Median household income

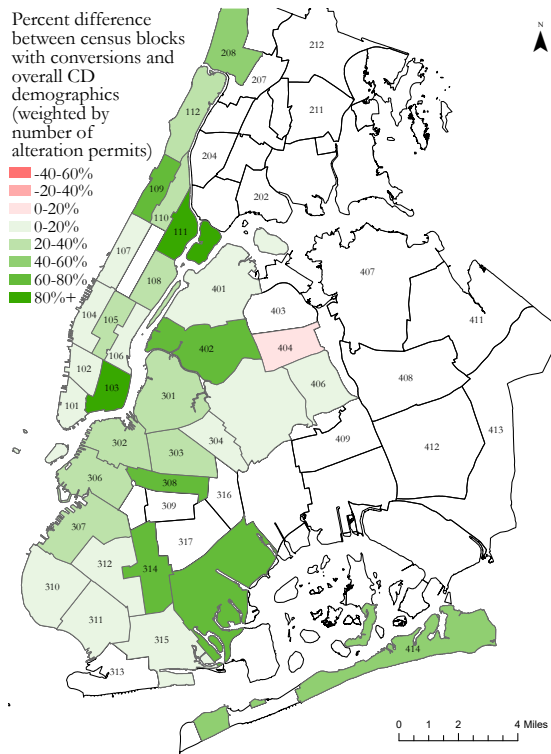


Figure 5.6 White population share

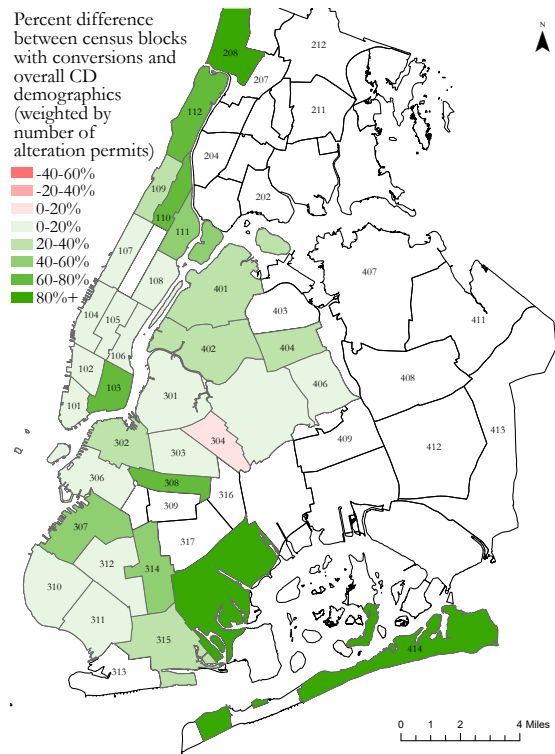


Figure 5.7 Rentership rate

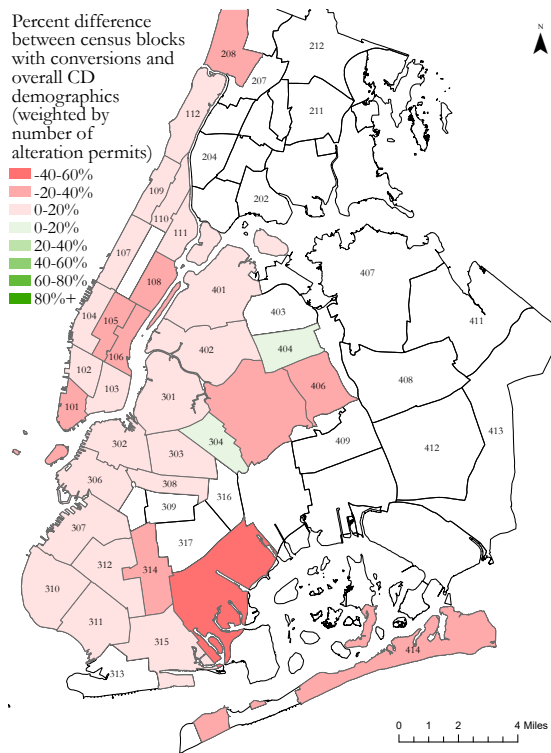


Figure 5.8 Black population share

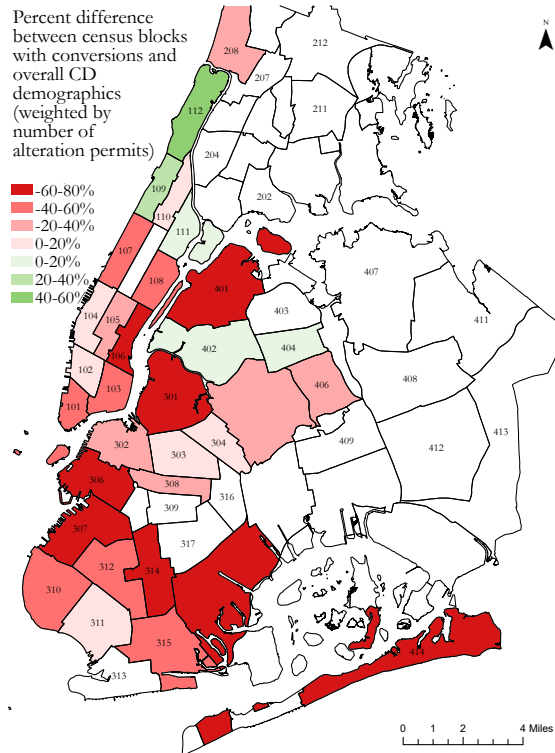


Figure 5.9
Demographic
comparison
between census
blocks with
conversions
and overall
community
districts

CD	# of Alteration Permits	<u>Median Household Income</u>			<u>White Pop. Share</u>			<u>Hispanic Pop. Share</u>			<u>Black Pop. Share</u>			<u>Rentership Rate</u>		
		Overall CD	Census Blocks with Conversions	Δ	Overall CD	Census Blocks	Δ	Overall CD	Census Blocks	Δ	Overall CD	Census Blocks	Δ	Overall CD	Census Blocks	Δ
107	604	\$123,179	\$146,979	19%	66%	77%	17%	16%	9%	-43%	5%	3%	-42%	64%	60%	-7%
108	588	\$129,332	\$174,393	35%	73%	80%	10%	10%	7%	-26%	3%	1%	-50%	64%	45%	-29%
102	465	\$131,472	\$149,315	14%	74%	79%	7%	8%	9%	11%	2%	2%	-18%	69%	65%	-6%
110	378	\$54,563	\$74,533	37%	15%	24%	60%	23%	18%	-24%	54%	50%	-7%	86%	81%	-6%
106	344	\$130,765	\$155,435	19%	67%	73%	8%	9%	7%	-23%	5%	2%	-65%	68%	53%	-22%
104	283	\$105,001	\$125,749	20%	58%	65%	13%	18%	16%	-11%	4%	4%	-15%	77%	70%	-9%
103	252	\$46,126	\$84,861	84%	34%	54%	58%	24%	14%	-43%	8%	5%	-43%	87%	85%	-2%
109	187	\$55,726	\$85,013	53%	27%	33%	22%	39%	28%	-30%	23%	29%	28%	85%	78%	-9%
105	180	\$141,722	\$173,364	22%	62%	68%	11%	11%	8%	-27%	5%	4%	-21%	69%	53%	-24%
101	175	\$192,293	\$216,544	13%	67%	68%	2%	9%	10%	8%	3%	2%	-46%	73%	54%	-25%
111	143	\$33,841	\$62,569	85%	14%	25%	74%	44%	33%	-26%	31%	33%	5%	93%	85%	-9%
112	128	\$59,257	\$72,001	22%	20%	29%	43%	68%	55%	-19%	7%	10%	47%	89%	84%	-5%
208	114	\$64,111	\$110,102	72%	32%	60%	86%	50%	23%	-54%	12%	8%	-29%	66%	42%	-37%
306	111	\$133,136	\$163,191	23%	61%	73%	18%	15%	10%	-33%	10%	4%	-64%	62%	56%	-10%
302	105	\$112,437	\$147,983	32%	49%	67%	36%	13%	8%	-40%	21%	14%	-35%	67%	60%	-10%
303	104	\$63,177	\$79,786	26%	25%	30%	17%	18%	11%	-36%	50%	49%	0%	77%	72%	-6%
312	93	\$53,574	\$56,443	5%	64%	76%	19%	12%	10%	-16%	3%	1%	-58%	66%	60%	-10%
301	80	\$78,843	\$102,543	30%	60%	71%	18%	25%	17%	-30%	5%	2%	-63%	85%	80%	-6%
315	62	\$68,071	\$77,189	13%	64%	77%	20%	10%	10%	0%	4%	2%	-49%	54%	51%	-6%
307	53	\$74,411	\$95,772	29%	27%	44%	62%	41%	23%	-44%	3%	1%	-64%	71%	64%	-10%
308	50	\$67,479	\$101,503	50%	28%	42%	47%	12%	10%	-20%	50%	37%	-27%	79%	72%	-9%
314	47	\$64,091	\$91,006	42%	39%	68%	73%	15%	9%	-42%	31%	12%	-62%	77%	54%	-30%
310	40	\$74,062	\$83,016	12%	53%	57%	9%	17%	15%	-13%	3%	2%	-45%	58%	48%	-16%
304	40	\$61,436	\$64,985	6%	21%	20%	-6%	54%	55%	1%	17%	16%	-2%	85%	87%	2%
311	38	\$58,466	\$69,060	18%	39%	41%	6%	16%	14%	-12%	1%	1%	-9%	63%	53%	-15%
318	35	\$80,017	\$113,739	42%	21%	73%	239%	9%	5%	-39%	62%	13%	-79%	42%	22%	-48%
406	33	\$84,457	\$96,054	14%	46%	49%	7%	16%	13%	-15%	3%	2%	-39%	52%	41%	-21%
401	33	\$74,900	\$87,930	17%	47%	58%	23%	26%	22%	-15%	8%	2%	-77%	81%	71%	-12%
414	31	\$59,611	\$104,908	76%	33%	66%	99%	23%	15%	-34%	35%	13%	-64%	63%	41%	-35%
404	31	\$55,657	\$54,696	-2%	6%	7%	22%	53%	62%	17%	4%	5%	7%	74%	75%	2%
402	31	\$77,592	\$111,665	44%	30%	41%	36%	32%	25%	-23%	2%	2%	19%	73%	65%	-12%
405	30	\$79,770	\$90,351	13%	50%	59%	19%	39%	28%	-28%	1%	1%	-35%	58%	45%	-22%
503	30	\$100,635	\$109,161	8%	81%	84%	3%	11%	10%	-13%	1%	0%	-67%	20%	20%	3%
	Weighted by permits	\$100,433	\$126,614	26%	52%	62%	19%	19%	14%	-26%	13%	10%	-19%	72%	63%	-13%

Figure 5.10 Demographic comparison between census blocks with conversions in historic districts and overall community districts

	# of alteration permits		Median Household Income			White Pop. Share			Hispanic Pop. Share			Black Pop. Share			Rentership Rate		
	CD	HD	Overall CD	HD with conversion	Δ	CD	HD	Δ	CD	HD	Δ	CD	HD	Δ	CD	HD	Δ
107	604	459	\$123,179	\$149,939	22%	66%	80%	21%	16%	8%	-51%	5%	3%	-47%	64%	60%	-7%
108	588	203	\$129,332	\$205,480	59%	73%	85%	16%	10%	8%	-25%	3%	0%	-83%	64%	30%	-53%
102	465	294	\$131,472	\$143,656	9%	74%	81%	9%	8%	9%	17%	2%	2%	-22%	69%	66%	-4%
110	378	128	\$54,563	\$81,509	49%	15%	26%	73%	23%	16%	-29%	54%	49%	-10%	86%	75%	-13%
104	283	36	\$105,001	\$96,292	-8%	58%	69%	20%	18%	13%	-24%	4%	3%	-34%	77%	67%	-13%
109	187	53	\$55,726	\$93,392	68%	27%	36%	37%	39%	21%	-46%	23%	34%	47%	85%	74%	-13%
101	175	38	\$192,293	\$211,880	10%	67%	68%	2%	9%	9%	-3%	3%	2%	-52%	73%	52%	-28%
306	111	169	\$133,136	\$167,408	26%	61%	73%	20%	15%	7%	-55%	10%	4%	-61%	62%	52%	-17%
302	105	247	\$112,437	\$154,243	37%	49%	70%	42%	13%	7%	-46%	21%	13%	-40%	67%	57%	-15%
303	104	51	\$63,177	\$81,439	29%	25%	28%	11%	18%	9%	-47%	50%	54%	9%	77%	70%	-9%
308	50	59	\$67,479	\$109,585	62%	28%	45%	60%	12%	10%	-22%	50%	34%	-32%	79%	72%	-9%
Weighted by permits			\$147,772			70%			9%			11%			59%		

Figure 5.11 Comparison of demographics of areas weighted by number conversions

	Median Household Income	White Pop. Share	Hispanic Pop. Share	Black Pop. Share	Rentership Rate
Community District	\$100,433	52%	19%	13%	72%
Census Block with Conversions	\$126,614	62%	14%	10%	63%
Census Block with Conversions in Historic Districts	\$147,772	70%	9%	11%	59%
<i>Census Block with Conversions versus Community District</i>	<i>26%</i>	<i>19%</i>	<i>-26%</i>	<i>-19%</i>	<i>-13%</i>
<i>Census Block with Conversions in Historic Districts versus Community District</i>	<i>47%</i>	<i>35%</i>	<i>-53%</i>	<i>-15%</i>	<i>-19%</i>
<i>Census Block with Conversions in Historic Districts versus Census Blocks with Conversions</i>	<i>17%</i>	<i>14%</i>	<i>-37%</i>	<i>5%</i>	<i>-7%</i>

How have historic districts been impacted by dwelling unit consolidation?

As discussed in the introduction, between 2010 and 2022 New York City historic districts lost an estimated net 4,000 housing units. This was only partially counteracted by 1,500 net new housing units developed in individual landmarks outside historic districts, mostly through adaptive re-use projects.¹⁰ Only 200 units were lost through demolition—instead the vast majority were lost through alterations that resulted in fewer housing units after construction than before.

Of the 128 historic districts in this study only 7 created more than 50 net new housing units between 2010 and 2022. 94 historic districts had a net unit count change of between negative 50 and positive 50, combining for a total of negative 200 net units. The final 27 historic districts, which lost greater than 50 units, combined for a total net loss of 4,844 units. Unsurprisingly, Brooklyn and Manhattan are the primary locations of historic districts with large increases and decreases in the net number of units, with the DUMBO historic district in Brooklyn being the only major net creator of new housing units.

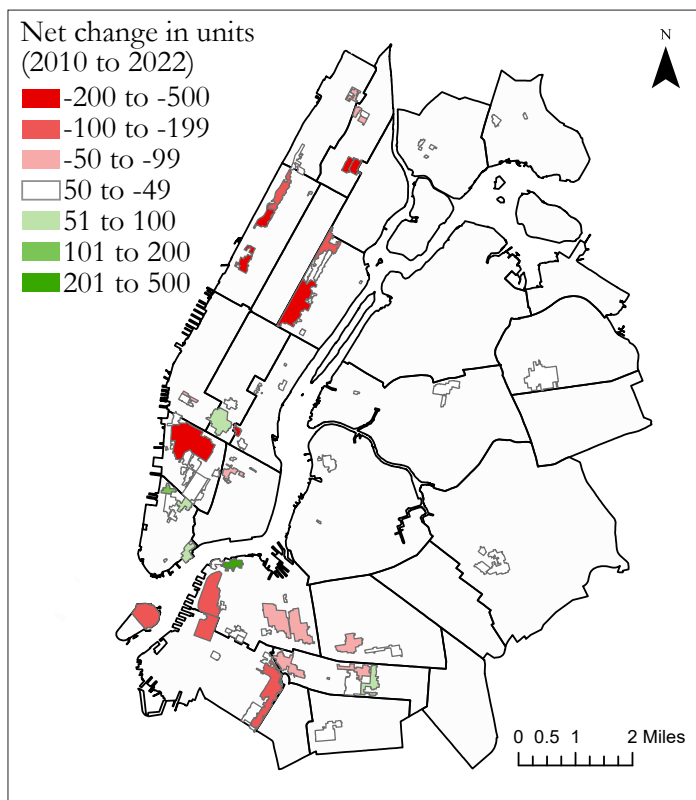
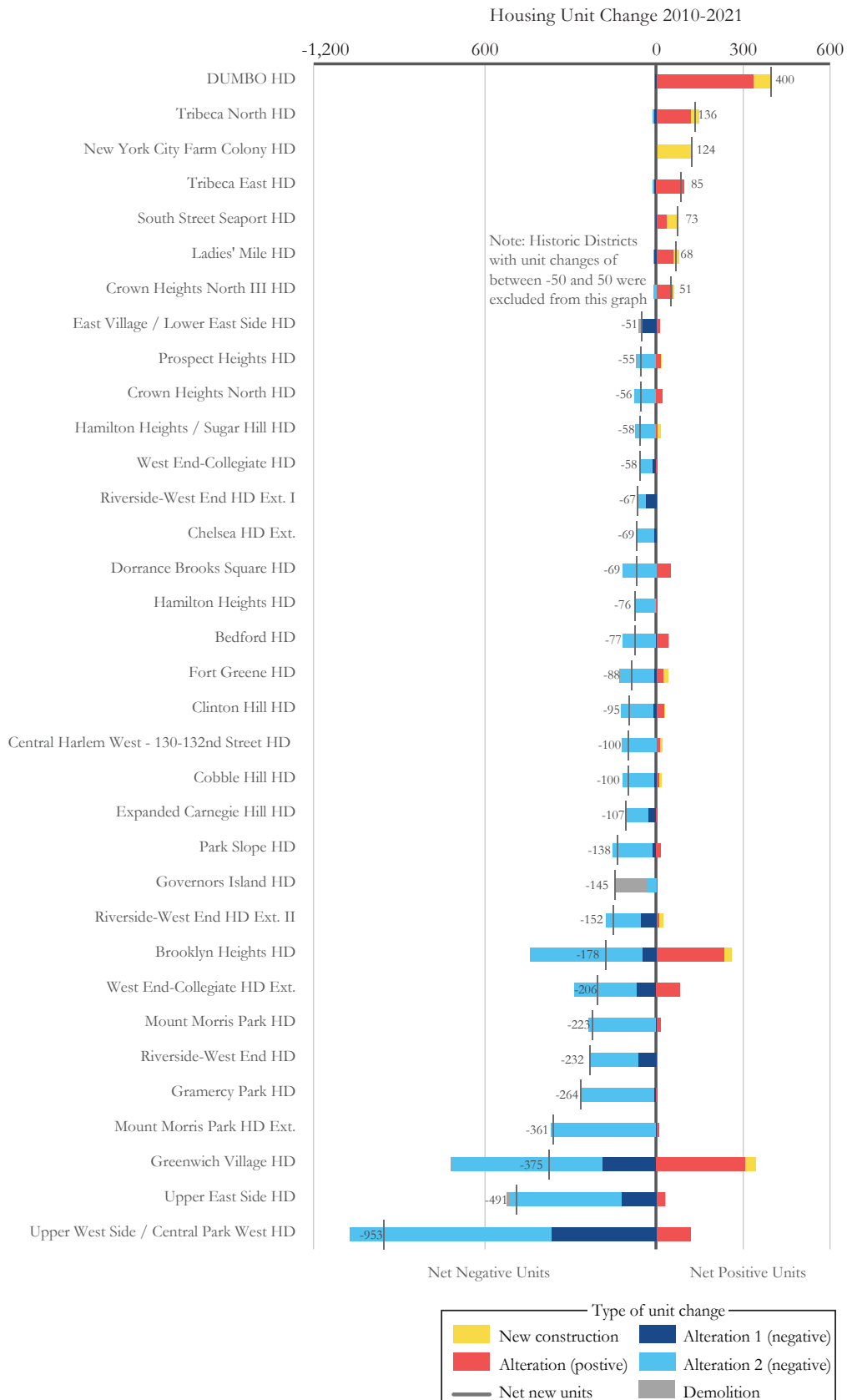


Figure 5.12 Housing production and loss by historic district (2010-2022)

10. The majority of these units are from just two lower Manhattan office to residential conversions: 70 Pine Street (600+ units) and 2 Washington street (300+ units)

Figure 5.13 Housing production and loss by historic district (2010-2022)



In order to see the geographic spread of alterations resulting in fewer units, the lost units per acre of each New York City block was calculated. This map does not include any alterations that resulted in new units, demolitions, or new construction. Additionally, it excludes large-scale projects which resulted in the loss of more than 15 units as they are related to large alterations projects with different drivers. The map is not an exhaustive descriptive map of the overall composition of unit changes in New York City, but instead just covers those specific jobs that resulted in fewer units. The map shows that there are blocks across the five boroughs with lost units, but that they are mostly located in Manhattan and brownstone Brooklyn. Importantly some of New York City's densest neighborhoods, such as the Upper East and West Sides of Manhattan had the highest rates of dwelling unit consolidation. This is particularly notable as residents of these neighborhoods frequently cite high density as a reason to oppose new development—even as this thesis shows the areas are actively de-densifying.

Historic districts also appear to be areas with high numbers of lost units per acre. Clusters of such blocks appear in and around historic districts in Greenwich Village, the Upper East and West Sides of Manhattan, Harlem and the many historic districts in Brooklyn Heights, Park Slope, and Fort Greene through Bedford Stuyvesant. Notably, there are numerous historic districts without any conversions particularly in Queens, Southern Brooklyn, and the Bronx. Part of this is as a result of housing typologies, as it is not possible to reduce the number of units in single-family homes (like those found in Southern Brooklyn's historic districts (Prospect Park South, Ditmas Park, Fiske Terrace-Midwood), but even the Bronx's Grand Concourse Historic District which was developed at the same time as upper-Manhattan lacks many conversions.

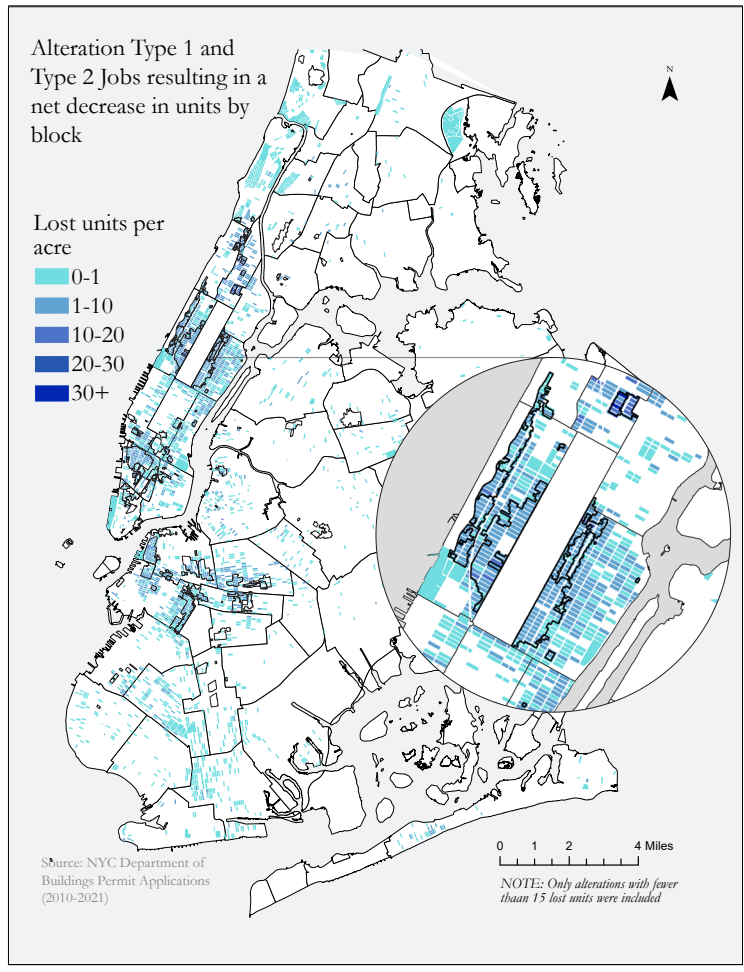


Figure 5.14 New York City blocks that have lost housing units from A1 and A2 permits (2010-2022)

Darker blues indicate higher numbers of lost units. As reference, twenty standard 25 x 100 foot lots equate approximately one acre. Historic districts boundaries are shown in black.

Overall, 34% of the alteration permits resulting in a loss of units were in historic districts. These permits resulted in 41% of the lost units between 2010 and 2022 through alterations. The Upper West Side / Central Park West Historic District had the greatest number of lost units (1,039) over just 404 buildings accounting for ~17% of all conversions. Combined with three other Manhattan historic districts (Upper East Side, Mount Morris, and Greenwich Village) these four districts accounted for nearly 40% of all conversions. Importantly, none of these historic districts had sufficient new units from either alterations or new construction to have net added units.

Dwelling unit consolidation can also have a devastating impact on a historic district’s housing stock, with significant reductions on a percentage basis. To understand this, the total number of housing units for each historic district was obtained from the latest version of the PLUTO dataset and the net change in units (from all types of projects) was then compared to the overall number

of housing units.¹¹ While some historic districts saw meaningful growth (DUMBO, South Street Seaport, Tribeca North), a number saw large declines. Mount Morris Park and its extension lost 17% and 28% of their housing units respectively. Two of the largest historic districts in New York City, both of which had comparatively high rates of new construction, Brooklyn Heights and Greenwich Village, still lost 2% of their housing units over the period. The other largest historic districts in New York City, the Upper East Side and Upper West Side historic districts lost 5% and 3% of their housing units respectively. In the most extreme case, a single conversion from a dormitory to a 16 unit condominium shrunk the Gramercy Park Historic District's unit count by 30%.

Is dwelling unit consolidation more common in designated buildings?

A key question is why historic districts see more conversions than non-designated areas. One possibility, discussed earlier, is that conversions take place in whiter and wealthier neighborhoods—characteristics that many New York City historic districts exhibit. A second potential reason is that the specific typologies of buildings that are easily converted are disproportionately included in historic districts. For example, a large share of the apartment buildings that Ducant discussed in her thesis are in historic districts and are potentially easier candidates for conversion than apartments in other buildings. Similarly, row houses have been frequent candidates for conversion back to one or two-family homes and row houses are a frequent typology found in historic districts. However, irrespective of typology, buildings in historic districts had much higher rates of dwelling unit consolidation. The majority of conversions (90%) were in just four building types: Elevator apartment buildings, walk-up apartment buildings, condominiums, and two-family homes. Across all these typologies the rates of dwelling unit consolidation were higher in buildings in historic districts. Within these four building classes over 9% of designated buildings contained at least one example of dwelling unit consolidation, compared to only 1% for

11. To determine a 'baseline' number of housing units the net change in residential units was subtracted from the total residential unit count in PLUTO in order to reflect that the 2022 version of PLUTO reflects the unit count changes from 2010-2022.

non-designated buildings. As such, it is clear that designation is highly correlated with dwelling unit consolidation and that building typology only plays a potential secondary role.

Limitations

This chapter demonstrated that alterations which resulted in fewer housing units nearly equaled the total number of housing units lost due to demolition over the past decade. Dwelling unit consolidation represents a significant drag on overall housing production and it is highly concentrated in certain neighborhoods. Further, dwelling unit consolidation primarily occurs in relatively whiter and wealthier census blocks compared to the overall community district in which they are located. Finally, this chapter has shown that alterations are disproportionately located in historic districts, and are the major driver of why historic districts have lost units on net over the period from 2010 to 2022.

A key finding of this chapter is the existence of at least 4,000 additional A2 permits not counted by DCP that resulted in a decrease in housing units. It is likely that these approximately 4,000 permits are only a portion of the true total. However, there are also A2 permits mistakenly included in this analysis which were applications to separate apartments and create additional housing units. The publication of DCP's next iteration of the housing database will ideally correct for this exclusion of A2 permits. Ultimately, that too will be imperfect to measure the true scope of dwelling unit consolidation. Both DCP and this thesis rely on legal, filed, building permit data to construct estimates about how dwelling unit consolidation affects housing counts in New York City. However, such analyses will always miss the untold numbers of illegal and undocumented conversions that are prevalent through New York City. Further, they will never reflect the individual choices that families make—be it occupying two units as one without doing any renovation to adjoin the units or doubling up with another family in a search for affordability.

Chapter 6

Policy Responses to Dwelling Unit Consolidation

Introduction

This thesis has demonstrated the scope of the challenge of dwelling unit consolidation in New York City. It now turns to what to do about it. This chapter begins with New York State and New York City's existing laws, regulations, and policies that in turn allow, encourage, and restrict dwelling unit consolidation. It then discusses the current absence of appetite for new policies that would impact the frequency of dwelling unit consolidation. Finally, it turns to other cities that have targeted dwelling unit consolidation, in particular Chicago and Portland. In response to multi-family to single-family conversions in Chicago, a new pilot ordinance bans the activity in some neighborhoods. Similarly, in Portland, new historic preservation rules restrict the loss of residential units during some conversions. In both cases these policies were the result of ground-up activism rather than agency decision making. This chapter concludes by suggesting that the path towards restricting dwelling unit consolidation lies first with greater publicity and activism around this present challenge rather than a specific policy approach.

New York

Many of New York City's current policies are "left over from when New York was a shrinking city" according to former Director of Housing Preservation and Development Shaun Donovan.¹ Technical Policy and Procedure Notice (TPPN) #3/97 from 1997 certainly fits that description. It extends a 1968 policy that allowed the combining of adjacent apartments in tenements, without the necessity of a new certificate of occupancy, to all multiple dwelling buildings. This policy has resulted in approximately 10% of all dwelling unit consolidation as it easily facilitates such practice.² Today, the policy is potentially outdated in the midst of a housing crisis and could be repealed in order to discourage apartment combinations. That said, one city employee who did not wish to be identified, pointed out that such a repeal would ultimately only increase the complexity of interfacing with the Department of Buildings, something the current administration has actively worked to simplify.³ Howard Slatkin, former Deputy Executive Director for Strategic Planning at DCP and now head of the Citizens Housing and Planning Council, noted that "TPPN 3/97 is a rational and beneficial public policy" as it "provide as little process and paperwork to ensure safety with the law."⁴

Mark Willis, Senior Policy Fellow at NYU's Furman Center, agreed and added that restricting activity would likely be counterproductive as the combining of apartments is indicative of a need for more, larger apartments. Further, the activity could always proceed with an A1 permit. Ultimately there is currently little interest in pursuing a repeal of TPPN #3/97 in part because those parties that might advocate for such a policy change are likely unaware that it even exists. There has been no significant coverage of the rule in the last decade and even parts of the Department of City

1. Shaun Donovan, Interview with Shaun Donovan, Phone Call, March 21, 2023.

2. Some property developers indicated that they do use this procedure to renovate and market multi-family dwellings as single or two-families under A2 permits. They note that they prefer to do this without changing building classes as it allows the building to be re-occupied as multi-family without meeting new code requirements (e.g., sprinklers) as the building technically never was removed from regulation under the 1929 Multiple Dwellings Law. However, developers note that different reviewers at the Department of Buildings treat such applications without consistency.

3. Anonymous, Interview with Senior City Planner at Department of City Planning.

4. Howard Slatkin, Interview with Howard Slatkin, Phone Call, March 31, 2023.

Planning were probably unaware of its existence until relatively recently, as evidenced by their initial exclusion of units lost under the policy from its supposedly exhaustive database.

One area where apartment combinations have elicited some meaningful activism and news coverage is using combinations in order to increase the allowable rents of rent stabilized units.⁵ This activity is called “frankensteining” by activists and refers to “the practice of combining a rent stabilized apartment with an adjoining apartment or common space in an effort to boost the allowable rent or to deregulate the apartment completely.”⁶ Tracking this activity in rent stabilized buildings is very challenging as the New York State Department of Homes and Community Renewal (DHCR) does not provide individual apartment level data for rent stabilized buildings. Instead, it only provides a list of buildings that have *at least one* rent stabilized unit. Therefore, reports of such activity tend to be anecdotal.⁷ Despite this, the activity appears to be common enough that the New York State Division of Homes and Community Renewal has a proposed rulemaking that would remove the ability of landlords to significantly raise the rent of combined units in order to disincentivize the practice.⁸

Although not related specifically to the subject of this thesis, New York State Senator Hoylman-Sigal’s Senate Bill S894 (2023-2024) deserves mention. It aims to “to prevent the erosion of New York’s housing supply by requiring the maintenance of the number of previously existing

5. In New York City rent stabilized apartment’s rents are limited in their growth by the Rent Guidelines Board, a mayorly appointed body.

6. Coalition to End Apartment Warehousing, “Warehousing and Frankensteining,” November 15, 2022, https://drive.google.com/file/u/1/d/1pyNS6u3fKXPjLeTt_mNDbjXbRDtE3YL0/view?usp=share_link&usp=embed_facebook.

7. Of the ~6,000 buildings which lost units between 2010 and 2022 approximately 1,000 were listed as having a rent stabilized unit in 2011. However, many buildings in New York City are a mix of both market-rate and rent-stabilized units. It is incredibly challenging to determine whether the lost units were market-rate, rent-stabilized or a combination of both. In order to identify rent stabilized buildings that lost units between 2010 and 2022 the buildings which were noted as having lost units in chapter 5 were compared with a list of buildings registered with DHCR in 2011 as rent stabilized. This list had been previously FOILED by software developer and cartographer Chris Henrick and posed on his Github. See: <https://github.com/clhenrick/dhcr-rent-stabilized-data>.

8. The proposed amendment to section 9 NYCRR §2501.1 would set the maximum rent for combined apartments to be the “combined legal rent for both previous housing accommodations.” Further, market-rate apartments involved in any time of combination would also become subject to rent-regulation. See: Division of Homes and Community Renewal, “Tenant Protection Regulations Proposed Rule Text,” August 16, 2022, <https://hcr.ny.gov/system/files/documents/2022/08/tp-proposed-rule-text-8.16.22.pdf>.

dwelling units in newly approved multiple dwelling construction.”⁹ This bill follows a number of prominent examples of new construction having fewer units than the buildings that previously stood on the site. In his justification for the bill Hoylman-Sigal cites the “many parts of New York City [where] we are actually losing housing due to new construction.”¹⁰ However, as this thesis has demonstrated, the overwhelming loss of housing in these neighborhoods is not due to demolition and new construction on the same lot, but actually from alterations that take place within buildings’ existing envelopes. These latter changes are explicitly not included in the bill. In general, this speaks to the focus on high profile, visible changes to the built environment over those that take place behind unchanging walls. Still, such a policy is not without precedent: New York City requires all developers utilizing an affordable housing property tax abatement (“Affordable New York Housing Program” formerly “421-A”) to build five new apartments for every apartment demolished if a residential building previously stood on the site.¹¹

Numerous individuals currently or formerly involved in policy making in New York City were contacted for this thesis and they nearly universally expressed skepticism for policies that would explicitly target dwelling unit consolidation. Instead, they advocated for policy changes that would more broadly target challenges with New York City’s housing stock. In particular, policies that favor single-family properties over multi-family properties were consistently identified as the highest priority to change. At a federal level the home mortgage interest deduction was identified as encouraging the conversion of multi-family rental dwellings to single-family due to the privileged tax status that owners have over renters. Additionally, in New York City specifically, the property tax system is advantaged towards single-family homeowners and charges significantly higher rates for

9. Brad Hoylman-Sigal, “An Act to Amend the Multiple Dwelling Law, in Relation to Prohibiting the Issuance of a Permit for the Construction of a New Multiple Dwelling Unless the Multiple Dwelling Contains the Minimum Number of Dwelling Units Required for the Lot,” Pub. L. No. S894, § Amendment to Multiple Dwellings Law (2023), <https://www.nysenate.gov/legislation/bills/2023/s894>.

10. Hoylman-Sigal.

11. “In the event that, immediately prior to commencement of new construction, such land was improved with a residential building or buildings that have since been substantially demolished, and the new building or buildings contain more than twenty dwelling units, then such new construction shall contain at least five dwelling units for each class A dwelling unit in existence immediately prior to the demolition preceding construction” See 2.(c).iii of N.Y. Real Prop. Tax Law § 421-A

multi-family properties. It was also noted by all interviewees that changes to either of these systems would be incredibly difficult to achieve.

This thesis also asked about what role historic preservation specifically could play with regards to dwelling unit consolidation. General Counsel for the Landmarks Preservation Commission, Mark Silberman, explained that the agency as well as its commissioners are aware of the challenge that dwelling unit consolidation holds for historic districts. However, he cautioned that the agency is ill equipped to regulate dwelling unit consolidation as it sits outside of the agency's enabling legislation. In particular the idea of regulating "use" has never been viewed as within the agency's control.¹² Further as Silberman pointed out, the activity extends beyond historic districts, suggesting that an approach only targeting historic districts would be relatively ineffective.¹³ That said, he believed that should broader policies be developed by other agencies to restrict dwelling unit consolidation the LPC would likely be supportive of them.¹⁴ Further, to the extent that other agencies passed broadly applicable rules prohibiting consolidation LPC would enforce those requirements as they already do with building or fire codes.

Portland

Portland's new historic preservation ordinance suggests an alternative approach. In their latest round of amendments to their historic resources legislation, the city has at times explicitly limited the number of residential units that can be lost during renovations that change properties to mixed use. Although the type of conversions that would lead to such a loss are residential to commercial, it still demonstrates that some cities are concerned about providing housing in historic districts. In particular section 33.445.400.C of the Historic Resources Code describes a new policy that allows historic properties in areas not-zoned for commercial activity to be partially converted

12. In fact regulating "density of population" is explicitly outlawed in the legislation making such activity challenging, even if uses were regulated. See: "New York City Administrative Code Title 25 Chapter 3 Section 25-304" (1965).

13. Silberman also pointed out that the conversion of multi-family buildings to single-family is often associated with a restoration process that can bring properties back in line with the aesthetic goals of historic districts.

14. Mark Silberman, Interview with Mark Silberman, Video Call, March 6, 2023.

to commercial.¹⁵ The goal here was to facilitate mixed-use neighborhoods near transit and provide new income streams for historic properties. However, the rules specify that as part of a partial residential to commercial conversion the number of residential units that can be removed is limited. In this case, the proposed incentive aims for the conversion of garages, or other non-residential spaces to be converted to commercial rather than the wholesale conversion of residential buildings to commercial space (for example to offices).

Brandon Spencer-Hartle, senior city planner and project manager of the Historic Resources Code Project, explained that municipalities in Oregon are required to meet 19 statewide goals in land use planning. Navigating these goals can be challenging and requires nuance. In particular, Goal 5 (“Natural Resources, Scenic and Historic Areas, and Open Spaces”) needs to be carefully balanced with Goal 10 (“Housing”). When specifically asked about the loss of residential units in historic districts Spencer-Hartle noted that previous Portland policies actually encouraged the conversion of multi-family dwellings to single-family.¹⁶ However, with the newest set of regulations they are working towards retaining or increasing residential units in historic districts through the eased allowance of Accessory Dwelling Units (ADUs) among other tools. The goal is for historic district legislation to not only preserve aesthetics, but also actively incentivize mixed-use and sustainable development, in part by supporting higher population densities. Ultimately, Portland only sees a few dozen conversions from two or four-flats to single family a year, in large part due to the relatively small number of small multi-family dwellings in the city. Despite this, the city is working actively to not only maintain, but also increase density in historic districts.

15. Portland Bureau of Planning and Sustainability, “Portland Historic Resources Code: Zoning Code Amendments,” December 21, 2021.

16. Brandon Spencer-Hartle, Interview with Brandon, Phone Call, March 17, 2023.

Chicago

Parts of Chicago have taken an aggressive approach to dwelling unit consolidation, which are called “deconversions” in the city. Unlike New York City, in Chicago multiple dwellings are frequently demolished to make way for new single-family construction. As a result, housing decline estimates frequently combine the demolition of multi-family housing along with the dwelling unit consolidation. Between 2013 and 2019 the Institute of Housing Studies at DePaul University estimated that Chicago had lost over 4,800 two to four unit buildings accounting for almost 12,000 housing units or greater than 4% of the city’s housing stock.¹⁷ A more general estimate from the Director of Policy for Chicago’s Department of Housing estimated that the number was far greater, at a total of 20,000 buildings between 2010 and 2016.¹⁸ Chicago Cityscape a data provider that visualizes and aggregates Chicago building permits includes 5,172 permits for deconversions between 2010 and April 2023. These disappearing units have repeatedly been identified as a key source of naturally occurring affordable housing and were noted to be disappearing through both demolition and dwelling unit consolidation. Importantly the DePaul housing study found that in gentrifying and wealthier neighborhoods, the two and four flat buildings were being converted to, or demolished and rebuilt, as single-family homes while in poorer neighborhoods they were mostly demolished and left as vacant land.¹⁹

In response to these challenges Chicago has established two pilot areas where deconversions are heavily restricted. Chicago’s two deconversion ordinances are both in rapidly changing areas—Pilsen, and the area around the Bloomingdale Trail (the 606), a rail-to-trail dating to 2015.²⁰ In both neighborhoods the number of deconversions and demolitions were increasing and displacing

17. Institute for Housing Studies-DePaul University, “Patterns of Lost 2 to 4 Unit Buildings in Chicago,” Institute for Housing Studies - DePaul University, accessed March 26, 2023, <https://www.housingstudies.org/releases/patterns-lost-2-4-unit-buildings-chicago/>.

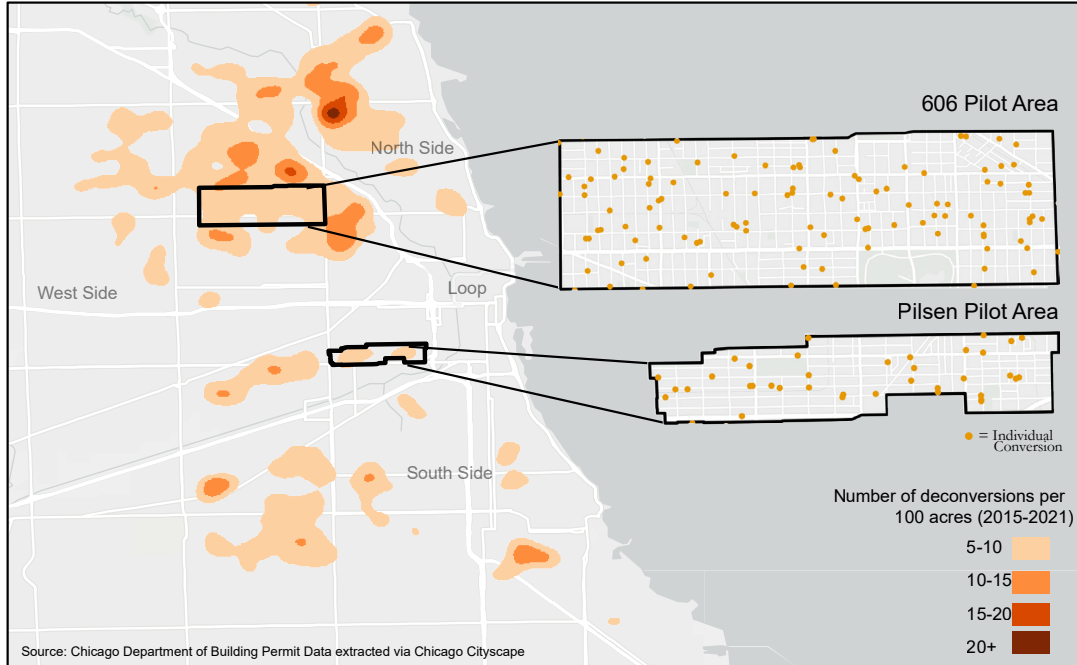
18. Mauricio Peña and Justin Laurence, “New Ordinance Makes It Harder To Turn Apartments Into Single-Family Homes Along 606 And In Pilsen,” Block Club Chicago, January 27, 2021, <https://blockclubchicago.org/2021/01/27/new-ordinance-makes-it-harder-to-turn-apartments-into-single-family-homes-along-606-and-in-pilsen/>.

19. Occasionally, even in wealthy neighborhoods residential buildings are demolished in order to create “side yards” for large neighboring single-family homes.

20. 606 refers to the first three digits of Chicago zip codes.

long-time neighborhood residents. In response, the deconversion ordinances limit the by-right construction of single-family and two-flats to only those blocks which are already at least 50%

Figure 6.1 Deconversions in Chicago (2016-2022)



While both Pilsen and the 606 show clear densities of conversion activity the greatest number of conversions take place in other neighborhoods.

Figure 6.2 Deconversions in Chicago (2016-2022)

Year	Chicago overall	Pilsen Pilot area	606 Pilot area
2022	266	3	4
2021	209	0	4
2020	233	2	7
2019	321	5	12
2018	364	7	12
2017	415	8	19
2016	552	8	21

single-family or two-family. According to Chicago Cityscape, the 606 ordinance covers approximately 9,400 lots, while the Pilsen district covers 4,500. The ordinances date to early 2021 and appears to correspond with a clear decrease in the number of conversions. More importantly, the ordinances have almost completely stopped the demolition of existing buildings for the new construction of single-family homes in both the Pilsen and 606 areas.

The deconversion ordinances both come from neighborhoods struggling with rapid change and a loss of affordable housing. In Pilsen the ordinance followed the failed establishment of a historic district and in the 606 it followed years of other attempts to restrict demolitions and deconversions. In both cases the existing policy toolkit was viewed as insufficient for combating the

present challenge of deconversions. In Pilsen, Elizabeth Blasius and Zach Mortice describe “How a plan to save buildings fell apart” as the community in Pilsen ultimately worked to stop the proposed designation of 850 buildings as it would be “protect[ing] the buildings, not the people” according to Alderperson Bryon Sigcho-Lopez who represents the area.²¹ There was a feeling that the regulations associated with a historic district would do little to stop the gentrification of the neighborhood and displacement of residents. In contrast, the deconversion ordinance works to preserve actual units of housing rather than simply buildings.

Along the 606, activists and legislators similarly found existing policies inadequate for preventing deconversions. In the manuscript to his master’s thesis Alderperson Daniel La Spata discusses organizing around preventing this displacement of local communities following the opening of the Bloomingdale Trail. Initially activists with the Logan Square Neighborhood Association (LSNA, now Palenque LSNA) and LUCHA (the Spanish word for “Struggle”) worked to introduce a demolition fee of \$450,000 for properties in and around the 606, but this never gained traction in part due to legal concerns the city had. Ultimately a demolition moratorium was issued for six-months in the fall of 2019 and subsequently extended for an additional six months. It was during this time that La Spata and the city were able to craft and introduce the deconversion ordinance. In tandem with this a demolition fee was also introduced, though at a far lesser amount than what had been proposed (only \$15,000 per building plus \$5,000 per additional unit after the third unit).²²

La Spata noted that “it was initially challenging to convince activists that these ordinances were wins” as the measures were smaller than what had initially been proposed by community activists. However, the measures were extremely successful with the “606 Pilot Area [seeing] a dramatic 88% decrease in demolitions over the 2017-2019 annual average. For the same time period there had been **zero** deconversions of 2-4 flat housing!” (*emphasis in original*).²³ In an interview,

21. Elizabeth Blasius and Zach Mortice, “How a Plan to Save Buildings Fell Apart,” *CityLab*, April 8, 2021, <https://www.bloomberg.com/news/features/2021-04-08/why-a-chicago-historic-preservation-plan-collapsed>.

22. Daniel La Spata, “Master’s Thesis Manuscript” (Chicago, 2023).

23. There have since been a few applications for deconversions, it is unclear if any have taken place.

La Spata discussed how the two deconversion ordinances were currently only pilot programs, but that he hoped to work with other Alderpersons to expand them to all neighborhoods included as Community Preservation Areas, defined as areas where “there is evidence of displacement based on housing market and demographic changes.”²⁴

La Spata explains how the deconversion ordinances were “relatively modest” and “well-crafted” and yet had a “clear impact” on the issues challenging the neighborhood surrounding the 606.²⁵ These ordinances present the clearest example of potential policies that New York City could consider in targeting dwelling unit consolidation. However, as La Spata explains these changes needed to be supported by communities and activists in order to create the political viability for such a measure to pass. It took many years of organizing before the deconversion ordinances were ultimately enacted and in a very different form than initially proposed.²⁶ To date in New York City the political constituency to try to both raise awareness and legislate against this challenge has not yet emerged.

There are two other concerns with Chicago’s deconversion ordinances. The first is that while within the pilot areas applications for building permits have been replaced with applications for Accessory Dwelling Units (ADU) and additional stories, outside the pilot areas deconversions remain an issue. La Spata notes that part of the reason he is keen to expand the areas where the deconversion ordinance applies is to make sure that his legislation did not have the unintended consequence of pushing the activity elsewhere. Additionally, the preponderance of the block ordinances raises potential equity concerns in that blocks that are already majority single-family are able to continue to de-densify. While the ordinance is couched in terms of preserving “comparable density” it potentially favors blocks where deconversion activity is more advanced.

24. Daniel La Spata, Interview with Alderman Daniel La Spata, Video Call, March 21, 2023; “Affordable Requirements Ordinance (ARO),” accessed March 26, 2023, <https://www.chicago.gov/content/city/en/depts/doh/provdrs/developers/svcs/aro.html>.

25. La Spata, “Master’s Thesis Manuscript.”

26. La Spata, Interview with Alderman Daniel La Spata.

Policy Implications for New York

This chapter has shown that New York City lacks a strong movement for policy solutions to dwelling unit consolidation; both in terms of grassroots activism as well as policy maker interest in targeting such a specific challenge. This is despite New York City having three to four times as many cases of dwelling unit consolidation as Chicago per annum. There are clear models from other municipalities of how public policies can be used to discourage dwelling unit consolidation and instead incentivize adding additional housing units. While Chicago has experimented with demolition moratoriums, demolition fees, and deconversion ordinances, New York policy makers remain lukewarm on similar policies for New York City.

In terms of specific policies, New York City might be well served by a dwelling unit consolidation fee. An example policy could involve a tiered or fixed schedule of fees per unit removed via renovation or alteration. This funding in turn could be specifically earmarked to fund income-restricted affordable housing in the neighborhood. As this research has demonstrated, dwelling unit consolidation tends to occur in wealthier neighborhoods which could likely support some kind of fee. Ideally, this fee should be seen as a form of value-capture or an externality tax, as it is likely that dwelling unit consolidation will continue in New York City regardless of a new fee. A relatively low fee (e.g., \$5,000 per unit like in Chicago) is both unlikely to meaningfully change the scope of dwelling unit consolidation nor fund meaningful new affordable housing. However, a higher fee may ultimately impact the ability of families to extend their living situations to meet changing needs or provide sufficiently sized apartments for wealthier buyers. It is up for policy makers to determine what activity they seek to restrict and what goals they have in enacting such fees.

The aggregate number of units lost through dwelling unit consolidation in New York City is relatively small per year. However, the reality that certain wealthy and exclusive neighborhoods, including historic districts, have year over year decreases in available housing stock is a critical piece of evidence of New York City's housing crisis. The fact that some of New York City's densest neighborhoods (e.g., the Upper East Side) are actively de-densifying is a potent argument for both

why New York City needs to provide opportunities for the construction of new housing as well as where such projects should be sited. This is of particular concern for historic districts. Although ultimately unsuccessful, New York Governor Kathy Hochul proposed multiple statewide policies for significant housing development as part of her 2024 budget. One of these policies would have required community districts to add new housing units at approximately 1% per year. Notably, local New York City historic districts were not exempted.²⁷ It is increasingly clear that the status quo for historic districts is unsustainable and that the regulatory regimes that govern historic preservation cannot continue to ignore the housing crisis. New policies need to not only consider the impact of historic preservation on housing, but also actively work to both retain and promote density in historic districts. All neighborhoods need to participate in solving the housing crisis and knowledge about dwelling unit consolidation helps make that argument even stronger.

Figure 6.3 Increasing awareness about dwelling unit consolidation in New York City



Nicole Murray (@nicoleamurray) shared a screen shot of a NextDoor post about a family being displaced due to a multi-family to single-family row house conversion in Brooklyn Heights. The Brooklyn Heights Historic District decreased by 200 housing units between 2010 and 2022. Redaction in original.

27. Interestingly, state histoic districts were exempted from a proposed transit orientded development plan

Conclusion

Why Dwelling Unit Consolidation Matters

In May of 2014 the New York City Landmarks Preservation Commission met to discuss an application to restore the facade of 34 East 68th street, an 1879 neo-Grec row house on Manhattan's Upper East Side. The brownstone exterior had deteriorated, with the Portland sandstone suffering from severe delamination, and the applicant was proposing to replace it with new cast terra-cotta pieces. Only two members of the public testified, both in favor, and both on behalf of historic preservation organizations. The proposal was approved and in 2017 the building won Friends of the Upper East Side Historic District's "Renaissance Award".¹

Figure 7.1 34 East 68th Street after restoration



What went unsaid during the discussions of the building was what was happening behind the facade. The building, which had been subdivided into seventeen apartments, would be turned into only one. In one of the most expensive neighborhoods in the United States, seventeen relatively small (and therefore relatively more affordable) apartments were disappearing in favor of a 9,600 square foot mansion.

Douglas Elliman

1. Michael K Chen Architecture, "FRIENDS Renaissance Award," MKCA, March 7, 2017, <https://mkca.com/news/friends-renaissance-award/>.

This thesis illuminates a central tension in regulating the built environment: it is seemingly only the exterior that matters, even as changes behind walls vastly change the character of neighborhoods. In the popular imagination neighborhood change is observed in demolitions and new construction. Yet, as this thesis has demonstrated tens of thousands of units have been lost, and continue to be lost, behind unchanging facades. The changes are visible only if one knows where to look: blanked off electricity meters, door buzzers replaced with Ring cameras, or even the reinstallation of entire stoops.² These changes are not unique to New York City, the Northeast, or even the United States. Across the world cities are grappling with if (and how) to deal with changes to occupancy within existing structures.

Figure 7.2 A picture of gentrification



Leonard Bonarek (@LenniBug) posted this photo with the text “*this* is what gentrification looks like folks.” The image description reads “4 electric meters on the side of a nice row house in a very high cost West Philadelphia neighborhood. 3 of the meters are blanked off, indicating that the house was once 3 apartments and is now a single family home”

This project began with the recognition that many neighborhoods in New York City are getting smaller, not geographically, but measured by the number of families they can house. It sought to understand which neighborhoods were shrinking, the magnitude of this shrinkage, and over what time period. When possible it has looked to new data sources (such as I-cards)

2. “The Front Stoop Makes a Comeback,” *The New York Times*, January 7, 1982, <https://www.nytimes.com/1982/01/07/garden/the-front-stoop-makes-a-comeback.html>.

to illuminate heretofore unknown histories of buildings. And it has tried to supplement existing government statistics to show the full extent of dwelling unit consolidation. These data sources of course only show what has been legally reported, excluding illegal conversions to rooming houses, two-family buildings occupied only by a single family, and tens of thousands of illegal basement apartments carved out from cellars.³ The data sources used in this analysis are not apolitical, they have an agenda. It should not be surprising that the Department of City Planning, an agency tasked with growing New York, may have excluded certain building permits that show a *reduction* in housing units. Despite this, these analyses speak to a broader pattern of dwelling unit consolidation throughout New York City.

In one small way the thesis has narrowed the question of dwelling unit consolidation to focus specifically on historic districts. This is because these areas are largely constrained in terms of demolition and new development. It is in these areas that the impact of dwelling unit consolidation is most pronounced. Perhaps greater awareness of the plight of shrinking populations in historic districts will encourage new policies that alter the calculus for the highest possible use of lots in designated districts. In Chicago, Alderperson La Spata noted that after enactment of the deconversion ordinance, developers shifted from applying for demolition permits to permits to add a third or fourth story. The ordinance had not just halted declines in density, but now appears to be increasing it.

Public policy exists in order to enact a desired change in the world. In the case of historic preservation policy in New York City it is for the “protection, enhancement, perpetuation and use of improvements,” which are “required in the interest of the health, prosperity, safety and welfare of the people.”⁴ Yet, the actions of the LPC rarely meet those lofty goals. Instead, the LPC primarily creates lists of buildings to designate and reviews exterior modifications to designated buildings. Such an approach is not unique to New York City, and describes the primary activities of almost all of the 3,500 local government groups that regulate historic preservation in the United States.

3. Bureau of Policy and Research, Office of New York City Comptroller, “Bringing Basement Apartments Into the Light,” August 2022, <https://comptroller.nyc.gov/reports/bringing-basement-apartments-into-the-light/>.

4. “Landmarks Preservation and Historic Districts,” New York City Administrative Code Title 25: Land Use, §25-301 § (1965).

Today, historic preservation policy largely ignores the “unintended consequences” of preservation. Accessibility requirements are secondary to the needs of design review. Environmental and sustainability concerns are subservient to the need to retain original fabric (with historic buildings exempted from energy codes). Questions of housing affordability go unanswered with agencies specifically instructed to ignore the inclusion of income-restricted units as a determinative criterion.

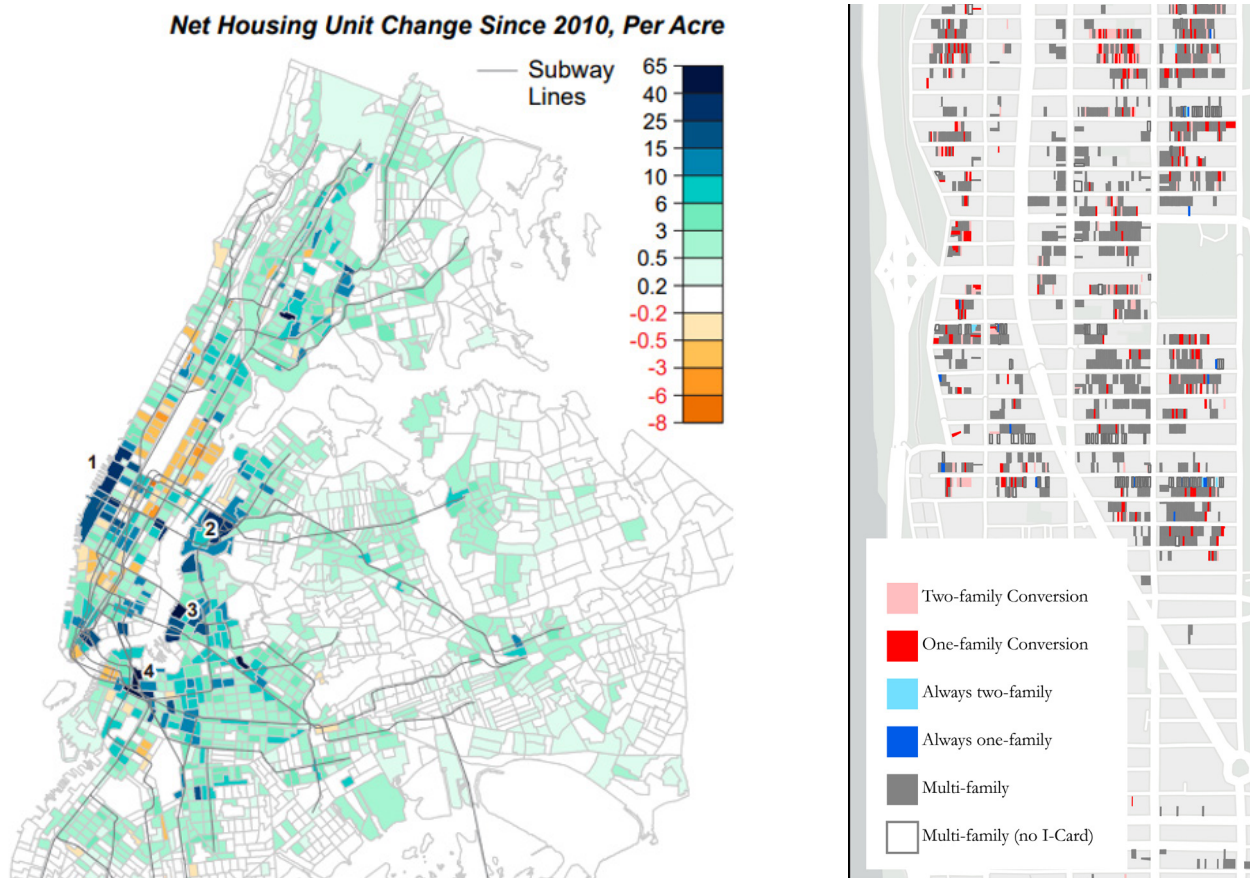
The distributive outcomes of historic preservation are uneven, often benefiting whiter and wealthier residents in historic districts, while minority groups continue to be underrepresented in the lists of designated sites that define preservation policy. This thesis adds dwelling unit consolidation as an unintended outcome of preservation. It is critical that historic preservation policy engage with these challenges and embrace ways to better understand and work towards more equitable distributive justice outcomes. Dwelling unit consolidation in historic districts makes them more exclusive and more expensive. It reduces the density of these neighborhoods at a time when increased urban density is seen as one of the most potent approaches towards combating climate change. For too long historic preservation has ignored these challenges, it is now time to develop and implement policy to face them head on.

There is however a second reason to focus on historic preservation. While this thesis seeks to describe and quantify the impact of dwelling unit consolidation, it also recognizes that this phenomenon is yet another element in a long history of New York City’s change. Historic preservation as a field is not just interested in the physical preservation of the built environment, but also in understanding its history. It is in this way that geospatial analysis proves itself valuable by allowing residents of a city to visualize changes that are otherwise invisible. It can help uncover New York City’s histories of immigration, economic upheaval, disinvestment, and revitalization that have shaped and continue to shape the city.

In conjunction with the release of their Housing Database, DCP released a map showing the change in dwelling units per acre between 2010 and 2020. DCP recognized the need to aggregate this data, but chose to visualize the data by acre, a hopelessly non-contextual measurement for a city like New York, where the recognizable unit of measurement is a city block (~5 acres). Mapping is

not just a tool to understand, correlate, and aggregate, but a methodology to visualize things that are otherwise difficult to see. Cartography should not just make maps for strategy briefs that shape urban policy, but instead allow individuals to observe how their city continues to change. This research should not just be seen as an articulation of the problem of dwelling unit consolidation, but a chance for residents to see at a building-by-building level how their neighborhood has evolved.

Figure 7.3 Two views of dwelling unit consolidation



Left: DCP's map of housing unit change 2010-2020 showing orange areas for those that have lost units on a per acre basis;
 Right: Map showing changes in multi-family conversions at the building level

The choropleth maps in this thesis show where dwelling unit consolidation happens and how it occurs in whiter and wealthier areas. The data analyses in this thesis demonstrate the major impact that dwelling unit consolidation has on individual neighborhoods and historic districts. But the most valuable thing this thesis can provide is showing this phenomenon, visualized on a block-by-block and building-by-building basis. It suggests new possibilities for research and engagement

by policy makers and activists alike. Gentrification can now be traced through an ever-declining number of multi-family houses. Neighborhoods can be recognized as becoming more exclusionary with the conversion of a blocks last multi-family rental into a multi-million-dollar home.⁵

The analyses conducted for this thesis are important, but ultimately this topic is about more than renovating apartments. It is about families trying to make it in New York. And dwelling unit consolidation makes it harder for New Yorkers to build their lives here. The combining of apartments and conversion of row houses is a topic which is already hidden behind walls, and this thesis has sought to uncover it. But it is also important to recognize the ways in which aggregated data may paradoxically hide the reality of dwelling unit consolidation. Top line numbers indicate where the practice is most prevalent and where it is most problematic. But these aggregate numbers do nothing to describe a changing neighborhood. Nor can they ever reflect the lived experience of a family forced to move.

5. Kim Velsey, "The Merely Wealthy Can No Longer Afford West 11th Street," Curbed, April 17, 2023, <https://www.curbed.com/2023/04/greenwich-village-power-block-just-got-even-richer.html>.

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Appendix

A.1 Included row house building classes

Building Category	Code	Building Class
One Family Dwelling	A3	Large Suburban Residence
	A4	4. City Residence
	A5	5. Attached or Semi-Detached
	A7	7. Mansion Type or Town House
	A9	9. Miscellaneous
Two Family Dwelling	B1	Brick
	B2	2. Frame
	B3	3. Converted from One Family
	B9	9. Miscellaneous
Walk Up Apartments	C0	0. Three Families
	C1	1. Over Six Families Without Stores
	C2	2. Five to Six Families
	C3	3. Four Families
	C5	5. Converted Dwelling or Rooming House
	C6	6. Cooperative
	C7	7. Over Six Families with Stores
Condominiums	R2	2. Residential Unit in Walk-Up Bldg
Residence - Multiple Use	S0	0. Primarily One Family with Two Stores or
	S1	1. Primarily One Family with One Store or Office
	S2	2. Primarily Two Family with One Store or
	S3	3. Primarily Three Family with One Store or
	S4	4. Primarily Four Family with One Store or
	S5	5. Primarily Five to Six Family with One Store or
	S9	9. Single or Multiple Dwelling with Stores or

A.2 Included (left) and excluded (right) building permit search terms

#3/97, 03-97, 3-97	combination of two existing apartments	combining of apts	combined sewer	combined sprinkler
apartment combination	combination of two existing dwelling units	combining apartments	combin nat gas	combined standpipe
apartment combinations	combination of units	combining apts	combination n gas	combined system
apartment renovation	combine 2 apartments	combining of apartments	combination (gas/oil)	combined water
for proposed	combine 2 apts	existing dwelling units	combination (oil/gas)	combined water service
combination to include	combine 2 dwelling unit	apartments to be combined	combination boiler	fire alarm
demolition	combine apartment	filed to combine two adjacent apartments	combination burner	gas burner
combination and	combine apt	for proposed	combination conden	oil burner
renovation of two 2 existing	combine apt.	combination to include demolition and construction	combination detector	retail
combination of 3 existing apartments	combine apts	interior renovation and combination of existing class 'a' interior renovation and	combination fire	suite
combination of an existing class 'a' apartments	combine co-op apartment	interior renovation and combination of existing class 'a' of two 2 existing	combination firealarm	
combination of apartment	combine co-op apt	apartments into one 1 renovation and	combination gas	
combination of apartments	combine dwelling units	combination of existing class 'a' of two 2 existing	combination gas/oil	
combination of apt	combine existing apartments	apartments into one 1 renovation and	combination heat	
combination of apts	combine existing apt	combination of existing class 'a' apartments	combination heat heating	
combination of apts	combine existing apt	renovation and combination of two 2 existing	combination heating	
combination of existing apartment	combine two (2) apt	apartments into one 1 renovation and	combination horn	
combination of existing dwelling units	combine two (2) existing condo	combination of two 2 existing apartments	combination hot water	
combination of existing residential apartment	combine two apartments	renovation for proposed combination to include demolition and	combination hydronic	
combination of the apartments	combine two apartment	and tppn # 03/97	combination nat gas	
combination of two 2 existing apartments	combine two apartments	tppn 3 of tppn 3/97	combination nat gas/oil	
into one	combine two apts	two 2 existing	combination oil/gas	
combination of two apartments	combine two dwelling units	apartments into one 1 apartment	combination speaker	
combination of two existing	combine two existing apartment		combination sprinkler	
	combine units		combination standpipe	
			combination standpipe	
			combination strobes	
			combination water	
			combine automatic smoke	
			combine sewer	
			combined fire	
			combined fuel oil	
			combined gas	
			combined gas-oil	
			combined heat	
			combined oil-gas	
			combined service	

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