

Re: Zoning

Gentrification and Neighborhood Change in New York City's Superfund Communities

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Abstract

The concept of environmental justice rose to popularity in the 10 years. Interestingly, urban sustainability initiatives have often taken on a neoliberal development-centric approach. One outcome of this strategy is a compounding of gentrification as a result of environmental projects. While a large body of research exists around these issues, few sufficiently articulate the interactions and relationships of state and private processes and stakeholders. New York City is home to three (now four) Superfund sites, areas that require federal intervention due to their high levels of contamination and are generally located in historically industrial neighborhoods. This thesis focuses on how the areas around these sites are changing and how policy and governance affects that process. I explore this interaction using a mixed methods approach, employing a survey, spatial analysis, interviews, and participant observations. My findings suggest that gentrification in these neighborhoods occurs in a manner unique to formerly industrial areas. These remediation projects lack sufficient equity measures because of their focus on redevelopment and neoliberal framing of this form of revitalization as a universal good. Furthermore, community meetings are an insufficient countermeasure because of barriers to access and concerns around their actual impact. As such, a shift away from the current neoliberal paradigm could contribute positively to the effort to address these inequities.

Table of Contents

Introduction	6
Background	9
Superfund Policy	9
Zoning	10
Sites	12
Gowanus Canal	13
Newtown Creek	15
Wolff-Alport Chemical Company	17
Background Conclusion	18
Literature Review	20
Neoliberal Responses to Environmental Contamination	20
Gentrification	22
Green Gentrification	24
Research on the Gowanus Canal	25
Summary	27
Methods	29
Survey	29
Maps	31
Interviews	32
Observations	33
Findings and Analysis	35
Survey	35
Findings	35
Summary	41
Maps	42
Figures	42
Median Gross Rent	42
Median Household Income	43
Median Year Structure Built	44
Population Density	45
Analysis	46
Interviews	47
Expert Interviews	47
Resident Interviews	59
Observations	61
Summary of Findings	64
Conclusion	67

List of Figures

Figure 1.1: NYC Zoning Map 13a	11
Figure 1.2: Map of Superfund Sites in New York City	12
Figure 1.3 Map of the Gowanus Canal	13
Figure 1.4: Newtown Creek	15
Figure 1.5: Wolff-Alport Chemical Company.....	17
Figure 2.1: Neighborhood Distribution of Respondents	35
Figure 2.2: Respondents' age distribution.....	36
Figure 2.3 - Residency tenure distribution.....	37
Figure 2.4 - Distribution of responses to “Did you know...?” from all respondents.....	38
Figure 2.5 - Distribution of responses to “Did you know...?” from residents who have lived in the neighborhood for five years or less.....	39
Figure 3.1: 1990 Median Gross Rent near Superfund Sites, adjusted to 2020 dollars	42
Figure 3.2: 2019 Median Gross Rent near Superfund Sites, adjusted to 2020 dollars.....	42
Figure 3.3: 1990 Median Household Income near Superfund Sites, adjusted to 2020 dollars.....	43
Figure 3.4: 2019 Median Household Income near Superfund Sites, adjusted to 2020 dollars.....	43
Figure 3.5: 1990 Median Year Structure Built near Superfund Sites	44
Figure 3.6: 2019 Median Year Structure Built near Superfund Sites	44
Figure 3.7: 1990 Population Density near Superfund Sites	45
Figure 3.8: 2019 Population Density near Superfund Sites.....	45

List of Tables

Table 1.1: Racial and ethnic distribution of respondents..... 36

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Introduction

I was first introduced to the concept of urban environmental remediation and its relationship to gentrification while studying the work of urban revitalization strategist, Majora Carter. Born and raised in the Bronx, she founded four different initiatives to clean up the borough and encourage investment and job growth in the area. In her TED Talk, “Greening the Ghetto,” Carter encourages young people to stay in the Bronx and make sure that it is an environmentally safe and healthy place to live (“Greening the Ghetto - Majora Carter” n.d.). Despite the success of her career as a strategist and consultant, community activists criticize Carter for her focus on development and lack of concern regarding community members and gentrification. Carter’s work in the South Bronx demonstrates how various stakeholders can feel that they are doing the right thing for a community, while having different strategies and goals.

Since my introduction to Majora Carter’s work in high school, I have spent a significant portion of my academic career studying environmental law and policy, the relationship between climate change and cities, and environmental justice more broadly. My aim throughout my studies has been to identify how physical environmental issues and concerns interact with social, political, and economic realities to complicate or exacerbate the challenges facing different communities. Environmental justice is now an integral aspect of environmental policy, but there has historically been very little consideration of the varied impacts of contamination, pollution, and climate change on Black, Latinx, indigenous, and low-income communities in the United States. I chose to focus my thesis on New York because, as a student majoring in Urban Studies while living in New York, this city has provided me with the opportunity to reexamine what I believe and interrogate the built environment around me. Finally, I chose to focus on the possible contradictions of environmental activism; centering environmental work solely on the

ecosystem, without concern for the people affected, has the capacity to alienate. I witnessed this first-hand in my experience with environmental activism, and felt driven to counter it within my own research. It is important to recognize that the effort to pursue a cleaner environment should matter to everyone, but environmental damage affects people in distinct ways.

My thesis explores how different neighborhoods around New York are affected by their industrial histories and continued contamination. While remediating environmental contamination to areas in and around New York is vital to the health of the affected ecosystems and communities, remediation strategies can have unintended outcomes for the communities in these areas, such as gentrification. I am particularly interested in Superfund sites, or sites on the National Priorities List, which are sites that have been prioritized by the federal Environmental Protection Agency (EPA) as “urgent” due to their level of contamination. The EPA designates an area as a national priority in order to expedite clean up and identify responsible parties to pay for the cost of remediation. My thesis focuses specifically on redevelopment as a goal of remediation and the privatization of these projects, which the EPA promoted under the Trump administration and continues to prioritize. In the following cases, redevelopment most often takes the form of new housing development. Redevelopment is a way to incentivize private investment in areas that would otherwise remain under public guidance. While the EPA remains responsible for ensuring that remediation is conducted up to environmental and health standards, municipal processes like tax breaks and credits are also in place to encourage private participation. The EPA’s use of private redevelopment is an example of the broad trend of neoliberal policy solutions over the last fifty years.

For my thesis, I researched the areas surrounding the three Superfund sites located in New York City. The three sites are the Gowanus Canal (Brooklyn), Newtown Creek (between

Brooklyn and Queens), and the Wolff-Alport Chemical Company building (Queens). Some of the affected neighborhoods are Gowanus, Greenpoint, East Williamsburg, Maspeth, and Ridgewood. I aim to explore the relationship between Superfund remediation and gentrification or neighborhood change. Specifically, I examine the relationship between government policies of environmental remediation and the subsequent market processes, and how this interplay changes the characteristics of the affected neighborhoods. The goal of this project is to identify how Superfund designation affects the communities surrounding sites in New York City. I expect to find that Superfund designation is a catalyst for gentrification because of the processes in place to encourage private development in these areas.

Background

The purpose of this section is to provide background information on the policies and sites that play key roles in the following research. This section includes brief descriptions of federal Superfund policy, New York City's zoning policy, and the three Superfund sites located in New York City around which my research is based. For each of these three sites, the Gowanus Canal, the Newtown Creek, and the Wolff-Alport Chemical Company, the background includes an overview of the history of the sites' contamination, the current remediation, and some description of the surrounding neighborhoods' culture and demographics. This context is important to understand the findings of my research.

Superfund Policy

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) was passed in 1980. This law, commonly referred to as Superfund, serves to regulate hazardous sites, identify responsible parties, and navigate remediation. The original fund of \$1.6 billion was sourced from a tax on chemical and petroleum companies and was placed in a trust to subsidize future environmental cleanups (US EPA 2015). The Superfund law differs from other environmental regulations in that it focuses on abandoned or uncontrolled hazards. Historically, it also had a focus on financial liability. The Superfund process includes (1) adding sites to the National Priorities List (NPL), (2) conducting a Remedial Investigation (RI) and a Feasibility Study to identify what steps are required to achieve a satisfactory clean up and how to achieve them, (3) name Potentially Responsible Parties (PRPs), and (4) pursue remedial action (US EPA 2015). According to the EPA's websites, the program's goals are to:

- Protect human health and the environment by cleaning up contaminated sites;
- Make responsible parties pay for cleanup work;
- Involve communities in the Superfund process; and

- Return Superfund sites to productive use.

US EPA 2017

Similar to Superfund sites, brownfields are sites that have been degraded and require some remediation, but are less regulated. The EPA defines a brownfield as “a property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant” (US EPA 2014). Brownfields are the targets for tax credit programs and other policies that limit the liability new developers face for any contamination on the site, which are meant to incentivize redevelopment. While none of the sites I examine are brownfields, they are important to scholarship examining redevelopment as a response to environmental issues.

Zoning

Because the sites I focus on in this thesis are all so heavily contaminated as a result of their respective histories as industrial centers, it is necessary to explain how changes in land use and regulation occur. In New York City, and most other major cities, land use is zoned to allow for certain uses in some areas while limiting use in other areas. For example, it is against zoning regulations to build a power plant in a residential area. In many ways, zoning is an integral part of safe, healthy, and efficient public planning.

In New York City, zoning is overseen by the Department of City Planning (DCP). There are three categories of zoning: residential (R), commercial (C), and manufacturing (M) (DCP n.d.). These three overarching categories of zoning are broken down into subcategories with a number (e.g. M3) based on the kinds of use allowed (DCP n.d.). Generally, a higher number means that more types or intensity of uses or density are permitted (DCP n.d.). For example, R10 zoned areas would allow for residential highrises, but R1 zones only allow for single-family

homes. Industrial areas are zoned by the same scale, but with fewer subcategories, so M3 is the industrial zone that allows for the most intense manufacturing use. The map below shows how zoning is a complex process, with many subcategories, and some areas are zoned for multiple uses. For example, some residential areas are also zoned for commercial use along the street.

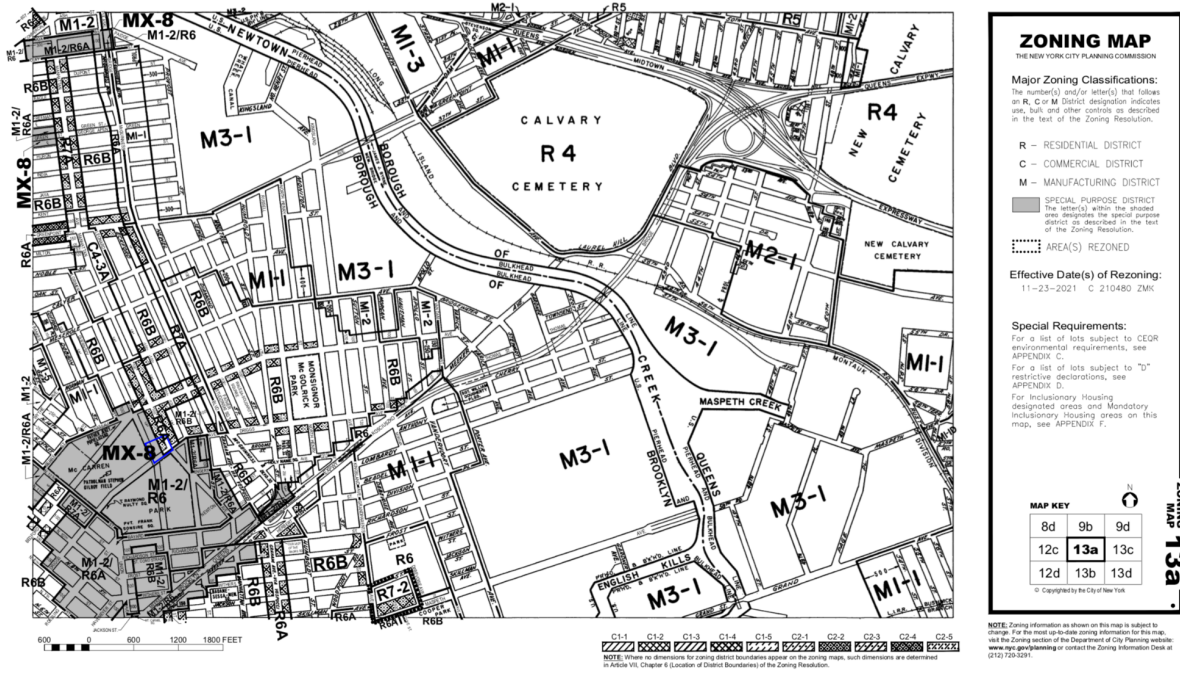


Figure 1.1: NYC Zoning Map 13a. Image source: NYC Department of City Planning

As seen in Fig. 1.1 above, the areas directly adjacent to Newtown Creek (the body of water running through the center) are almost all zoned for M3 use. This map is the current zoning map in use by the NYC DCP. It is important to note that while I refer to the areas around New York City’s Superfund sites as formerly industrial areas, many of these areas are also still actively used for manufacturing purposes.

Zoning regulates how the land in a given area functions, and thus impacts the economy. Under Mayors Bloomberg and de Blasio, the municipality looked to rezonings and upzonings as opportunities to revitalize various areas of New York. Current rezonings in New York City

mostly aim to allow for higher density housing to increase the number of available units for rent. Supporters of zoning reforms argue that housing follows the logic of supply and demand and that denser housing will result in lower housing costs. (Davis 2021). However, research suggests that gentrification may occur as a result of zoning changes because of the subsequent increase in property value (Davis 2021). These two diverging perspectives are represented in the following research as well. Considering the division in the literature and public opinion, more attention should be given to the possible outcomes of zoning changes. This is especially true in New York given both the need for expanded housing and the desire to prevent further gentrification.

Sites

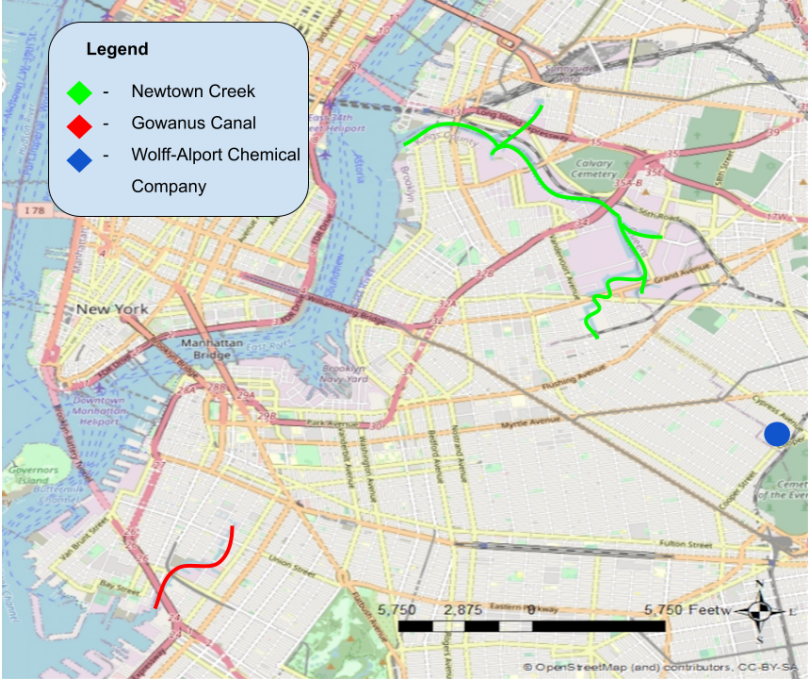


Figure 1.2: Map of Superfund Sites in New York City

Gowanus Canal



Figure 1.3 “A History of Pollution in the Gowanus Canal.” Image source: *The New York Times*, 2013.

The Gowanus Canal was built in the nineteenth century as New York expanded. Originally created to move exports out of Brooklyn, the canal quickly became a dumping ground for much of the local industry. Chemical plants and manufactured gas plants (MGPs) and other manufacturers used the canal to dispose of their runoff and chemical waste. Various industrial businesses continue to operate near the Canal, represented by the brown rectangles in Figure 1.3 above. The surrounding residential areas have also contributed to the high volume of waste and pollution in the canal, due to a longstanding issue of flooding from local sewage systems. The EPA reported, “More than a dozen contaminants, including polycyclic aromatic hydrocarbons, polychlorinated biphenyls and heavy metals, including mercury, lead and copper,” can be found in high concentrations in the Gowanus Canal (EPA 2017). Many of these are known carcinogens

and pose health risks to the surrounding residents and the nearby fisheries located downstream (EPA 2017). These negative impacts may disproportionately burden the low-income residents of the Gowanus area.

During its active years as an industrial area (1880-1940), Gowanus was home to mostly working-class European immigrants who worked in manufacturing (Gould and Lewis 2016). The deindustrialization of Gowanus, the contamination of the canal, and the building of Robert Moses's Gowanus Expressway inspired an exodus of white residents, who were replaced by non-white Hispanic residents (Gould and Lewis 2016). In the 1950's and 1960's, two different public housing projects were built at the north end of the canal, which are still present today (Gould and Lewis 2016). This time period exemplifies the city's disinvestment from poor and contaminated formerly industrial areas. The first wave of private investment in remediation took place in 1978 when the Gowanus Canal Community Development Corporation was formed in the effort to spearhead the cleanup of the canal (Gould and Lewis 2016). By the mid-1990's, nearby Park Slope and Carroll Gardens had become popular enough to inspire white residents to move into Gowanus once again, bringing state and private interest in the canal with them.

Efforts to remediate the pollution of the Gowanus Canal seriously began once the area was declared a Superfund site in 2010 (EPA 2017). At that time, the EPA began a study to (1) assess the level of contamination, (2) determine the sources of contamination, including those that are still actively contributing to the issue, and (3) evaluate methods for site cleanup (EPA 2017). After the completion of this study in 2012, the EPA released a plan outlining the method to decontaminate the canal, including dredging the canal and capping the contaminated sediment (EPA 2017). The remedial actions chosen for the Gowanus Canal began in 2020 and are currently underway (EPA 2017). Following the release of their plan for remediation, the EPA

issued orders to the parties legally responsible for remediation, including National Grid, a gas company liable for the manufactured gas plants (MGPs), and the City of New York, responsible for the construction of tanks to address the issue of sewer overflow (EPA 2017).

Newtown Creek



Figure 1.4: Newtown Creek. Image source: Wikipedia

Newtown Creek is an estuary of the East River that divides Brooklyn and Queens. It runs adjacent to several neighborhoods in the two boroughs, including Greenpoint, East Williamsburg, Maspeth, Sunnyside, and Hunter's Point. Before the heavy industrialization of the area, the creek was connected to a number of wetlands and marshes (EPA n.d.). The creek was subsequently filled and engineered to serve the needs of the local industry. Starting in the mid-1800s, the shores of Newtown Creek became home to oil refineries, chemical plants, factories, and other industrial facilities (EPA n.d.). The creek was further contaminated when the City began dumping raw sewage into it in 1856 (EPA n.d.). The creek was also used as one of the main ports in New York, becoming exceptionally busy during the second World War (EPA n.d.). The creek also receives the runoff from upstream contaminated sites (EPA n.d.).

Newtown Creek was added to the National Priorities List in 2010 and the Remedial Investigation began later that year (EPA n.d.). Given the size of the site, the EPA divided it into three operable units (OUs), conducting different studies and actions for each one (EPA n.d.). The studies accomplished so far have tested the sediment along the bottom of the creek and the water, along with samples from the surrounding area (EPA n.d.). The goal of these tests is to assess the ecological and human health risks (EPA n.d.). The EPA has identified several Potentially Responsible Parties (PRPs), including British Petroleum (BP), Chevron, ExxonMobil, Shell, National Grid, Phelps Dodge Refining Corporation, AMTRAK, LIRR, ConEdison, and the City of New York (EPA n.d.). As of now, the EPA has not conducted any remedial actions (EPA n.d.).

The most active organizations addressing the Newtown Creek site are based in North Brooklyn, specifically in the Greenpoint area. Greenpoint is the neighborhood of Brooklyn with the most area adjacent to the creek. Historically, Greenpoint has been a working-class neighborhood home to a large Polish population. In her 2009 book *The Gentrification and Inequality in Brooklyn: New Kids on the Block*, sociologist Judith DeSena describes the neighborhood of Greenpoint as rich in social organization, mostly through religious, ethnic, or civic organizations (23). Interestingly, DeSena notes that new residents have formed their own community organizations in Greenpoint, rather than join pre-existing ones (DeSena 2009). She cites Greenpoint Waterfront Association for Parks and Planning (GWAPP), formerly called Greenpoint Williamsburg Against the Power Plant, as one of these gentrifier-created organizations (DeSena 2009:27). GWAPP later evolved into North Brooklyn Neighbors, whose acting executive director is one of the experts I interviewed for this project. Evidently, community organizing around land use and environmental issues was and continues to be controversial in Greenpoint.

Wolff-Alport Chemical Company

Figure 1.5: Wolff-Alport Chemical Company. Image source: Google Maps

The Wolff-Alport Chemical Company is located in Ridgewood, Queens, near the border of Bushwick, Brooklyn. The site is approximately 0.75 acres, situated between Cooper Ave, Irving Ave, and Highland Park. The Wolff-Alport Chemical Company no longer exists, as the company stopped operating their facility in 1954 and has since been replaced by a deli, office space, residential buildings, auto shops, and warehouses. When it was operational, from the 1920s until 1954, the company processed monazite sand extracted from the Belgian Congo (US EPA n.d.). The byproduct of processing monazite sand, thorium, is a weak radioactive element. During the Wolff-Alport Chemical Company's active years, they disposed of thorium in the local sewer system and possibly by burial on the site in Queens (US EPA n.d.).

The site was originally tested for radiological contamination in 1988 but was found to be below the regulatory limit at the time and remained untreated until a 2012 survey concluded that the contamination levels could pose a health risk to workers and pedestrians who frequented the site (US EPA n.d.). The site was added to the National Priorities List in 2014 (US EPA n.d.). Even before the area was designated a Superfund site, the EPA began adding a shielding layer of

rock, lead, and concrete to the buildings, sidewalks, and ground near the site in order to prevent the spread of gamma radiation (US EPA n.d.). This proved to be between 60% and 95% effective (US EPA n.d.). The EPA and the local health departments also conducted testing to measure the size of the affected area, and found that the levels of radiation were insignificant farther than a half-mile from the site of the original processing plant (US EPA n.d.). Since then, the EPA conducted the necessary remedial investigation and feasibility study (US EPA n.d.). The remediation, which has yet to begin, will require affected buildings to be vacated and demolished, the contaminated soil to be extracted, and the affected sewers to be cleaned (US EPA n.d.).

Because the Wolff-Alport Chemical Company site is located between two neighborhoods (Ridgewood and Bushwick), on the border of two boroughs, it is more difficult to characterize the area surrounding this site than the previous two. There is also less community activism surrounding this site, perhaps due to its location as peripheral to the two neighborhoods. Consequently, the Wolff-Alport site is addressed throughout my research much less than the Gowanus Canal and Newtown Creek.

Background Conclusion

These three sites serve as an ongoing reminder of New York's recent industrial history. While the city's economy has shifted, the contaminants left behind by factories and refineries remain. These sites of contamination are severe enough to require federal intervention, which is generally reserved for only the worst cases of environmental degradation. Now, the neighborhoods around these contaminated sites are changing as well. Like many other neighborhoods across the boroughs, Gowanus, Bushwick, Greenpoint, Ridgewood, and Hunters

Point have all undergone shifts in the demographics of residents and the level of investment by the real estate industry. This shift is often referred to as gentrification, a topic which will be discussed in the following section.

Literature Review

Neoliberal Responses to Environmental Contamination

In an article describing reforms to the Comprehensive Response, Compensation, and Liability Act (CERCLA), professor and researcher Richard Hula describes how the goal of environmental policy has shifted toward economic development since the 1990's. Initially, CERCLA, more commonly referred to as the Superfund program, was passed to increase public health and address sites that posed risks to human health (Hula 2001). Under the Clinton administration, certain aspects of CERCLA were reformed to reduce some of the initial liability measures included in the act (Hula 2001). Hula points out that the economic liability aspect of the Superfund policy, which required the owners of a contaminated property to take financial responsibility for remediation costs, "generated a severe depression of the real estate market for properties that have potential contamination." (Hula 2001). To counter this depression of the market, the EPA enacted a number of tax credit and grant programs to encourage investment in these sites. This impact of the policy is important to note because it highlights the relationship between the regulations around contaminated sites and the interests of the real estate market and developers. This reform resulted in an increase in the number of Superfund sites remediated each year. However, this increased cooperation between public and private sectors also represents a shift towards neoliberal policy strategies.

Neoliberalism refers to a political and economic philosophy that encourages a free market rather than government regulation (Steger and Roy 2010). Neoliberal policy generally favors private investment over government spending, in an effort to decentralize state influence (Steger and Roy 2010). Neoliberalism rose to popularity in the 1980s and 90s following the government-investment welfare state era that lasted from the end of World War II until the global

recession of 1982 (Steger and Roy 2010). Neoliberal governance also focuses on privatization of state services and programs, which proves to be especially relevant for the case of environmental policy and neighborhood change.

In their research on New York City's High Line, scholars Steven Lang and Julia Rothenberg explore the role of sustainability frameworks in a new wave of neoliberal urban growth. Lang and Rothenberg build on urbanist Harvey Molotch's theory of the urban growth machine (1993). They highlight that the primary goal of the High Line was to catalyze economic growth, with ecological benefits as an additional benefit (Lang and Rothenberg 2017). Under neoliberal urbanism, sustainable development projects like the High Line are portrayed as "a public good that benefits all" (Lang and Rothenberg 2017:1747). Accordingly, green urban growth evades the same criticism that other forms of urban development face. These projects also receive significant support from local governments. Lang and Rothenberg write, "In New York City, the use of government-backed, property-led redevelopment schemes that use planning and rezoning tools to harness private capital to pay for the creation, management, and ongoing maintenance of parks and public spaces is a growing trend." (Lang and Rothenberg 2017:1747). They go on to note that community organizations are sometimes forced to become partners in these initiatives "in order to survive in a neoliberal urban climate," and ensure these projects result in positive outcomes for various stakeholders (Lang and Rothenberg 2017:1748). As will be discussed in the Findings and Analysis section, this cooperation of state and private entities is true of the areas surrounding New York City's Superfund sites as well.

Gentrification

The term gentrification was first coined by British-German sociologist Ruth Glass in 1964 in her research on urban land use in London. Since then, gentrification has become one of the most widely discussed, and contested, topics in urban studies. Simply defined, gentrification refers to an influx of wealthy residents and new upscale businesses in a neighborhood that has historically been underserved or disinvested. This shift of capital to the area results in increased cost of living, developers' purchasing of land, and displacement of longtime residents.

Gentrification usually follows racial divisions because of the legacy of racial discrimination in the American housing market, such as white suburbanization, redlining, and predatory lending targeting Black Americans. As such, the negative effects of gentrification disproportionately affect Black communities. Critics of gentrification highlight this inequity in harm as one of the more insidious outcomes of this process. On the other hand, proponents of gentrification focus on the accompanying economic revitalization as a net-benefit to a city.

The preeminent theory behind the process of gentrification is the rent gap theory articulated by Neil Smith in his 1979 article "Toward a Theory of Gentrification: A Back to the City Movement by Capital, Not People." Smith theorized that gentrification is the result of a gap between the actual profit being gained from property, the capitalized ground rent, and the possible profit that could be gained, the potential ground rent (Smith 1979). While this observation is relatively straightforward, Smith's theory points to a shift in urban theory more broadly. During the 1970s and 1980s, urban scholars began to rethink the traditional neoclassical theory of the city as a product of consumer preference (Lees, Slater, and Wyly 2008). Scholars such as David Harvey began to articulate the nature of the city as inherently exploitative, rather than as the result of individual choices and natural processes (Lees, Slater, and Wyly 2008).

Building on this shift, Smith sought to “explain why some neighborhoods are profitable while others are not.” (Smith 1979, as cited in Lees, Slater, and Wyly 2008:50). Gentrification is not an inevitable process of revitalization that benefits all residents, it is the product of the exploitation of land and the communities that reside there.

In their foundational book *Gentrification*, Loretta Lees, Tom Slater, and Elvin Wyly ask the important question: “Who gets to profit from capitalized ground rent?” (2008:72). They highlight that gentrification is inherently the product of political struggles and stratified class relations (Lees, Slater, and Wyly 2008). Consequently, gentrification should be looked at with a critical social lens, as it is not an economic process distinct from social concerns. In the 1950s and 60s, the American real estate market realized suburbanization as the most profitable spatial project. Gentrification is the most recent step in the structuring of spatial capital (Lees, Slater, and Wyly 2008). As such, the social costs of gentrification (such as displacement, eviction, and homelessness) are not isolated to any one locale, but endemic to a capitalist structure that prioritizes the accumulation of capital over the needs of communities and residents (Lees, Slater, and Wyly 2008).

Gentrification has also been conceptualized as the outcome of neoliberal urban policy. In a study of neighborhood change in Newark, New Jersey, researchers Kathe Newman and Philip Ashton identify neighborhood revitalization and subsequent reliance on the private sector as a case study of neoliberal urbanism. They write that “policymakers have taken gentrification to heart by adopting it as an expected revitalization strategy” (Newman and Ashton 2004:1153). They also note that this strategy may be portrayed as an effort to support low-income residents in disinvested areas, but in practice results in the destruction of public housing and reduced affordability for the very poor (Newman and Ashton 2004). This framework of revitalization and

community reinvestment echoes that used around Superfund sites and remediation through privatization, the gentrifying impacts of which are explored in the following section.

Green Gentrification

Environmental gentrification, also called “green gentrification,” is defined as the result of sustainability initiatives (“greening”) that increase neighborhood desirability and property values, and consequently displace the long-term residents who can no longer afford to live in the area (Curran and Hamilton 2012; Gould and Lewis 2016). Greening can refer to the remediation (cleanup) of polluted sites or the addition of parks and green spaces to an area. Municipal offices and government officials often support these initiatives because of the positive effect on property values and the economy, in addition to the recreational and health benefits that come with greening (Anguelovski 2016; Essoka 2010). Environmental hazards, like brownfields and Superfund sites, are especially promising opportunities for redevelopment because of their low property values and location in low-income, disinvested communities of color with deteriorating infrastructure (Essoka 2010). As such, these areas are targets for urban renewal and revitalization projects that aim to increase tax revenue and economic growth despite concerns regarding the equitable distribution of these positive outcomes (Anguelovski 2016; Essoka 2010).

While already-gentrified areas may employ greening initiatives in order to increase property values and amenities available to residents, green gentrification refers to the displacement that follows the greening or remediation of an historically degraded area (Gould and Lewis 2016). Land use planning, zoning, real estate practices, and other processes that perpetuate residential segregation also contribute to the uneven distribution of environmental amenities and hazards (Essoka 2010; Gould and Lewis 2016). Environmental hazards and

degraded sites are often referred to as locally unwanted land uses, or LULUs (Anguelovski 2016; Essoka 2010). This uneven distribution of LULUs generally falls along lines of race and class, and is referred to as environmental racism (Gould and Lewis 2016; Sze 2007). Accordingly, improvement of these unwanted land uses should prioritize affected communities. The issue of green gentrification complicates this.

Research on the Gowanus Canal

The Gowanus Canal is one of the most heavily studied areas of New York in relation to green gentrification and environmental degradation. The Canal is situated close to three neighborhoods that have been gentrifying for several years: Park Slope, Carroll Gardens, and Boerum Hill. Consequently, the Gowanus neighborhood has been under close speculation since before its designation as a Superfund site in 2010. The Canal is a point of contention for environmentalists and residents because of its standing as one of the most toxic sites in New York City, and the United States. Due to its position in Brooklyn as an historic hub for industry and current prime real estate for the ongoing gentrification of the borough, both activists and developers look to Gowanus for remediation and development. While the two can go hand in hand, as demonstrated in the previous section, the city of New York has historically favored development over remediation. When the EPA moved to designate the Canal as a National Priority, then-mayor Bloomberg resisted the effort and put forward an alternative city-led initiative. He argued it would resolve the contamination problem more quickly because of supposed bureaucratic red tape that would accompany EPA intervention. (Gould and Lewis 2016). Given Bloomberg's focus on privatization, his resistance to EPA intervention may suggest that Superfund designation could have a slowing effect on gentrification.

This theory is further explored in Hamil Pearsall's research on green gentrification in Gowanus (2013). Pearsall argues along the same line as Bloomberg, that Superfund designation itself has a cooling effect on gentrification. He describes the designation as a "departure from anticipated neoliberal urbanism," which directly counters the previous framing of environmental policy reforms (Pearsall 2013:2308). However, most of the other literature regarding Gowanus and green gentrification more broadly, as well as the evidence discussed in the Findings and Analysis section, suggest that Superfund designation is likely insufficient, if effective at all, to slow the gentrification of environmentally degraded neighborhoods in New York City.

In their book *Green Gentrification*, Gould and Lewis demonstrate that factors such as education, median income, and homeownership have been increasing in the neighborhoods surrounding the Gowanus Canal at a greater rate than the rest of Brooklyn (2016). Between 1990 and 2014, the percentage of residents in Brooklyn with at least a bachelor's degree rose 15%, while in the Gowanus area specifically that same group of residents rose by 31% (Gould and Lewis 2016:105). Similarly, median home value rose 66% in the borough during that same time period, while values rose 221% percent in Gowanus (Gould and Lewis 2016:106). This points to an exacerbated gentrification in Gowanus as compared to Brooklyn overall.

Resistance to the green gentrification of Gowanus most often takes the form of community advocacy. While residents and community stakeholders are encouraged to participate in decision-making through avenues like the EPA's Community Advisory Group (CAG) in the case of the Gowanus Canal, public participation does not always lead to equitable outcomes or democratic processes (Miller 2016). Furthermore, the invitation to participate in community meetings does not always lead to social inclusion, as participants with more social privilege are often the loudest voices in the room (Miller 2016). In the case of Gowanus, specific groups that

had less representation in the CAG meetings included renters, public housing residents, newer and younger residents, and people who lived closer to the canal (Miller 2016: 290). Changes in the neighborhood also affect the stability of residents' lives, which can in turn affect their ability to participate in community planning meetings like CAGs (Miller 2016: 291). As such, the very processes gentrifying this area have also contributed to the mitigation of resistance to gentrification. Moreover, those who stand to benefit from changes in the neighborhood, such as homeowners who would benefit from increased property values, are more likely to be involved in community planning (Miller 2016). This is not to say that community concerns should not be of importance to relevant government agencies, but rather, that there are significant barriers to participation that should be addressed in order to achieve equitable outcomes for cleaning and greening initiatives.

However, other scholars argue that the political and social processes behind Superfund designation can create new spaces for community building (Curran and Hamilton 2012). In her study of the Gowanus community, Jessica Ty Miller found that some participants did not want the Canal cleaned up because of the gentrification they expected it to bring to the neighborhood (2016:291). This contention inspires the scholarship surrounding making cities “just green enough,” or pursuing initiatives that do not accelerate gentrification but also increase the quality of life in historically disinvested neighborhoods (Curran and Hamilton 2012; Wolch, Byrne, and Newell 2014).

Summary

From this examination of the literature related to this thesis, it is clear that policy, gentrification, and neighborhood interact to create new and unique challenges for historically

disinvested and contaminated communities, specifically in New York City. While there are some dissenting opinions, the majority of the previously mentioned authors view gentrification as the result of neoliberal governance and the subsequent market processes. Ecological concerns and greening projects often result in an exacerbation of gentrification. The Gowanus Canal has been the subject of a large body of research, more so than the other two Superfund sites in New York City. Additionally, community participation is an important aspect of the Superfund process, but is certainly not a significant protection against gentrification. These themes will all reemerge in the Findings and Analysis section below.

Methods

This section will describe my research methods. The four categories of data collection I used were a survey, mapping, interviews, and observations. I chose to use these four methods because I hoped to have a diverse range of data to work with. By using both qualitative and quantitative methods, I was able to learn more about the areas I researched than I would have using just one or two methodologies. Although the data gathered were not perfect, I was able to make some conclusions regardless because of the diverse methods.

Survey

One of the four of the methods used in my research was a short survey on the Google Forms platform. It can be accessed [here](#). The survey does not collect names or email addresses that are visible to me. Despite this level of anonymity, I did receive one complaint about my choice to use Google and market my survey as anonymous. I chose to use a survey as one of my methods because I hoped to reach a larger number of people than I would have if I were asking participants to agree to an interview. Similarly, I tried to keep the survey short to encourage participation. I also felt that a survey that asked for some qualitative information would be useful for my specific research because I was curious about the varying perspectives on gentrification. I also wanted to use a survey to gather data because I felt that I could make more assumptions about residents and their experiences with a larger number of participants than I would have received doing interviews alone.

In the survey, I ask respondents a few identity-based questions, such as in which of the relevant neighborhoods they live, their age, their race, and their ethnicity. The next few questions address gentrification, although I intentionally avoided using that word so as not to guide

answers or discourage anyone from responding. I also avoided using the word “Superfund” for the same reasons, asking instead if respondents knew about an “environmental hazard” in their neighborhood. I distributed this survey by sending it to community organizations, sharing it during meetings I attended, and on social media. The community organizations I sent the survey to were mostly ones that I had reached out to for interviews, as well as some organizations that I found to be working on related issues. The survey was sent either in an initial email requesting an interview or in a follow up email after interviews. Very few responses were recorded after asking these organizations to send out the survey, either because they never sent out the survey or the recipients did not fill it out. In the online community meetings I attended for observations, I sent the link to the survey and a small description of my research to the attendees. This yielded few responses as well, about 5-10 at each meeting. The most effective mode of distribution was sending the survey to a North Brooklyn media platform called Greenpointers, which has an Instagram following of almost 80,000 people. After reaching out through email, they shared a post to their Instagram story with a link to my survey. This yielded about 140 responses. The other social media platform I used to distribute the survey was Reddit, which yielded about 15 responses after I posted it to the Queens and Brooklyn pages.

Because the vast majority of respondents to the survey found it through one neighborhood-based organization, the results are somewhat skewed by the nature of the predominant identities of Greenpointers’ followers. Their audience is mostly white professionals between the ages of 25 and 35 who follow the page for more information about events and news in the neighborhood. This is strongly reflected in the survey’s results, as seen in the survey findings section.

Maps

The maps I created show the areas surrounding the three Superfund sites and the demographic changes in these areas. I chose to use maps because of the site-specific nature of my research question. The maps I created are intended to serve as a means to visualize neighborhood change. I chose not to use a table because a map is a more engaging and, often, a clearer method of presenting demographic data. I chose to visualize the data by census tract, selecting only the tracts that directly abut the Superfund sites. I hoped to articulate changes as close to the site as possible, although this does have the drawback of limiting the amount of information that is shown. While the survey and subsequent resident interviews referred to the Superfund-affected areas by neighborhood, I felt that census tracts were a more consistent geographical area than a neighborhood, given the subjective nature of a neighborhood's borders.

I produced all maps using ArcGIS. The data represented in the maps is from the 1990 Census and the 2015-2019 American Community Survey 5-year estimates. The data was collected through the Social Explorer website. While it would have been ideal to use a consistent data source, such as comparing ACS data to ACS data, I was not able to access ACS data from 1990 and the 2020 Census has not been published in its entirety as of yet. Additionally, the datasets that I did acquire were not perfect. The 2019 ACS dataset did not have figures for some of the fields for certain tracts I was hoping to map. As a result, some of the tracts that appear on the 1990 maps are missing from the 2019 maps. Despite these inconsistencies, I felt that the data I was able to map is reliable and effectively demonstrates some aspects of how the areas surrounding Superfund sites have changed between 1990 and 2019. Additionally, there is a

consistent error on the bottom of many of the 2019 maps that states the data is sourced from the 1990 Decennial Census. For each of these maps, the data is from the 2019 ACS 5-year estimates.

Interviews

The most substantive portion of my research came from the interviews, mostly because they offered a more in-depth and holistic view of the issues. While the survey and maps were important for a broader, quantitative method of data collection, they did not offer the same depth as the interviews. My interviews were split into two categories, expert interviews and resident interviews. The expert interviews were conducted with individuals working in Brooklyn on issues related to my research. Resident interviews were conducted with individuals who reached out through the survey, and had little or no connection to the Superfund site in any professional or personal capacity.

Expert interviewees were chosen based on their affiliation with community organizations working within the area. I selected organizations working specifically on environmental issues, tenants rights issues, and gentrification. The choice to speak with staff at organizations in the neighborhoods of focus was partially due to the specific knowledge of the chosen interviewee, as well as to mitigate my concern around issues of compensation for helping with my research. I can safely assume that these individuals would consider their interviews with me as part of their job because these interviews were conducted under the purview of their work and took place during the work day. The exception to this is the member of Voice of Gowanus with whom I spoke, as Voice of Gowanus is a volunteer organization. The others are all non-profit organizations with full time staff. I spoke with three individuals affiliated with Voice of Gowanus, Brooklyn Movement Center, and North Brooklyn Neighbors.

The other portion of interviews I conducted were with residents of North Brooklyn. In the survey for this research, I asked respondents if they were interested in an interview. They then had the option of providing their email address. I followed up with all of the respondents who provided email addresses and provided an opportunity to sign up for a short meeting. Most of these interviews took place during the workday, which definitely benefited individuals with flexible schedules and interviewees who work from home. I offered no incentives or compensation for doing the interview. Interviewees were informed that they were free to stop the interview at any time and I asked permission before recording.

Transcriptions were done both by myself and the transcription services Trint and Rev. Interviews were coded by hand and using the software NVivo.

Observations

For this research, I observed two community meetings concerning environmental contamination. Both were open to the public and took place in the evening on weekdays over Zoom. The first meeting was the Newtown Creek Community Advisory Group (CAG) meeting. The second meeting was a community meeting on the NuHart state Superfund site located in Brooklyn. Both meetings had representatives from state and local government agencies, community organizations, developers, and the residential community. My goal in observing these meetings was to identify residents' sentiments towards the governmental representatives and developers and about the projects in general. I also wanted to assess the degree to which the meetings felt accessible to outsiders like myself, and if, as a participant, I felt as though these meetings were an avenue through which one could pursue meaningful change in the community. I also shared the link to the survey in the chat of these digital meetings.

Findings and Analysis

Survey

The survey received 165 responses. At least 130 of these responses came from people who found the survey through the Greenpointers Instagram page, which, as mentioned above, is apparent in the data. The following data are a few of the more interesting aspects of the survey's results, not the results in their entirety. Some of the data is visualized in charts, some in tables, and some results are just described without graphics.

Findings

Neighborhood Distribution of Respondents

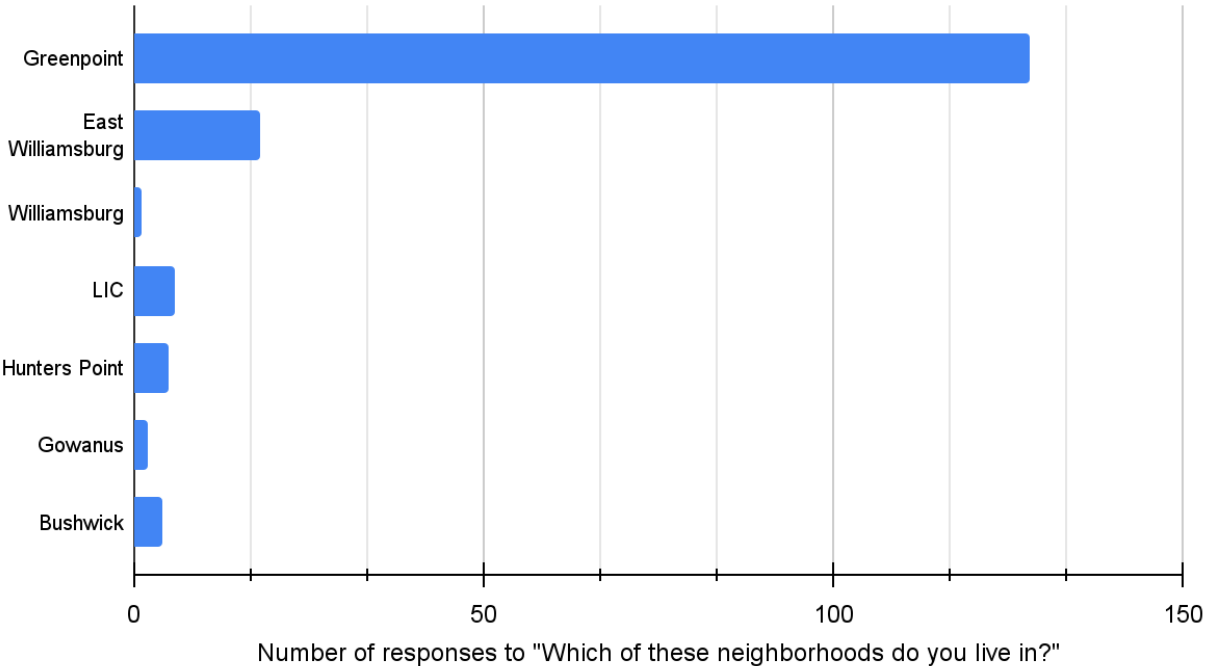


Figure 2.1: Neighborhood Distribution of Respondents

Figure 2.1 above shows the number of respondents by neighborhood. The majority of respondents reported living in Greenpoint, with 128, or 78%, of the respondents. The next largest category is East Williamsburg with 18 respondents having selected it. The rest of the neighborhoods represented here have about 5 respondents from each. As stated in the methods

section, the survey received the most responses from Greenpoint residents because the survey reached the widest audience when it was shared to the Greenpointers Instagram page. The responses are informative nonetheless.

How old are you?
165 responses

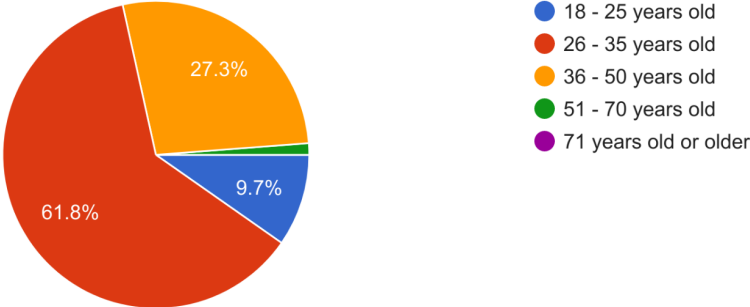


Figure 2.2: Respondents' age distribution

As seen in the figure above, the majority of the respondents were between the ages of 26 and 50, with only about 10% of the respondents outside of that range. This is likely due to the fact that individuals over the age of 50 are probably less inclined to fill out an online survey than to speak to someone in real life, and individuals under the age of 25 are most likely not part of the audience reached by Greenpointers on Instagram.

Respondents were also asked how they would self-identify their race and/or ethnicity. This question was formatted as a checklist, so respondents could choose one or more options, but they could also write in a unique response in an "Other" category.

Racial and Ethnic Distribution of Respondents		
Race or Ethnicity	Number of Respondents	Percent of Respondents
White alone	119	73.0%

Black alone	4	2.5%
Asian alone	12	7.4%
Native American or Pacific Islander alone	2	1.2%
Latinx alone	10	6.1%
Middle Eastern or Jewish	6	3.7%
2 or more races or ethnicities selected	10	6.1%

Table 1.1: Racial and ethnic distribution of respondents

Table 1.1 above shows the number of percentage and number of respondents by race and ethnicity as self-reported. The “Middle Eastern or Jewish” category was not originally on the survey, it is a result of respondents writing in the “Other” response category. The “2 or more races or ethnicities selected” results are made up of respondents who checked two or more categories as well as the respondents who wrote in mixed or biracial in the “Other” response. As seen in the table above, the majority of respondents stated that they identified as white, with a relatively balanced distribution between the other categories. The survey received a low number of respondents who identified as Black and Native American or Pacific Islander.

How long have you lived in this neighborhood?
165 responses

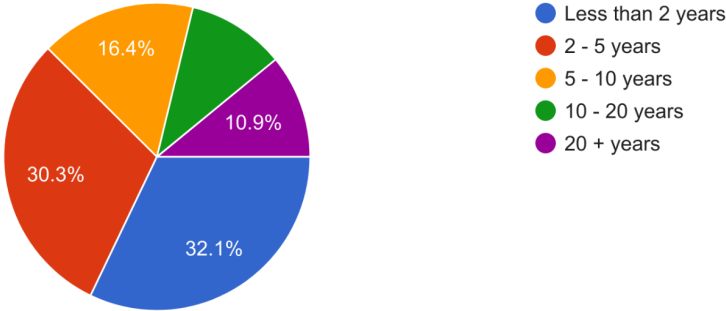


Figure 2.3 - Residency tenure distribution

The chart above shows the distribution of the tenure of respondents' residency in the neighborhood where they currently reside. The majority of respondents have lived in their neighborhood for 5 years or less. However, the survey did receive more responses from long-term residents than expected.

Did you know there is a site of serious environmental contamination in your neighborhood? - All responses

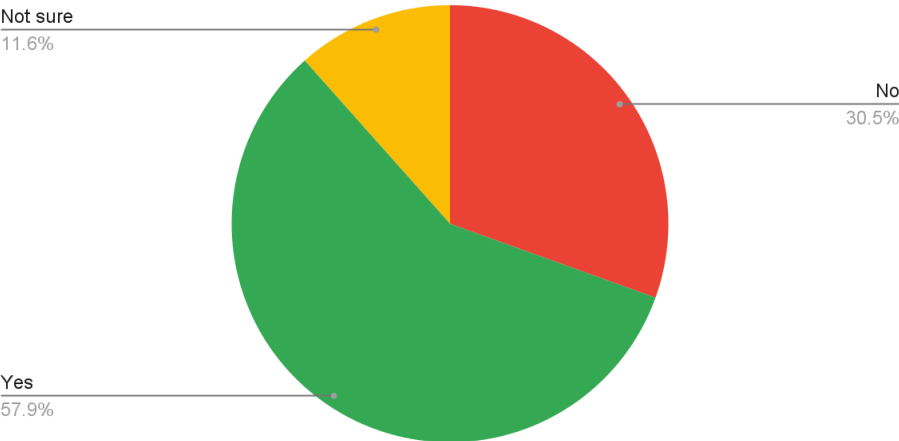


Figure 2.4 - Distribution of responses to "Did you know there is a site of serious environmental contamination in your neighborhood?" from all respondents.

Did you know there is a site of serious environmental contamination in your neighborhood? - Responses from residents who have lived in the neighborhood for 5 years or less

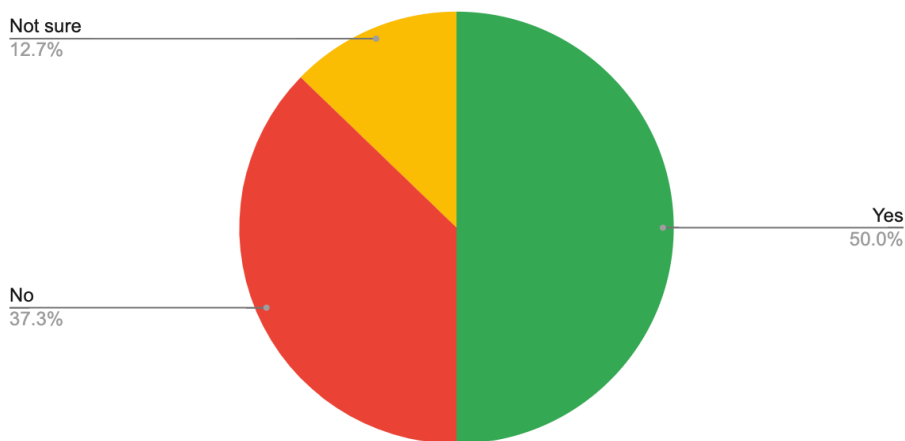


Figure 2.5 - Distribution of responses to “Did you know there is a site of serious environmental contamination in your neighborhood?” from residents who have lived in the neighborhood for five years or less.

Figures 1.4 and 1.5 demonstrate the proportion of respondents who are aware of the contamination in their area. Of all respondents, 58% knew of the contamination, and of newer residents, 50% knew of it. I chose to isolate the responses to this question from newer residents because of a concern from one of my expert interviewees about new residents coming into the neighborhood without much knowledge of the contamination in the area. By juxtaposing these two charts, it is clear that while the share of residents who do not know about the contamination is greater among new residents, it is not a drastic difference.

The survey also asked respondents “Have there been changes in the neighborhood during the time that you've lived here? What were they?” The majority of the responses (82%) specifically stated that the neighborhood was gentrifying or mentioned some aspect of gentrification, such as increased cost of living, more construction and development of luxury housing, the closure of small businesses, and changes to the size, density, and makeup of the

population. Some respondents chose not to answer this question. The responses that did not mention any aspect of gentrification mentioned changes they attributed to COVID-19, concerns about safety and the unhoused population, parks, and parking availability.

This question also offered some interesting testimonies, which serve as a valuable supplement to the resident interviews. Although none of the resident interviewees were long term residents, multiple survey respondents were. The sentiments surrounding changes in the neighborhood were mixed. Some of these respondents, who reported that they had lived in their neighborhood for 20 years or more, felt that the neighborhood had changed for the worse. One respondent wrote, “a lot of hipsters ruined my childhood neighborhood,” and another described the current Greenpoint as “dystopian.” One respondent described the loss of Greenpoint’s culture and the contradictions of gentrification:

My family goes back generations in Greenpoint. In my lifetime its [sic] gone from crack houses to coffee houses. Being from north brooklyn [sic] used to mean something. We had our own accent. We had our own codes. We had some deep connections. We made our lives happen within walking distance of where we lived. For those of us that are still here, its [sic] bizarre. People without a culture of their own pay millions to live in stacked suburbia high rise residential on top of toxic waste sites and "discover" an organic cold brew cbd infused coffee shop thats [sic] made to look old but has barely been there a few months. Its [sic] weird.

Other responses echo this feeling of alienation from the community because of gentrification as well.

However, some residents saw positive aspects of the changes as well. One respondent stated that they now have access to the types of stores and restaurants that they used to have to come into Manhattan to find. Another resident described how the neighborhood has changed as follows:

I was born in Greenpoint. Growing up it was desolate, and no one wanted to visit. Now it's super popular and full of great things to do with a more diverse community than in the 80s. Unfortunately, that also means [rents] have gone up to the detriment of locals who were mostly working class.

These residents seem to feel that despite the niceties that development may bring, it is a complex process with costs to their long-time community. Though none of the responses specifically stated this, it is important to note these positive aspects are not available to long-term residents who cannot afford to patronize upscale businesses or those residents who have been displaced. This understanding of gentrification as a duality with positives and negatives was repeated by some of the residents interviewed.

Summary

Overall, the results from the survey did not add much new information to the body of data. The responses mostly confirmed that residents of the neighborhoods listed on the survey felt that their communities were gentrifying, and most felt neutrally or negatively about the changes. It is interesting to note here that most respondents could be categorized as gentrifiers, as the respondents were predominantly white, young, and had moved to the area in the last five years. Even given their status as gentrifiers, many respondents recognized the changes they were contributing to, at least partially. This is true of the resident interviews as well, the findings of which are discussed later on. Additionally, Most respondents knew at least a little bit about the sites of contamination near them. None of the survey results indicated that residents felt that there was any kind of connection between environmental issues and the gentrification they saw taking place around them. Given that the specific area of focus for this project includes specific policies and municipal processes, it is reasonable to expect that an average resident will have less to say than an individual who works on issues surrounding New York's Superfund sites. However, the data from this survey makes it possible to identify the baseline understanding of gentrification in these areas and how some residents perceive it.

Maps

Figures

Median Gross Rent

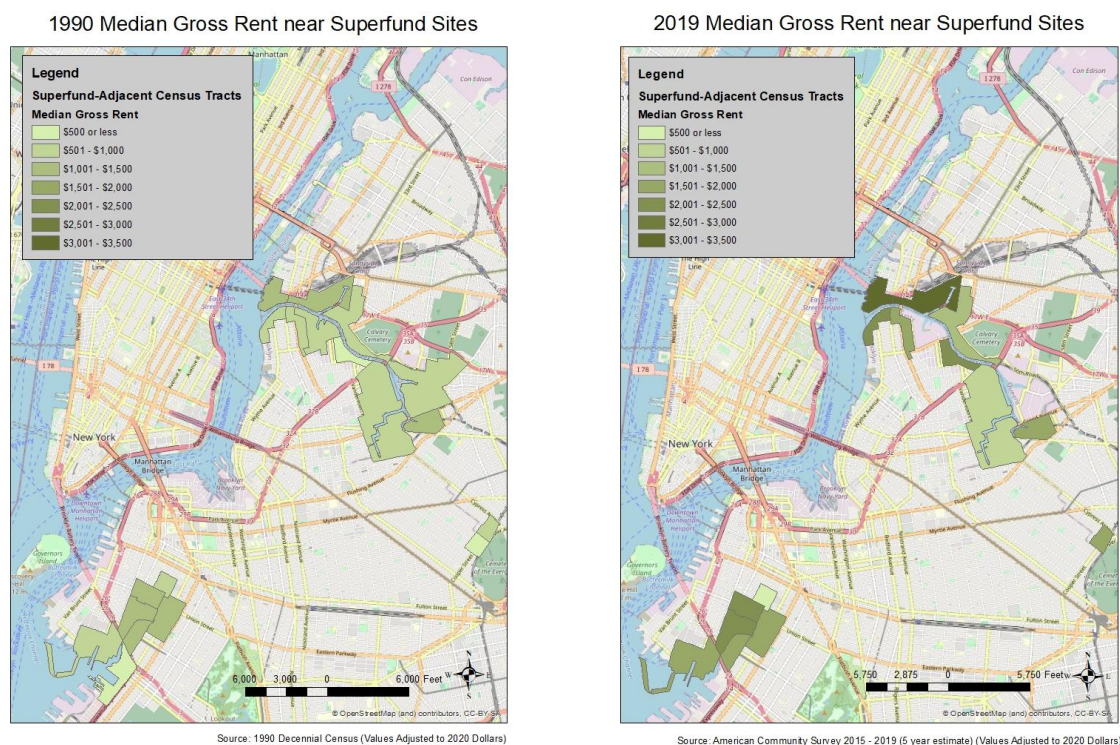


Figure 3.1: 1990 Median Gross Rent near Superfund Sites, adjusted to 2020 dollars.

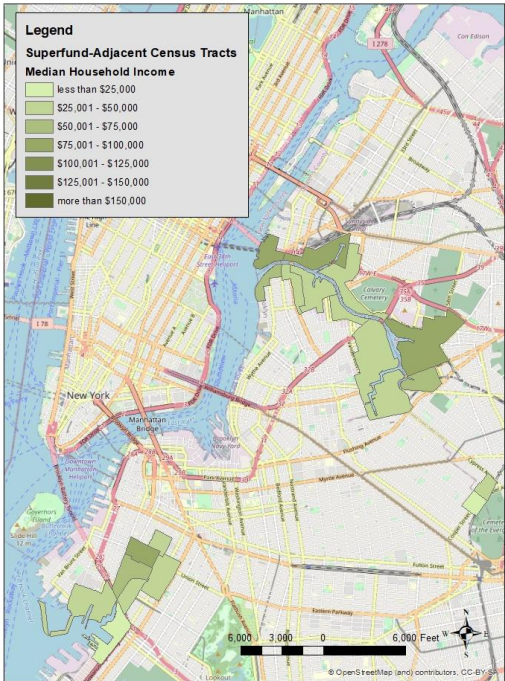
Figure 3.2: 2019 Median Gross Rent near Superfund Sites, adjusted to 2020 dollars

Figures 2.1 and 2.2 (above) show the median gross rent in census tracts abutting the three Superfund sites in New York City. These figures demonstrate an increase in almost all of the tracts, with the exception of some tracts that remained consistent and one tract at the northern end of the Gowanus Canal, which actually decreased since 1990. It is important to note that the values used in both of these maps are adjusted to 2020 dollars. As such, the increase in rents is not only a symptom of inflation but of a greater issue of rising rents. This set of maps articulates a jump in the cost of housing since 1990. This is important to keep in mind, as much of the

interview findings touch on the need for affordable housing and investment in public housing, especially in these areas.

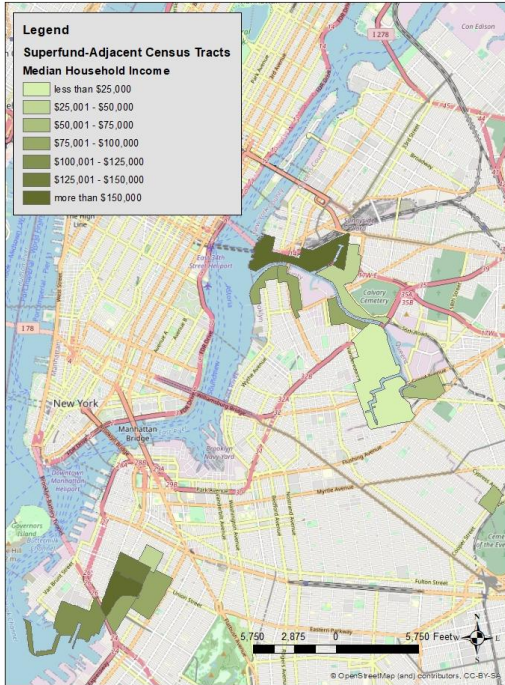
Median Household Income

1990 Median Household Income near Superfund Sites



Source: 1990 Decennial Census (Values Adjusted to 2020 Dollars)

2019 Median Household Income near Superfund Sites



Source: American Community Survey 2015 - 2019 (5 year estimate) (Values Adjusted to 2020 Dollars)

Figure 3.3: 1990 Median Household Income near Superfund Sites, adjusted to 2020 dollars

Figure 3.4: 2019 Median Household Income near Superfund Sites, adjusted to 2020 dollars

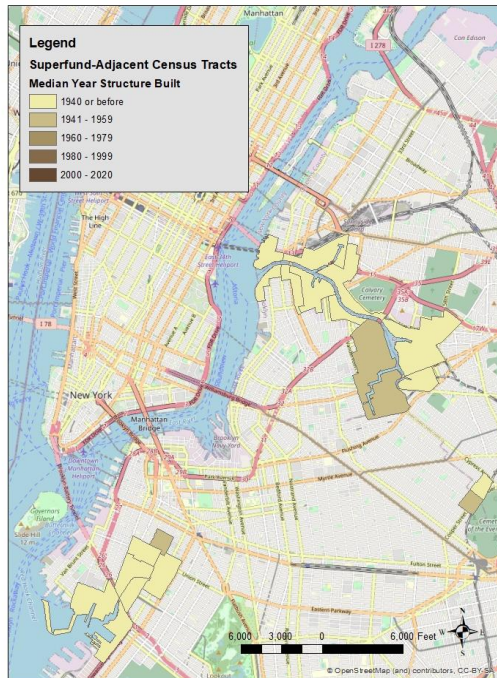
Figures 2.3 and 2.4 above show the median household income in 1990 and in 2019. As before, values are adjusted to 2020 dollars. As with figs. 2.1 and 2.2, many tracts show an increase. One tract in North Brooklyn shows a decrease in median household income, although this is likely due to some sort of change in data collection rather than a serious demographic change.

Interestingly, by comparing figs. 1-4, we can infer that the cost of rent is climbing slightly faster

than median income is increasing. This, too, speaks to the current challenges New Yorkers are facing when it comes to securing housing.

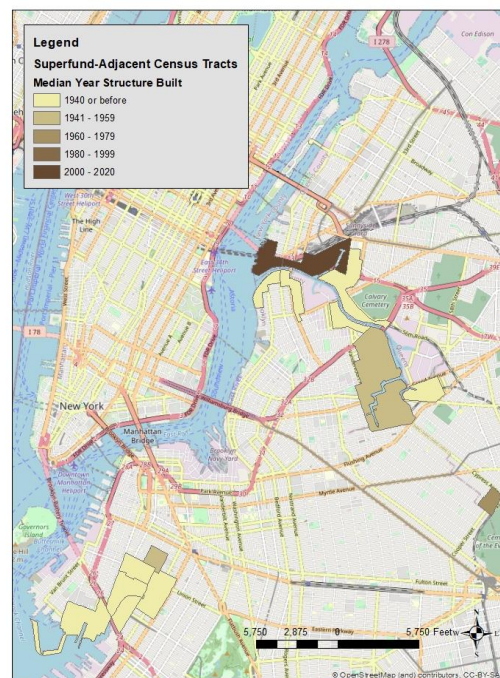
Median Year Structure Built

1990 Median Year Structure Built near Superfund Sites



Source: 1990 Decennial Census (Values Adjusted to 2020 Dollars)

2019 Median Year Structure Built near Superfund Sites



Source: 1990 Decennial Census (Values Adjusted to 2020 Dollars)

Figure 3.5: 1990 Median Year Structure Built near Superfund Sites

Figure 3.6: 2019 Median Year Structure Built near Superfund Sites

These maps demonstrate that the median year structures were built has not changed drastically between 1990 and 2019. The two areas that do show a change are in the Long Island City area of Queens (northern coast of Newtown Creek) and the area near the Wolff-Alport Chemical site in western Queens on the left side of the map. I expected to see a greater shift toward more recent dates for the median year structures were built, which would support the proposition that development around these sites has increased in the last 30 years. While these maps do not disprove this proposition, they are not as convincing as expected. Development in North

Brooklyn has mostly taken place farther inland from the creek than the areas mapped above. The lack of change shown in Gowanus is likely due to the fact that it was only rezoned recently and consequently has yet to undergo much of the development along the waterfront that has already occurred along Newtown Creek.

Population Density

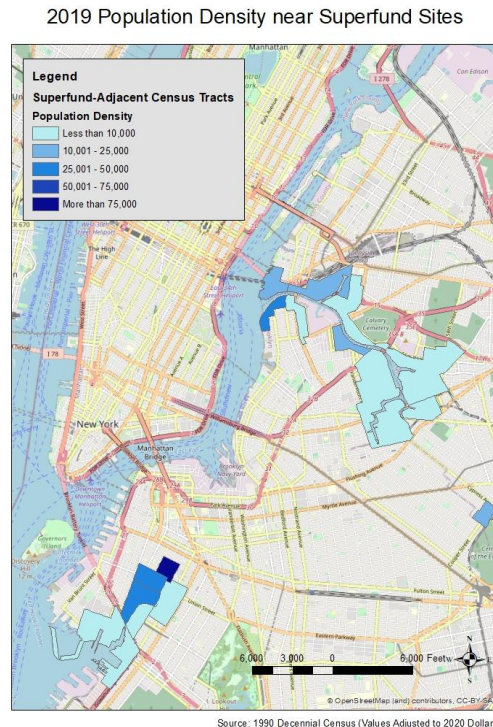
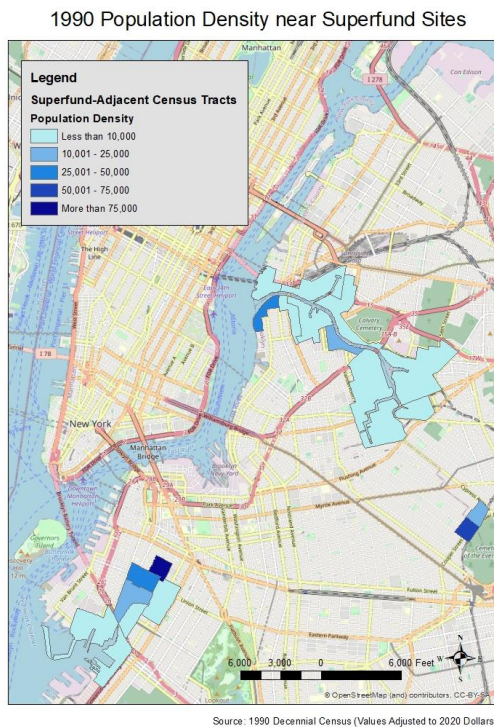


Figure 3.7: 1990 Population Density near Superfund Sites

Figure 3.8: 2019 Population Density near Superfund Sites

Figures 3.7 and 3.8 above demonstrate the population density per square mile in census tracts adjacent to Superfund sites. Very few of these tracts underwent changes between 1990 and 2019. Most tracts maintained their density, with the exception of the two tracts north of Newtown Creek on the southwestern edge of Queens, and one tract to the west of the Gowanus Canal. I chose to map population density because of survey responses stating that the neighborhoods respondents lived in felt more crowded. I was curious to see if this was in fact

empirically true, or more representative of population turnover, rather than density. It appears that residents who reported higher densities are either not residents in the areas mapped, or perceive new residents to the neighborhood as a problem, whether or not there is an actual quantitative increase in population.

Analysis

Of the maps above, none are particularly indicative of a concentration of gentrification near these three Superfund sites. These maps tell a story that these areas of Brooklyn have changed very little in the past 30 years. The rest of the evidence collected for this thesis suggests the opposite. This discrepancy is likely due to the limited data presented, as well as the more general challenges in mapping a process as complex as gentrification. Had these maps included more census tracts farther inland from Newtown Creek in both Brooklyn and Queens, they would have likely encompassed more residential areas. By comparing the tracts mapped in figures 3.1 - 3.8 to the zoning map in the first chapter (fig. 1.1), it is evident that many of these tracts are in fact currently zoned only for industrial use, not residential. As such, it would have been more accurate to an analysis of gentrification to map changes in areas that included residential use. The only tracts bordering Newtown Creek that include any residential zoning are the northwestern edge of Brooklyn and the southwestern part of Queens, which are the two tracts along Newtown Creek that showed the most changes. The tracts near the Gowanus Canal and the Wolff-Alport Chemical Company showed some changes, specifically in median gross rent (figs. 3.1 and 3.2), median household income (figs. 3.3 and 3.4), and population density (figs. 3.7 and 3.8). Interestingly, Gowanus's areas zoned for manufacturing are significantly closer to the water, encompassing fewer census tracts than those near Newtown Creek ("NYC Planning ZoLa" n.d.).

As a result of this difference, census tracts in Gowanus show more changes between maps than tracts abutting Newtown Creek. Both tracts that touch the Wolff-Alport area are still zoned for manufacturing (“NYC Planning ZoLa” n.d.). For further spatial analysis of these three areas, it would be useful to further compare zoning maps with the maps of socioeconomic changes, as it appears that areas zoned for manufacturing are more stable. This could be attributed to the lower number of overall residents. Furthermore, additional maps exploring these areas would likely benefit from mapping at the neighborhood level, rather than census tract, in order to fully address changes at the same scale as the qualitative data explored in the next two sections.

Interviews

Expert Interviews

The three experts I interviewed, Lisa Bloodgood, Michael Higgins, and Martin Bisi, were all members of community organizations active in Greenpoint or Gowanus focused on the Superfund sites and their impacts on the surrounding community. The main topics discussed in these interviews were the contamination itself, the Superfund policy, the impact of zoning changes, displacement as a result of gentrification, and the community’s ability to participate in or fight these processes.

All three interviewees highlighted the severity of the contamination. The contamination of these sites has been a key element of the work that they do with their organizations. Lisa Bloodgood, the interim executive director for North Brooklyn Neighbors, said that “Greenpoint is a hotbed of some of the worst contamination that’s possible, one hundred percent, in my mind, the most contaminated community in New York City, definitely, and there’s a lot of contaminated communities.”¹ Despite its recent rebranding, long term residents of Greenpoint have not

¹ Interview with author, February 10, 2022

forgotten about the neighborhood's industrial past. This was evident from Bloodgood's account, as well as that of one resident I interviewed and the accounts of participants of the Newtown Creek Community Advisory Group meeting I observed. This industrial past has left its mark on the community, and the effects continue to be felt. Michael Higgins, a staff organizer with the Brooklyn Movement Center, described how the outdated sewer system in Gowanus brings contamination right into residents' homes. During heavy rains, Gowanus residents, especially those living in public housing, have to deal with combined sewer overflows, where storm water mixes with raw sewage and backs up into their bathrooms and kitchens.² In North Brooklyn, the contamination is bound up in the soil as well as in the waterways, so flooding and sea level rise pose a risk because of how groundwater can carry contaminants to the surface. These neighborhoods are not only the sites of the remnants of New York's industrial past, but also sites where environmental issues have real life consequences for residents.

The EPA has taken on the work of leading the remediation of these heavily contaminated sites in New York. The interviewees highlighted the necessity for the Superfund program in addressing the contamination. Bloodgood stated that "no community wants a Superfund designation, however, if ... you need a Superfund designation, you want a Superfund designation because that allows for the resources and the oversight for a clean up."³ The involvement of the EPA is often a necessary step toward community health. The state or local environmental agencies often do not have the kind of budget or other resources for the level of contamination left behind in many formerly industrial areas. Bloodgood went on to explain that this is the case for another site of contamination in Greenpoint, the Meeker Avenue Plumes. Although the New York State Department of Environmental Conservation (DEC) has been working to test and

² Interview with author, February 11, 2022

³ Interview with author, February 10, 2022

address the site since 2007, it was added to the EPA's National Priorities List as of March 2022. This decision is supported by Bloodgood's organization, North Brooklyn Neighbors, as well as the DEC. This example shows how EPA involvement is often necessary to move forward with remediation when state resources or programs are insufficient.

Despite the necessity for federal intervention, it is also often the case that the local government has an incentive to fight Superfund designation. Martin Bisi, a leader of Voice of Gowanus, highlighted this in his account of the designation process for the Gowanus Canal that prominent New York City politicians Bill de Blasio and then-mayor Michael Bloomberg were against the involvement of the EPA. Bisi explained the reasoning behind this as follows:

The impression I've always had was that he [de Blasio] had the impression that once you designate it a Superfund site, it stigmatizes and stifles development ... and value, right? Because then the idea would be that, that wealthy renters and buyers would not be interested in living next to a Superfund site.⁴

This interpretation echoes the analysis by Pearsall as described previously in the literature review. Bisi went on to say that de Blasio "actually ended up being incorrect because so far there seem to be plenty of rich people that ... feel they have no problem living next to a Superfund site."⁵ Bisi's analysis seems to ring true for the areas surrounding Newtown Creek as well. Despite its status as a Superfund site, the waterfront property, along both the creek and canal both, is extremely valuable and is actively being developed.

In some ways, environmental policies like CERCLA exist because remediation is necessary to allow development to occur. Bloodgood described one example of this near Newtown Creek, near the Long Island Railroad's Montauk Cutoff in Sunnyside, Queens. In her previous work with the Newtown Creek Alliance, Bloodgood worked on a project to rehabilitate the Cutoff through their community-led Dutch Kills Loop plan, which includes urban agriculture,

⁴ Interview with author, February 16, 2022

⁵ Interview with author, February 16, 2022

storm-water capture and waste management systems. When brought to the state DEC and the NYC Mayor's Office, the project was met with confusion. Bloodgood explained that it was so far from the existing models for remediation that the government agencies had very little experience with this type of project, one that did not center development but rather community and ecological benefits, and one led by a non-profit organization.⁶ The tax breaks do not aid a non-profit in the same way they would a private organization, because they do not pay taxes. Bloodgood reported that even the remediation techniques advocated for by NCA differ from those that developers generally seek, the former preferring the process be done in place and the latter preferring the faster process of removing the contamination and processing it elsewhere.⁷ Bloodgood went on to say that when it comes to sites like this, "everything is done with the goal of development."⁸ In many ways, the state prioritizes private development because it requires less investment on their part and allows the site to be remediated more quickly. This demonstrates how the state and the private sector often cooperate in order to achieve their goals with less input from the community. Another example of this public/private partnership can be seen in the zoning process in the areas around New York's Superfund sites.

The most consistent take away from these three expert interviews was that zoning plays a key role in the changes that take place in formerly industrial, highly contaminated areas. In areas like Gowanus and Greenpoint, zoning is inherently tied to environmental issues. In his interview, Higgins stated that, "here in Brooklyn, environmental degradation and ... injustice has often kind of framed the ways in which the city engages with communities around land use."⁹ As such, it is essential to address the issues of land use and environmental justice in conversation with each

⁶ Interview with author, February 10, 2022

⁷ Interview with author, February 10, 2022

⁸ Interview with author, February 10, 2022

⁹ Interview with author, February 11, 2022

other. Importantly, residential development cannot occur in areas zoned for industrial use, as these areas once were. The change in zoning from industrial to residential is necessary for developers to participate in the redevelopment of these areas. As such, private developers rely on the public sector to rezone these areas, and the public sector relies on developers to take on some of the costs of remediation. This process exemplifies the neoliberal strategies assumed under CERCLA, as previously discussed in the literature review.

While the government and the public receive some benefits from the remediation, the privatization of this process is hugely profitable for developers. Although the costs up front may be slightly higher because of the issues of contamination, these investments have the potential to make tens of millions of dollars. In her interview, Bloodgood explained that land is much less expensive when zoned for industrial use, and increases in value as a result of zoning changes alone.¹⁰ This, in conjunction with the profits from the housing after construction, make these developments some of the best real estate investments in New York. In his interview, Bisi echoed this idea that although Superfund designation might be a “stumbling block” for developers, these areas still prove to be lucrative investments.¹¹ He pointed to the 421a tax abatement in New York as a major aspect of the continued investment:

That's also why I think that the tax abatement makes it possible. Why, like, even as a recession is looming, [they are] still building, right? You would think, ‘Oh, well, that's crazy, people are not moving to Brooklyn now, and the ... demand is down,’ but they keep building.¹²

The 421a tax program Bisi is referring to is a tax break that is meant to incentivize the development of residential real estate. The 421a program is also meant to incentivize the addition of affordable housing into the market with additional benefits based on the number and affordability of units. While the goal of this program is to increase investment into the city’s real

¹⁰ Interview with author, February 10, 2022

¹¹ Interview with author, February 16, 2022

¹² Interview with author, February 16, 2022

estate market and the number of affordable units available, it is unclear whether or not the benefits for developers translate to benefits for residents. From my own observations working in North Brooklyn, I have seen 421a criticized by community organizations and progressive politicians because of how generous it is to developers, despite its role in providing much needed affordable housing. As with the issue of zoning, this approach to addressing the lack of accessible housing in New York relies heavily on cooperation between the public and private sectors. While the 421a tax program is an important element to understanding how the city and state governments encourage development, zoning changes seem to be a more central aspect of the development of formerly industrial areas of New York.

Zoning changes are an integral aspect of changes occurring in historically industrial areas, but interviewees also reported shortcomings in the opportunities for the community to participate and the assessment of environmental impacts. In New York City, the community can participate in the zoning process through the Uniform Land Use Review Procedure (ULURP), wherein changes to land use designations and projects that do not align with the existing zoning are reviewed by the public. This process involves public hearings and takes into account the opinions of community boards, borough presidents, and city council members from the area, in addition to the residents these offices represent. The ULURP process also requires the prospective developer to submit an environmental impact statement (EIS) addressing the project's impact on the surrounding area, which is also considered in the reviewing process. In her interview, Lisa Bloodgood pointed out a number of shortcomings of the ULURP process. First, that the opportunities for community input are limited and that “many argue the community doesn’t really have a voice.”¹³ She went on to say that the elected officials who are

¹³ Interview with author, February 10, 2022

part of this process have a greater voice than the community at large.¹⁴ Bloodgood also stated that the EIS aspect of ULURP was often a point where developers failed to meet expectations in regards to a comprehensive understanding of how a project could impact the community:

They [developers] have a very narrow view of how one development kind of works within a larger community. They definitely don't take this into the larger context, things like displacement and combined sewer overflows, for example, and the contribution that any singular development might have on displacement or might have on contributing to more combined sewer overflows or even like, you know, energy consumption in this world of climate change, these things are not addressed holistically in [the] environmental impact statements that go along with the ULURP.¹⁵

Here, as before, environmental concerns and zoning issues go hand in hand. The accuracy and comprehensiveness of EISs in formerly industrial areas like Gowanus and Greenpoint is especially important because of the specific challenges they face, such as combined sewer overflows. These statements also serve as an opportunity for critique from environmental groups and agencies. Martin Bisi reported in his interview that while the EPA, as a federal agency, will not necessarily get involved in the local ULURP process, they have commented on the environmental impact statements for rezonings in Gowanus.¹⁶ Lisa Bloodgood felt that “ULURP was a welcome tool but it’s like really, really falling short,” and that there is a need for reform of this process.¹⁷

Despite shortcomings in the ULURP process, zoning changes and the rezoning process can also be an opportunity for the community to leverage some of their political power. In his interview, Michael Higgins described his work with public housing residents in Gowanus and their effort to use the rezoning as an opportunity to make demands of their elected officials. According to Higgins, this has most often taken the form of advocating for repairs to existing public housing developments and pushing for more affordable housing that is accessible to

¹⁴ Interview with author, February 10, 2022

¹⁵ Interview with author, February 10, 2022

¹⁶ Interview with author, February 16, 2022

¹⁷ Interview with author, February 10, 2022

residents with a lower income.¹⁸ Currently in New York City, a program called mandatory inclusionary housing (MIH) requires that land that is rezoned to allow for residential use must include a certain amount of affordable housing. This has been cited as a countermeasure to gentrification employed by the city. However, affordable housing differs from public housing. Currently, Gowanus is home to three public housing developments. Higgins explained that affordable housing is targeted toward residents with a wide range of income levels, while public housing is available only for those making less than 50% of the area's earned median income.¹⁹ Accordingly, the narrative that affordable housing guaranteed by MIH will safeguard against any dramatic change in the economic makeup of the neighborhood is not necessarily accurate. So for organizers like Higgins, the goal is “maximizing the choices that lower income people in the area and around the city” have and identifying how they “can benefit from this land use process.”²⁰ For example, the Gowanus Neighborhood Coalition for Justice (GNCJ) worked to ensure commitments from the city for the renovation of the existing public housing near the Canal and an investment in the sewer infrastructure as part of the recent rezoning plan. In this instance, the land use process may allow for some positive community-led changes despite its challenge.

In addition to the negotiations involved in the ULURP process, community participation in the neighborhoods near Superfund sites often manifests itself in the EPA's Community Advisory Groups (CAGs). While in ULURP organizers are faced with identifying ways in which residents can benefit from or participate in this increased investment and rezoning process, CAGs focus more on the contamination itself and organizations' and residents' relationship with the EPA. I address the community meeting format and its implications more thoroughly in the observations section of my findings, it is important to touch on here as well. All of the experts

¹⁸ Interview with author, February 11, 2022

¹⁹ Interview with author, February 11, 2022

²⁰ Interview with author, February 11, 2022

interviewed were active in CAGs at one point or another. Michael Higgins stated that CAGs have “historically been this place of mostly homeowners and business owners along the canal and also kind of community groups,” and that during his time organizing in the area he focused on connecting public housing residents. Here, Higgins speaks to the general lack of representation of certain residents, including renters, Black and Latinx residents, and young residents.

While it seems that community organizations like Higgins’ often work as liaisons between the municipal and corporate representatives and residents, it also indicates the need for greater outreach by the EPA to have a higher number of, and greater diversity of, residents attending CAG meetings. As identified in the literature review, CAGs and similar meetings do not necessarily safeguard neighborhood democracy or embody participatory planning (Miller 2016). The specific reasons and operation of this is further explored later in the observations findings section.

Expert interviewees also reported concerns surrounding the displacement of residents as a result of rezonings and the subsequent development and gentrification. Bloodgood pointed out that in general residents of industrial areas are lower income and may not have access to the kind of resources necessary to fight back against developers and the city:

Oftentimes when people live on the edges of industrial areas like these are definitely low income communities and usually they’re like marginalized and struggling, so they don’t have, necessarily, the ability to [or] the support to fight back. Even if they did have a ton [of] time, there isn’t always like a network of support within the community to fight back, so it’s ... easy to push these people out.²¹

Consequently, residents of areas like those of focus for this project are particularly at risk of displacement because of gentrification because of the nature of the place itself as historically industrial. Bloodgood also noted that homeownership plays an important role in the impacts of gentrification and displacement. She pointed out that renters are at a greater risk of displacement

²¹ Interview with author, February 10, 2022

because of increased rent prices caused by gentrification, while homeowners are often “able to cash in” on the increased value of the real estate market in these areas. As Bloodgood stated, this aspect of gentrification “may be good for them and bad for the community.”²² She also pointed out that many of the homeowners leaving Greenpoint now are Polish and Italian residents whose families have been in the area for generations.²³ Additionally, this ability to cash in on gentrification likely benefits white families in gentrifying areas more than Black or other minority families, who are less likely to own homes because of the legacy of racial discrimination by financial institutions and redlining. This particular point may be less relevant to the cases of Greenpoint and Gowanus, as both are historically white working class neighborhoods. While some individuals may be glad to have profited from the higher real estate values in these neighborhoods, many are also struggling to stay in the neighborhood.

Displacement is also a concern for public housing residents. Because rent for public housing residents is determined by their incomes, these residents are not necessarily at risk of being displaced by rent prices. However, there are other factors that contribute to the potential displacement of public housing residents, specifically in Gowanus. Specifically, as Higgins reported, a lack of investment in infrastructure in public and subsidized housing overall has led to such intolerable conditions that residents are forced out.²⁴ In his interview, Bisi noted that because of the ongoing gentrification, he expects the type of businesses opening in Gowanus to cater more to higher income residents.²⁵ Furthermore, while the rezoning of a neighborhood may come with some affordable housing, this does not guarantee that long-term residents will not be displaced. Higgins stated that this new affordable housing “isn’t necessarily affordable enough for people who actually live in those communities already,” specifically because of the difference

²² Interview with author, February 10, 2022

²³ Interview with author, February 10, 2022

²⁴ Interview with author, February 11, 2022

²⁵ Interview with author, February 16, 2022

in income ranges for affordable housing and for public housing.²⁶ According to Higgins, the income capacity for one to be eligible for public housing is up to 40% of the area median income (AMI). According to the NYC HPD, in the New York City region for 2021, that includes a family of four making up to \$47,720 (“Area Median Income - HPD” n.d.). The majority of affordable housing (25-30%) set aside under MIH is for residents making 60 - 80% of the AMI, which for 2021 would be between \$71,580 and \$95,440 for a family of four (“Mandatory Inclusionary Housing- DCP” n.d.). These distinctions are important to note because, as stated previously, there is often an effort to make it seem that affordable housing is accessible to the same residents who live in public housing, when this is not accurate. Accordingly, if public housing residents feel pushed out by poor conditions, changes in prices in the area, or the general instability of the neighborhood, they most often do not have the option of moving into new affordable housing built nearby.

The other aspect of displacement addressed in the expert interviews was the displacement of small businesses. Martin Bisi focused on this more than the other two interviewees, specifically because he owns a recording studio in Gowanus. Bisi expressed concerns about his ability to stay in Gowanus, after operating his studio for the last 41 years.²⁷ He expects a construction project to begin on the site where his business is located now, that will house a high rise with both condominiums and art spaces.²⁸ Bisi expressed skepticism about this and other development projects that are described as helping the neighborhood. He went on to describe how certain kinds of messaging comes from politicians and developers who are both “using, real or not, sort of progressive and liberal talking points to get these policies through that have more

²⁶ Interview with author, February 11, 2022

²⁷ Interview with author, February 16, 2022

²⁸ Interview with author, February 16, 2022

to do with, you know, real estate value and finance.”²⁹ This seems to ring true of the mandatory inclusionary housing that Higgins described as well. By providing some sort of concession for the concerns around development and displacement, the city and developers can avoid too much criticism. The question for organizers like those interviewed then becomes how to see through the talking points and pursue negotiations with meaningful outcomes for both residents and small business owners.

Throughout these three interviews, I gathered that the issues of policy, development, housing justice, and environmentalism bleed together in Gowanus and Greenpoint. Much of the challenge with sorting out conclusions from these findings is establishing how these issues differ, how they are the same, and what that means for their impacts on the affected communities. In many ways, the cooperation of private and public entities creates a challenging environment for organizers to confront. In Gowanus and Greenpoint, the environmental contamination is very much real, severe, and affecting residents’ lives. While the EPA and Superfund policy play an important role, it is mostly in regard to funding and coordinating remediation. New York City’s municipal government is often more concerned with remediation for development, and profit, rather than for community health. As such, the remediation model revolves around development and private investment. Zoning plays a key part in all of this, adding to the influence of city politics on changes in Superfund communities. In both EPA community advisory groups (CAGs) and the ULURP process, community participation is often limited both in its scope and impact. The heavy focus on affordable housing and the lack of investment in public housing has a damaging effect on the lowest-income communities in these areas. Displacement is a major concern, and will likely not be addressed by just mandatory inclusionary housing and the other

²⁹ Interview with author, February 16, 2022

existing policy solutions. As such, it is essential that opportunities for participatory planning be expanded and the framework for community health centers residents rather than developers.

Resident Interviews

The eight residents I interviewed were all contacted after completing the survey for this project. All were women in their late twenties or early thirties. They all lived in North Brooklyn. Seven had moved to the area in the last 5 years, and only one was born and raised in Greenpoint. Two of the other participants were from New York, one from a different part of Brooklyn and the other from Queens. All of the participants reported that they worked in white-collar occupations and some lived with partners who contributed to a shared household income. Some had children. Almost all of the participants stated that they felt that they had a stake in what happened to their neighborhood, despite their relatively short tenure there. Most of the respondents who had moved to the area in the last five years knew at least a little about the contamination. The only respondent who felt that she had a strong knowledge of the contamination was the one that was born and raised in Greenpoint.

When asked if they would attend a community meeting about the contamination in their area, respondents had mixed answers. Some stated that they would, but did not know where to find more information or would be more interested in meetings with a specific focus on development. Some stated that they likely would not. Others stated that they had in the past and might again. Respondents also had mixed answers about how involved they felt. Most of the participants described their involvement in the community as knowing their neighbors and patronizing locally-owned or small businesses. Participants also felt that the COVID-19

pandemic had impacted their connection with the community; for some, working from home allowed them to spend more time in their neighborhood, while others felt more isolated.

While the residents interviewed knew that they are likely seen as gentrifiers by older residents, they also see it as a more complicated issue than that. Although none of them knew about the zoning or Superfund processes detailed in the previous section, they did see how gentrification is a complex process. Almost all of the residents stated that they felt like part of the community, or wanted to be, and had a stake in what happened in their neighborhood. It was clear that these residents wanted to belong to this community and call Greenpoint home, even though most of them had only moved there in the last two or three years. Participants who had children cited wanting to raise their family there as a key aspect of their commitment to their neighborhood. When asked directly about their role in gentrification, interviewees recognized their participation in it but noted shopping locally and the desire to “give back” to the community as a counter to that participation. Multiple interviewees also noted that they did not live in luxury condos, with the implication that they were not the same as those residents that do.

Some respondents also identified some of the positive aspects of gentrification in their understanding of the changes taking place in their neighborhood. One interviewee, who works at a nonprofit for homeless individuals, stated that they did not see gentrification as a problem as long as housing was being built. Another respondent conceptualized gentrification as an inevitable process and noted that the influx of wealthier residents has led to the improvement of certain amenities, such as the local library.

However, none of the interviewees touched on displacement caused by gentrification, or any specific negative aspect of gentrification. It seemed as though respondents understood gentrification was perceived negatively, and consequently distanced themselves from it, without

much specificity. Of course, the purpose of interviewing residents was not to identify more information, rather to identify a common perspective on changes to the neighborhood.

The eight resident interviews demonstrated that for at least some young professionals in Greenpoint, neighborhood identity is important. While many of the participants did not know much about the contamination near them, some were interested in becoming more involved with the community. Most recognized that the area was gentrifying, and that they likely contributed to that in some ways. They also identified ways that they sought to counter gentrification, like living in family-owned buildings and supporting small businesses. They all viewed gentrification as a complicated process, although few named specific actors in that process. These interviews were a useful addition to the expert interviews, and offer an insight into how residents perceive gentrification, their neighborhood, and community participation.

Observations

The two observations I conducted took place at community meetings concerning environmental issues in North Brooklyn.

The first meeting was a Community Advisory Group for the Newtown Creek Superfund site. This meeting was attended by EPA and state employees, residents, and representatives of non-profit organizations, including North Brooklyn Neighbors and Newtown Creek Alliance. It took place over Zoom at 6:30 PM on a Tuesday night. The meeting began with an overview of the site and the list of members. The facilitator of the meeting made a point of stating that meetings are open to the public and if anyone in attendance wished to be added to the list of members they were welcome. The next speaker introduced the topic of the meeting, a damaged bulkhead on the shore of an inlet of Newtown Creek that abuts Hunters Point, Queens near 29th

Street. A bulkhead is a physical structure along a coastal area built to stabilize the soil along the shore. This term was not defined in the meeting, prior knowledge was assumed. Resident members of the CAG stated concerns about the state of disrepair of the bulkhead, specifically that it is progressively falling into the creek, posing a safety issue to pedestrians and possibly adding to the creek's existing contamination. One resident asked the EPA employees how the Superfund program could help resolve this issue. The EPA and New York State Department of Environmental Conservation (DEC) both highlighted that because the parcel of land in question is currently owned by the Metropolitan Transportation Authority (MTA), it is their responsibility to remediate this specific concern. In response, some attendees asked that residents be included in conversations between the DEC and EPA and the MTA and DOT (Department of Transportation). One CAG member stated, "This collapsing bulkhead issue has been brought up to the appropriate parties multiple times over the past decade and a half. What do we need to do for it to be dealt with before someone gets hurt?" In response, a DEC employee said that questions would be answered at the next meeting. Over the course of the meeting, residents got progressively more irritated about the government employees' hesitancy to commit to any action or involvement. There was also a consistent framework used by residents throughout the meeting of the rights of the community, in regards to transparency from the EPA, access, and safety.

The second meeting I attended was a community meeting regarding the NuHart state Superfund site in Greenpoint. The former plastics manufacturing site has two underground plumes of toxins, one of phthalates and the other of tetrachloro ethylene (TCE). State Superfund sites are managed by the DEC, so representatives from the DEC were present at the meeting. There were also representatives from non-profits (NCA), city council (Lincoln Restler & staff), as well as residents. This meeting also took place over Zoom, beginning at 6:00 PM on a

weeknight. There were about 90 participants in the Zoom meeting. The main concern of this meeting, aside from the contamination, was the development of this area by the current owner, Madison Realty Capital (MRC). A representative from MRC was also present at the meeting. The overall feeling of the meeting was civil, but somewhat antagonistic and tense between the residents and community organizations and the developers and state representatives. Both the MRC representative and the DEC representative cut speakers off in order to say that they understood the issues at hand but could not do anything to change it. The issues brought up by residents included pedestrian safety and parking availability because of construction, accessibility of the proposed green space, air quality concerns, and affordable housing in the new development. City Councilmember Restler stated that the new development will be partially affordable housing but “not as much as [he] would like.” The MRC representative stated that he hoped that the company is able to begin construction before the 421A tax benefit expires so that they can take advantage of it. This meeting had a greater focus on development than the Newtown Creek CAG meeting, which was more focused on the logistics of environmental remediation. However, both shared a focus on residents’ concerns and community health.

Meetings like these two are important because they are essentially the only avenue for residents to participate in the remediation and development processes and to voice their concerns. However, it is still unclear how effective these meetings are in terms of residents’ actual ability to affect outcomes of these processes. This was echoed by Lisa Bloodgood in her interview. As a participant, I felt that the bureaucratic nature of the meetings would be challenging to engage with as a resident. Furthermore, these meetings did not feel entirely accessible because of their focus on the technical aspects of remediation and the language used. The majority of the speakers, including residents, appeared to be highly educated and

knowledgeable on these sites. There seemed to be a level of presumed knowledge, which could be a barrier to engagement for some residents. Even as someone who has spent a year studying this subject, I found myself confused at times. The length of the meetings could also be cause for disinterest or another possible point of inaccessibility. The online setting could encourage participation, since calling in from home is likely easier for full-time workers, parents, or other individuals with busy schedules. While it could also be a challenge for some to navigate the technological aspect, many individuals who previously would have struggled with Zoom are now acclimated to it after the COVID pandemic forced so many to meet online. Overall, my observations of these meetings lead me to believe that they are not completely accessible and may not be as effective as one would hope in engaging the community. Additionally, the actual impact of these meetings is difficult to determine, even as a participant.

Summary of Findings

Through the survey, maps, interviews, and observations I conducted, I was able to gather a wide range of data. All of it offered insight into how these neighborhoods are changing and how contamination affects these changes. Community participation also became more of a recurring theme throughout the data than I had originally anticipated.

The survey showed that some residents know about the local contamination, with a slightly larger percentage of longer-term residents being knowledgeable. None mentioned the contamination or remediation when asked about neighborhood changes, most answers pointed to gentrification, either by name or the outcomes of gentrification. The questions on the survey may have yielded more useful answers if I wrote them in a more targeted manner. If I could do the survey again, I would ask what people know about zoning and zoning changes, and whether

residents felt like there was any kind of connection between the environmental issues and gentrification. I also feel that the survey would have been more productive if it had been distributed in a different way, rather than receiving so many responses from only Greenpoint residents.

The maps also offered interesting, if not limited, information. The maps did show some areas where rents, incomes, and population density increased. The areas that demonstrated the most change were along Newtown Creek, in northwestern Brooklyn near Greenpoint and in western Queens near Long Island City. After comparing these areas with zoning maps, it became clear that these areas showed the most change because they were the areas along the creek that were the most residential. As such, the maps could have shown more changes had more residential areas been included. The main limitation of this method was that I chose to map too small of an area, some data did not project on the 2019 maps, and gentrification is a difficult process to map because of the myriad forms it can take. I chose not to prioritize mapping racial demographics because the largest areas I focused on were predominantly white prior to gentrification. Given more time, I would map larger areas and map changes in population by race and educational attainment, which are other common proxies for gentrification in spatial analysis.

As the most extensive data collection method used in this thesis, the interviews naturally provided the most information. The expert interviews were undoubtedly the most useful, and illuminated more of the complexities of these neighborhoods and sites than I would have been able to gather from background research and my other methods alone. The three experts I interviewed described the contamination, Superfund policy, the impacts of zoning changes, gentrification and the resulting displacement, and the role of community participation. If I were

able to interview more experts on these areas, I would interview someone working on the Wolff-Alport site, since that area was especially underrepresented in my research. I would also interview an expert on Newtown Creek from Queens, as the Sunnyside and Long Island City areas were also underrepresented in my research. The resident interviews also proved to be useful, although somewhat less extensive than the expert interviews. The residents I interviewed almost all considered themselves gentrifiers in some ways, although they did not necessarily want to be. As such, some stated specific practices they employed to mitigate their contributions to gentrification and others identified positive aspects of gentrification for the neighborhood. Most also felt like they had a stake in what happened in the neighborhood and wanted to be more involved in the community.

Finally, the observation lent insight into the reality of community participation in north Brooklyn. Both meetings I attended felt somewhat bureaucratic and inaccessible. These observations reaffirmed the previously stated suggestion that existing community participation frameworks are not sufficient avenues for community self-determination. The participation of developers and elected officials seemed performative, and representatives from state agencies offered few solutions to resident concerns. These meetings are important, as there should be some opportunity for community participation. However, community participation should be accessible, meaningful, and impactful.

Conclusion

While I had originally hypothesized that a community's status as formerly industrial accelerated the process of gentrification, it appears that is not necessarily the case. Instead, my findings demonstrate that gentrification of formerly industrial and contaminated areas operates differently than that occurring in historically residential areas. This discrepancy is the result of environmental legislation that incentivizes redevelopment and municipal support for rezonings of ecologically degraded sites and properties. This interaction between state actors, developers, and residents plays out in a manner unique to formerly industrial communities. The enactment of neoliberal urbanism takes the form of policies such as the 421a and the brownfield tax credit program. The legacy of pollution and its current remediation not only affects residents' health, but their ability to stay in their neighborhoods too. As demonstrated in the literature review and the findings, green gentrification and sustainable redevelopment have been encouraged under New York City's neoliberal policy agenda over the last 25 years. Throughout this process of green growth, community organizations are forced to work within the paradigm of neoliberal urbanism in order to negotiate for some community benefits. The residents that participated in this research demonstrated knowledge of gentrification more broadly, but little understanding of the mechanics of it. They also underscored that it is not all bad, and there are some positive outcomes for some members of the community. This research also supports the argument that community participation in the form of EPA Community Advisory Groups (CAGs) and other community meetings may not have a meaningful impact on neighborhood outcomes and municipal decision making.

This research has implications for the operation of the neoliberal green growth machine and understandings of gentrification. My findings challenge the popular conception of

gentrification of individual choices, showing instead that it is the product of a systematic approach by both public and private entities to revitalize disinvested areas. A departure from neoliberal practice would require a reimagining of the notion of neighborhood revitalization altogether, prioritizing ecological and community health over economic growth. In my research so far, I have yet to find a perfectly feasible and equitable plan for community reinvestment without the possibility of exacerbating gentrification. However, some elements of this would include providing very poor residents with accessible and meaningful avenues for self-determination, expanding and improving public housing options, and reprioritizing public and ecological health in remediation efforts.

Since beginning this research, a fourth site in New York City has been added to the EPA's National Priorities List. The Meeker Avenue Plume, located in Greenpoint and East Williamsburg, is an underground plume of contamination spanning multiple blocks ("MEEKER AVENUE PLUME Site Profile" n.d.). Given the opportunity to expand this research, I would include this new site in my analysis of Superfund sites in New York City. Although the scope and depth of my research was limited by my standing as an undergraduate student, this case exemplifies the impacts of the intersection of sustainability and neoliberal ideologies, gentrification and development, and the role of residents, developers, and the state. There is a significant body of research on each of these individual aspects, but the convergence of these complex factors warrants further study.

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