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URBAN MANUFACTURING AS A VEHICLE FOR SOCIAL AND ENVIRONMENTAL JUSTICE: THE CASE OF NORTH BROOKLYN

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Figure 1. Urban Industries bordering Newtown Creek and Manhattan Skyline beyond. CCNY MUPUD Studio 2023.

INTRODUCTION:

The landscape of urban manufacturing in cities like New York is undergoing a profound transformation in the 21st century. The research delves into the intricate tapestry of urban manufacturing, focusing on the North Brooklyn Manufacturing Area, to illuminate initiatives fostering social and environmental justice. We explore the historical decline of manufacturing districts, their complex relationship with minority communities, and recent endeavors to reinvigorate urban manufacturing. These efforts aim to transform it into a source of economic opportunity for underserved communities and a potential hub for urban resource recovery (URR) programs within city limits to meet sustainability goals.

This exploration will take us through two pivotal initiatives: one led by the Association for Neighborhood and Housing Development (ANHD) in partnership with the Industrial Jobs Coalition, centered around social and economic justice. The other is powered by NYC's Town and Gown program, which strives for environmental sustainability through URR.[1] I have participated in this

research of the Town and Gown program, among my graduate students as Director of the Master of Urban Design in Urban Planning at The City College of New York.

Once vibrant contributors to the economic and social fabric of cities, urban manufacturing districts have witnessed a protracted decline over recent decades. However, our examination reveals how a confluence of community interest and city policies have the potential to induce metamorphosis in contemporary of urban manufacturing in New York City, particularly in North Brooklyn. Guided by the compelling premise that urban manufacturing can serve as a potent catalyst for advancing both social and environmental justice, we unveil historical contours, their impact on marginalized communities, and novel strategies to rekindle their significance within the urban milieu.

Despite facing threats from development, these industrial zones, such as the North Brooklyn Industrial Business Zone (IBZ),[2] remain a potential source of economic opportunity for underserved communities. Our research uncovers the pivotal role these industrial sites can play in bridging the gap between lofty sustainability goals and practical implementation. The transformation of waste from a disposable burden into a valuable urban resource lies at the heart of our vision for a zero-waste future.

Moreover, we explore how urban manufacturing districts, like the North Brooklyn IBZ, can thrive by embracing environmentally responsible practices, fostering resource recovery, and facilitating waste management within city limits. Our investigation underscores the importance of territorial distinctness, emphasizing well-defined boundaries that enable diverse activities and communities to flourish.

Organizations such as the Association for Neighborhood and Housing Development (ANHD), the Industrial Jobs Coalition,[3] and Evergreen[4] advocate for the preservation of industrial zones as vital contributors to a city's economic and environmental landscape. We also highlight the concept of environmental ingress within these territories, central to our research.

By integrating environmentally responsible practices into urban manufacturing districts, new NYC environmental policies seek to align with broader themes of environmental justice and sustainability. Urban density emerges as a key factor, enabling efficient resource utilization and localized waste treatment processes. Our research calls for a paradigm shift, emphasizing the significance of internal waste management as cities grow and evolve.

Lastly, we acknowledge the critical role of communities in the vicinity of industrial zones. Often situated near these areas, underserved and underrepresented communities face heightened environmental risks. Our study parallels discussions in the article concerning the challenges faced by such communities and the need for substantial investments to address environmental disparities and enhance well-being.

In essence, this comprehensive framework navigates the intricate landscape of urban manufacturing. It offers a vision of a future where urban manufacturing districts thrive, contributing not only to economic prosperity but also to social equity and environmental sustainability.

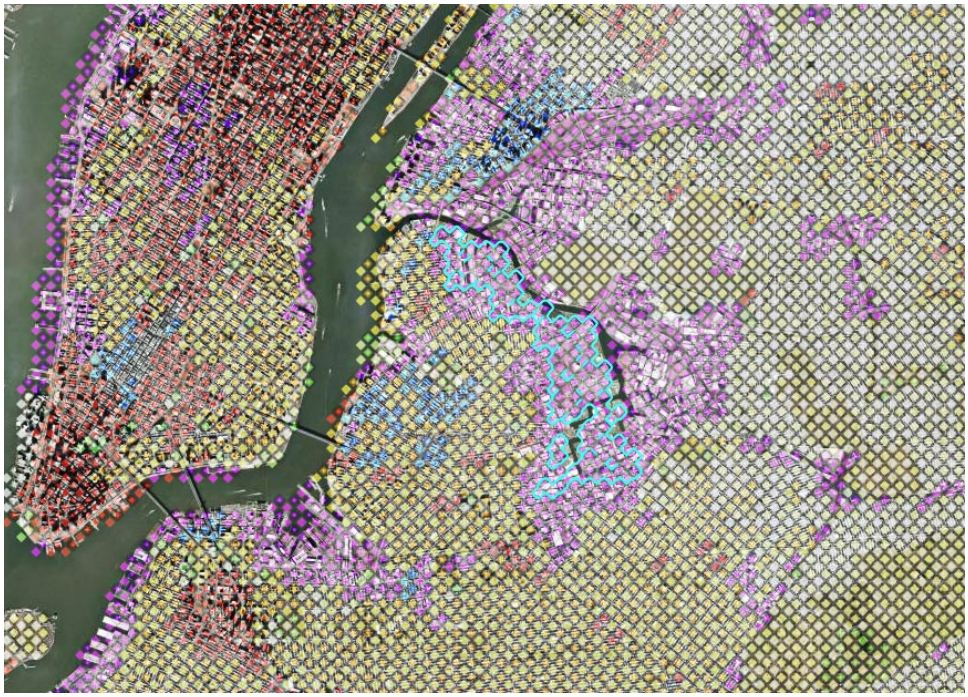

Figure 2. NB5_Current industrial areas render in purple with a blue outline for M3_1_Zoning in North Brooklyn_NY City Planning Data_Esri_2023.

Social Justice and Economic Sustainability: Urban Manufacturing as a Pathway to Community Prosperity

This section examines urban manufacturing as a potential driver of social justice for underserved communities, its historical role revealed complex dynamics in economic growth and its impact on minority communities. Up to the mid-20th century, New York City occupied a prominent position as a bustling manufacturing hub. However, a rapid and unsettling decline, often referred to as the 'runaway' phenomenon, began to take hold as factories relocated elsewhere. This period witnessed a swift and significant deindustrialization, with numerous factories departing New York City between 1945 and 1975. The remaining manufacturers, in their struggle for survival, frequently resorted to wage suppression, particularly among socially vulnerable groups. When workers attempted to organize and seek collective action through labor unions, many firms chose to flee the city in search of low-cost and vulnerable workforces in other regions. This pattern reflected manufacturers' pursuit of a 'spatial fix' to enhance profitability through regional relocation, ultimately contributing to the erosion of New York's distinctive social democracy.(Batle,2019)[5] Despite the policy and community efforts outlined below, the process of deindustrialization in New York City continues vastly reconfiguring the urban landscape and economic livelihoods of many communities: From 2009 to 2017 the industrial zones decreased by 10%.(Davis, 2018)[6]

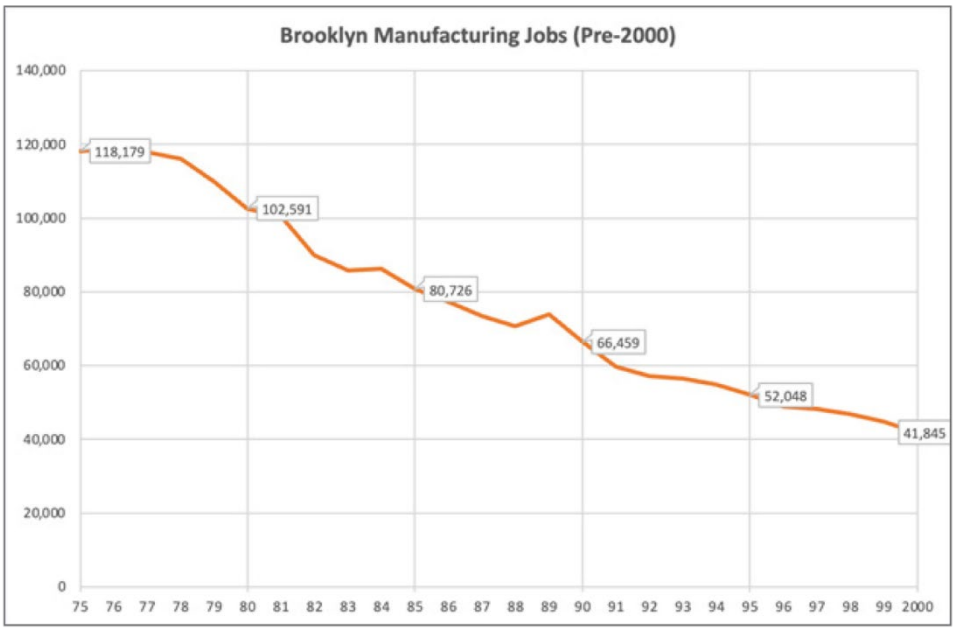

Figure 3. Brooklyn Manufacturing Jobs Pre 2000. Evergreen report 2023. Data from New York State Department of Labor.

Nonetheless, the significance of urban manufacturing persisted as a vital element in achieving diverse socio-economic sustainability objectives for the city, as well as bolstering its overall prosperity. In New York City, these transformative initiatives began to coalesce more prominently around the establishment of Industrial Business Zones in 2005, marking a pivotal moment in the city's efforts to reinvigorate its manufacturing sector and counter the trends of decline %.[7] Contemporary support for urban manufacturing often emphasizes innovation, hybridity, and economic integration as critical benefits. These newer policies and visions tend to see the dismantling of legacy manufacturing --in all its obsolescent physical manifestation and environmental challenges -- as inextricably bound for a diversified, hybrid and cross-programmed evolution.[8] However, it is essential to acknowledge the historical significance and the newly recognized social benefit of urban manufacturing. While urban manufacturing centers have evolved and lost some significance in the urban economy, they remain home to diverse manufacturing sectors, serving niche markets and employing a predominantly immigrant and minority workforce with lower levels of education.[9] Crucially, manufacturing employment serves as a vital engine for social justice and diversity in the city. Approximately 80 percent of manufacturing jobs in NYC belong to BIPOC, and 50 percent are held by immigrant communities. Moreover, manufacturing jobs offer significantly higher remuneration compared to most service industry positions, often at a multiplier of 3 to 1, without requiring a college degree.(ANHD 2020)[10] In essence, manufacturing employment represents a pivotal pathway to economic prosperity for a broader community in the city.

As noted, support for urban manufacturing spans a spectrum, ranging from a call for innovation and hybridity to efforts to preserve traditional manufacturing uses and jobs. This divergence underscores a fault line where local communities and unions favor the latter forms of support, while academics and city planners advocate for new hybrid models. Gentrification, particularly in the North Brooklyn neighborhood, has posed substantial challenges by making industrial spaces attractive for residential conversions. Consequently, small manufacturers face active displacement through mechanisms such as buyouts, lease refusals, zoning changes, and rising rents. These trends jeopardize economic diversity and the employment prospects of unskilled and immigrant workers.[11]

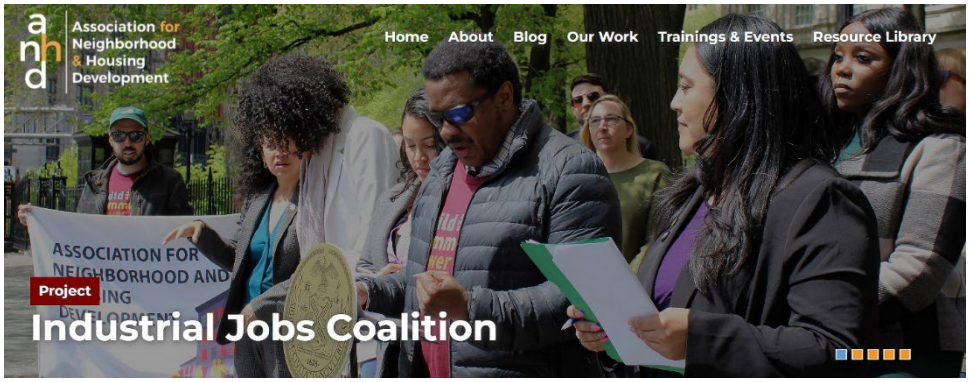

Figure 4. Association for Neighborhood for Neighborhood and Housing Development, Industrial Jobs Coalition project. Website.

To illustrate the current conditions, Evergreen published an extensive report in 2019 and key data underlined the dire reality of minority and manufacturing jobs in the study area: "In the last twenty years, North Brooklyn lost 15% of its industrial jobs while office-based, institutional, and local service jobs grew dramatically. Whereas manufacturing jobs made up 1 in 5 local jobs in 2002, by 2019 they made up 1 in 20; From 1990 to 2020, North Brooklyn's White population practically doubled and its Black and Hispanic populations declined; As the area has grown, almost all of its new residents work outside of the communities they live in and new local jobs have mostly been taken by people commuting in from outside".[12]

In response to these challenges, the ANHD has initiated a campaign for social and economic justice, focusing on supporting manufacturing employment by protecting Manufacturing and IBZ districts. The ANHD's advocacy revolves around policies that safeguard manufacturing uses, rather than promoting the potential hybridization of these sectors. A key partner, the Industrial Jobs Coalition, a union collective, actively champions the preservation of manufacturing. Their concern stems from the fear that permitting other zoning uses may lead to higher-yield development operations displacing manufacturing. This trend is already observable, with manufacturing programs yielding ground to housing, offices, large commercial spaces, and entertainment venues. Consequently, while the ANHD typically advocates for the expansion of affordable housing, conversely in this instance, it seeks to preserve the spatial limits and protocols of existing manufacturing districts against the encroachment of other potential configurations. This nuanced debate extends to the existing M1, M2, M3 districts and new contested planning tools that aim to regulate and provide for diversity and density, particularly within the North Brooklyn Industrial Plan.[13]

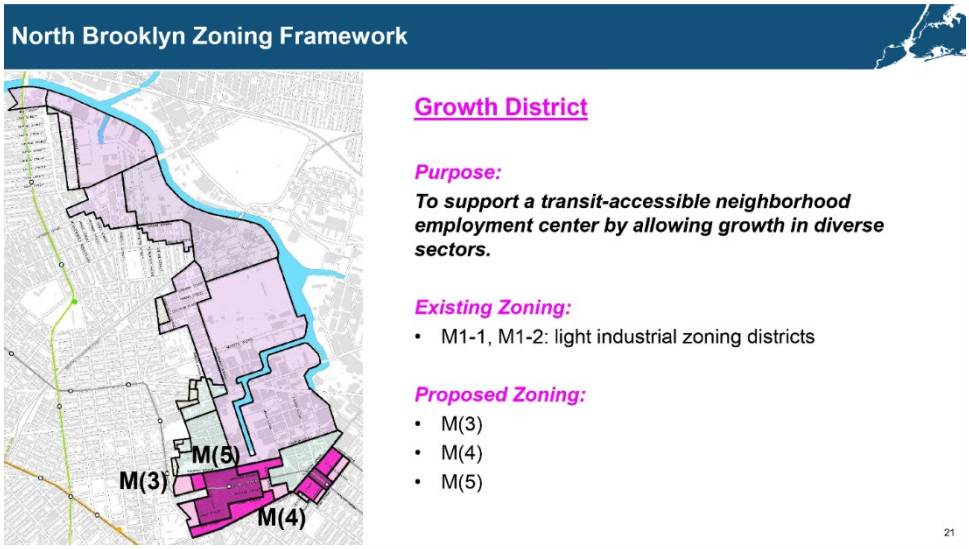

Figure 5. Page from Proposal of Draft Zoning Framework Community Board 4 - April 17, 2019. NYC Planning 2019.

However, as Evergreen has thoroughly accounted for, the picture of diminishing industrial jobs in North Brooklyn is, more complex. Evergreen has particularly been concerned with the impact of new zoning proposals, the lack of oversight of existing zoning, and the vast disparities in job growth in the area between non-industrial and industrial jobs. At first, they noted the influx of non-industrial jobs to the neighborhood: "In the last two decades, real estate developments and business ventures ushered in with the 2005 rezoning have correlated with the continuation of a socioeconomic shift away from North Brooklyn's working-class industrial past. From 2002 to 2019, the number of jobs in the area increased by a whopping 86% (51,000 more) for a total of about 111,000."[14] These demographics vastly increased the cost of living and critically altered the affordability of North Brooklyn. Evergreen, however, uncovered a contradictory trend of a resilient need for industry: "Charting out trends in North Brooklyn's macro sectors shows how industrial employment declined in the first leg of the 21st century while office, local service, and institutional jobs all took leaps and bounds ahead. But the same analysis done at the borough and citywide levels yields different results. In Kings County (Brooklyn), non-industrial fields continued to show growth, though at a much slower rate than in North Brooklyn (with 75% more jobs, local services had the steepest gains in the borough). Most importantly, however, the industrial macro sector grew by 33%.[15] In 2019, some 10,900 industrial establishments in Brooklyn employed 100,000 workers."[16] The claim by Evergreen is that there is a stabilization and modest growth of industrial jobs but that this limited revitalization and return of some economic diversification away from service jobs is hindered by a City policy and development trends that favored the transformation of legacy industrial site. In this process, the aforementioned policy and development trends continue to disfavor the communities that benefit from industrial jobs.
This resurgence of industrial labor as a source of economic livelihood underscores the significance of manufacturing sites as essential arenas for economic opportunity and social justice, signaling a return to the factory as a site of activism. In doing so, it reaffirms the importance of preserving the distinctive and discrete dimensions within the spectrum of community activism and the politics of public and representational spaces.
In parallel with the process of urban deindustrialization in New York, new arenas for economic and social activism emerged, shifting the focus to areas of both economic activity and relevance. Recent scholarly studies, exemplified by works like "The City is the Factory," have further elaborated upon the concept of transcending and anchoring on the confines of the factory. They expand into the

broader urban landscape, becoming new terrain for social, racial, and economic advocacy.[17] Rooted in Henry Lefebvre's original formulation and Marcuse's elaboration of "the right to the city," these studies meticulously chronicle the progression of social and racial justice movements. These movements have reclaimed urban spaces as platforms for advancing principles of justice and equality, finding particular prominence in New York City through movements like Occupy Wall Street and the Black Lives Matter movement. [18]

In a broader context, social justice movements and labor unions have transitioned from viewing the factory solely as a locus of oppression and production to recognizing the significance of hybrid and public urban spaces. These spaces symbolize accessibility and empowerment, as seen in examples like Zuccotti Park and the reclamation of New York City streets. What makes the endorsement of the North Brooklyn IBZ intriguing is that it underscores the imperative of clear demarcation and safeguarding of industrial zones, setting them apart from public spaces. This demarcation not only functions as a shield for a vital segment of the economy but also provides opportunities for historically marginalized minority populations.

This evolving perspective accentuates an enduring division between the broader, multifaceted urban spaces and those requiring specialized protection to sustain spatial practices that have historically uplifted underserved communities. It underscores the persisting tension between the dynamics of urban transformation, often inclined toward prioritizing generalized spaces, and the crucial task of preserving spaces that have played a pivotal role in addressing longstanding social and economic disparities.

ENVIRONMENTAL JUSTICE AND SUSTAINABILITY: URBAN MANUFACTURING AS AN INSTRUMENT OF THE CIRCULAR GREEN ECONOMY

This section examines the historical and unquantifiable impact of urban manufacturing on the environment and the evolving understanding of the necessity for a sustainable vision of New York City. A historical ark that now has led to NYC public policy on an exploration of new, long-term environmental calculations. These considerations view areas historically laden with waste as potential remedies for broader environmental challenges, such as carbon emissions, sequestration, and upcycling. In these complex environmental calculations, underserved and underrepresented communities residing in the vicinity of the North Brooklyn Industrial Zone have and will continue to grapple with a complex dichotomy. The North Brooklyn industrial zone, while a source of livelihood, and a desired site to locate the sustainable aspirations of NYC, also poses significant environmental risks.

The environmental degradation of North Brooklyn IBZ and the adjacent New Town Creek is historical and of unimaginable proportions. These areas remain sites of legacy environmental degradation and pollution. It is marred by Combined Sewage Outflows,[19] it was the site of the largest urban oil spill in North America – about half in size the Exxon Valdez disaster – and its territory is dotted by superfund sites affecting the health of minority communities in their use of legacy open spaces.[20] As summarized by one community activist in the neighborhood: “We have a layer cake of environmental pollution that is at a level I think most people can’t even comprehend. We have a bevy of brownfields, we have state Superfund sites, then we have federal Superfund sites, then we have places that are just kind of abandoned or not well cared for, that need cleaning up….”.[21]

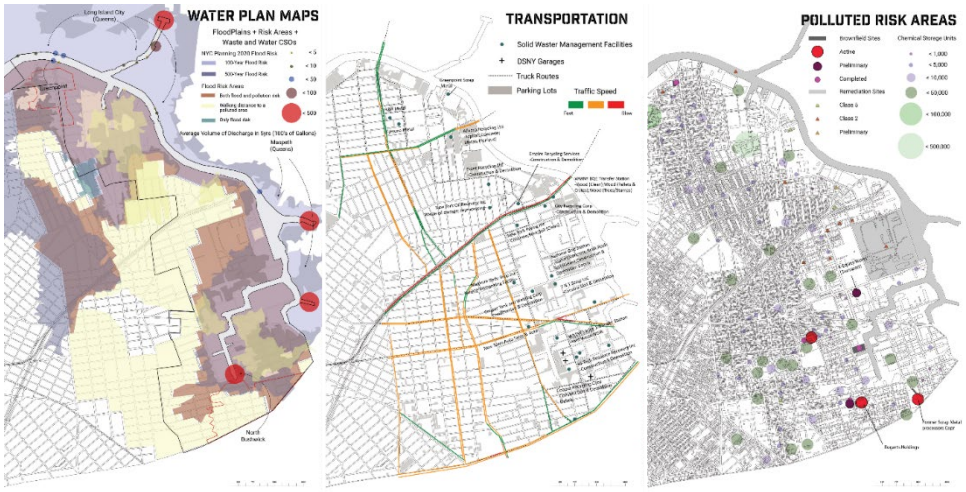

Figure 6. A series of environmental analysis describing in Map 1 Flood Plains, Risk Areas, Waste and CSOs; in Map 2 Transportation and mobility infrastructure in relation to Waste and Management Facilities; and in Map 3 A series of polluted risk areas. CCNY MUPUD Studio 2023.

This very condition of profound environmental degradation throughout its history has served as a flashpoint, a site of unavoidable examination of the environmental attitudes past and present. In turn, these examinations have helped generate the critical evolving attitudes towards the environment and waste. Carl Zimring's analysis of Newtown Creek reveals three distinct historical narratives that have shaped the area's relationship with the environment and waste that are currently informing NYC policy.[22]

The first narrative of waste as legacy to overcome, portrays Newtown Creek as a polluted repository for hazardous waste from industrial activities, underscoring the need for remediation efforts. This narrative has played a crucial role in framing policy instruments aimed at cleaning the waterway. Clearly, both the magnitude of the environmental degradation and the asymmetrical response from the private and public sector, this narrative alone has failed to be instrumental.

The second narrative of waste as managerial process, views Newtown Creek as an essential component of New York City's urban metabolism. Here, sewage and waste management infrastructure evolved alongside the city's growth, highlighting the logical necessity of continued waste management to accommodate the city's expanding population. This narrative framework is of critical significance to current understanding of NYC of industrial land – often vacant – as a site for the sustainable goals of the city where calculation of local contamination and global benefits are often in conflict with residential underserved communities.

The third narrative of waste as a catalyst for future redevelopment, envisions the metamorphosis of Newtown Creek from a contaminated site into a coveted locale. This perspective postulates that effective remediation endeavors can lay the groundwork for redevelopment, offering the promise of a cleaner and more prosperous future. This narrative is deeply rooted in economic activities intrinsic to industrial society, with a particular emphasis on the commodification of waste.

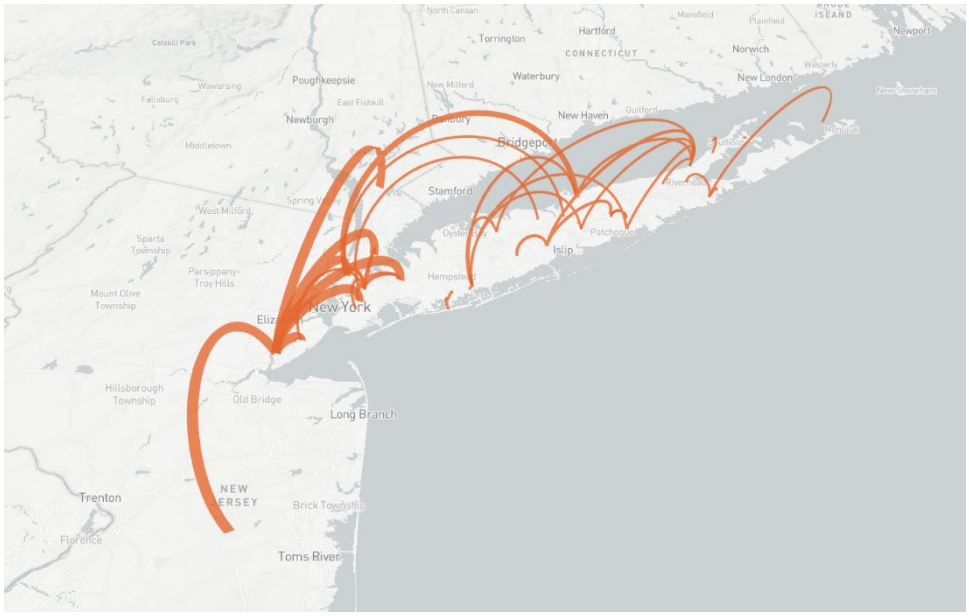

Figure 7a. Map of Incoming Construction and Demolition Waste to Transfer Facilities. 2019 Based on NYC DEP Data. NYU Center for Urban Sciences and Progress_MS_Students.
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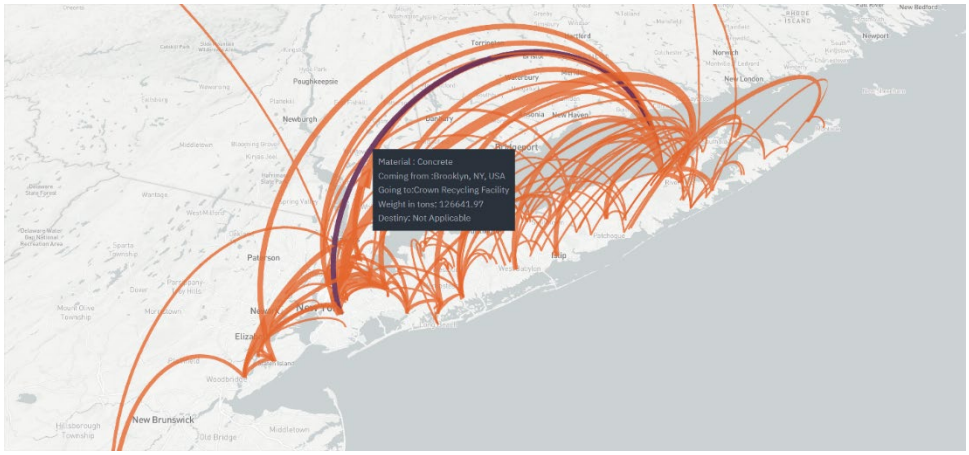

Figure 7b. Map of Incoming Construction and Demolition Waste to Transfer Facilities. 2019 Based on NYC DEP Data. NYU Center for Urban Sciences and Progress_MS_Students.
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Within the framework of the circular economy, waste is reconceptualized as a valuable resource that can be commercialized through both formal and informal reclamation systems. This historical trajectory encompasses recycling practices encompassing not only private-sector initiatives but also municipal collection programs. In contemporary contexts, the circular economy narrative serves as a guiding principle for evolving design and engineering methodologies, a trend that has gained momentum since the 1980s, exemplified by the emergence of the field of industrial ecology. Like the urban metabolism narrative, the circular economy narrative places faith in specialized professions' ability to address waste-related challenges.[23]

Both in the aforementioned literature and current studies conducted by different agencies in NYC, one thing becomes abundantly clear: the roadmap to achieving zero waste within NYC necessitates a paradigm shift in the perception of waste itself. It evolves from being viewed as a disposable burden to being recognized as a valuable urban resource. In particular, and linked to the NYC Town and

Gown study group that we collaborated with, this transformation sets the stage for the systematic recovery of urban resources – URR – and established the need for a circular economy. Within this broader category, the study group found the biggest opportunities in construction and demolition waste (CDW), the promotion of reuse practices, and the insistent closure of CDW material loops. These are the essential building blocks of a zero waste future.

Within this evolving narrative, New York City has begun to recognize the strategic significance of territories within its urban boundaries that can facilitate the processes and protocols necessary for non-displacement policies. Urban manufacturing is now seen not only as a site of production capable of invigorating the local economy but also as a hub for life cycle circularity. Emerging from life cycle assessment (LCA) studies conducted in 2015, a series of investigations into urban resource recovery conducted through the Town and Gown program have underscored the imperative of urban manufacturing in advancing a green circular economy.[24] Both the location and potential programs of manufacturing play pivotal roles in achieving multiple sustainability goals.

Concerning location, particularly concerning Construction Waste and Demolition Waste (CDW), studies have indicated that the current carbon footprint associated with transporting raw materials and exporting waste represents a formidable barrier to carbon reduction.[25] Furthermore, programs dedicated to Urban Resource Recovery (URR) are indispensable for accelerating and achieving the city's embodied carbon reduction goals. In the specific realm of manufacturing-dedicated URR, circular economies related to CDW, including Concrete Batch Plants and Green Asphalt Plants, are indispensable for preserving, refurbishing, and reusing essential urban and building materials. Nevertheless, the integration of these protocols into urban industrial geographies continues to present spatial and environmental challenges. Indeed, a compelling theme that emerges from the tested realities is the inextricable link between carbon emissions requirements and the localization of waste treatment processes within the confines of New York City (NYC). These studies present clear evidence to the fact that stringent carbon mandates cannot be effectively met if the practice of transporting waste out of the city for treatment persists. Consequently, the treatment of waste within the urban boundaries becomes a non-negotiable imperative.

In this context, the significance of industrial sites, particularly legacy industrial sites like the North Brooklyn Industrial Business Zone (IBZ), comes into sharp focus. These industrial sites represent not only a testament to the city's industrial heritage but also vital enablers of sustainable urban resource recovery. They serve as the linchpin in bridging the chasm between lofty sustainability goals and practical, on-ground implementation.

Zooming out to consider the broader NYC context, we uncover a dynamic interplay between the concept of "urban mining" and the intricate framework of a circular CDW economy. NYC, with its bustling population and incessant construction and infrastructure development, provides an ideal backdrop for exploring these dynamics. It's a city in perpetual motion, with an insatiable appetite for construction materials. This very characteristic underscores the critical need to identify and optimize urban spaces for advanced CDW operations. These spaces are where sustainability goals converge with the practical realities of stringent carbon mandates.

The rapid evolution of material technology, especially in the realm of low-carbon construction materials, presents a wealth of opportunities. Emerging technologies ingeniously leverage processed CDW components to dramatically reduce greenhouse gas emissions. A prime example is Executive Order No. 23 of 2022, the Clean Construction EO, which mandates the active integration of low-carbon concrete specifications, particularly in concrete sidewalks, within NYC capital projects.

Our comprehensive study goes further, identifying specific CDW elements ripe for direct reuse and others amenable to indirect repurposing through interim processing facilities. This strategic endeavor leverages the regulatory framework provided by the New York State Department of Environmental

Conservation (NYS DEC) Part 360 beneficial use designation (BUD) regulations.[26] These BUDs offer regulatory support for the reuse of CDW materials, effectively alleviating the stringent state solid waste regulations.

In tandem, NYS DEC directives emphasize the pivotal role of local governments in integrating CDW material flow considerations into their waste management strategies. NYC's recommendations to the New York State Climate Action Council are emblematic of its commitment to the cause.[27] The incorporation of horizontal infrastructure into the final blueprint of the Council's plan serves as a potent strategy to enhance the capture of greenhouse gas emissions and mitigate the carbon footprint tied to construction activities.

As we navigate these intricate pathways, the imperatives of sustainability, technological innovation, and urban spatial dynamics converge. The urgent need to locate these activities within the city to meet rigorous carbon mandates cannot be overstated. This reiterates the profound significance of legacy industrial sites like the North Brooklyn IBZ, which stand as resilient bastions of industrial heritage and essential contributors to the realization of urban resource recovery objectives. These sites, firmly rooted in the city's industrial legacy, serve as pivotal agents of transformation, where ambition and pragmatism coalesce to steer NYC toward a future of sustainable waste management, carbon compliance, and environmental stewardship.

Lastly, the complex interplay of policy implications between the benefits to the enhanced sustainability of the city and the risk to health of the community remains a critical issue. In North Brooklyn, the emergence of industries related to Construction and Demolition Waste (CDW) and urban resource recovery underscores the evolving economic dynamics of the region. However, as new industries take root, they bring with them a distinct set of environmental risks. These risks are compounded by the fact that technology and regulatory frameworks have yet to catch up with the demands of safeguarding these communities adequately. The challenges faced by underserved communities in the North Brooklyn Industrial Zone are emblematic of a broader national issue. The siting of industries with a propensity for environmental pollution in close proximity to residential neighborhoods is a longstanding concern. In this specific context, local residents contend with the duality of their relationship with the industrial activities that both sustain their livelihoods and jeopardize their well-being. In essence, the underserved and underrepresented communities of the North Brooklyn Industrial Zone find themselves at the intersection of economic necessity and environmental risk. The advent of new industries introduces fresh challenges, and the lag in technological solutions underscores the urgent need for proactive measures to protect the well-being of these communities. Environmental justice must be a paramount consideration in bridging the technological gap and ensuring that these communities are safeguarded from the adverse effects of industrial activities.[28]

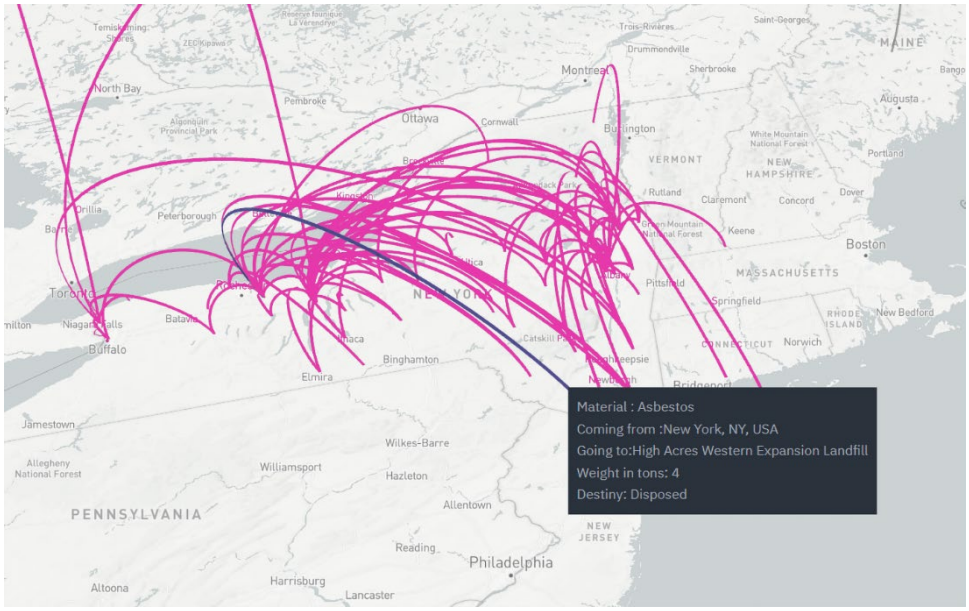

Figure 8. Map of Incoming Construction and Demolition Waste to Landfills. 2019 Based on NYC DEP Data. NYU Center for Urban Sciences and Progress_MS_Students. www.accomplishedcode-mapping-cdw-in-nyc-main-6q8ax0.streamlit.app

CONCLUSION

In conclusion, the North Brooklyn case study serves as a compelling illustration of the transformative potential inherent in contemporary urban manufacturing. It offers valuable insights into how this form of economic activity can simultaneously act as a catalyst for both social and environmental justice, and as a driver of circular green economies. The study highlights the importance of reevaluating the historical interplay between manufacturing and urban environments, presenting several key takeaways with practical implications.

The Social and Environmental in the Preservation of Industrial Zones in North Brooklyn

Central to the North Brooklyn case study is the notion of preserving distinct industrial zones within urban settings. Organizations such as the Association for Neighborhood and Housing Development (ANHD) and the Industrial Jobs Coalition advocate fervently for the preservation of these dedicated spaces. Their emphasis on safeguarding specific areas for manufacturing and industrial activities aligns with the concept of territorial accountability within a city's broader landscape. This approach recognizes these zones as essential economic and communal assets deserving of protection and it underscores the persistent necessity for delineated territories characterized by distinctiveness and discreteness, which in turn facilitate opportunities for diverse activities and communities.

Furthermore, the research underscores the intrinsic requirement for environmental ingress within these territories. This resonates with the broader theme of environmental justice and sustainability, as explored in the article's sections on urban manufacturing and circular green economies. The urban manufacturing districts, such as the North Brooklyn Industrial Business Zone (IBZ), are not isolated entities but integral components of a city's environmental landscape. Their sustainable operation necessitates the integration of environmentally responsible practices, particularly in the context of urban resource recovery (URR) and waste management.

The Role of Urban Manufacturing in Sustainable, Circular Practices

Moreover, the North Brooklyn case study highlights the role of urban density in enabling sustainable urban living. Concentrating resources and manufacturing activities within urban centers, as opposed to urban sprawl, embodies efficient resource utilization and localized waste management practices. This aligns with the principles of the circular economy framework, reducing the need for extensive resource transportation and waste disposal across vast territories.

The research also sheds light on the management of metabolic processes within evolving urban landscapes. The dynamic nature of industrial sites like the North Brooklyn IBZ reflects the increasing complexity of urban metabolic systems. It emphasizes the pivotal role these sites play in advancing urban resource recovery objectives and mitigating environmental impacts. Effectively managing these processes is central to a sustainable city and in turn to sustainable urban manufacturing.

Balancing Economic Necessity and Environmental Equity in North Brooklyn

Lastly, the North Brooklyn case study underscores the nuanced challenges faced by communities reliant on industrial activities. These communities, often situated in proximity to industrial zones, grapple with a dual relationship marked by economic necessity and environmental risks. The case study echoes broader discussions in this study regarding the unique struggles of underserved and underrepresented communities residing near industrial areas. It calls for proactive measures to safeguard the well-being of these communities while advancing environmental justice.

In summary, the North Brooklyn case study offers concrete evidence of the potential of urban manufacturing to drive social and environmental justice and to promote circular green economies. It provides actionable insights into preserving industrial zones, integrating sustainable practices, optimizing urban density, managing metabolic processes, and striking a balance between economic necessity and environmental equity within the context of a specific urban landscape. These findings contribute to a more nuanced understanding of the multifaceted dynamics at play in contemporary urban manufacturing.

NOTES

[1] The New York City Town+Gown is operated from the New York City Department of Design and Construction and it develops and supports applied built environment research projects, using NYC's built environment as a laboratory for the research. The project research Urban Resource Recovery was led by its director Terri Matthews. Some of the participants in the project included Professor Athanasios Bourtsalas – Columbia University, Department of Earth and Environmental Science, and Christopher Policastro – New York University, Tandon School and the NYU Center for Urban Sciences and Progress.

[2] The Industrial Business Zones (IBZs), established in early 2006 across the Bronx, Brooklyn, and Queens, emerged from the City's prior initiatives centered on In-Place Industrial Parks (IPIP). These earlier programs offered business support services to industrial and manufacturing enterprises within the IPIP while addressing infrastructure and business environment concerns. See also Davis, Jenna,"NYC's Industrial Business Zone Program: Examining the Intersection Between Econmoic Development and Land Use Policy", American Planning Associciotion, News & Views, April 2018 Found in https://www.umass.edu/larp/sites/default/files/News-Views-April-2019-EDD.pdf

[3] The Association for Neighborhood and Housing Development (ANHD) is a community organization that advocates for affordable housing and equitable neighborhoods in New York City. They collaborate with community groups throughout the city, using research, advocacy, and grassroots organizing to promote equity and justice.

[4] Evergreen – a North Brooklyn industry NGO - is a membership organization that champions manufacturing, creative production, and industrial service businesses in North Brooklyn.

[5] Andy Battle. "Runaway: A History of Postwar New York in Four Factories" (2019). CUNY Academic Works. https://academicworks.cuny.edu/gc_etds/3387

[6] Jenna Davis. "NYC's Industrial Business Zone Program: Examining the Intersection Between Econmoic Development and Land Use Policy", American Planning Associciotion, News & Views, April 2018 Found in https://www.umass.edu/larp/sites/default/files/News-Views-April-2019-EDD.pdf Data from the New York Economic Development Corporation.

[7] Jenna Davis. "NYC's Industrial Business Zone Program: Examining the Intersection Between Econmoic Development and Land Use Policy", American Planning Associciotion, News & Views, April 2018 Found in https://www.umass.edu/larp/sites/default/files/News-Views-April-2019-EDD.pdf

[8] See planning documents from NYC Planning Department included below as policy support to newer visions of hybrid manufacturing. See also Rappaport, Nina, "Vertical Urban Factory", Actar, March 2020

[9] William Curran, "From the Frying Pan to the Oven: Gentrification and the Experience of Industrial Displacement in Williamsburg, Brooklyn," Urban Studies, 44(8), 1427–1440. 2007 https://doi.org/10.1080/00420980701373438

[10] "Strengthening the Industrial Economy", Report by the ANHD and IJC 2020, https://anhd.org/sites/default/files/industrial-jobs-coalition-platform_april2021.pdf (Most of the data is sourced from NYS Dept. of Labor, December 2020)

[11] William Curran, "From the Frying Pan to the Oven: Gentrification and the Experience of Industrial Displacement in Williamsburg, Brooklyn,"Urban Studies, 44(8), 1427–1440. 2007 https://doi.org/10.1080/00420980701373438

[12] Gabriel Leffers, "Industrial Evolution: North Brooklyn's Adaptation to Decades of Social and Economic Change", Evergreen report on the current state of industrial North Brooklyn, 2022 https://evergreenexchange.org/wp-content/uploads/2023/03/Industrial-Evolution.pdf

[13] New York City Department of Planning, Draft Zoning Framework Community Board 4, April 17, 2019. https://www.nyc.gov/assets/planning/download/pdf/plans-studies/north-brooklyn-vision-plan/nbk-draft-framework-041719.pdf

[14] Gabriel Leffers, "Industrial Evolution: North Brooklyn's Adaptation to Decades of Social and Economic Change", Evergreen report on the current state of industrial North Brooklyn, 2022 https://evergreenexchange.org/wp-content/uploads/2023/03/Industrial-Evolution.pdf

[15] U.S. Census Bureau, OnTheMap Application and LEHD Origin-Destination Employment Statistics

[16] New York State Quarterly Census of Employment and Wages, 2019.

[17] Miriam Greenberg, and Penny Lewis, editors. The City Is the Factory: New Solidarities and Spatial Strategies in an Urban Age. 1st ed., Cornell University Press, 2017. The editors refer to the return to the urban factory as renewed "place based" territory for justice in the introduction "From the Factory to the City and Back Again". Pages (pp. 1-25)

[18] Peter Marcuse, "From critical urban theory to the right to the city", City, September 2 2010, 13:2-3, 185-197

[19] Combined Sewage Outflows: outlets within the municipal release raw sewage to the creek when the municipal systems are overwhelmed by precipitation.
[20] Mireya Navarro, “Where Brooklyn And Queens Meet, A Quiet Parallel To the Gulf Spill”, The New York Times, August 3, 2010, Section A, Page 15
[21] Nathan Kensiger, “‘A layer cake of environmental pollution’: Greenpoint struggles with rezoning 18 years on”, Gothamist, April 20, 2023
https://gothamist.com/news/a-layer-cake-of-environmental-pollution-greenpoint-struggles-with-rezoning-18-years-on
[22] Carl A Zimring. “Reading Newtown Creek: Competing Narratives of New York City’s Aquatic Discardscape.” Coastal Metropolis: Environmental Histories of Modern New York City, edited by Carl A. Zimring and Steven H. Corey, University of Pittsburgh Press, 2021, pp. 202–220.
[23] Zimring. *Reading Newtown Creek*, pp. 202–220.
[24] ”Urban Mining and CDW Circular Economy”, Report, December 13, 2022, New York City Department of Design and Construction, Town and Gown Program,
https://www.nyc.gov/assets/ddc/downloads/town-and-gown/URR9AgendaandPrecisFinal.pdf
[25] ”Pushing the Urban Resource Recovery and Re-use Envelope: Closing Loops City Program Initiative“ October 13, 2021, New York City Department of Design and Construction, Town and Gown Program
https://www.nyc.gov/assets/ddc/downloads/town-and-gown/AgendaandPrecis.Final10-12-21.pdf
[26] See 2022 Analysis of Proposed Changes to Part 360 Regulations (Brooklyn Law School) Update to 2021 Analysis of Part 360 Regulations (Brooklyn Law School) and https://www.nyc.gov/office-of-the-mayor/news/023-002/executive-order-23
[27] See https://www.nyserda.ny.gov/About/Newsroom/2022-Announcements/2022-06-01-CAC-Extends-Deadline-for-Public-to-Comment-on-Draft-Scoping-Plan-to-July-1.4
[28] Jill Johnston, and Lara Cushing. "Chemical exposures, health, and environmental justice in communities living on the fenceline of industry." *Current environmental health reports* 7 (2020): 48-57. https://doi.org/10.1007/s40572-020-00263-8.

BIBLIOGRAPHY

Battle, Andy. “Runaway: A History of Postwar New York in Four Factories.” 2019. CUNY Academic Works. https://academicworks.cuny.edu/gc_etds/3387
Bluestone, Barry, and Bennett Harrison. The Deindustrialization of America: Plant Closings, Community Abandonment, and the Dismantling of Basic Industry. Basic Books, 1982.
Bowles, Jonathan. “City Zoning Decisions Further Harm NYC Manufacturers.” Center for an Urban Future, November 21, 2003.
Checker, Melissa. “Green Is the New Brown: ‘Old School Toxics’ and Environmental Gentrification on a New York City Waterfront.” In Sustainability in the Global City: Myth and Practice, edited by Cynthia Isenhour, Gary McDonogh, and Melissa Checker, Cambridge University Press, 2015.
Cohen, Stephen, and John Zysman. Manufacturing Matters: The Myth of the Post-Industrial Economy. Basic Books, 1987.
Curran, William. “From the Frying Pan to the Oven: Gentrification and the Experience of Industrial Displacement in Williamsburg, Brooklyn.” Urban Studies, vol. 44, no. 8, 2007, pp. 1427–1440. https://doi.org/10.1080/00420980701373438
Davis, Jenna. “NYC’s Industrial Business Zone Program: Examining the Intersection Between Economic Development and Land Use Policy.” American Planning Association, News & Views, April 2018. https://www.umass.edu/larp/sites/default/files/News-Views-April-2019-EDD.pdf
Fitch, Robert. “Explaining New York City’s Aberrant Economy.” New Left Review, no. 207, 1994.
Greenberg, Miriam, and Penny Lewis, editors. The City Is the Factory: New Solidarities and Spatial Strategies in an Urban Age. 1st ed., Cornell University Press, 2017.
Hall, Peter. Cities in Civilization. Pantheon Books, 1998.
Hum, Tarry. “The Hollowing-Out of New York City’s Industrial Zones.” Metropolitics, 2014.
Huntington VE, Coulon F, Wagland ST. Innovative Resource Recovery from Industrial Sites: A Critical Review. Sustainability. 2023; 15(1):489. https://doi.org/10.3390/su15010489

Johnston, J., & Cushing, L. “Chemical Exposures, Health, and Environmental Justice in Communities Living on the Fenceline of Industry.” Current Environmental Health Reports, vol. 7, 2020. https://doi.org/10.1007/s40572-020-00263-8

Kensinger, Nathan. “‘A Layer Cake of Environmental Pollution’: Greenpoint Struggles with Rezoning 18 Years On.” Gothamist, April 20, 2023. https://gothamist.com/news/a-layer-cake-of-environmental-pollution-greenpoint-struggles-with-rezoning-18-years-on

Leffers, Gabriel. Industrial Evolution: North Brooklyn’s Adaptation to Decades of Social and Economic Change. Evergreen, 2022. https://evergreenexchange.org/wp-content/uploads/2023/03/Industrial-Evolution.pdf

Marcuse, Peter. “Abandonment, Gentrification, and Displacement: The Linkages in New York City.” In Gentrification of the City, edited by Neil Smith and Peter Williams, Unwin Hyman, 1986.

Marcuse, Peter. “From Critical Urban Theory to the Right to the City.” City, vol. 13, no. 2–3, 2010.

Navarro, Mireya. “Where Brooklyn and Queens Meet, A Quiet Parallel to the Gulf Spill.” The New York Times, August 3, 2010.

New York City Department of Design and Construction, Town and Gown Program. Pushing the Urban Resource Recovery and Re-use Envelope: Closing Loops City Program Initiative. October 13, 2021. https://www.nyc.gov/assets/ddc/downloads/town-and-gown/AgendaandPrecis.Final10-12-21.pdf

New York City Department of Design and Construction, Town and Gown Program. Urban Mining and CDW Circular Economy Report. December 13, 2022. https://www.nyc.gov/assets/ddc/downloads/town-and-gown/URR9AgendaandPrecisFinal.pdf

New York City Department of Planning. Draft Zoning Framework Community Board 4. April 17, 2019. https://www.nyc.gov/assets/planning/download/pdf/plans-studies/north-brooklyn-vision-plan/nbk-draft-framework-041719.pdf

New York State. Quarterly Census of Employment and Wages, 2019.

Phillips-Fein, Kim. “The Still-Industrial City: Why Cities Shouldn’t Just Let Manufacturing Go.” The American Prospect, no. 40, Sept./Oct. 1998.

PICCED (Pratt Institute Center for Community and Environmental Development). Making it in New York: The Manufacturing Land Use and Zoning Initiative. The Municipal Art Society, 2001.

“Resilience and Resource Efficiency in Cities.” United Nations Environment Programme, 2017.

Sassen, Saskia. The Global City: New York, London, Tokyo. Princeton University Press, 1991.

Strengthening the Industrial Economy. Report by the ANHD and Industrial Jobs Coalition, 2020. https://anhd.org/sites/default/files/industrial-jobs-coalition-platform_april2021.pdf

Sugrue, Thomas J. The Origins of the Urban Crisis: Race and Inequality in Postwar Detroit. Princeton University Press, 1996.

U.S. Census Bureau. OnTheMap Application and LEHD Origin-Destination Employment Statistics.

Waldinger, Roger. Still the Promised City? African-Americans and New Immigrants in Postindustrial New York. Harvard University Press, 1996.

Zimring, Carl A. “Reading Newtown Creek: Competing Narratives of New York City’s Aquatic Discardscape.” In Coastal Metropolis: Environmental Histories of Modern New York City, edited by Carl A. Zimring and Steven H. Corey, University of Pittsburgh Press, 2021.

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