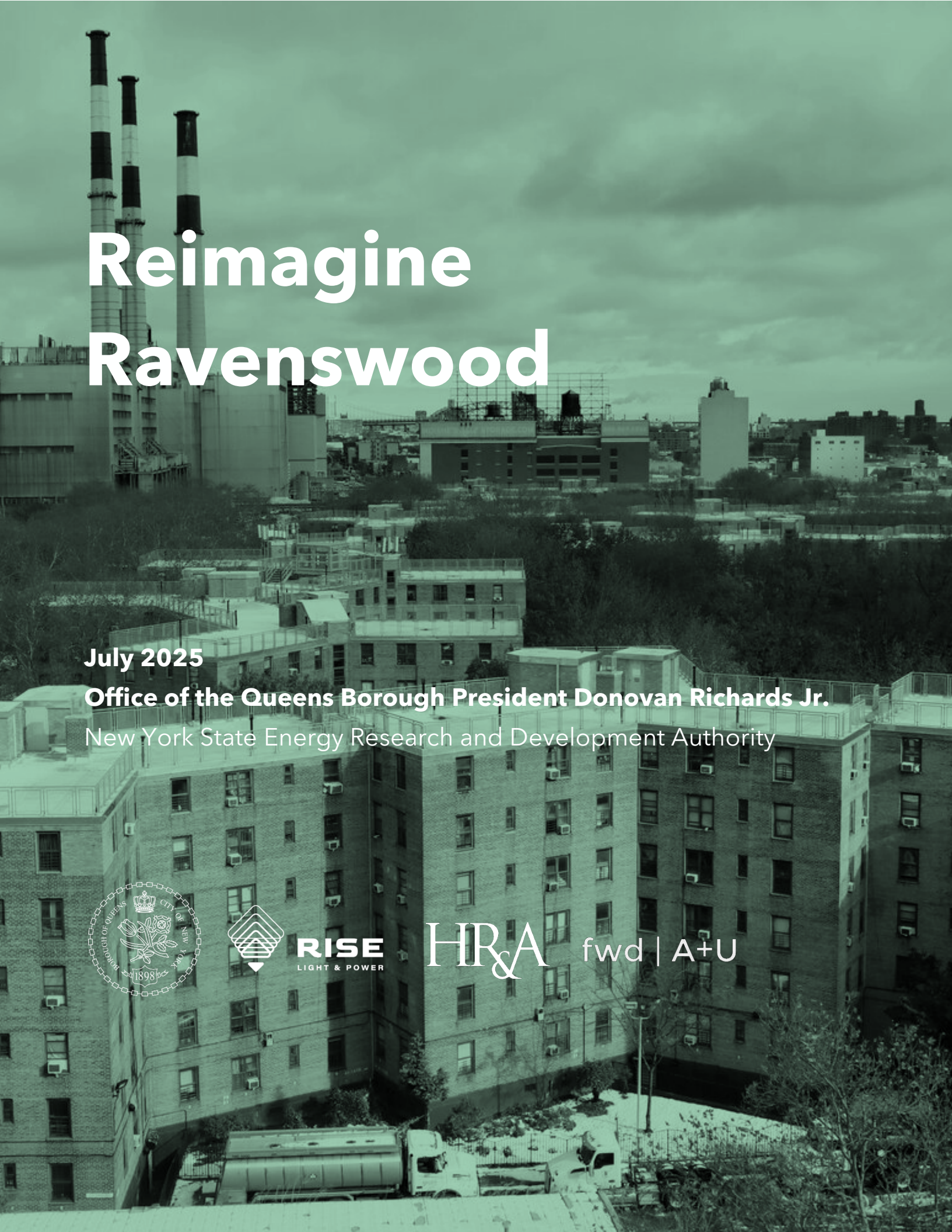
Reimagine Ravenswood



July 2025

Office of the Queens Borough President Donovan Richards Jr.

New York State Energy Research and Development Authority

RISE LIGHT & POWER

HR&A

fwd | A+U

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REIMAGINE RAVENSWOOD AND THE JUST TRANSITION SITE REUSE PLANNING PROGRAM

Reimagine Ravenswood is a collaborative, community-based economic opportunity and community development plan overseen by the **Office of the Queens Borough President Donovan Richards Jr.**, funded by the **New York State Energy Research and Development Authority (NYSERDA)**, and supported in part by **New York City Mayor's Office of Climate and Environmental Justice, Rise Light & Power**, and its parent, the **LS Power** group, the owner of the Ravenswood Generating Station, with advisory support from the **Drescher Group**.

The Queens Borough President's Office was awarded funding for the plan through the **NYSERDA Just Transition Site Reuse Planning Program**, which is designed to provide communities with resources to inform future local-level decision making and help mitigate any negative impacts of pending or future fossil fuel power plant closures.

HR&A Advisors authored this report and served as lead consultant on the study with the support of **Fu Wilmers Design: Architecture and Urbanism (fwd | A+U)**

Photo Credits: Cover Photo: Mark Lennihan/AP; Page 2: Reece T. Williams/Gothamist

This document puts forward recommendations that are a reflection of a community-driven process. It describes numerous potential projects and initiatives that will need to be officially reviewed and endorsed by City agencies to become possible in the years and decades ahead. As with any complex project related to infrastructure, fulfillment of any of these possible scenarios are conditioned on (1) the success of permitting and approvals processes at the federal, state, and local levels; (2) the success of Rise and its affiliates in securing binding offtake agreements for renewable energy resources; and (3) technical feasibility and reliable provision of energy in a safe and economical manner. Images and descriptions provided are for illustrative purposes only and may not accurately reflect the final product or outcome.

Introduction

Overview

Reimagine Ravenswood is a community-driven plan for how the residents, businesses, and workers of the larger Queensbridge-Ravenswood neighborhood can benefit from the effort to transform the Ravenswood Generating Station from a fossil-fueled power plant into a clean energy hub.

Reimagine Ravenswood is based on the opportunity created by "Renewable Ravenswood," a proposal by Rise Light & Power and its parent, LS Power, the owner of the Ravenswood Generating Station, to redevelop the site as a new renewable energy hub to help New York achieve its nation-leading climate goals. Reimagine Ravenswood identifies ways that public and private interventions can help make the most of the transition for the surrounding community.

The plan outlines a ***just transition*** in the area surrounding the power plant—a shift from a legacy of fossil fuel-based power generation to a broader range of activities enabling a clean energy economy that delivers opportunities in the community, such as employment, business, inclusive wealth-generation, and public health benefits.

By describing complementary investments and strategies that can boost the catalytic potential of Renewable Ravenswood, as well as the public-sector resources and government approvals needed, Reimagine Ravenswood identifies strategies to:

- Transition of the Ravenswood Generating Station into a renewable energy hub to support the **economic potential for neighborhood residents, workers, and businesses.**
- Illustrate **pathways for local residents into new, family-sustaining jobs** in industries with growth potential, including offshore wind and the broader green economy.
- Improve the public's engagement with the site, including public access to a more **cohesive and contiguous greenway** and a more **vibrant experience along Vernon Boulevard**.
- Improve residents' quality of life by investing in key **community infrastructure and development services** and identifying potential resources for this investment.

What is a Just Transition?

The concept of a just transition has emerged from of a history of labor and environmental activism in the United States. The framework recognizes that an economic transition from fossil fuels to clean, renewable energy is inevitable, but it is up to us whether that shift is an equitable one. Without intentional planning, there is a risk of repeating a legacy of economic and racial injustice that has been rooted into today's economy.

A just transition centers existing union workers alongside historically marginalized communities as we transition to a clean energy economy and commits to realizing equitable access to health, wellness, and economic opportunity, including those most harmed by environmental racism and injustice.

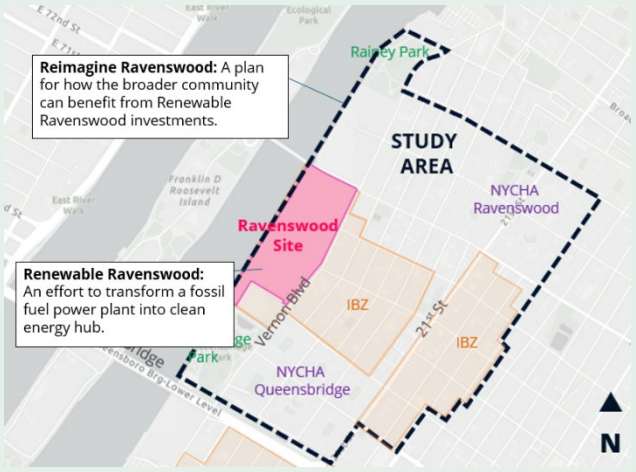
The Reimagine Ravenswood team consists of the Queens Borough President's Office and Rise Light & Power with support from HR&A Advisors, who produced this report with Fu Wilmers Design Architecture and Urbanism. Team members engaged with local residents, workers, and business owners through public workshops; a steering committee with community organizations, unions, and residential leaders; a public survey; and focus groups. More information about the steering committee and other support for Reimagine Ravenswood is available in *Acknowledgments.*

What is Renewable Ravenswood?

Renewable Ravenswood proposes to redevelop the Ravenswood Generating Station as a renewable energy hub, advancing New York's climate goals, yielding transformative benefits for union labor, and helping realize environmental justice in the local community. This transformation will take place by interconnecting large-scale renewable energy projects following the completion of permitting, design, and construction.

Occupying 27 waterfront acres in Long Island City, Ravenswood employs over 100 workers, primarily members of Utility Workers Union of America Local 1-2. Decarbonizing the site and turning it into a clean energy hub, including delivering offshore wind and other forms of clean energy, presents a broader opportunity to envision how it will generate environmental and economic benefits for the community while maintaining its strong union workforce. It opens a conversation about a just transition in the area surrounding Ravenswood as well as across Queens—a shift from fossil fuel uses to a renewable economy that delivers opportunities in the community, namely employment, business, inclusive wealth-generation , and public health benefits.

Figure 1: Reimagine Ravenswood Plan Area Map



Vision Statement

Reimagine Ravenswood synthesized the aspirations of community members into the following vision statement.

Catalyzed by future renewable energy development at and connected to Ravenswood Generating Station, Reimagine Ravenswood envisions a future where the site delivers clean energy, welcoming public spaces, and complementary uses. This vision shapes the future of the Ravenswood waterfront, where a green economy creates work, leisure, and cultural opportunity for all.

The community around the Ravenswood Generating Station includes two of the largest public housing developments in the United States, which have faced disproportionate impacts from local industrial activity, hazards that have compounded residents' vulnerable socioeconomic position to earn the area the moniker of "Asthma Alley."

However, the transformation of the Ravenswood Generating Station into a renewable energy hub will serve as a catalyst for a shift in urban context for the broader community. Coupled with complementary investments by public and private partners, the redevelopment will improve the public realm and create accessible, high-quality jobs. Reimagine Ravenswood envisions access to good jobs in the green economy, clean air, safe homes, and vibrant public spaces.

Reimagine Ravenswood Process

The Reimagine Ravenswood team conducted in-depth economic and existing conditions analysis to understand the neighborhood. It also engaged numerous stakeholders and hundreds of community members to develop a community-led vision and actionable strategies. (See the "Methodology" section in the appendix")

Figure 2: Reimagine Ravenswood Planning Schedule

Central to the Reimagine Ravenswood process was substantive and varied community engagement, with the goal of reaching a large number of residents and providing opportunities to provide input on the vision for the future of the site and the neighborhood as a whole. The public engaged with the plan in several ways, including:

- **Stakeholder interviews**: Dozens of interviews were conducted with local and community stakeholders, including New York City Housing Authority residents, community development organizations, workforce development organizations, unions, business and industrial development groups, educational institutions, cultural organizations, advocacy groups, private developers, and the public sector. These interviews informed findings outlined in *Neighborhood Existing Conditions*.
- **Steering committee**: A steering committee comprised of local and community leaders convened five times to help craft and provide feedback on public workshop posters, initial findings, and draft strategies.
- **Public workshops**: Three public workshops were held across the neighborhood, including at NYCHA Queensbridge and Ravenswood Housing Communities, to engage directly with residents and workers of the area on challenges they have faced or observed, opportunities for the site, and ideas for specific strategies to meet the needs of the community and take advantage of the benefits of the site's transition to a renewable energy hub.
- **Community survey:** A short, anonymous survey was launched in April for community members to provide input on the types of development and investments they want to see in the neighborhood as well as feedback on barriers they face in accessing economic opportunities. 221 total responses were recorded. Please see the Appendix for full survey results.
- **Youth focus group:** A focus group was held in May at Variety Boys & Girls Club in Queens with 20 young adults who live near Ravenswood Generating Station. The youth reflected on their exposure to the concept of green jobs and other considerations they have when thinking about their future and possible paths of work.
- **Public website:** A public website, https://reimagineravenswood.com/, was launched at the beginning of the planning process to serve as an online hub to learn about Reimagine Ravenswood, RSVP for public engagement opportunities, and access the online community survey.

Previous and Parallel Studies

Currently, New York State and New York City are leading studies, plans, and initiatives that will prepare the city for coming decades of inclusive economic development, housing and community development, and sustainability and resilience. Although many of these plans will affect investments citywide, they have major implications for the Queensbridge-Ravenswood neighborhood. Reimagine Ravenswood offers partners in government a tangible opportunity to realize ambitious climate and environmental justice goals.

Recent and Ongoing City and State Efforts:

- Climate Leadership and Community Protection Act Scoping Plan, New York State Climate Action Council
- New York State Disadvantaged Communities Barriers and Opportunities Report, New York State Climate Justice working Group, New York State Energy Research and Development Authority, New York State Department of Environmental Conservation, and the New York Power Authority
- City of Yes for Carbon Neutrality, Department of City Planning
- City of Yes for Economic Opportunity, Department of City Planning
- City of Yes for Affordable Housing, Department of City Planning
- New York City Citywide Industrial Plan, Department of City Planning, New York City Economic Development Corporation, and New York City Small Business Services
- New York City Blue Highways Initiative
- Green Economy Action Plan, New York City Economic Development Corporation and the Mayor's Office of Talent and Workforce Development
- Climate Strong Communities, Mayor's Office of Climate & Environmental Justice
- NYCHA Sustainability Agenda, New York City Housing Authority
- PowerUp NYC Long-Term Energy Plan, Mayor's Office of Climate and Environmental Justice
- Getting 97 Done, Mayor's Office of Climate and Environmental Justice
- PlaNYC Getting Sustainability Done, Mayor's Office of Climate & Environmental Justice
- Cultivating Urban Agriculture in New York City, Mayor's Office of Urban Agriculture

Studies and Plans in and around the Queensbridge-Ravenswood neighborhood:

Reimagine Ravenswood coordinates with parallel and past studies occurring in Western Queens, seeking to complement or reflect strategies offered in its context. Under the leadership of Council Member Julie Won and the Department of City Planning, the One Long Island City (One LIC) neighborhood planning study will examine ways to create new housing, stimulate economic growth, improve transit connectivity, and produce additional open space in an adjacent area of Long Island City, culminating with a set of proposed zoning changes in 2025.

In addition, a variety of civic groups have articulated visions for the area up and down the waterfront, including the Hunters Point North Vision Plan for Resiliency by the Long Island City Coalition (LICC) and Hunts Point Community Coalition, a Studio Reimagining the Long Island City Waterfront (a collaboration between the Western Queens Community Land Trust, LICC, and Rutgers University), and the Civic Action Plan exhibition and report sponsored by The Noguchi Museum and Socrates Sculpture Park.

Table 1: Studies and Plans in and around the Queensbridge-Ravenswood Neighborhood

Title	Author	Description
One LIC Plan	Department of City Planning and Council Member Julie Won	The ongoing study examines ways to create new housing, economic growth, transit connectivity, and open space, concluding with a neighborhood plan that will propose zoning changes. The plan focuses on the LIC neighborhood primarily south of the Queensboro Bridge with some inclusion of the area adjacent to Queensbridge Houses. The DCP scope projects the plan to create 16,000 new homes, at least 4,000 of which will be affordable, and 16,000 new jobs across various sectors.
Hunters Point North Vision Plan for Resiliency	Long Island City Coalition and Hunts Point Community Coalition	This community vision plan details strategies to support sustainable development in Hunters Point North and create a more resilient waterfront.
Senior Studio: Reimagining the Long Island City Waterfront with the WQCLT	Western Queens Community Land Trust (WQCLT), Long Island City Coalition (LICC), and Rutgers University Landscape Architecture Senior Studio	The 2021 Rutgers Housing and Open Space Studio collaborated with WQCLT and LICC to develop open space, site design, and planning ideas on key neighborhood assets including the Rise Generation Station
Civic Action Plan: A Vision for Long Island City, Noguchi Museum + Socrates Sculpture Park	The Noguchi Museum and Socrates Sculpture Park	The 2012 Civic Action Plan was a two-part exhibition where a team of artists architects, urban planners, writers, historians, and other consultants re-imagined the northern industrial stretch of Long Island City to respond to increasing residential development, rezoning, and ecological threats. The results of this visioning process were then realized through art installations and performances at Socrates.

Neighborhood Existing Conditions

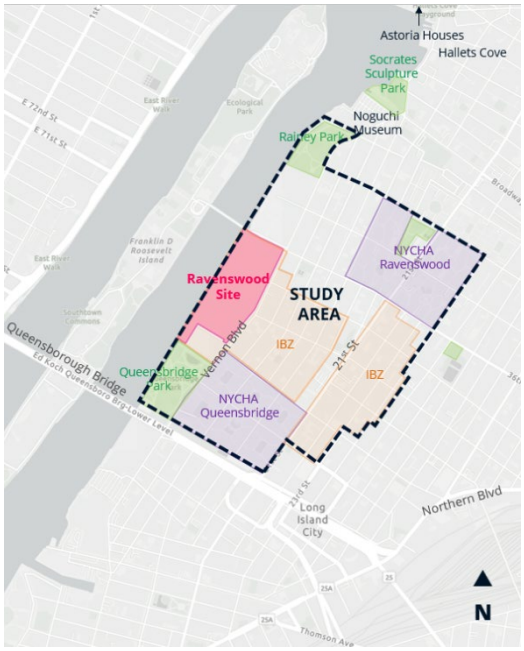
Overview

This section offers a holistic assessment of the physical, social, and economic conditions, including a green economy assessment, around the Ravenswood Generating Station. The team identified key challenges faced by community members and the neighborhood strengths that can support solutions. (See 'Recommendations' section.)

Exploration and Major Assets

The Queensbridge-Ravenswood neighborhood, which is the area highlighted in the figure below, includes a unique mix of assets and communities adjacent to the Ravenswood Generating Station. The team collected all the data presented in this section for the Queensbridge-Ravenswood neighborhood using the boundaries in the figure below.

Figure 3: Reimagine Ravenswood Plan Area Map



- **NYCHA Queensbridge and Ravenswood Houses** are two of the largest public housing developments in New York City and in the country, consisting of more than 5,300 units. NYCHA residents have faced a legacy of local environmental justice challenges and have the potential to participate as skilled workers in new green economic activity. NYCHA Astoria Houses is located to the north and NYCHA Woodside Houses is located east along Northern Boulevard, comprising nearly 8,000 units within two miles of Ravenswood Generating Station.
- **The Long Island City Industrial Business Zone (IBZ),** part of which straddles 21st Street, is zoned for industrial uses and contains a significant concentration of skilled workers in construction and warehousing. The area is well-suited to grow into a manufacturing hub that can support the renewable energy supply chain needs of the transition of the Ravenswood Generating Station into a renewable energy hub, and green economic activity citywide. The IBZ is increasingly surrounded by changing patterns of land use and investment, affecting its ongoing operations and presenting a need for planning, as well as increasing predisposition for logistics uses.
- **21st Street** serves as a key commuting and industrial transportation corridor, transecting the IBZ and the NYCHA Ravenswood campus.
- **Queensbridge Park and Rainey Park**, representing 29 acres of green open space, anchor the neighborhood's waterfront boundary on either side of the Ravenswood Generating Station site and development north of the Roosevelt Island Bridge.
- **The Long Island City neighborhood,** the densest portions of which are located south of Queensboro Bridge, comprises a center of business, commerce, and residential development in Queens. The area has come to compete with Manhattan and Downtown Brooklyn with respect to office and residential space. Rezoning expected as an outcome of the One LIC neighborhood plan will add additional density to the area, including new open space and as many as 16,000 units of housing.

Table 2: Queensbridge-Ravenswood Neighborhood Key Stats[1]

Key Stats	
Total Population: 18,240	**NYCHA Apartments:** 5,300
Population Growth 2011-2021: 3%	**Other Apartments:** 1,800
Median Household Income: $36,400	**Total Jobs:** 18,800
Unemployment Rate: 6%	**Job Growth:** 26% (2011-2021)

Key Observations

The Queensbridge-Ravenswood neighborhood contains strong, unique community assets: a well-organized civic community anchored by resourceful, trusted nonprofit organizations and resident association leadership at NYCHA; a large stock of public housing; two large waterfront parks (Queensbridge Park and Rainey Park); public schools and two career and technical education schools, bus and subway connectivity, and proximity to major business, academic, and cultural destinations including the Long Island City neighborhood, the Cornell Tech Campus, LaGuardia Community College, the Noguchi Museum, Socrates Sculpture Park, and the Museum of the Moving Image.

Despite these rich amenities, neighborhood residents face relatively challenging economic conditions. As of 2021, neighborhood median household income was one-third of that of Western Queens; 18% of the neighborhood residents lived in poverty—at least twice the rate in Western Queens. Although the unemployment rate has rapidly decreased over the past decade, the neighborhood still has a uniquely low labor force participation rate compared to residents in adjacent areas (59% labor force participation rate, compared to 73% in Western Queens), suggesting that many residents are not actively seeking work or are unable to work.

NYCHA Queensbridge and NYCHA Ravenswood represent the greatest levels of capital need per development across NYCHA's entire citywide portfolio. About three quarters (75%) of the neighborhood population lives in NYCHA apartment units, and many of these units are in need of physical maintenance and repair.

Figure 4: Median Household Income (2021)

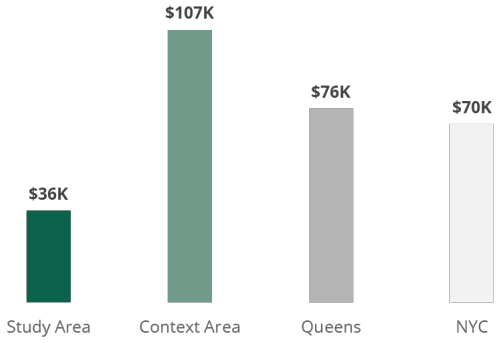
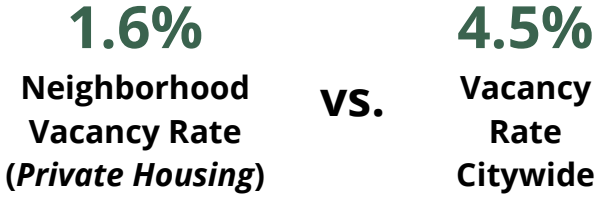


Figure 5: Neighborhood vs. Citywide Vacancy Rate (2021)



The neighborhood could face, and might already be facing, gentrification and displacement pressure. Rising rents and low vacancy rates in residential areas outside public housing reflect the citywide affordable housing crisis and the intensity of residential demand in the Long Island City neighborhood immediately to the south. Despite local housing vacancy rates under 2%, dominant industrial zoning and restrictions on the IBZ prevent new housing development in many parts of the neighborhood. As demand for housing increases while supply remains constrained, residents in private housing might face displacement; the proportion of Black and Latinx residents in the neighborhood has already decreased in the last ten years, suggesting racialized displacement is already occurring. However, NYCHA serves as an important bulwark for many of the neighborhood's residents against these trends, considering tenant protections unique to public housing.

[1] U.S. Census Bureau. American Community Survey 2011, 2021.

The Queensbridge-Ravenswood neighborhood also suffers acute exposure to environmental hazards including higher-than-average levels of air pollution and associated chronic health conditions, flood risk, and extreme heat risk. Residents and workers have endured disproportionately high levels of air pollution and environmental contamination from a combination of energy and industrial uses, earning the area the nickname "Asthma Alley." The majority of the Ravenswood Generating Station, and upland areas including parts of Queensbridge and Ravenswood Houses, are in the FEMA-designated 500-year floodplain, in which floods or projected to occur once every 500 years, before accounting for the impacts of climate change and rising sea levels. In addition, the neighborhood is subject to intense heat due in part to a lack of tree canopy outside of NYCHA campuses and an abundance of paved area in the IBZ.

Although the neighborhood contains two portions of the Long Island City IBZ, light industrial businesses are facing challenges. Due to the density of immediate residential uses, and the prevalence of permitted hotel uses within the IBZ, there are often conflicts between pedestrian traffic and freight loading and transport in the IBZ north of Queensboro Bridge. The migrant crisis in New York City has exacerbated this conflict because many of these hotels are currently serving as emergency shelters for migrants and unhoused New Yorkers.

> *""The local IBZ isn't functional for industrial businesses anymore because the hotels dramatically changed the landscape in a detrimental way." – Local Small Business Owner.*

*- Local Small Business Owner (Reimagine Ravenswood Community Survey)***Vernon Boulevard, a primary commercial corridor fronting the Ravenswood Generating Station, lacks pedestrian safety and amenities and is generally unwelcoming and inactive.** The Reimagine Ravenswood community survey and engagement during the four Reimagine Ravenswood public workshops demonstrated urgent need for sidewalk repair, tree planting, public benches and bus shelters, street lighting, and enhanced public space along Vernon Boulevard. Nearly all of the 0.6 miles between Queensbridge and Rainey Parks is faced with blank brick walls on the western side.

What is an Industrial Business Zone?

Industrial Business Zones (IBZs) were created in early 2006 in areas of the Bronx, Brooklyn, Queens, and Staten Island to support and preserve industrial and manufacturing uses. Locating in an IBZ can entitle businesses to specialized support services from Small Business Services. Qualifying businesses that relocate to IBZs can receive one-time relocation tax credits.

IBZ designation represents a commitment by the Bloomberg administration, upheld by subsequent mayors, to prohibit rezoning to permit new housing.[2]

IBZs continue to evolve in response to public advocacy and City policymaking.

- NYC Department of City Planning, in collaboration with Small Business Services, is embarking on a NYC Citywide Industrial Plan, which will include a holistic review of manufacturing activity in the City including activity within IBZs.
- Recently, the Adams' administration declared it would support City Council restrictions on the development of additional last-mile distribution facilities in IBZs, given these facilities' adverse impacts on local traffic and air quality.[3]

[2] City of New York. "New York City Industrial Policy Protecting and Growing New York City's Industrial Job Base," January 2005. https://www.nyc.gov/html/imb/downloads/pdf/whitepaper.pdf

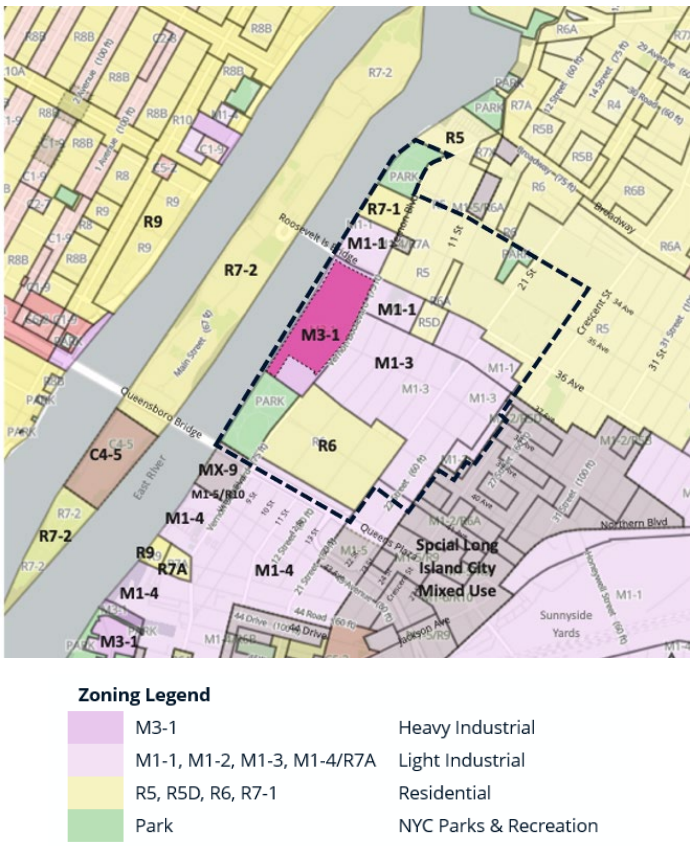
[3] City of New York, Office of the Mayor. "Letter from Maria Torres Springer, Deputy Mayor for Housing, Economic Development and Workforce to City Council Speaker Adrienne Adams," May 2024. https://council.nyc.gov/alexa-aviles/wp-content/uploads/sites/110/2024/06/Letter-to-Speaker-Adams-may-22-2024.pdf.

Land Use and Zoning

Major uses within the Queensbridge-Ravenswood neighborhood include:

- **Ravenswood Generating Station.** The station lies in the center of the area along the waterfront, spanning 27 acres. Adjacent to the station, Con-Ed owns and operates a substation. The Ravenswood Site and Con Edison substation are zoned for heavy industry (M3-1).
- **Two large NYCHA campuses.** NYCHA Queensbridge Houses is situated on the southern end of the neighborhood and NYCHA Ravenswood Houses is located on the northern end.
- **Small and medium-scale housing.** Small multifamily, low-rise attached houses comprise the north of the neighborhood next to Ravenswood Houses. (The neighborhood contains parcels zoned for R5 low-rise residential uses and a smaller number of R6 zoned parcels, which allow for medium-density housing)
- **Two waterfront parks.** Rainey Park anchors the northern edge of the neighborhood and Queensbridge Park sits directly south of the Ravenswood Generating Station. Most of the land uses between these two parks is energy infrastructure.
- **Light industrial buildings.** Automobile services, material suppliers, construction businesses, and a large number of warehouse and storage uses are located on both sides of the 21st street corridor. The concentration of these businesses generally aligns with the scope of the Long Island City IBZ. (Industrial zoning in the area permits light and heavy industrial uses (M1-1, M1-2, M1-3, M1-4/R7A). The majority of the available, vacant space in the Queensbridge-Ravenswood neighborhood is zoned for industrial usage.
- **Hotels.** Most of the area hotels are situated within the northwest section of the IBZ.

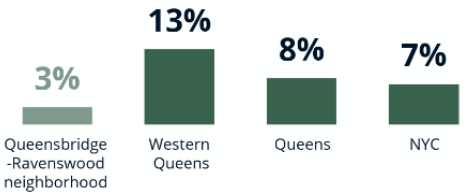
Figure 6: Zoning Map of the Queensbridge-Ravenswood Neighborhood and Surrounding Area



Population

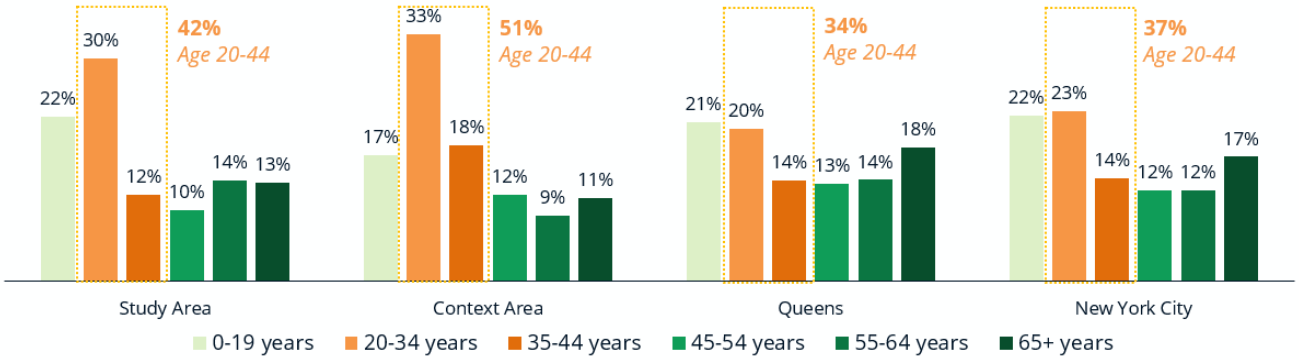
The neighborhood's population growth has been anemic compared to its surroundings. Neighborhood population increased 3% 2011-2021, while the population of Western Queens, driven primarily by explosive growth in Long Island City, grew over 13% during the same period.

Figure 7: Change Population between 2011 and 2021



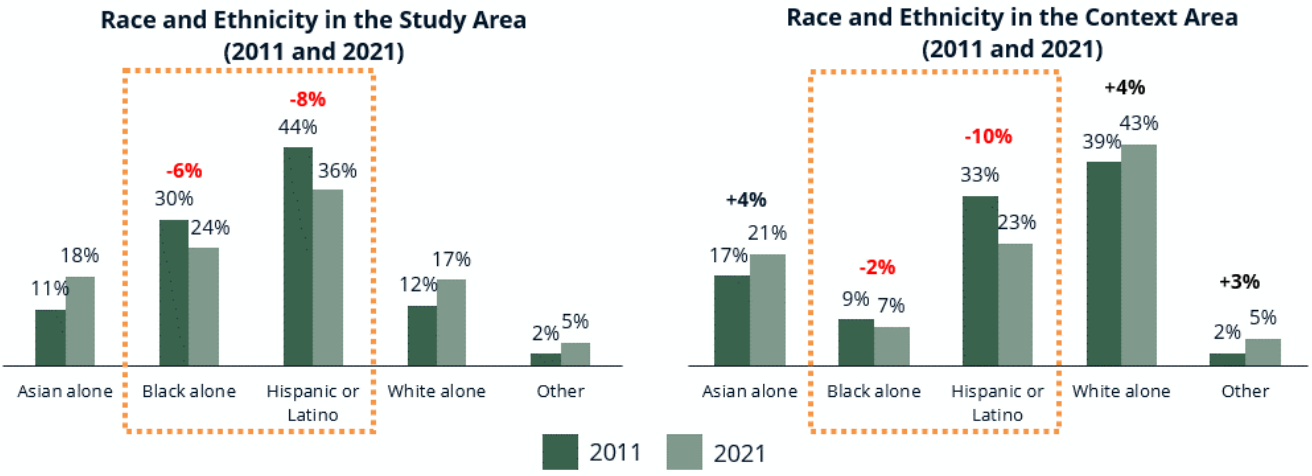
Despite slow population growth, the Study Area has a uniquely high share of young, working-age adults compared to the rest of New York City. Adults aged 20 to 34 make up 30% and 33%, respectively, of the population in the Queensbridge-Ravenswood Neighborhood and in the Western Queens context area. However, in Queens and New York City, people in this age range only make up 20-23% of the population.

Figure 8: Age Distribution by Geography in 2021



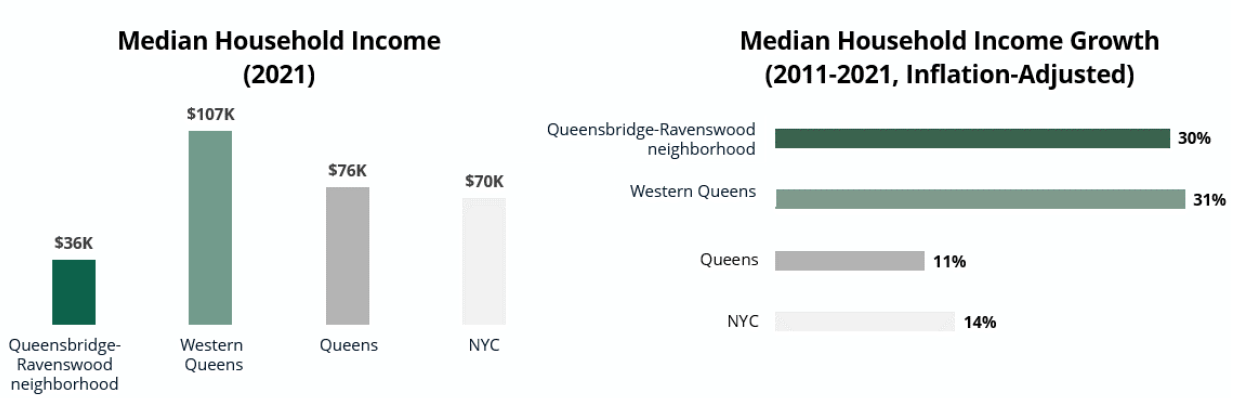
The neighborhood retains a relatively high non-white Hispanic/Latino and Black population. However, the share of Black and Hispanic/Latino residents in the neighborhood and Western Queens decreased by 6% and 8% respectively 2011-2021. This pattern suggests a pattern of ongoing racialized displacement.

Figure 9: Change in the Proportion of Population by Race between 2011 and 2021 in the Queensbridge-Ravenswood Neighborhood



Queensbridge-Ravenswood neighborhood residents earn a median household income much less than that of Western Queens residents and New Yorkers generally. Although household incomes increased substantially in the neighborhood over the last decade, neighborhood residents earn a median household income one-third of that of a resident in broader Western Queens. It is possible that the arrival of higher-income residents, the departure of lower-income residents, and a gradual increase in household incomes across the board (above the rate of inflation) are all collectively responsible for this increase.

Figure 10: Median Household Income, 2021, and Median Household Income Growth 2011-2021



Housing

Approximately 75% of the Queensbridge-Ravenswood neighborhood housing units are NYCHA units; most residents reside in some form of subsidized affordable housing. This housing stock is aging; NYCHA Queensbridge North and South was developed 86 years ago, and NYCHA Ravenswood was developed 74 years ago. These two campuses represent the greatest per-development amounts of deferred maintenance need across NYCHA's entire citywide portfolio. Up to **5,313 households**—or **10,190 people**—in the neighborhood are living in NYCHA apartment units, and many of these units are in urgent need of physical maintenance and repair.

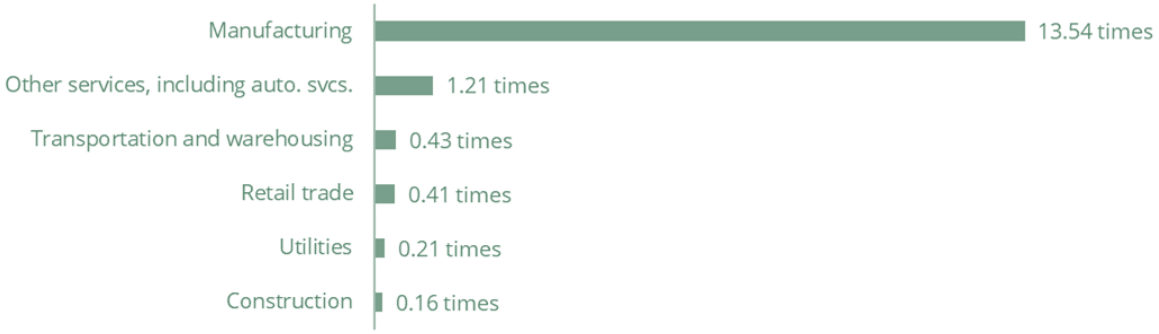
Aside from NYCHA residents and rent-regulated households, tenants in this neighborhood are particularly vulnerable to rising rents and gentrification pressure. 25% of Queensbridge-Ravenswood neighborhood residents live in private housing, and only 6% of these households own their homes. The median gross rent per household in the neighborhood increased from $650/month in 2011 to $1,000/month in 2021. Looking at census tracts that exclude NYCHA developments, median rent surged from $1,600/month in 2011 to $3,000/month as of 2021.The neighborhood's vacancy rate in 2021 was 1.6% (excluding NYCHA units), much lower than the citywide rental housing vacancy rate of 4.54%. Neighborhood NYCHA developments report a vacancy rate of 3.4-4.8%. Conditions of **mounting local rents and very low vacancy,** combined with the barriers to organic housing production posed by the IBZ, indicate the neighborhood could face more extreme gentrification and displacement pressure in the near future.

Business

Businesses in the Queensbridge-Ravenswood neighborhood employ approximately 18,800 workers. Of these jobs, 41% are transportation & warehousing jobs and 17% are construction jobs. The area encompasses over 800 businesses including a concentration of light industrial firms and businesses specializing in automotive repair and maintenance. Relative to greater Western Queens, this neighborhood contains a uniquely high concentration of businesses in manufacturing, automobile services, and transportation and warehousing businesses, the latter of which have a proportionately lower jobs density than other uses in the IBZ.

Figure 11: Businesses in the Queensbridge-Ravenswood Neighborhood

Figure 12: Concentration of Certain Business Sectors in the Queensbridge-Ravenswood Neighborhood Relative to Western Queens

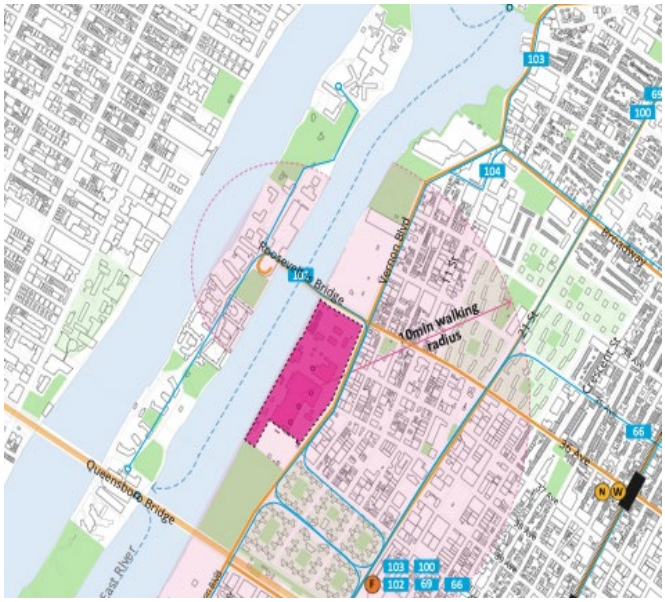


Transportation and Connectivity

The neighborhood is well-connected to Manhattan via bus and subway lines, but residents that live in the northwest have fewer options to get around. Six local buses run through the Queensbridge-Ravenswood neighborhood, generally following major roads such as Vernon Boulevard, 21st Street, and 36th Avenue. The 21st St Queensbridge MTA station (F Train) is the only subway station within a ten-minute walking distance from the Ravenswood Generating Station. However, a cluster of subway stations—Queens Plaza, Court Square, etc.—exists to the south of the Queensbridge- Ravenswood neighborhood, presenting a much wider variety of transit options into Manhattan and Brooklyn. In addition, the neighborhood offers convenient interstate access via I-95, with a 40-minute drive to New Jersey and 50 minutes to Connecticut.

With its location in the heart of New York City, The site is ideally situated for freight operations. It connects to Vernon Boulevard, a NYCDOT-designated local truck route. Street access is available through multiple secure gates.

Figure 13: Map of MTA Transit in and around the Ravenswood-Queensbridge Neighborhood

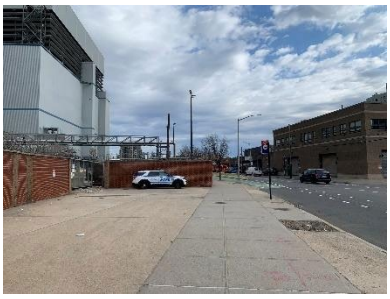


I-278 is directly accessible 2.1 miles from the Site, connecting via the Robert F. Kennedy Bridge to Manhattan, the Bronx, and the highway network. I-495 is accessible within 1.7 miles of the Site, connecting to the highway network and air freight at John F. Kennedy International Airport.

The site also sits on the East Channel of the East River, less than one mile from the federally maintained shipping channel that connects through New York Harbor to the open North Atlantic Ocean.

Vernon Boulevard, a key neighborhood corridor, presents a significant opportunity to transform the physical landscape to better meet community needs. Reimagine Ravenswood community survey data and visual analysis indicates the corridor needs sidewalk repairs and generally lacks amenities like places to sit, sufficient lighting, and greenery. Community members also flagged the need for greater pedestrian safety measures along the corridor and more biking infrastructure (i.e. Citibike docks). The west side of Vernon Boulevard consists of high brick walls topped with barbed wire to secure the Ravenswood Generating Station and other energy transmission infrastructure. This façade, combined with the need for streetscape repairs and beautification, contributes to an unwelcoming, unattractive pedestrian environment.

Figure 14: Visual Assessment of Vernon Boulevard Corridor along the Ravenswood Generating Station site.

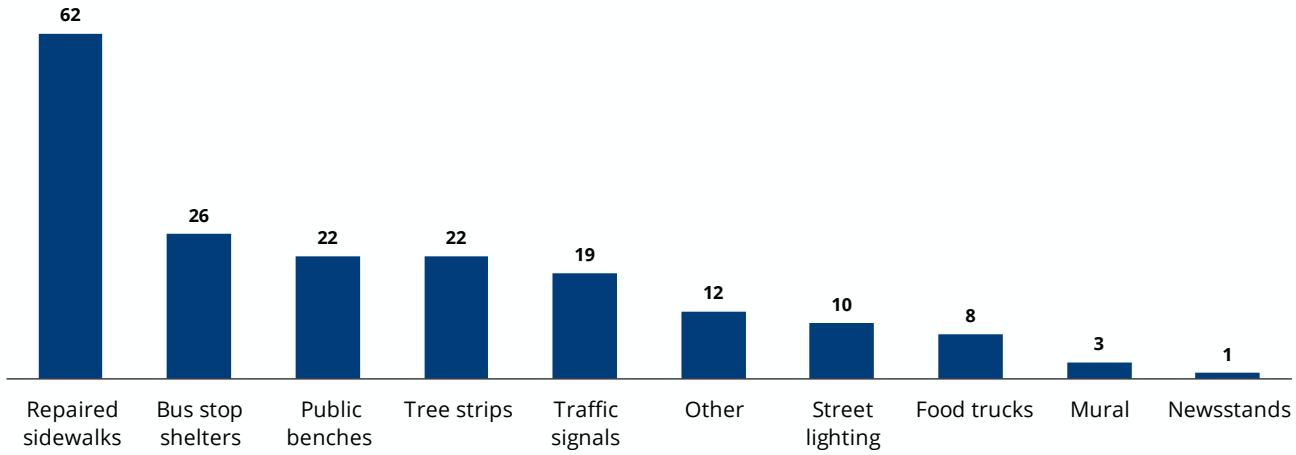


West sidewalk of Vernon Boulevard between 38th and 40th Avenues, looking north

West sidewalk of Vernon Boulevard between 38th and 40th Avenues, looking south

Southwest corner of Vernon Boulevard and 36th Avenue, looking south

Figure 15: Count of First Choice Preferences for Vernon Boulevard Corridor Improvements from Reimagine Ravenswood Survey



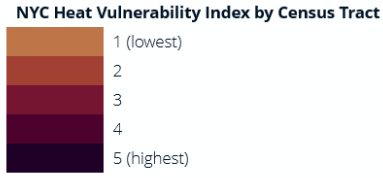
The Ravenswood Generating Station site contains an operating dock, but it is not accessible to the public. As discussed below under "Economy," this existing dock infrastructure has the potential to support broader, sustainable maritime freight transportation that serves the site and perhaps inland businesses, in alignment with the City's Blue Highways Initiative.

Health and Environment

Residents have long faced environmental injustices, including higher-than-average air pollution and ground contaminants, limited inland open space and sparse tree canopy, exposure to extreme heat, and exposure to noise and light pollution. These risks, compounded by social vulnerability, may contribute to high rates of chronic respiratory conditions like asthma. More recently, the impacts of climate change have exacerbated flood risks due to storm surge vulnerability and insufficient drainage during extreme precipitation events.

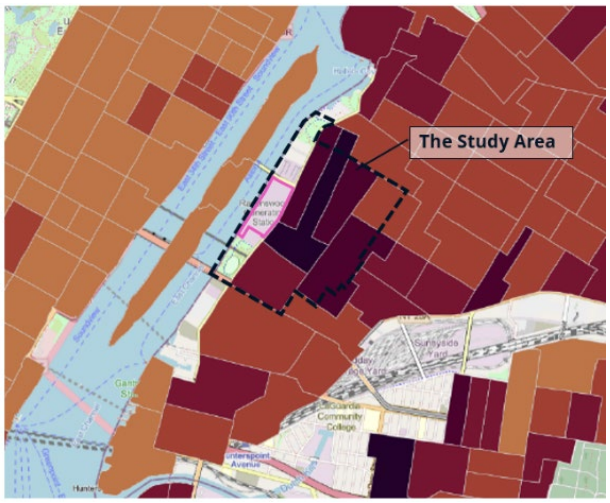
There is a dearth of inland open space and tree canopy in the neighborhood. Although the neighborhood contains two waterfront parks—Queensbridge Park and Rainey Park—with Socrates Sculpture Park just north and some green space within the NYCHA Queensbridge and Ravenswood campuses, the surrounding context contains relatively few park acres on a per resident basis. Southern Astoria, zip code 11106, is among the bottom quartile (25%) of zip codes in the city with regard to the amount of functional park acreage available to a resident within a 10-minute walk. And aside from Queensbridge Park and Rainey Park and a small number of inland parks, the tree canopy in the neighborhood remains relatively sparse. Expanding the tree canopy in Western Queens could help green city streets and mitigate the impacts of urban heat island effects, but care is required to avoid conflicting with the needs of medium and heavy-duty vehicles loading and moving through the IBZ.

A combination of economic disadvantage and lack of tree canopy makes neighborhood residents highly vulnerable to extreme heat. Based on the NYC's Heat Vulnerability Index, which assess an area's extreme heat risk based on socioeconomic variables including median household income, percentage of vegetative cover, and percentage households reporting air conditioning, the neighborhood is a pocket of extreme heat vulnerability in Western Queens and is comparable to neighborhoods across the city that have the highest extreme heat vulnerability.



SOURCE: NYC DOHMH (2023)

Figure 16: Heat Vulnerability Index



Residents in the neighborhood are more likely to experience serious asthma than most other Queens residents. Based on NYC Department of Health and Mental Hygiene Environmental Health Data from 2017-2019, the Queensbridge-Ravenswood-Long Island City neighborhood exhibit a rate of 142.8 adult asthma emergency hospital visits per 10,000 adults, which lands the area in the worst third of NYC neighborhoods.

The Long Island City-Astoria area is generally exposed to above-average levels of outdoor air pollutants including Particulate Matter 2.5 (PM2.5) and Nitrogen Dioxide (NO2). Although less recent, New York City Community Air Survey 2014 data on outdoor air toxins—carcinogens, benzene, and formaldehyde—indicate the area had some of the highest rates of airborne toxics exposure in the city. These specific chemicals are typically associated with petroleum storage and leakage.

Most of the Ravenswood Generating Station and areas inland, including the NYCHA developments, are at increasing risk of flooding as extreme storms grow more frequent. The southern half of the station sits within the 500-year floodplain (0.2% annual chance of flooding). The northwestern corner of the site sits within the 100-year floodplain (1% annual chance of flooding). The 500-Year flood zone crosses Vernon Boulevard, affecting industrial business, hotels, and NYCHA Queensbridge. The northern 500-Year flood zone affects private residential blocks and throughways within NYCHA Ravenswood. Community members expressed that they see a need for more **green infrastructure throughout local flood-prone areas** and **drainage improvement along streets in the neighborhood.**

Exemplified by Hurricane Ida and record-breaking summer 2023 rains, climate change will entail more frequent extreme storms and worsening flooding of resident and business assets, so heightened attention and investment will be needed to adequately protect the community from these risks.

Figure 17: Adult Asthma Emergency Department Visits: Annual average rate per 10,000 Adults (2017-2019)

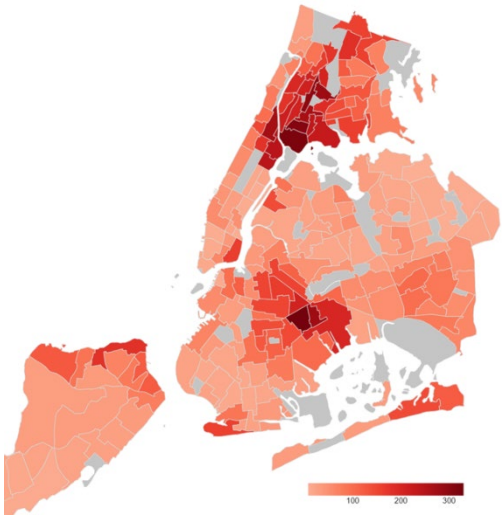


Figure 18: Sample Air Quality Measurements

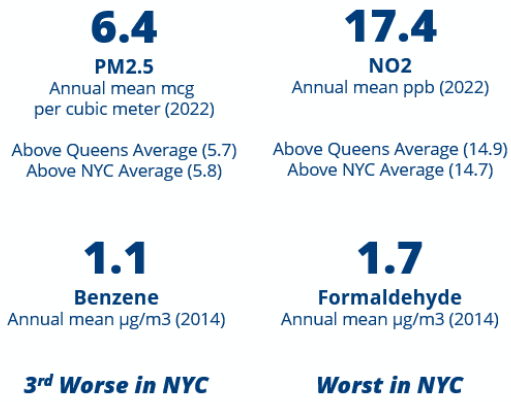
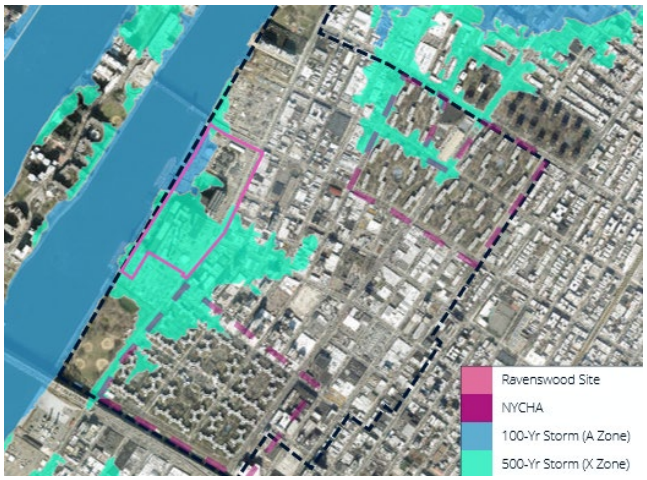


Figure 19: FEMA Floodplains in the Neighborhood



Economy

Despite slow population growth in the neighborhood, 42% of the neighborhood's residents and 51% of Western Queens residents are aged 20 to 34, constituting a high share of young, working-age adults. Light industrial jobs—namely transportation and warehousing (41% of local jobs), and construction (17% of local jobs)—dominate the neighborhood.

Utility Jobs

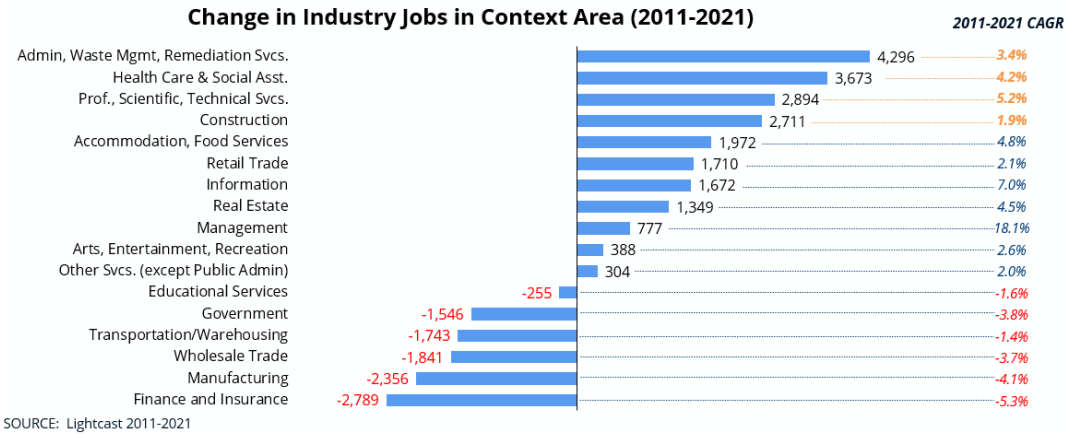
Ravenswood Generating Station employs over 100 workers, primarily members of UWUA Local 1-2. Through Renewable Ravenswood, Rise plans to retrain these employees for new careers in renewable energy generation and transmission.

The Opportunity

The green economy, as well as technology, professional services, and construction sectors in general, are promising fields for new jobseekers. This plan identifies a tangible opportunity to prioritize the Queensbridge-Ravenswood area for growth in green technology and related industrial sectors to generate economic opportunity as part of a just transition.

- **Economic trends suggest that professional services, information, technology, and construction sectors might continue to grow in Western Queens.**

Figure 20: Change in Number of Jobs by Industry in Western Queens (2011-2021)



- **Jobs in the "green economy" are also expected to surge citywide.** In the City's Green Economy Action Plan, NYCEDC defines the "green economy" as activities that since the early 2000s have supported the City's climate goals—carbon neutrality, greenhouse gas reduction, and resilience to climate hazards—and create economic opportunities for New Yorkers. EDC projects the following green economy "focus occupations" to grow over the next decade.[4]

[4] New York City Economic Development Corporation, and NYC Mayor's Office of Talent and Workforce Development. "Green Economy Action Plan," February 2024. https://edc.nyc/sites/default/files/2024-02/NYCEDC-Green-Economy-Action-Plan-02-28-24.pdf.

Figure 21: New York City Green Economy Action Plan Focus Occupations

Construction, Installation, and Operations

1. Roofers
2. Solar PV Installers
3. Maintenance & Repair Workers
4. Construction Laborers
5. Glaziers
6. Carpenters
7. HVAC Mechanics & Installers
8. Plumbers
9. Electricians
10. Stationary Engineers & Boiler Operators
11. First Line Supervisors of Construction Trades
12. Facilities Managers
13. Energy Auditors

Design and Engineering

14. Architects
15. Civil Engineers
16. Electrical Engineers
17. Mechanical Engineers

Business

18. Sustainability Specialists
19. Project Management Specialists

Management

20. Construction Managers
21. General & Operations Managers

- **Vacant space in the neighborhood could host greater economic activity.** The Queensbridge-Ravenswood neighborhood contains vacant lots and storage yards that could be activated to build higher density industrial uses than storage and logistics uses that might otherwise be expected for such sites, which could spur greater job density in the neighborhood.

- **Complementary action at the local, citywide, and federal scale will vastly boost green economy job growth.** The transition of the Ravenswood Generating Station into a renewable energy hub can serve as a local development catalyst for other renewable energy and related business growth, positioning the Queensbridge-Ravenswood neighborhood as the center of the "green economy" in Queens and as a key node for New York City overall. Bold citywide investment in clean energy sectors, including actions described in the City's green economy action plan, as well as continued federal investment in clean energy technology via policy like the Inflation Reduction Act, could further scale an inclusive, equitable, and just green economic boom in Western Queens.

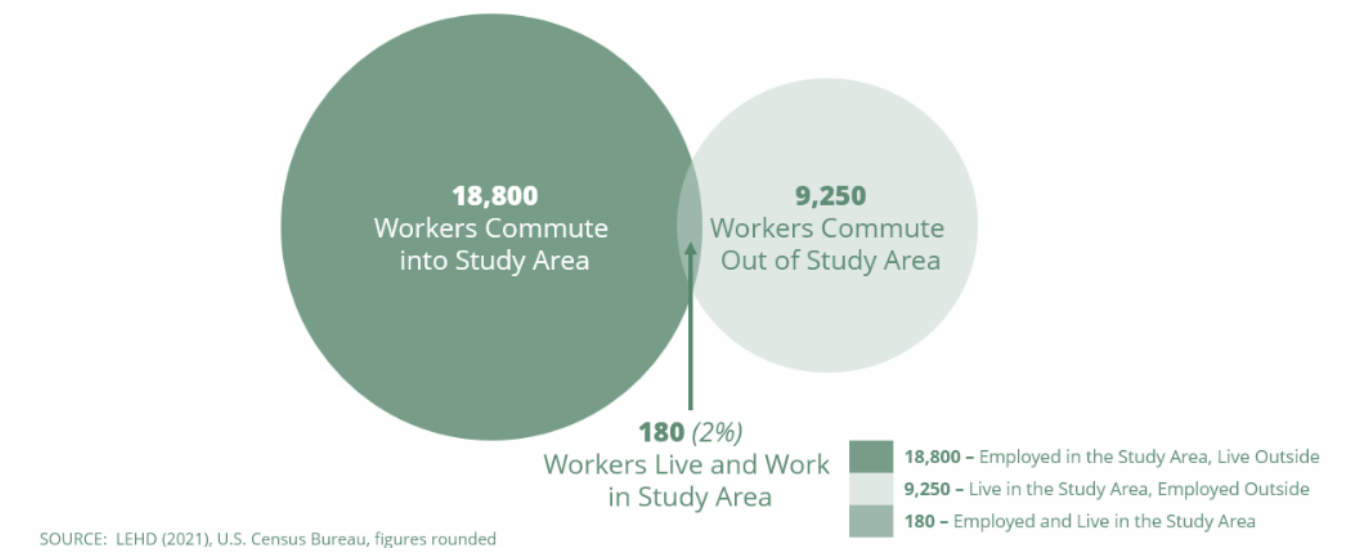
- **An extremely robust network of nonprofit organizations is already building pathways to jobs of the future for historically marginalized community members.** These institutions include, but are not limited to, Andromeda Community Initiative, Green City Force, Jacob A. Riis Neighborhood Settlement, Long Island City Partnership, LaGuardia Community College, NYCHA Resident Economic Empowerment and Sustainability and the NYCHA Clean Energy Academy, Steamfitters Local 638, Urban Upbound, Utility Workers Union of America Local 1-2, and the Variety Boys and Girls Club of Queens.

Challenges and Barriers

Despite the scale of opportunity and the strong institutions already making an impact, certain challenges and barriers currently make it difficult to access work in the neighborhood. Over the next few years, there is a window of opportunity to bolster existing workforce development to connect residents to high-quality, rewarding jobs of the future, but only if a combination of public and private investments addresses these barriers for everyone.

- **Today, very few local residents work in the neighborhood.** Only 2% of jobs in the neighborhood are held by residents, demonstrating a disconnect between hyperlocal construction and other light industrial job opportunities and local residents, chiefly NYCHA residents. As manufacturing jobs in this area increase, jumpstarted by the transition of the Ravenswood Generating Station into a renewable energy hub, and parallel investment by other private and public actors, intentional workforce development planning could mitigate this outflow of local workers.

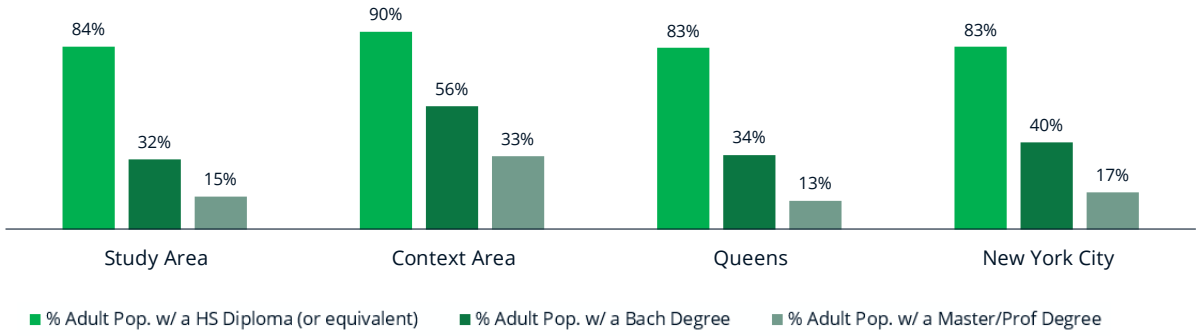
Figure 22: Influx and Outflow of Workers in the Queensbridge-Ravenswood Neighborhood



- **High school or equivalent education requirements, cost or lack of scholarships, and transportation costs serve as the critical hurdles for local residents considering job training or workforce development pathways.** Only 32% of neighborhood residents hold a bachelor's degree and 15% holds a more advanced degree, which is much lower than education rates in the rest of Western Queens.

  Community members also shared uncertainty about the available opportunities in New York City's green economy, and youth noted that information about pragmatic career options could be shared more widely and earlier in grade school. Local workforce development actors have established partnerships that help participants connect to holistic services, but these partnerships could be expanded with more resources to remove workforce barriers and build awareness among more residents.

Figure 23: Educational Attainment across Geographies in 2021



- **An influx of new migrants and asylum seekers represents an untapped labor force with valuable skills, but stiff barriers keep them from accessing work.** The significant presence of new migrants to New York City, many housed temporarily in hotels located in the IBZ, raises the importance of mitigating legal barriers to employment and providing the additional wraparound support that these new New Yorkers might need to secure and keep a job.

- **Proactive coordination is needed with today's and tomorrow's employers.** Via the Reimagine Ravenswood community survey, roughly half of respondents indicated a need for expanded workforce development resources for workers, and a quarter identified the need for hiring support for business owners. Business

owners have shared that they struggle to hire people with "soft skills"—such as communication, interpersonal skills, and professional habits—and that these skills are hard to train. One owner noted that younger workers are less likely to have soft skills and business owners are not aware of resources for improving these skills.

In addition to workforce barriers, infrastructure and real estate challenges are holding back the areas of the IBZ north of Queensboro Bridge from being an ideal place to grow a business.

- **Adjacent dense residential development and hotels within the zone put stress on the movement of freight in the neighborhood.** A preponderance of hotels permitted in and adjacent to the IBZ added significant visitor and non-industrial traffic into the heart of the IBZ.[5] This crowding creates conflict and unsafe conditions between pedestrians, industrial equipment, and freight transport in the IBZ.

- **Limited available smaller flex space means new entrepreneurs might look elsewhere to start up.** There is limited available built space for new and expanding commercial tenants, but this space might be too expensive or too large. In the years following the Covid-19 pandemic, smaller "flex" spaces—which is a hybrid of office and light industrial space that appeals to smaller industrial businesses and sometimes offers more flexible lease terms—have enjoyed higher occupancy rates and higher rents. Meanwhile, large-format industrial spaces (10,000+ square feet) have leased up more slowly. Although limited space is a challenge, there is the potential for growth with the right zoning structures, catalytic investments, and incentives.

- **Limited available maritime transportation infrastructure limits the area's potential to facilitate low-carbon freight operations.** New York City's Blue Highways Initiative envisions using city waterways to transport goods around the city and relying on low-carbon and zero-carbon last-mile transportation alternatives to transport goods after they arrive on land.[6] By reducing reliance on trucks for shipping, the city can reduce traffic congestion, lower greenhouse gas emissions, and improve air quality. Further activating the port infrastructure at Ravenswood Generating Station would benefit the IBZ enabling it to be a part of the City's vision for sustainable local freight.

[5] In 2018, the City Council adopted the M1 Hotel Text Amendment that requires a City Planning Commission Special Permit to construct new hotels within M1 districts. This amendment aims to limit the potential for conflicts between uses as well as achieve a balanced mix of industrial, commercial, and institutional growth. However, there still remains a notable number of hotels in the neighborhood. Source: NYC Planning

[6] NYCDOT, NYCEDC. "Blue Highways: NYC DOT, EDC Seek Creative Solutions to Move More Freight Via Waterways Instead of Roadways." (Nov 2023). https://www.nyc.gov/html/dot/html/pr2023/blue-highways-rfei.shtml.

What does the next generation say about the green economy?

On May 9th, Reimagine Ravenswood held a youth focus group at Variety Boys and Girls Club of Queens. 20 young people nominated by local institutions—including Urban Upbound, Astoria Houses, Ravenswood Houses, and green City Force—attended and shared their thoughts about their understanding of opportunities in the green economy and their emerging career preferences.

- **Local youth lack education and exposure to the green economy.** Youth expressed that green jobs remain a new field, and their schools are still teaching and promoting traditional career paths; and curricula do not yet frame the green economy as a professional opportunity.
- **When presented with various types of green jobs, most youth expressed the most interest in design, engineering, and business jobs.** Many participants were drawn to engineering jobs due to their high pay and the roles' fun, intellectually stimulating nature, which includes solving tangible challenges. Participants also gravitated toward green business jobs because these aligned with their interests and the type of career they wanted: a role that allowed high independence, management and interaction with other people, and competition. Furthermore, participants noted that green business jobs could provide a greater impact for the environment by setting eco-friendly standards for how businesses operate and the physical environment where people work.
- **Youth want to balance pay with passion and impact.** Ultimately, participants acknowledged that obtaining a high salary matters, but they also want to work in a career that is interesting and in which they can have meaningful impact on pollution and environmental health.

Ravenswood Generating Station Site Conditions and Opportunities

The Ravenswood Generating Station, spanning 27 acres along the East River, was constructed by Con Edison in 1963. Today, it is the largest power plant in New York City, representing more than 20 percent of New York City's total generation capacity.[7,8] LS Power acquired Ravenswood in 2017 and formed Rise Light & Power in 2020 to focus on the long-term redevelopment of the site. In 2022, Rise debuted the Renewable Ravenswood vision, proposing to redevelop Ravenswood Generating Station into a renewable energy hub, which will advance New York's climate goals, yield a just transition for union labor, and help realize environmental justice in the local community. This transformation is predicated on federal, state, and local regulatory approvals and renewable energy contract awards, which Rise has pursued in earnest since 2020.

Reimagine Ravenswood is premised on the potential for the transition of the Ravenswood Generating Station into a renewable energy hub to serve as a transformative catalyst for neighborhood-wide, inclusive industrial growth and community development improvements to meet the needs of residents that call the neighborhood home.

Site History & Context

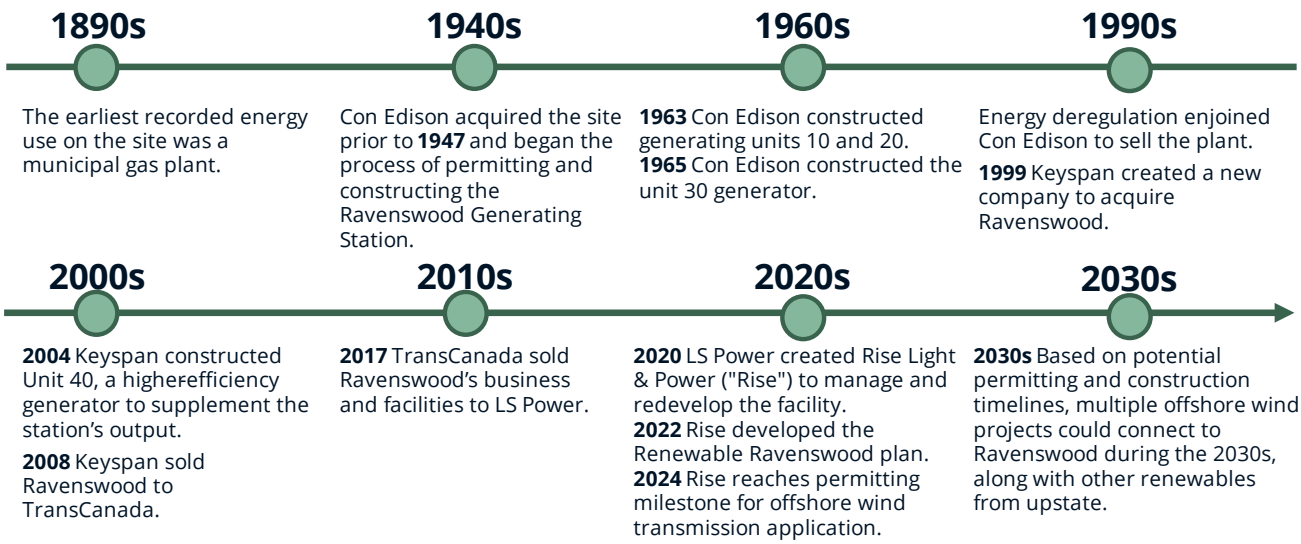
The Ravenswood Generating Station sits on the former site of the Jacob Blackwell Mansion, built in 1744. By the 1860s, Ravenswood had become a neighborhood of riverside estates. Over the following two decades, the neighborhood's residents moved eastward toward Long Island, leaving the Ravenswood mansions behind. Many were converted into orphanages and asylums by the late 1870s. In the late 1880's, the newly established Long Island Rail Road helped turn the neighborhood into an industrial center, a home for hundreds of small prosperous factories.

The earliest recorded energy use on the site was a municipal gas plant belonging to the East River Gas-Light Company, according to the 1898 Sanborn map. The site changed owners several times, finally landing under ownership by the Consolidated Edison Company sometime before 1947. As the manufactured gas industry declined, Con Edison gradually removed the site's gasworks infrastructure and constructed Ravenswood Units 10 and 20, a matched pair of 400 MW steam turbine generators, along with a pair of packaged boilers, known as the A-House, which supplies the Con Edison steam network in Manhattan via a tunnel under the East River. Ravenswood earned its colloquial name, Big Allis, from the builder of its Unit 30, the Allis-Chalmers Corporation, and to reflect the fact that when it opened in 1965, it was the first 1,000 MW unit on Earth. Unit 30—originally proposed as a generator powered by a nuclear reactor but ultimately built as a fossil-fueled unit—was the largest steam turbine ever constructed when it was installed. Nearby, NYCHA's Queensbridge Houses had been completed decades earlier in 1939; Ravenswood Houses had been completed in 1951.

[7] Gannon, Michael. "Natural Sources Reenergizing Western Queens." *Queens Chronicle*, June 20, 2024. https://www.qchron.com/special_sections/celebration_of_queens/natural-sources-reenergizing-western-queens/article_211472d2-2dc6-11ef-90f3-4b381366c075.html.

[8] Rise Light & Power. "Ravenswood Generating Station - Rise Light and Power." Rise Light & Power, December 9, 2020. https://riselight.com/ravenswood-generating-station/.

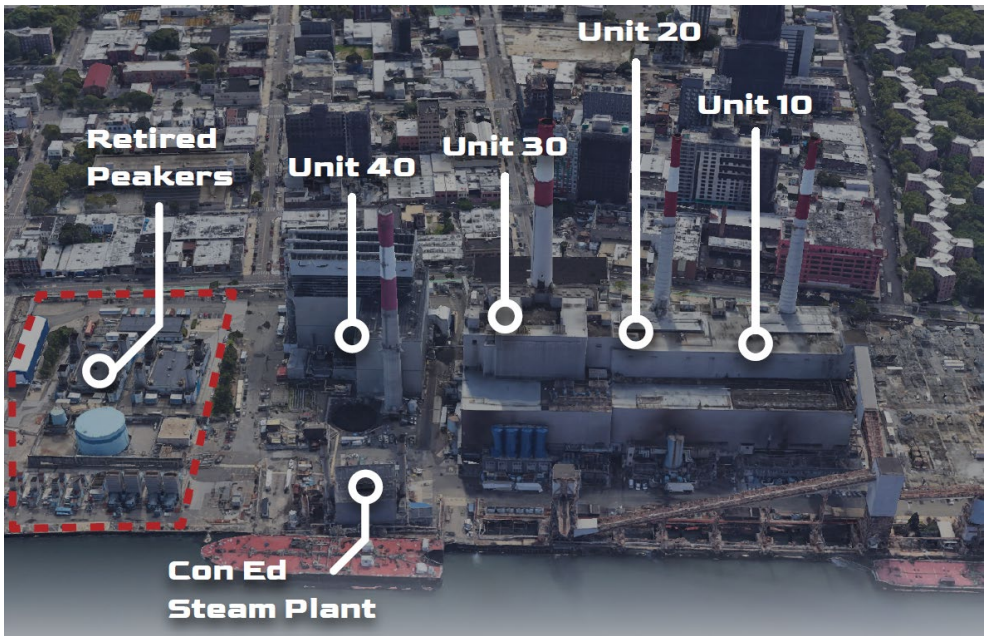
Figure 24: Ravenswood Generating Station Timeline



As of May 2023, Rise has decommissioned 17 fossil-fueled "peaking" generators on the site. Four larger generating units remain—one for each of the iconic red and white exhaust stacks visible from throughout New York City. Rise is undergoing various permitting and contracting processes that will allow for delivery of renewable energy - including offshore wind and upstate wind, solar, and hydropower - to the site, eventually facilitating the retirement of up to 1,800MW of 1960s generation capacity.

Rise anticipates that these new renewables may allow for the retirement of the site's 1960s generators—Unit 10, 20, and 30. The newest generator—a combined cycle power plant, Unit 40—was constructed in the early 2000s; it is one of the newest and most efficient generators in New York City and currently expected to remain in service.

Figure 25: Detailed Map of Present-Day Ravenswood Generating Station (2024)



Reuse Vision

Renewable Ravenswood proposes to transition the Ravenswood Generating Station into a renewable energy hub, advancing New York's climate goals, yielding transformative benefits for union labor, and helping achieve environmental justice in the local community.

To realize this vision as part of the broader Reimagine Ravenswood plan, site reuse proposals discussed herein incorporate the following guiding principles:

Maintain core site operations to produce clean energy.

- Continue to provide reliable and cost-effective power to NYC.
- Maintain economic sustainability and high-quality union jobs onsite.
- Significantly reduce greenhouse gas emissions from the site.
- Maintain a secure industrial site perimeter to prioritize worker and public safety.

Address community needs with new amenities onsite.

- Connect the public to the waterfront and deliver high-quality open space where possible.
- Transform Vernon Boulevard into an inviting, welcoming corridor.
- Increase the flood resiliency of Western Queens

Spur job and business growth in a growing local green economy.

- Foster green industrial development opportunity for residents, workers, and business owners in the neighborhood.
- Create a working port on the Ravenswood site that would reduce truck traffic and greenhouse gas emissions and advance creation of a green energy-based local economy.

Site Opportunities and Challenges

The site and its context offer the potential for Renewable Ravenswood to transform the public realm along Vernon Boulevard, enhance resilience onsite and in inland communities, and create a new destination in Queens.

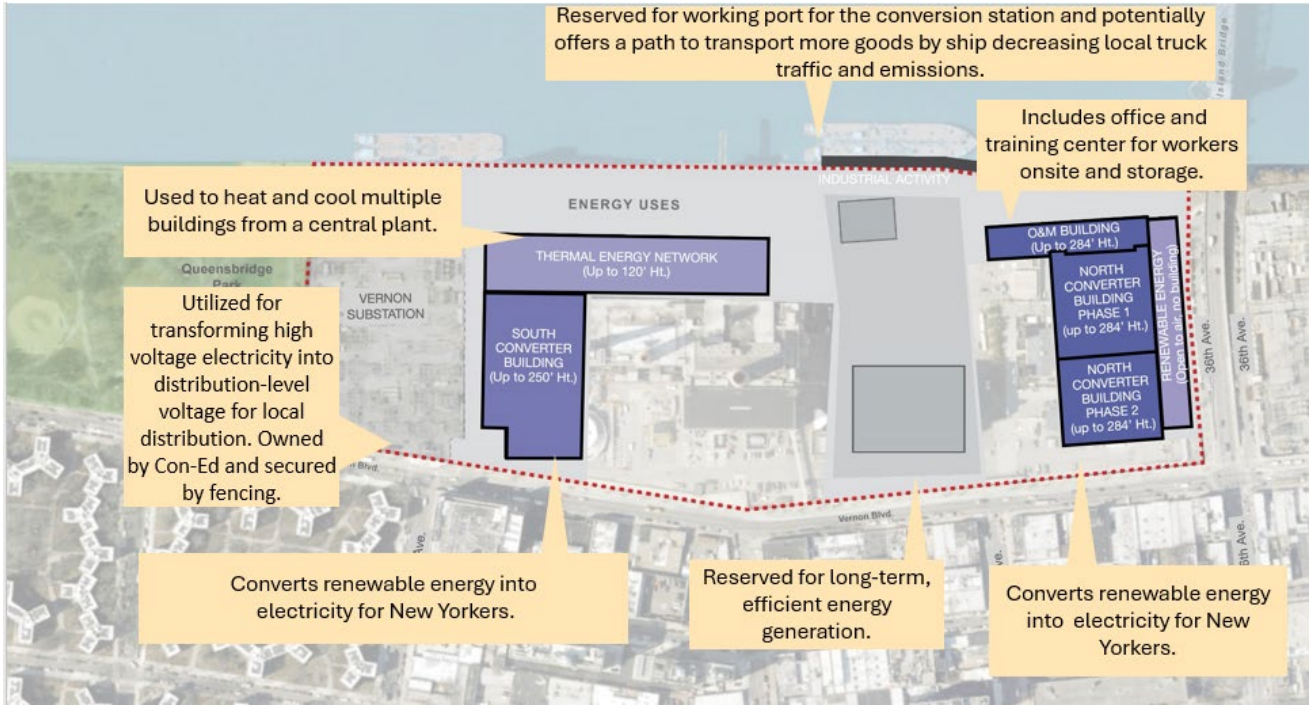
- The site is within the Long Island City Industrial Business Zone (IBZ) and currently zoned M3-1, for heavy industrial uses. North of Queensboro Bridge, the IBZ extends inland and straddles both sides of 21st Street, which is a major artery for transporting freight by land in and out of the neighborhood. On either side of Ravenswood along Vernon Boulevard, Con Edison owns and maintains an electrical substation.
- The site's accessibility by transit to and from Midtown Manhattan, its adjacency to Long Island City, and the potential future availability of water transport are unique advantages for industrial and commercial activity onsite.
- Most of the site lies in FEMA-designated floodplains, but flood mitigation along the waterfront could fortify the site into a resilient link that connects to broader climate adaptation investments along the East River.
- The perimeter of the plant is uninviting to pedestrians, but selectively opening up the site—when possible and safe—could deliver more public realm and generally improve the economic and social vibrancy of the Vernon Boulevard corridor.

As noted, all long-term site opportunities are contingent upon the ability of Rise to succeed in regulatory and contractual matters related to the renewable energy infrastructure proposed under Renewable Ravenswood. Challenges in implementation of such projects may delay or preclude site redevelopment.

Site Potential

Energy Uses

Figure 26: Potential Future Ravenswood Generating Station Energy Uses



Once all permits and necessary contracts are obtained, the proposed Renewable Ravenswood campus is expected to still consist *primarily* of energy-related uses. However, certain portions of the site may provide opportunities for complementary uses and publicly accessible space.

- High-voltage direct current cables buried under the East River could deliver renewable power from two offshore wind projects and a variety of upstate renewable resources to the site.
- Three converter structures could convert up to four gigawatts of renewable energy delivered by the transmission lines into usable electricity for New Yorkers.
- Various operations and maintenance buildings could host project control rooms, administrative offices, warehousing, and training spaces.
- Rehabilitated maritime port infrastructure could enable the site to serve as a long-term operations port for up to four large-scale offshore wind projects. During the 30-40-year operating lifetime of an offshore wind project, crews travel between shore and sea several times per month to perform inspections and repairs. An updated port could also potentially host other types of maritime freight, in line with the City's Blue Highways initiative.
- Industrial-scale heat pumps could serve as the basis for a Thermal Energy Network and would be situated next to the South Converter Structure. The existing power plant currently has the capacity to exchange water with the East River to cool equipment onsite, and there is the potential to adapt this equipment to provide low-carbon heating and cooling for millions of square feet of habitable space throughout Long Island City. NYSERDA is currently funding a feasibility study of this proposal.
- The newest generator—a combined cycle power plant, Unit 40—was constructed in the early 2000s; it is one of the newest and most efficient generators in New York City and currently expected to remain in service.

Each of the above facilities will require a range of permitting and development milestones to be implemented. However, they represent a significant change and opportunity for the site and will allow for continued provision of reliable energy and continued employment for union utility workers. To maintain safe plant operations, the above site improvements will be inaccessible to the public and protected behind a realigned security perimeter.

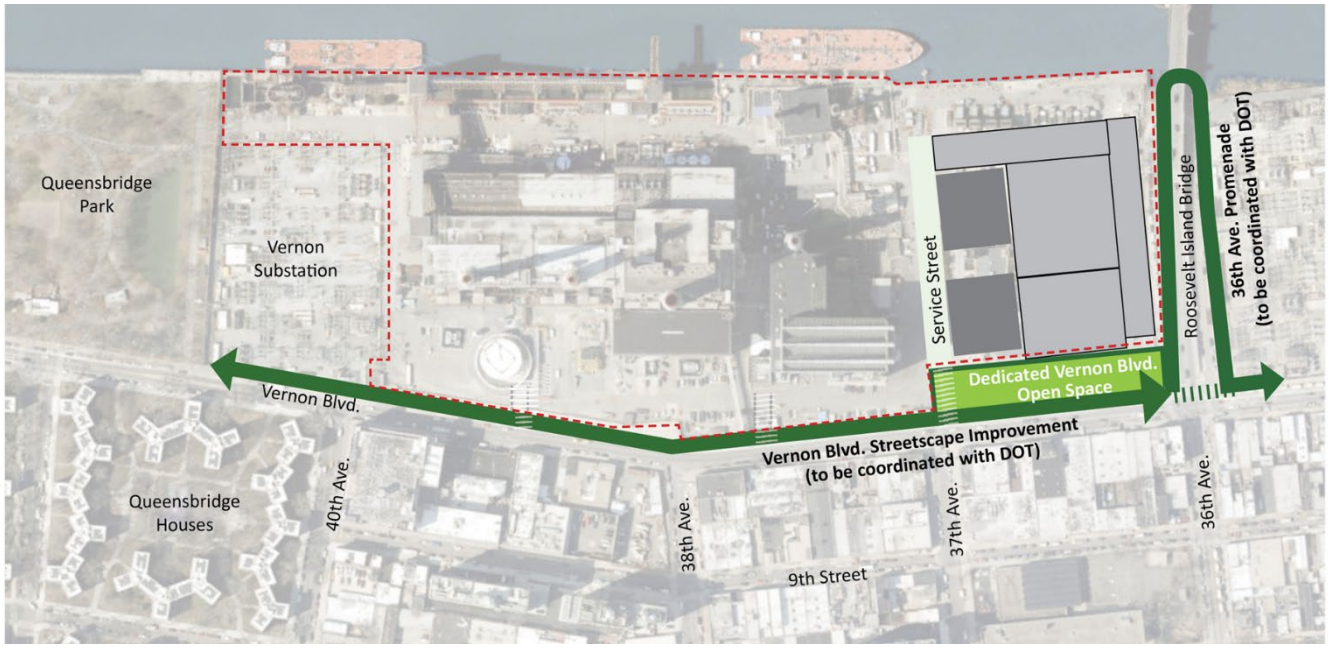
New Non-Energy Uses

In addition to core energy uses listed above, certain portions of the Ravenswood site may allow complementary uses, including new economic development and open space uses that meet the needs of local community, business, and institutions.

Within the next decade, the site could begin to include a range of public space improvements along Vernon Boulevard including repaired sidewalks, tree plantings, murals, and public benches. These publicly accessible spaces could be activated with cultural and commercial amenities such as food trucks, pop-up events, and public art. Nearly all of the 0.6-mile distance between Queensbridge and Rainey Parks is faced with a brick wall currently; there are numerous opportunities to punctuate this featureless distance with new amenities that will bring life and interest to the area.

The northernmost stretch of Vernon Boulevard along the site, between 36th and 37th Avenues, is the nearest-term opportunity for public realm improvements once new converter facilities are constructed. Pending a full study of feasibility and safety by Rise, a dedicated open space may be possible here.

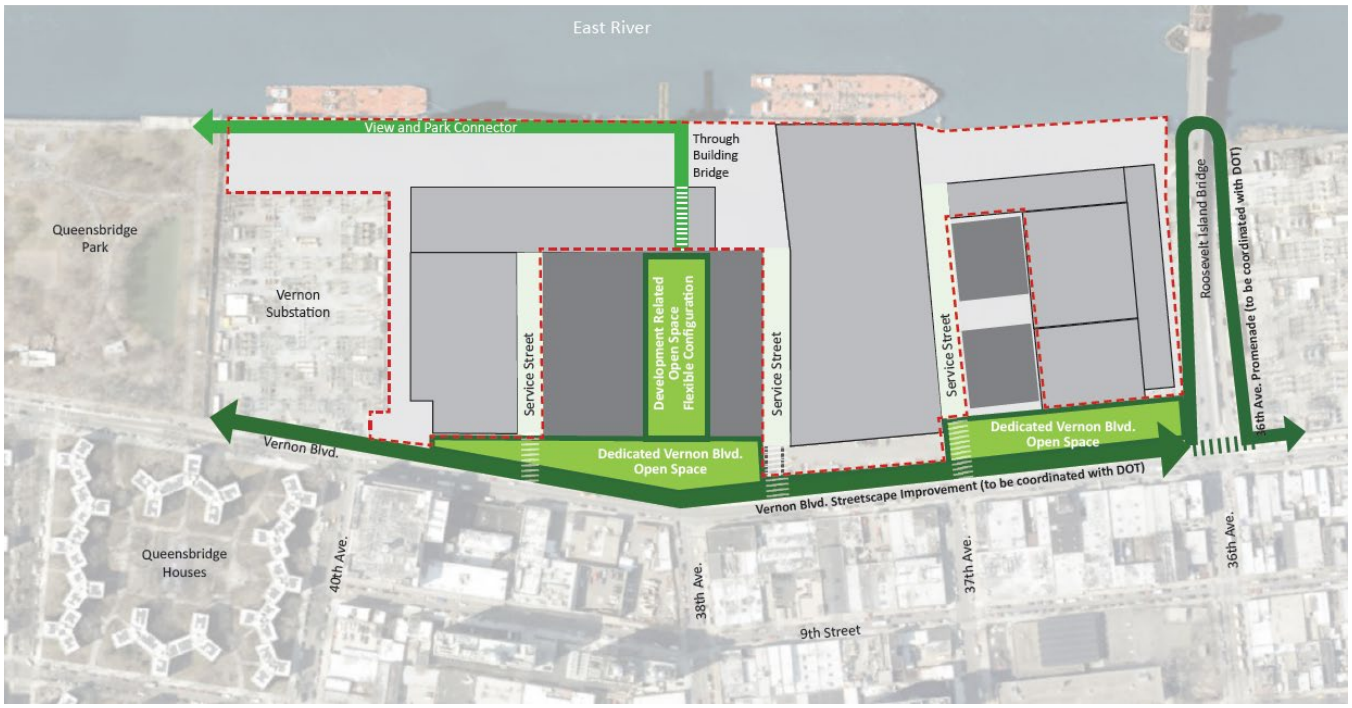
Figure 27: Potential Future Ravenswood Generating Station Opportunities for Public Space



Further on the horizon, the eventual replacement of 1960s-era infrastructure and the delivery of more space-efficient renewable energy infrastructure create areas in which new development could take place and offer opportunities to bring the public closer to the East River.

- Near the intersection of Vernon Boulevard and 37th Avenue, the first Opportunity Site would be adjacent to the North Converter Structures and Operations and Maintenance Buildings.
- Near the intersection of Vernon Boulevard and 38th Avenue, a larger Opportunity Site could accommodate more robust open space and larger-scale development.
- Above the Thermal Energy Network building, the site could accommodate additional development with direct views of the waterfront.
- Subject to safe operations of the maritime and energy uses, a linear, elevated park through the site may eventually connect Vernon Boulevard to the northwest corner of Queensbridge Park, giving residents, workers, and visitors visual access to the waterfront. This could provide recreational and educational opportunities by bringing them face to face with legacy infrastructure on the site (e.g., preserved 1960s coal elevators) while keeping them at a safe distance from core site operations.

Figure 28: Potential Future Ravenswood Generating Station Opportunities for Community and Economic Development Uses



Strategies

The strategies that follow describe how a combination of actions by City, State, and private actors—including Rise Light & Power—can realize a just transition in the neighborhood surrounding the Ravenswood Generating Station. These actions aim to improve environmental conditions and position the neighborhood as a leading model for decarbonization and green economic development. The transition of Ravenswood Generating Station into a renewable energy hub could catalyze a broader economic boom in the area of the Long Island City IBZ north of Queensboro Bridge, but it will take a series of combined and coordinated actions to ensure that boom and associated investment in the public realm benefits a broad group of local residents, workers, and business owners.

Strategies are organized in four categories:

1. **Decarbonization.** Develop new clean energy infrastructure projects that can, over time, facilitate retirement of up to 1,800 MW of 1960s generating capacity at Ravenswood Generating Station, and reduce emissions associated with public housing, businesses, and infrastructure in the neighborhood.
2. **Workforce Development and Economic Opportunity.** Build on the robust non-profit and union-led workforce development capacity that already exists in the neighborhood to connect residents to green economy roles locally and citywide.
3. **Business Support and Industrial Development.** Create and sustain rewarding entrepreneurship and business development opportunities in manufacturing, clean energy technology, and other growing and vital industries.
4. **Community Development and Environmental Justice.** Address ongoing environmental hazards and underinvestment in the public realm by investing in deferred public housing maintenance, adding more high-quality open space, and fortifying resilience to climate hazards.

Decarbonization Strategies

Renewable Ravenswood proposes to develop new clean energy infrastructure projects that can, over time, facilitate the retirement of 1,800 MW of 1960s-era generators at the largest generating station in the city, bringing a once-in-a-generation environmental justice victory and just transition to New Yorkers. In addition to the foundational requirement of securing New York State contracts for delivery of renewable energy (and associated permits), parallel planning and investments are needed to maximize benefits of this transition to the surrounding neighborhood. These efforts could include public and private investment into residential housing and industrial business development, support to help industrial operations in the neighborhood to decarbonize alongside the power plant, and investments in public space and services to cement the neighborhood as a center of health and wellness, future-ready infrastructure, and inclusive economic activity.

1. By working with the State to secure long-term offtake agreements for clean energy, Rise can decarbonize the Ravenswood Generating Station and transform it into a renewable energy hub that reduces emissions while delivering renewable power to New Yorkers. Each of two offshore wind projects that could be connected to Ravenswood could reduce emissions by more than one million tons of carbon dioxide annually, as well as other related emissions such as particulate matter (PM), sulfur oxides (SO_x), and nitrogen oxides (NO_x), equivalent to removing more than 10% of New York City's cars from the road annually. These projects may also allow for complementary investments in STEM education, workforce development, and community green space.

This decarbonization process will help realize New York State's grid decarbonization goals under the Climate Leadership and Community Protection Act of 2019 (CLCPA), and it will unlock significant local environmental and economic benefits for the neighborhood surrounding it. Rise is working to interconnect multiple large-scale renewable energy projects at Ravenswood, each of which is likely to generate many construction jobs as well as long-term operating jobs.

Parallel City and State Strategies:

- **New York City Green Economy Action Plan, Commitments 16, 17, 18:** Position industrial sites for clean energy infrastructure; Make capital investments in the growth of offshore wind; Set nation-leading targets for offshore wind
- **Mayor's Office of Climate and Environmental Justice PowerUp Plan:** Support Offshore Wind Interconnection and Transmission; Explore Opportunities to Install Storage at Retired Power Plant Sites
- **New York State Climate Action Council Scoping Plan, Strategies B4 and B5:** Scale Up Public Financial Incentives; Expand Access to Public and Private Low-Cost Financing

2. Rise can leverage core assets at the Ravenswood Generating Station to expand an industrial-scale thermal energy network to help the broader community with affordable, clean heating and cooling. Rise is performing a NYSERDA-funded feasibility study to develop a district-wide thermal energy network that can heat and cool more than 10 million square feet of building space with zero-carbon energy. This network has the potential to serve large campus-style developments, such as new residential buildings in Long Island City and Astoria—delivered through projects resulting from the proposed OneLIC rezoning and Innovation Queens—as well as existing housing, such as NYCHA. The thermal energy network would repurpose the existing once-through cooling system at Ravenswood Generating Station to allow water from the East River to serve as a heat source and heat sink for an industrial-scale heat pump, which could distribute hot and chilled water along street corridors throughout the neighborhood to participating buildings. Incorporation of such a network is estimated to reduce building energy use by an additional 26% beyond baseline Local Law 97 standards for a new building in 2030.

What is District-Scale Thermal Energy?

Thermal district energy efficiently heats and cools buildings across cities or campuses. In district cooling, central plants use industrial-grade equipment to produce chilled water, which is then supplied to buildings through insulated underground pipes. Similarly, district heating provides thermal energy to multiple buildings from a central plant, eliminating the need for individual boilers by transmitting steam or hot water through insulated underground pipes. A thermal district energy network is a system that provides both district cooling and heating.

Benefits of a Thermal District Energy Network

This type of network eases the strain on the electric grid caused by rising demands for heating and air conditioning. By consolidating the cooling and heating needs of multiple buildings, this system achieves efficiency, balances electric loads, streamlines building operations, and cuts fuel costs. Ravenswood's thermal systems, initially used to cool generators, could now be repurposed to provide heating and cooling for NYCHA campuses, nearby residences, and businesses, replacing oil and gas systems. Rise is currently conducting a technical study, jointly funded by New York State, to assess the feasibility of an on-site thermal district energy system.[9]

Parallel City and State Strategies:

- **New York City Green Economy Action Plan, Commitments 16:** Position industrial sites for clean energy infrastructure
- **Mayor's Office of Climate and Environmental Justice PowerUp Plan:** Implement Innovative Clean Energy Solutions for Affordable and Public Housing
- **New York State Climate Action Council Scoping Plan, Strategies B6:** Support Development of Thermal Energy Networks

[9] International District Energy Association. "District Heating." Accessed August 7, 2024. https://www.districtenergy.org/topics/district-heating.

3. The City, in partnership with the State, and with additional philanthropic investment, could implement the decarbonization of Western Queens NYCHA Housing Developments—including some of the largest public housing developments in the nation—to accelerate the arrival of clean air, safety, and comfort to thousands of New Yorkers living in public housing. Local Law 97 of 2019 requires NYCHA to reduce its greenhouse gas emissions by 40% by 2030 and 80% by 2050, relative to emissions during the calendar year of 2005.[10] NYCHA's Sustainability Agenda, a bold commitment published in 2021, provides a roadmap for realizing NYCHA's LL97 goals by aggressively reducing greenhouse gas emissions; adopting safe, sustainable, and green building standards; empowering residents with roles on environmental stewardship and a growing green workforce; ensuring efficient building operations and resource management; and leveraging available funding and financing to implement healthier and decarbonized buildings.[11] The recommendations below help scale NYCHA's sustainability agenda and LL97 compliance with a focus on Western Queens.

3A. Deploy affordable, effective heating and cooling technology—starting with heat pumps—across NYCHA's portfolio, in Western Queens. Building off the momentum created by the successful heat pump pilot at Woodside Houses in 2023, the City could accelerate the installation of window heat pumps in units at NYCHA Astoria, Queensbridge North and South, Ravenswood, Woodside Houses.

The Clean Heat For All Plan will deliver 30,000 heat pumps to thousands of NYCHA apartments over the next seven years. However, this deployment represents a fraction of what is needed over the next decade for NYCHA to reach its decarbonization goals, in keeping with City climate legislation. NYCHA estimates 156,000 window heat pumps are needed over the next five to 10 years to make it possible to reduce 80% of its greenhouse gas emissions by 2050, per New York City's Local Law 97.[12]

Accelerating heat pump deployment will require a combination of increased financial contributions by City, State, and federal sources, including—to the extent practicable—Inflation Reduction Act dollars such as Climate Pollution Reduction Grants (CPRG), GGRF financing, and federal tax credits made accessible for the first time to local government institutions via the new IRS "elective pay" provision.

What is a Heat Pump?

Heat pumps are an electrical appliance that provide energy-efficient heating and cooling. In colder weather, the heat pump moves heat from the outdoors into a home. In warmer weather, the pump transfers heat from the home to the outside.[13]

NYCHA Woodside Houses Heat Pump Pilot

A 2023 pilot installed 36 free heat pumps in 12 apartments at Woodside Houses in July and 36 more in 12 additional apartments in November.

These heat pumps represented the kickoff of the Clean Heat for All Challenge, a partnership between NYCHA, the New York Power Authority, and the New York State Energy Research and Development Authority to deploy 30,000 heat pumps at public housing apartments across the city, via two seven-year contracts with Midea (20,000 units) and Gradient (10,000 units). After an assessment of the heat pump performance during winter and summer, NYCHA will install heat pumps throughout the rest of Woodside Houses and across other developments in the city.

[10] Constantinides, Costa et al., "Local laws of the City of New York for the Year 2019, No. 97" (2019). https://www.nyc.gov/assets/buildings/local_laws/ll97of2019.pdf.
[11] NYCHA. "Sustainability Agenda." (2021) https://www.nyc.gov/assets/nycha/downloads/pdf/NYCHA_Sustainability_Agenda.pdf
[12] NYCHA. "$70M Initial Investment for New Electric Heat Pumps at NYCHA Buildings - The NYCHA Journal." NYCHA Journal, August 2, 2022. https://nychajournal.nyc/70-million-initial-investment-will-decarbonize-nycha-buildings-with-new-heat-pump-electrification-technologies/.
[13] U.S. Department of Energy. "Heat Pump Systems." U.S. Department of Energy, 2024.https://www.energy.gov/energysaver/heat-pump-systems.

3B. Extend a thermal energy network from the Ravenswood Generating Station to NYCHA Queensbridge and Ravenswood Houses to provide affordable heating and cooling to NYCHA residents (see Strategy #2). NYCHA Queensbridge North and South and Ravenswood Houses share over 5,300 units that are close to the Ravenswood Generating Station. A District Thermal Energy Network, as proposed by Rise, would entail constructing a network of underground piping with connections to building heating and cooling systems. This investment would complement other actions in NYCHA's Sustainability Agenda and reduce energy burden for residents, especially during summer and winter months.

3C. Subsidize cooling costs for NYCHA residents in advance of the installation of heat pumps, thermal energy network connections, or other interventions. Extreme heat events are becoming more frequent, more intense, and longer in New York City,[14] and the area immediately around the Ravenswood Generating Station, including Queensbridge Houses North and South, is already characterized by intense heat and high heat vulnerability due to a lack of green space, low rates of access to home air conditioning, and high percentages of residents who are low-income or non-Latinx Black (see "Existing Conditions" section).[15]

Although utility costs such as heating are averaged and included in NYCHA tenants' rent, increasingly necessary cooling represents a new financial burden to residents due to the upfront cost of purchasing and professionally installing an air conditioning unit as well as an additional monthly fee charged by NYCHA to offset the increased electricity cost.[16,17] The rollout of heat pumps, thermal energy network connections, and other investments in equipment and infrastructure—which have the potential to reduce cooling costs and keep residents safe and comfortable—will take time. Residents need more support in the near-term to affordably keep cool.

During that time, the State or City could expand existing subsidy programs to help NYCHA residents pay for their own cooling equipment (including heat pumps) and offset higher-cost energy bills during summer months. In June 2024, HUD allowed public housing authorities to utilize HUD funding to offset energy utility costs for residents experiencing extreme heat but who might otherwise avoid using air conditioning out of concern for high energy costs. [18] Prior to this guidance, NYCHA residents could already apply for cooling assistance through the New York State Home Energy Assistance Program (HEAP), a federally funded program (i.e., LIHEAP); however, this limited federal money routinely runs out midway through summer (in 2023, the 2023-2024 Cooling Assistance Benefit closed on July 19).[19] Additional State and local government investment could augment the HEAP subsidy so more NYCHA residents can self-purchase crucial cooling equipment and afford mounting energy bills to stay comfortable in their own homes during increasingly hot summer months.

Parallel City and State Strategies:

- **New York City Green Economy Action Plan, Commitments 7, 24, 35:** Decarbonize NYCHA buildings through Clean Heat for All Challenge; Activate public sites for EV charging; Advance safe micromobility for public housing.
- **MOCEJ Power Up:** Implement Innovative Clean Energy Solutions for Affordable and Public Housing
- **NYCHA Sustainability Agenda, Strategy 2:** Advance electrification and deep energy retrofits.
- **New York State Climate Action Council Scoping Plan, Strategies B6:** Support Development of Thermal Energy Networks

[14] Stevens, A., & Lamie, C., Eds. (2024). New York State Climate Impacts Assessment: Understanding and preparing for our changing climate. https://nysclimateimpacts.org.
[15] NYC Department of Health and Mental Hygiene: Bureau of Environmental Surveillance and Policy. "Environment and Health Data Portal." Environment & Health Data Portal, 2022. https://a816-dohbesp.nyc.gov/IndicatorPublic/about/.
[16] Frank, Thomas. (2024) "In a First, Cooling Costs for Public Housing Residents Will Be Covered." Scientific American. https://www.scientificamerican.com/article/ac-costs-will-finally-be-covered-for-public-housing-resident/.
[17] Blackmore, Willy. (2024) "Live in Public Housing and Want A/C? Get Ready to Pay More." https://wordinblack.com/2024/05/live-in-public-housing-and-want-a-c-get-ready-to-pay-more/.
[18] HUD. "HUD Takes Action to Protect Families Against Extreme Heat (HUD No. 24-145)." HUD.gov / U.S. Department of Housing and Urban Development (HUD), June 13, 2024. https://www.hud.gov/press/press_releases_media_advisories/hud_no_24_145.
[19] Office of Temporary and Disability Assistance. "Home Energy Assistance Program (HEAP)." New York State Office of Temporary and Disability Assistance, 2024. http://otda.ny.gov/programs/heap/default.asp.

4. With supportive policymaking by City and State agencies and early investments by Rise, private businesses can not only decarbonize their operations but also grow in the Long Island City Industrial Business Zone. Beyond the Renewable Ravenswood proposal, a combination of infrastructure investment, low-cost financing, and technical assistance is needed to help local businesses position themselves to participate in the green economy and ultimately improve businesses' financial bottom line. *The recommendations that follow focus on helping businesses decarbonize and grow sustainably; recommendations about growing the number of "green economy" businesses and jobs in the neighborhood are covered in* ***Recommendations: Economic Development.***

4A. With sufficient policy and financial support, Rise could invest in a working port that connects local businesses to marine freight as an alternative to on-road vehicle transportation. Maritime distribution hubs will help enable a decentralized, sustainable freight transportation system in the City. Scarce waterfront space and high implementation costs will require leveraging both public and privately owned sites as venues.[20] In recognition of this, as part of the City's "Blue Highways" initiative, the City released a Request for Expressions of Interest (RFEI) in November 2023 to solicit interest in and innovative ideas about maritime freight from the private sector.[21]

The quayside at the Ravenswood Generating Station site has the potential to transition to a more active working port as part of a thread of ports along the East River. Today, the port hosts several barges that hold fuel oil—the power plant's backup fuel—but the need for these vessels may decrease over time as 1960s generators are phased out. A revitalized port could serve the campus and facilitate the transportation of equipment and workers to offshore wind infrastructure. Moreover, the working port could also potentially accommodate the transfer of additional goods along the East River to decrease local truck emissions.

An ideal Ravenswood maritime industrial hub could perform the following functions:

- Maintain cranes to load and offload vessels.
- Shore power to operate vessel systems while docked and for electric truck charging.
- Maintain two points of entry—one along Vernon Blvd and one at the end of 36th Avenue—to enable efficient in and out transit of last-mile distribution trucks and cargo bikes, which can distribute goods directly to addresses or to micro-distribution hubs in the neighborhood.
- Buffer the transition from the hub to public space along 36th Avenue to the north by planting trees or a vegetated buffer, if possible.[22]

4B. Private business owners, with the support of City and State commercial business incentives, could create one or more "green" micro-distribution facilities onsite or elsewhere in the neighborhood, as a model for low-carbon or no-carbon last-mile distribution. Micro-distribution hubs are smaller, community-oriented distribution centers that are an alternative to larger last-mile warehouse facilities.[23] The smallest hubs, at up 2,500 square feet in floor area, could occupy underutilized storefronts, and could be relocated as land uses evolve.[24] To avoid the "dark stores" impact, resulting in inactive streets, hubs could be required to maintain transparent windows. While the heart of the IBZ might be appropriate for large-scale last-mile distribution sites (10,000+ square feet) that are further removed from residential areas, areas on the edges of the IBZ (e.g., 40th Avenue across the street from NYCHA Queensbridge North) would ideally feature only smaller-scale hubs (the potential for new manufacturing land use zones to shape the IBZ in this manner is described below in "Business Support and Industrial Development Strategies").

[20] AIA New York. "Delivering the Goods: NYC Urban Freight in the Age of E-Commerce." New York, NY: AIA New York, 2022. https://www.aiany.org/urbanfreight.
[21] New York City Department of Transportation. "Blue Highways: NYC DOT, EDC Seek Creative Solutions to Move More Freight Via Waterways Instead of Roadways." NYCDOT, November 1, 2023. https://www.nyc.gov/html/dot/html/pr2023/blue-highways-rfei.shtml.
[22] AIA New York. 2022.
[23] Such facilities (as well as larger hubs) are already allowed as of right in M-zoned districts (i.e., all land within the IBZ); however, NYCDCP's City of Yes for Economic Opportunity drew attention to micro-distribution hubs and allowed them in commercial-zoned areas. C-zoned areas are very limited in the immediate neighborhood surrounding the Ravenswood Generating Station).
[24] AIA New York. 2022.

Last-mile distribution centers have caused harms in the past, including disproportionately exposing low-income New Yorkers and New Yorkers of color to intense vehicle emissions and dense, noisy daytime traffic.[25] To mitigate these hazards, the City could alter existing property renovation or relocation tax incentives to incentivize developers or tenants to maintain "green" hubs that rely on a capped level of fossil-fueled truck delivery and otherwise restrict distribution modes to cargo biking, walking, and possibly medium-duty electric vehicles. Green micro-distribution hubs could allow cargo bikes and electric trucks to charge during loading and unloading. Provided they are a safe distance from residences, hubs could even serve as places for securely storing and charging UL-certified batteries used by transportation, local businesses, and delivery workers.

4C. The City and State can deploy tax incentives to drive private investment in large-scale medium- to heavy-duty vehicle (MHDV) EV charging and maintenance infrastructure in the Long Island City IBZ north of Queensboro Bridge. Planning and investment are needed to electrify medium- and heavy-duty vehicles (MHDVs) in the Long Island City IBZ. As of summer 2024, there are no electrical charging stations for electric vehicles (EVs) in the IBZ north of Queensboro Bridge, but potential demand is clear.[26] The level of trucking in and out of the IBZ on both sides of 21st Street demonstrates the opportunity to decarbonize industrial fleets. And there is an outsize concentration of food vending commissaries in the IBZ on both sides of Queensboro Bridge, with an unknown but likely insufficient level of electrical charging capacity. In the long-term, failure to upgrade infrastructure in the IBZ and surrounding community will hinder the neighborhood from benefiting from a broader green economic transition in the City, and it will continue to expose residents and workers to worse air quality.

> ***"With current NYC TLC plan to replace all vehicles into EV, I'm concerned about my job and income if there's no EV charging station in the NYCHA parking lot."***
>
> ***- NYCHA resident (Reimagine Ravenswood Community Survey)***

While large parcels of industrial-zoned, publicly owned land—e.g., NYCEDC solicitations in Staten Island, Hunts Point—are ideal grounds for leasing to MHDV electrification and energy storage uses, there is no such site in the Queensbridge-Ravenswood neighborhood. Therefore, investment in charging infrastructure might have to be decentralized and led by the private sector, incentivized by a combination of federal tax incentives (IRA) and local incentives, such as the NYC Clean Truck Program.

4D. The City could incentivize the deployment of energy storage and charging cabinets to support the safe, convenient adoption of electrification micromobility solutions in the neighborhood. As electric micromobility technology—such as electrified delivery bikes, cargo bikes, and street carts—become more popular in the neighborhood, users and the general public will benefit from safe, secure spaces to store and charge small and medium-sized batteries. It is important that these locations be rated to contain electrical equipment. Although undamaged lithium batteries are quite safe as long as they are UL-certified,[27] a supply of non-certified batteries (which are often cheaper) have appeared in the NYC market and led to incidents of fire that have caused injuries and death.[28] After initially banning some micromobility devices from NYCHA apartments, NYCHA now allows tenants to charge one device at a time per apartment as long as they abide by a number of precautions.[29]

To foster lowest-risk uptake of battery-powered micro-mobility technology, the City could incentivize—i.e., via NYCIDA tax incentives—the deployment of secure energy storage and charging cabinets throughout industrial

[25] The Last Mile Coalition. "An Environmental Justice Crisis: Last-Mile Trucking Facilities." 2023. https://drive.google.com/file/d/1XPGmcZuZ_DlSJ3qAIAGMFBRDZtQyRq73/view.
[26] U.S. Department of Energy. "Alternative Fuels Data Center: Alternative Fueling Station Locator." Alternative Fuels Data Center, July 2024. https://afdc.energy.gov/stations#/find/nearest.
[27] UL Solutions is an independent, third-party product safety certification organization that publishes safety standards that draw on consensus among other industry organizations.
[28] Rubin, April. "Lithium-Ion Batteries in E-Bikes and Other Devices Pose Fire Risks." *The New York Times*, November 14, 2022, sec. U.S. https://www.nytimes.com/2022/11/14/us/lithium-ion-ebike-battery-fires.html.
[29] NYCHA. "New Rules Regarding Electric Micromobility Vehicles and Devices - The NYCHA Journal." NYCHA Journal, February 28, 2024. https://nychajournal.nyc/new-rules-regarding-electric-micromobility-vehicles-and-devices/.

areas of the neighborhood. Ideal sites could be distribution hubs of varying sizes, commissaries for food cart vendors, and a potential maritime distribution hub at the Ravenswood Generating Station site. Separately, the City could deploy these charging lockers on or near the Western Queens NYCHA campuses to mitigate the impact of device charging restrictions in apartments and interior common spaces.

Parallel City and State Strategies:

- **New York City Blue Highways Initiative**
- **New York City Green Economy Action Plan, Commitment 31:** Implement a marine highway for freight transport
- **MOCEJ Power Up:** Reduce the Effects of Trucks in Our Communities and on Our Infrastructure
- **New York State Climate Action Council Scoping Plan, Strategies I1, I6:** Provide financial and technical assistance to help industrial businesses decarbonize; Provide economic incentives to help develop in-state supply chain of green economy businesses

Workforce Development and Economic Opportunity Strategies

The transition of the Ravenswood Generating Station into a renewable energy hub project can serve as a catalyst to attract new economic activity to the area, centered on the green economy. This opportunity is made possible by the renewable energy contracts Rise would enter into with New York State, as well as the permits from a variety of City, State and Federal authorities, all of which would be required to enable Renewable Ravenswood to become a reality. Reimagine Ravenswood envisions building on existing, robust, non-profit- and union-led workforce development capacity, integrated with the needs of employers, to bring local residents into future employment opportunities as part of Renewable Ravenswood, related renewable energy projects, supportive industrial businesses, and green economy roles citywide.

1. New York City could provide funding to scale the existing neighborhood-based economic opportunity network to connect more local youth and adults—including NYCHA residents as well as migrants and asylum seekers staying in the neighborhood—to good-paying, high-quality jobs in growing industries. The neighborhood contains an untapped labor market: its labor force participation rate is lower than that of Long Island City and that of the rest of the city, and it contains an outsize proportion of young, working-age adults compared to the rest of the city. However, neighborhood residents lack the nearby economic opportunities of peers in adjacent areas of Long Island City. The median household income of an average resident in the Queensbridge-Ravenswood neighborhood is three times lower than that of a resident in the surrounding Context Area. Black and Brown workers locally are overrepresented in relatively low-paying jobs but underrepresented in higher-paying jobs projected to grow in the future. Residents cite serious obstacles—including costs of tuition, childcare, and transportation—that prevent them from completing existing job training or workforce development opportunities. Youth and adults do not always know about the programs available to them, and there is a lack of consistent exposure to opportunities in growing industries such as the "green economy." (See "Existing Conditions" section for more context and data.)

Despite these challenges, the neighborhood is fortunate to have a strong network of local workforce development organizations, some of which are profiled below, that provide job training and wraparound services to residents and that have worked effectively in nearby NYCHA campuses. However, these organizations have limited resources and must balance competing priorities. A better-funded neighborhood network, benefiting from operating support from public partners, could allow these organizations to scale their collaboration and impact. Additional funds could also ensure that residents are not precluded from job training and workforce development programs because of a lack of sufficient stipends or access to childcare, among other obstacles. Scaling this neighborhood-based economic opportunity network will be a two-step process: (1) funding integrated planning and (2) seeding and scaling an integrated neighborhood economic opportunity network.

1A. Fund integrated planning among the organizations alongside industry representatives, including unions, employers, and industry organizations. This group, including organizations profiled below, would agree to a work plan to collaborate and design a more robust network. At minimum, the workplan would include an

assessment of local workforce development ecosystem conditions and needs, goal setting, and implementation planning.

Needs Assessment. Take stock of existing workforce development conditions and needs:

a. Estimate the current throughput of intake, job training, job placement, and other direct services network members are capable of providing.
b. Estimate current and long-term (1+ years) hiring expectations among local, citywide employers.
c. Confirm the barriers local residents currently face with respect to accessing and completing job training, job placement, and other workforce development programming (as uncovered by the Reimagine Ravenswood survey). Confirm the interest that local residents—including NYCHA residents and new migrants—have in specific industries.
d. Define gaps in the existing workforce development system, where existing resources and offerings are not meeting expected hiring opportunities or are not sufficient to help residents surmount above-mentioned barriers (e.g., cost, time, awareness).

Goal Setting. Based on the existing conditions and needs assessment, agree on bold goals for intake, job training, and job placement in the neighborhood, and then back into more specific goals year-over-year and for specific populations—e.g., NYCHA residents, youth, aging adults, and new migrants and asylum-seekers staying in Western Queens.

Implementation Planning. Define the roles needed to realize shared workforce development goal, and budget out the resources needed to support each role over time (e.g., for up to five years).

1B. Seed and scale an integrated economic opportunity network. After completing the planning stage, the workforce development network should be in a position to launch and operate. Integrated planning will dictate the ideal structure of the Western Queens network, but case study examples of similar networks in New York City and elsewhere suggest the following roles and functions:

1C. Focus workforce hub activities on reaching the most Disadvantaged Communities, including NYCHA residents, new migrants, and asylum-seekers living in Queens. The Queensbridge-Ravenswood neighborhood, and the broader Community District 1, contains a high concentration of DHS emergency sanctuary sites (as of Feb 2024, per DHS) in addition to the concentration of public housing. Many of these emergency sanctuaries are located in hotels within the Long Island City Industrial Business Zone north of Queensboro Bridge, adjacent to the NYCHA Queensbridge North and South Houses. There is a significant opportunity to provide holistic, wraparound support to multiple marginalized communities, including public housing residents, new migrants, and asylum-seekers, that ultimately helps connect them to high-quality, high-wage, in demand jobs in the city.

A workforce hub that embeds itself where NYCHA developments are located, and where migrants and asylum seekers are already staying, could integrate State, City, and local offerings to span the following needs, with the acknowledgement that holistic support needs to be in place for someone to hold and excel in a new job:

- Support navigating worker authorization processes.
- Connection to vocational training and English language education.
- Connection to community health workers and housing advocates/navigators.
- Connection to advocates and legal support in the event of discrimination or unsafe working conditions.
- Access to digital devices.

Table 3: Core Roles and Functions of an Integrated Neighborhood Economic Opportunity Network

Coordination
A coordinator, either an existing organization or a new, purpose-built organization that knits together the work of existing organizations, would be accountable for the following roles: - **Supporting any integrated asks for operating and capital funding**, so network partners can focus on service delivery and any fundraising unrelated to network operations. - **Coordinating intake and referrals** across a variety of local and citywide programs. - **Maintaining data** from network partners and employers on workforce ecosystem conditions, gaps, and changes over time. - **Convening network partners and employers** periodically to take stock of progress and make decisions.
Advertisement and Awareness Raising
Marketing and awareness. A coordinator would augment network partners' ability to spread the word about network offerings, including enhanced offerings to certain eligible populations (e.g., NYCHA residents eligible for NYCHA REES support, Clean Energy Academy offerings, HUD Family Self-Sufficiency program, etc.). With boosted advertising support, the coordinator and partners could rely on media and in-person engagement at community centers, NYCHA campuses and community events, and other places where people gather; and invest in website and social media tools that consolidate, centralize jobs and other workforce development opportunities specifically for residents in Western Queens. *See more details on advertisement and awareness raising in strategies below.*
Breaking Down Barriers
Enhanced wraparound services. A coordinator could execute referrals to additional, deeper wraparound services that meet the custom needs of each client that passes through the local network. This could include connections to affordable, subsidized childcare; affordable or free digital devices; housing support; healthcare assistance (including mental health assistance). The coordinator would track placement and satisfaction rates for each type of direct service or subsidy.
Worker Protection and Safety
Maintain worker protection and safety commitments for all existing and new apprenticeship programs, especially for vulnerable or historically disadvantaged New Yorkers. When existing regulations (e.g., OSHA) are insufficient or not enforced, network members could enforce worker protection and safety, extreme heat health and safety standards, emergency preparedness and response protocols that protect workers, as well as anti-discrimination standards to protect industrial workers. Enforcement and support should prioritize vulnerable workers such as undocumented New Yorkers. Compliance with standards should be required of businesses that participate in talent pipeline development programs operated by the neighborhood network.

Parallel City and State Strategies:

- **NYCHA Sustainability Agenda, Strategy 8:** Connect residents to workforce development and entrepreneurship opportunities.
- **NYC Green Economy Action Plan, Commitments 9, 10, 21, 22, 26, 44, 51, 52:** Launch and expand green building apprenticeship programs; Establish community hiring networks to implement place-based workforce connection strategies; Launch and expand energy supply chain apprenticeships; Launch EV operation and technician apprenticeships; Connect young New Yorkers with practical learning and training opportunities in the green economy; Establish green training facilities in all five boroughs; Expand and connect industry partnerships to inform green workforce priorities.
- **NYS Disadvantaged Communities Barriers and Opportunities Report, Strategies 1c, 3b, 3c, 7d:** Co-design with and for the most vulnerable New Yorkers; Describe the benefits of clean energy, transportation, environmental and adaptation projects on several dimensions, with cultural awareness; Actively seek and recruit community partners for communication and program or service facilitation needs; Develop wealth-building and asset-building options or pathways; Find and support local champions.

Table 4: Sample Neighborhood Workforce Development Assets Relevant to Workforce Development & Economic Opportunity

Andromeda Community Initiative

ACI is a nonprofit that provides holistic professional development opportunities, free educational and workforce development programs, and job-related training. ACI is partnering with Solar One, a nonprofit green energy education center, to train participants in green construction and building O&M procedures. ACI also works closely with STRIVE, a nonprofit organization whose mission is to help people acquire life-changing skills and attitudes needed to overcome challenging living circumstances, find sustained employment. STRIVE staff provides outreach and enrollment support for underserved communities.

Green City Force

Green City Force is an AmeriCorps organization training public housing and/or low-income residents for green career pathways through service. Its flagship program, Service Corps, is a full-time AmeriCorps program for young adults in NYCHA or low-income housing to build skills and access trainings and certifications for quality employment in the green economy. Trainings ranging across agriculture, culinary, nutrition, community health, energy efficiency and solar power, green buildings and trades, recycling and compost processing prepare Corps Members with technical skills for a range of sustainable career pathways. This training also includes site safety and the OSHA-40 (Occupational Safety and Health Administration) certification.

Jacob A. Riis Neighborhood Settlement

Riis Settlement is a community-based non-profit organization that provides comprehensive development programs to youth, families, immigrants and seniors in the western Queens community. Programming includes educational and fitness activities for youth of all ages, ESOL classes, case management, social and community building events for older adults.

Long Island City Partnership

Long Island City Partnership (LICP) is a Local Development Corporation (LDC), focused on various aspects of economic development for the larger neighborhood. LICP provides business assistance to local businesses and works to attract new businesses to the area. LICP also oversees the LIC Business Improvement District (LIC BID) and LIC Industrial Business Zone (LIC IBZ).

LaGuardia Community College

LaGuardia Community College (LGCC) is located in Long Island City with over 22,000 students enrolled. LGCC offers continuing education curriculum that offers a range of high-quality, short-term and affordable courses and certificate programs in industries that are directly related to the green economy including Electrical, Plumbing, and Construction. LGCC will soon host a state-of- the art offshore wind training Tower that will offer offshore wind training, small business incubation, and educational programming programs. Partial scholarships are available for eligible students. The LaGuardia CARES program supports students with resources and services to help students navigate financial and other barriers which might impact their education.

NYCHA REES and CEA

The NYCHA Office of Resident Economic Empowerment & Sustainability (REES) helps residents increase their income and assets through various programs and policies. NYCHA Clean Energy Academy (CEA) is a $2 million workforce training program for NYCHA residents to gain skills and training in the clean energy and construction sectors including building electrification, clean energy technologies, and energy efficiency. The program is a partnership between NYCHA and the Fund for Public Housing, with support from several other organizations. The program is a 16-week, 240-hour course.

Steamfitters Local 638

The Steamfitters Local 638 represents general pipe fitting workers across New York City and Long Island. Local 638 workers are skilled in welding, HVAC systems, and sprinkler fitting. The union has a 5-year apprenticeship program and spends over $4 million annually on training programs.

Urban Upbound

Urban Upbound is a community-based nonprofit organization that offers low-income New Yorkers the tools and resources needed to achieve economic mobility and self-sufficiency, with programs including tax preparation, job training, college preparation, and more. Urban Upbound also have a Worker Cooperatives Program that helps local entrepreneurs incubate worker-owned businesses.

Utility Workers Union of America Local 1-2

Utility Workers Union of America Local 1-2 represents all union employees at Rise Light and Power who work at the Ravenswood Generating Station, as well as nearby Con Edison.

Variety Boys & Girls Club of Queens

Variety Boys & Girls Club of Queens (VBGCQ) is a nonprofit organization focused on youth services and development. VBGCQ hosts high quality programming in its 30,000 square foot Club in Astoria and serves over 4,000 youth annually. STEM is one of the Club's core program areas.

Table 5: Sample Neighborhood-Based Workforce Development Networks

The **Lower East Side Employment Network (LESEN)** was founded in 2006 in collaboration with Community Board 3 with the purpose of connecting 9 workforce development Network Partners, who provide trainings, certificates, and other career development assistance, with the neighborhood businesses that have open jobs and are interested in local hiring. The neighborhood has seen a particular need to workers for the hospitality and retail sectors, driven by developments like Essex Crossing. The LESEN model encompasses several notable features that have enabled its success:

- The **Coordinator role** at LESEN is responsible for building relationships with employers, coordinating the Network Partners, pre-screening and referring candidates, and engaging with community stakeholders. This role underscores how LESEN can both act as an intermediary between workforce development organizations and businesses, while also facilitating the opportunity for additional relationships to be built directly.
- A **streamlined employment process** creates two-way benefits for Network Partners, who are in a position to effectively train the local workforce to meet the needs of businesses, and the businesses themselves who have access a pool of qualified candidates that help them respond to hiring demand.
- LESEN hosts **monthly meetings** where Network Partners gather on a monthly basis to share workforce development best practices and new business opportunities.

Sources: LESEN, JobsFirstNYC (2019), Center for an Urban Future (2017)

Jerome Avenue Revitalization Collaborative (JARC) started in response to the 2018 rezoning of the Jerome Avenue Corridor, to deliver inclusive economic growth for local businesses and residents. JARC helps residents access job opportunities as well as educational and workforce development training, with a focus on low-income persons who may not otherwise be able to afford trainings, and provides assistance and business development resources to local employers.

- JARC manages an **employer-facing job placement network** that provides direct job referrals to residents for jobs listings that are hosted on an online portal, which businesses can upload postings to.
- JARC strives to connect businesses with each other through a **local business hub**, which consists of a WhatsApp group for West Bronx business owners, and additional support for applying for grants and loans, accessing free legal assistance, and crafting a marketing strategy.
- **Grants** are available for low-income residents to subsidize their access to educational and workforce development training. JARC finances these grands through fundraising and other efforts.

Sources: JobsFirstNYC, JARC

Since 2017, **Youth WINS (Workforce Initiative of Staten Island)** has brought together a coalition of nonprofits, including community-based organizations, the Staten Island Chamber of Commerce, and local community colleges to serve young adults (ages 16-24) who are out-of-school and/or out-of-work. The coalition helps connect youth to educational, training, and support services to help them attain well-paying jobs:

- Youth WINS provides a range of **educational services**, including programs for youth to get a high school diploma or GED, as well as skills or trainings to support post-secondary opportunities such as college readiness training, career exploration workshops, and financial literacy training.
- **Employment and training services** seek to help youth access jobs in in-demand industries by connecting them to job training, certification courses, and paid internships, as well as supporting them with resume writing, interview practice, and job readiness courses.
- **Support services** address additional needs that affect the ability to maintain steady employment. Coalition member services include parenting skills workshops, short-term mental health counseling, life skills training, and peer mentorship.

Sources: Youth WINS, JobsFirstNYC

2. The State could set targets for a certain portion of future jobs created by the clean energy projects it contracts with to go to residents of Disadvantaged Communities, including a specific goal for hiring NYCHA residents. Rise expects Renewable Ravenswood and other projects like it to create numerous construction jobs and long-term operating jobs. All of these projects will depend upon securing approvals from, and agreements with, New York State. If the State were to establish standardized goals for hiring in disadvantaged communities – similar to MBE, WBE and SDVBE goals – it could create the potential for a meaningful percentage of roles to local workers across the City, including NYCHA residents at Astoria, Queensbridge, Ravenswood, and Woodside Houses. Hiring from disadvantaged communities should rely on New York State-defined "Disadvantaged Communities," which were conceived in the State's Climate Act, defined by the State's Climate Justice Working Group, and mapped by NYSERDA.[30]

3. Rise could open access to the training facility at the Ravenswood Generating Station Site so that programming is made available to NYCHA residents and other Western Queens residents. Rise Light & Power currently maintains a training center for employees that report to the Ravenswood Generating Station. As part of Renewable Ravenswood, Rise could consider expanding and opening the training center to local organizations that could provide specific training courses that help local residents build skills for renewable energy jobs. In partnership with existing workforce development institutions, early-stage offerings could include coursework on electrical work that are useful for jobs today and in the future; coursework in the near future could leverage new programming specific to renewable energy work related to Renewable Ravenswood, including offshore wind training.

Parallel City and State Strategies:

- **NYC Green Economy Action Plan, Commitments 44, 51:** Connect young New Yorkers with practical learning and training opportunities in the green economy; Establish green training facilities in all five boroughs.
- **NYCHA Sustainability Agenda, Strategy 8:** Connect residents to workforce development and entrepreneurship opportunities.
- **NYS Climate Action Council Scoping Plan, Strategy I3:** Support workforce development to expand the state's green workforce.

4. Rise could invest in an educational visitor center at the Ravenswood Generating Station that informs guests about the transformation of the center, contemporary renewable energy technology, and the opportunity represented by green jobs. In the spirit of transforming the historically shut-off site into a more community-oriented hub, Rise could explore delivering a publicly accessible visitor and activity center that brings general guests, school groups, and individuals pursuing jobs in the renewable energy sector face-to-face with renewable energy operations. The popularity of sites such as the Balcones Recycling Brooklyn Material Recovery Facility in Brooklyn (see below) or the Deer Island Wastewater Treatment Plant in Boston demonstrates the growing public interest in "industrial tourism." Rise could also explore near-term opportunities to include public tours via organizations such as Open House New York.

A visitor center onsite could show the full scale of Renewable Ravenswood—starting from offshore wind equipment and upstate hydroelectric power to—and narrate the journey of electrical power from the source to a New Yorker's home or business. The center could blend interactive displays and static content adapted to young and adult audiences; content would include engineering and science information as well as information about career pathways related to renewable energy. If possible, guests would enjoy a secure, safe opportunity to view the working port and onsite energy conversion and storage technology. Ideally, the center would offer an event space or theater that Rise, non-profit partners, or paying private organizations can use. Typical visitor center programming in the space could include interactive programming for school tour groups, college course site visits, and non-profit job training courses.

[30] NYSERDA. "Disadvantaged Communities." https://www.nyserda.ny.gov/ny/Disadvantaged-Communities.

Case Study: Balcones Recycling: Brooklyn Material Recovery Facility, Sunset Park, NY

The Balcones Brooklyn Material Recovery Facility (formerly, the Sims Recycling Center) is the largest recycling sorting system of its kind in the United States. One the same site as its operations, it tours children and adults through an 8,000 square foot Recycling Education Center, which educates visitors about proper recycling practice and materials recovery technology and processes. Adult tours focus on environmental science, urban planning and architecture, product design, and other specialized subjects. Visitors can observe facility operations from a secure, elevated observation deck and bridge. The educational center also includes a theater, eating space, outdoor patio with views over the harbor, and proximity to the City's only commercial-scale wind turbine located on the grounds.[31,32]

5. The City could expand information about pathways to high-quality "jobs of the future" in middle school, by leveraging City-led career-connected learning strategies in Western Queens public schools. The combined efforts of local non-profit community-based organizations, schools and colleges, and City agency programs are crucial to connecting low-income residents to jobs of the future in growing industries, including young people. However, many people who live in the neighborhood are not aware of the expected economic opportunity in sectors like the green economy, or they are not aware of the full scale of workforce development support available to them today. A 2024 Reimagine Ravenswood youth focus group demonstrated the importance of sharing career pathways information with young people as early as eighth grade, especially when the pathway involves pathways to high-paying, satisfying careers that do not require traditional four-year college degrees.[33]

PS Q450 Co-Op Tech/Long Island City High School and PS Q258 Energy Tech High School are local examples of the city's over 130 career and technical education (CTE) schools, which have long existed citywide, which allow students to embark early on technical career pathways. And the New York City Department of Education is already advertising accessible career pathways in broader City schools as part of its career-connected learning initiative started in 2022. There are a variety of ways the City and local partners can further bolster awareness among students.

5A. Scale the FutureReadyNYC schools pilot and include high schools in Western Queens; consider emphasizing green business and cleantech roles in future years. As part of the City's career-connected learning, NYC Public Schools is piloting the multi-year FRNYC program, in which participating students focus on building real-world skills, gaining paid work experience, earning early college credit or industry-respected credentials, and receive personalized career planning support toward one of four career pathways: business, education, healthcare, or technology.[34] For some of these career pathways, the City could forge partnership with renewable energy companies like Rise, business and management firms (e.g., sustainability specialists), and cleantech companies (e.g., construction, building management, renewable energy generation, energy storage, engineering) to add specific green career pathways for participants to consider.[35]

5B. Enroll Rise, among other new and growing cleantech and green construction business that participate in the Renewable Ravenswood supply chain, as participating employers in the Career Readiness and Modern Youth Apprenticeship pilot program. As part of the NYC Public Schools CRMYA multi-year pilot, high school and college students are able to intersect their traditional education with hands-on, paid apprenticeships, potentially leading to fulltime job offers.[36] As Rise implements Renewable Ravenswood in coming years, and as additional

[31] SMR. "Recycling Education Center (REC) in New York City." SMR. Accessed August 5, 2024. https://smrecycles.com/recycling-education-center/.
[32] Balcones Recycling. "Schedule a Tour - Visit a Materials Recovery Facility (MRF)." Balcones. Accessed August 5, 2024. https://www.balconesrecycling.com/schedule-a-tour/.
[33] On May 9th, HR&A Advisors facilitated a youth focus group at Variety Boys and Girls Club of Queens with 20 youth nominated by local community-based organizations and NYCHA resident association leaders. Catering was provided, and all youth attendees were compensated with $50 gift certificates generously provided by Rise Light & Power.
[34] NYC Public Schools. "Career Connected Learning." NYC Public Schools. Accessed August 5, 2024. https://www.schools.nyc.gov/learning/student-journey/career-connected-learning.
[35] Among green economy focus occupations defined by the New York City Green Economy Action Plan, survey respondents and youth focus group participants were likeliest to select "business" and "architecture/design and engineering" roles as most desirable in the green economy.
[36] NYC Public Schools. Accessed August 5, 2024.

commercial and industrial businesses related to renewable energy supply chain cluster in the neighborhood, NYC Public Schools will have the chance to bring these businesses into the program to offer local apprenticeship opportunities to youth—ideally students who live and learn within Western Queens.

5C. Leverage the "Leading the Charge" program in Western Queens public schools to raise awareness of the economic opportunity in the green economy right in students' own schools. In October 2022, the City launched a $4 billion initiative to electrify existing schools. The upcoming 2025–2029 Capital Plan includes funding for electrification of 33 existing school buildings, one third of the 100 schools targeted for electrification by 2030.[37] And the initiative includes a $13+ million program to hire and train skilled trade workers to eliminate the existing No. 4 heating oil infrastructure in schools.[38] While these new skilled trade workers are working in Western Queens public schools, on onetime upgrades and ongoing maintenance, NYC Public Schools should partner with neighborhood-based workforce development organizations to connect these workers with students. The City could provide additional compensation for workers to meet in person with middle- and high-school students and show them firsthand what career opportunities look like in fields such as green building retrofits and electrification.

Parallel City and State Strategies:

- **PlaNYC:** Leading the Charge Initiative
- **NYC Green Economy Action Plan, Commitments 9, 22, 44:** Implement Leading the Charge Initiative to electrify schools; Bolster CUNY students entering offshore wind and other green industries; Connect young New Yorkers with practical learning and training opportunities in the green economy.
- **New York State Climate Action Council Scoping Plan, Strategy I3:** Support workforce development to expand the state's green workforce.

[37] New York City Economic Development Corporation, and NYC Mayor's Office of Talent and Workforce Development. "Green Economy Action Plan," February 2024. https://edc.nyc/sites/default/files/2024-02/NYCEDC-Green-Economy-Action-Plan-02-28-24.pdf.
[38] "Mayor Adams Announces Major Progress in NYC's Transition to Electric Vehicles," September 23, 2022. Office of the Mayor of New York City. http://www.nyc.gov/office-of-the-mayor/news/700-22/mayor-adams-major-progress-nyc-s-transition-electric-vehicles.

Business Support and Industrial Development Strategies

The transition of the Ravenswood Generating Station into a renewable energy hub could catalyze broader economic growth in the area of the Long Island City IBZ north of Queensboro Bridge, attracting and growing advanced manufacturing, technology, professional services, construction, maintenance, and other supportive industries that can participate in the larger, growing market for renewable energy and "cleantech."

Because Renewable Ravenswood will require numerous City, State and Local approvals, including, critically, one or more long-term energy offtake agreements approved by the State, it presents a unique opportunity to combine private-sector leadership with catalytic public- and non-profit-sector investments to ensure the green economy is established in the New York Metro Area generally, and the Queensbridge-Ravenswood neighborhood specifically. The New York Metro Area is already ideally suited to foster rapid job growth in key "green economic transition sectors," including building efficiency machinery and equipment manufacture, energy storage and transmission machinery and equipment manufacture, environmental monitoring machinery and equipment manufacturing, and electric vehicle component manufacture.[39] With the right policy support, Reimagine Ravenswood has the potential to create rewarding career and entrepreneurship opportunities for New Yorkers, especially those Queensbridge-Ravenswood neighborhood.

1. The City and State—with input from the Long Island City Partnership and other public and private-sector partners—could collaborate to define and set targets for local supply chain interventions to catalyze a broader local boom in local manufacturing and related commercial uses in the Long Island City Industrial Business Zone north of Queensboro Bridge. Many projects like Renewable Ravenswood that are contracted by NYSERDA involve a level of private investment that could be sufficient to trigger broader business growth in the surrounding area. A combination of local purchasing, catalyzed by NYSERDA contracting targets, as well as investments by the City and State and local economic development institutions, could help make this green transition accessible to existing and new businesses, including small and historically disadvantaged businesses.

Offshore wind, large-scale energy conversion, and energy storage projects will require a variety of business services. NYCEDC's Offshore Wind NYC Waterfront Pathways Program—which aims to prepare minority-owned, women-owned, and disadvantaged business enterprises (M/W/DBEs) for offshore wind and related waterfront infrastructure projects—defines the following business services as relevant:[40]

Table 6: Key Services in Support of Offshore Wind (NYCEDC)

Professional Services	Construction Services
▪ Civil and structural engineering, crane engineering, etc. ▪ Compliance consulting (e.g., Davis-Bacon, other rules) ▪ Construction and site safety consultants & training ▪ Construction estimating & budgeting ▪ Construction inspections and management ▪ Marine & maritime logistics ▪ Mechanical, electrical, plumbing (MEP) ▪ Naval architects ▪ Special inspections ▪ Surveying (bathymetric, geophysical, environmental, etc.) ▪ Testing (environmental, geotechnical, etc.) ▪ Underwater services ▪ Wetlands & mitigation specialists	▪ Barge & tugging services ▪ Carpentry (dock building, piling, etc.) ▪ Concrete ▪ Concrete and precast ▪ Diving services ▪ Dredging ▪ Electrical (installation, fabrication, etc.) ▪ Fence, security, & sitework ▪ Heavy construction ▪ Ironwork ▪ Marine construction ▪ Masonry ▪ Mechanical fabrication ▪ Metals fabrication ▪ Site construction ▪ Trucking and logistics

[39] Brickman, Aaron, et al. "Batteries in Phoenix, Heat Pumps in Houston: Here's Where Cleantech Industries Are Best Poised to Thrive." RMI, July 31, 2024. https://rmi.org/batteries-in-phoenix-heat-pumps-in-houston-heres-where-cleantech-industries-are-best-poised-to-thrive/.
[40] New York City Economic Development Corporation. "Offshore Wind NYC Waterfront Pathways Program | NYCEDC." NYCEDC. Accessed August 5, 2024. https://edc.nyc/program/offshore-wind-nyc-waterfront-pathways-program.

1A. The State could require contracts to rely on local supply chains for a percentage of contracting and purchasing. The State has the potential to cause a meaningful percentage of the purchasing associated with the projects it contracts, such as Renewable Ravenswood, to be targeted toward local businesses, and to commit a subset of that contracting to historically disadvantaged local businesses—e.g., minority-owned businesses, woman-owned businesses.

However, to make local, inclusive sourcing feasible, a host of additional capacity-building investments—not only by Rise, but also by other employers, non-profit institutions, the City, and the State—is necessary to prepare diverse businesses to contribute to the sector; some of these interventions are outlined immediately below.

1B. The State, collaborating with City and local economic development entities as required, could encourage existing businesses to retool or expand their work to participate in the clean energy supply chain.

- Publish contracting and purchasing needs so businesses can plan ahead on a level playing field. The State could clearly identify and publish the specific purchases and services that it expects projects such as Renewable Ravenswood to contract, over an estimated project timeframe, so businesses have a sense of expected demand and make decisions about how to position themselves for business opportunities in offshore wind, waterfront reconstruction, energy storage/conversion, and other renewable energy deployment. This public "investment schedule" will also help third-party business and workforce organizations understand expected level of investment and adapt their programming and capacity-building to best prepare pipelines of workers and businesses to participate in the work created by such projects.

- Leverage existing networks of small and historically disadvantaged firms. The State and the City could collaborate with business owners that have cultivated networks of small and historically disadvantaged businesses interested in or prequalified for renewable energy project work. The NYCEDC Waterfront Pathways program is an example of this, which is prequalifying M/W/DBE businesses for professional services and construction services related to offshore wind. By sharing contracting opportunities with preexisting networks of businesses, including MWBDEs and other disadvantaged businesses, the State can expand the inclusiveness of procurement for projects such as Renewable Ravenswood.

- Help local contractors grow by connecting them to diverse, job-ready talent. The State, City, and private project developers could refer bidders to a variety of resources to help them hire the best talent, which could remain a challenge in an already tight labor market where demand for labor will likely continue to grow. In addition to existing labor unions, resources could include:

    1. The Queensbridge-Ravenswood neighborhood-based economic opportunity network (see "workforce development and economic opportunity strategies"),
    2. Local economic development and industry institutions such as the Long Island City Partnership and the Queens Chamber of Commerce,
    3. City and State-level workforce development programs, such as programs offered by NYSERDA and NYC Small Business Services.
    4. Aligned efforts by specific businesses operating in the IBZ.

- Help prospective bidders that are small businesses or historically disadvantaged businesses be more competitive by connecting them to capacity-building support and access to credit. Mission-driven employers and economic institutions such as the Long Island City Partnership are ideally suited to help growing businesses prepare for local contracting opportunities in Queensbridge-Ravenswood neighborhood and broader Western Queens.

Case Study: NYSERDA OJT, Internship, Fellowship Programs

NYSERDA offers various workforce development and training programs to provide clean energy businesses with funding and resources to hire new talent and cultivate the skills of current employees. Specifically, NYSERDA offers:

- **On-the-Job Training** which provides businesses reimbursement up to 75% of a new hire's wages for their first 16-24 weeks of employment and assistance with the development of training plans.
- **New York State Clean Energy Internships** which funds internships for students and recent graduates at clean energy businesses.
- **Climate Justice Fellowships** which funds salaries and professional development so that fellows have the opportunity to work within businesses and organizations that advance climate justice and clean energy priorities in their communities.[41]

Case Study: NYC SBS Customized Training Grants Program

The NYC Department of Small Business Services (NYC SBS) provides grants to help NYC-based businesses train and retain their employees. Businesses identify issues they are facing and select the appropriate trainings that will help them resolve the issues. Businesses pay for training costs up front and are reimbursed by NYC SBS on a quarterly basis. NYC SBS reimburses up to 60% of the total training costs associated with:

1. Learning how to use recently purchased equipment or software
2. Offering new services/products to reach new markets
3. Providing new skills to help current staff advance into hard-to-fill positions
4. Updating outdated skills to help the business be more competitive

NYC SBS training grant range from $30,000-$400,000. Businesses must train at least 10 employees and upon training completion, businesses must provide wage increases. Business who have participated in this program have experienced notable increase in sales, employee retention, and competitiveness.[42]

Parallel City and State Strategies:

- **NYC Green Economy Action Plan, Commitments 49, 52, 63:** Provide technical assistance to manufacturers to build a local offshore wind supply chain; Expand and connect industry partnerships to inform green workforce priorities; Establish M/WBE Procurement Opportunities.
- **New York State Climate Action Council Scoping Plan, Strategies I1, I2:** Provide financial and technical assistance to help industrial businesses decarbonize; Incentivize procurement of low-carbon products.

2. The Long Island City Partnership, in collaboration with the Queens Borough President's Office and other partners, could help new businesses relocate to or expand in the Queensbridge-Ravenswood neighborhood in sectors like renewable energy, energy storage, waterfront reconstruction, electric vehicle services and maintenance, and advanced manufacturing. The IBZ extending inland from the Ravenswood Generating Station contains a high concentration of construction, warehousing, and automobile services uses, but the local business context is currently not suited to deliver specialized services associated with the "green economy." In addition to helping existing businesses enter the green economy, attraction of new businesses is needed. Fortunately, the significant majority of buildings that are not hotels, schools, or self-storage are typically under two-to-three stories in height, suggesting the possibility for additional buildable space to develop additional industrial space (or other uses, should they be permitted in the future) that aligns with the need of industry and consensus vision for the area.

The Long Island City Partnership, the local development corporation for Long Island City, already offers targeted support to business owners and entrepreneurs drawing from a deep understanding of local neighborhood strengths and needs; their services include business planning, navigating financing and incentive opportunities, business planning, navigating local government, and other support. LICP is ideally suited to help connect developers and tenants to a variety of incentives, financing opportunities, capacity-building resources, and expertise to help catalyze an inclusive industrial boom north of Queensboro Bridge. (The City and State offers a suite of incentives, financing, and support to help develop new industrial real estate and attract industrial tenants to the city, including examples sampled in the *Appendix)*.

[41] NYSERDA. https://www.nyserda.ny.gov/All-Programs/Clean-Energy-Workforce-Development-and-Training/For-Businesses
[42] City of New York. https://nyc-business.nyc.gov/nycbusiness/business-services/recruitment-and-training/customized-training-grant-program

3. Catalytic investments by the Queens Borough President's Office, in collaboration with private business and philanthropic commitments, could cultivate new startups in the Queensbridge-Ravenswood neighborhood that focus on sectors like renewable energy, energy storage, waterfront reconstruction, electric vehicle services and maintenance, advanced manufacturing. The Queens Borough President's Office could foster the partnership of the nonprofit and public sector to consider seeding an incubator that fosters new and emerging climate technology—aligned not only with the supply chain needs of key renewable energy suppliers, but also the decarbonization goals of residents and businesses seeking to affordably reduce energy costs and shift to renewable sources—to help a crop of new green economy businesses, owned by racially and ethnically diverse New Yorkers, innovate, prototype and commercialize their products.

Recent investments locally and citywide have demonstrated the promise of non-profit-driven incubator models. The Long Island City Diversity Tech Hub, announced by Borough President Donovan Richards Jr. in April 2024 and planned to launch in 2025, is operated by the Queens-based nonprofit Pursuit and will focus on providing space and expert support to up to 50 minority-owned early-stage tech startups.[43] The NYCEDC's $50 million Greenlight Innovation Fund, launched in summer 2024, competitively awards capital to nonprofit or nonprofit joint ventures that need assistance with property acquisition, facilities construction, or equipment purchases in order to commercialize innovative technology, including but not limited to climate technology.[44]

4. The City could investigate a new land use action with a new balance of residential and industrial uses north of Queensboro Bridge, and it could explore the potential to apply new manufacturing district designations offered by City of Yes for Economic Opportunity. In the IBZ north of Queensboro Bridge, most buildings (excluding hotels, schools, and self-storage buildings) are typically under two-to-three stories in height, suggesting the possibility for additional buildable space to develop additional industrial uses that align with projected demand.

In 2024, City of Yes for Economic Opportunity permanently restricted additional hotels in IBZs and offered new manufacturing districts—*core, transition, and growth*—that vary in the intensity of industrial uses they permit and the range of non-industrial uses they permit. The intention of the new M districts is to enable additional industrial and commercial development density (i.e., greater floor area ratios) to accelerate job-intensive manufacturing development. Further analysis and planning should explore the usefulness of these new zoning tools in the IBZ north of Queensboro Bridge in order to cultivate new, workable levels of industrial density in the neighborhood.

Flexible manufacturing district planning could consider the following goals:

- Foster additional development in areas of the IBZ where dense, job-rich development makes sense, and where infrastructure can support associated commuting, power, and freight loading.
- Foster more flexible, less intensive light industrial and commercial activity in areas close to residents, to mitigate exposure to traffic, noise, and contamination.
- Experiment with the ability to expand tree canopy and pedestrian/cycling safety improvements in less intensive areas, where feasible and where medium- to heavy-duty vehicle traffic will not conflict with tree planting.

5. The City, the Queens Borough President's Office, and other partners could collaborate to cultivate new and growing entrepreneurs in accessible industries. Many NYCHA residents run their own businesses but lack the financial margins to scale their businesses outside of their homes. Many of these businesses are low-impact activities that do not require significant space or equipment, but are still ideally suited for commercial space, were it affordable. The City, the Queens Borough President's Office, and other partners could plan, advocate for, and potentially help seed a dedicated incubation space with below-market rent for entrepreneurs, with a focus on entrepreneurs that live and work in Western Queens NYCHA developments. Space and support services should prioritize businesses in "small-scale clean production" sectors as defined by City of Yes for Economic Opportunity—such as small-batch food, apparel, furniture, and 3D printing—that are less practicable in the home but do not require heavier industrial equipment.

[43] Andres, Czarinna. "Queens to Launch New Diversity Tech Hub in Long Island City." *LIC Post*, April 18, 2024. https://licpost.com/queens-new-diversity-tech-hub-long-island-city.
[44] NYCEDC. https://edc.nyc/greenlight-innovation-fund-rfp.

Entrepreneurs that participate would also get access to business development support and coaching as well as lending and creditworthiness advisory services. The incubator could be located within the IBZ within walking distance of NYCHA Ravenswood and Queensbridge Houses or even—if feasible, appropriate, and permitted—on a NYCHA campus. (City of Yes for Economic Opportunity introduced the ability to go build up to 15,000 SF of commercial space on NYCHA campuses, pending a review and approval process.)

Case Study: Pfizer Plant at 630 Flushing Ave, Brooklyn, NY[45,46,47]

In a 575,000 square foot adaptive reuse building that was formerly used only to manufacture Pfizer products now exists a dynamic space with over 250 tenants including over 120 small food makers, educational programs, and other businesses and nonprofits, representing over 2,000 jobs. Green City Force, a nonprofit that trains public housing residents for green careers, including in Western Queens, is also located in the building. The building operates as an unofficial incubator where small food and beverage producers can interact and collaborate with each other. There are also creative enterprises including Pratt Institute's Brooklyn Fashion and Design Accelerator which provides studio and production space for design start-ups to grow with support from resources and access to manufacturing equipment.

Parallel City and State Strategies:

- **NYCHA Sustainability Agenda, Strategy 8:** Connect residents to workforce development and entrepreneurship opportunities.
- **New York State Climate Action Council Scoping Plan, Strategies I1, B10:** Provide financial and technical assistance to help industrial businesses decarbonize; Support Innovation

[45] Caldari, Jerry, Ashley Rauenzahn, Tyler Ellis, Natalia Rico, Ana Misenas, Marina Bourderonnet, Marissa Ritchen, and Luke Petrocelli. "Formerly Pfizer." Bromley Caldari Architects. Accessed August 5, 2024. https://www.bromleycaldari.com/work/formerly-pfizer.

[46] Kensinger, Nathan. "Touring Williamsburg's Old Pfizer Building, Mid-Makeover," February 6, 2014. https://ny.curbed.com/2014/2/6/10146584/touring-williamsburgs-old-pfizer-building-mid-makeover.

[47] Pratt News. "Pratt Launches Brooklyn Fashion and Design Accelerator, January 31, 2014. https://www.pratt.edu/news/pratt_launches_brooklyn_fashion_and_design_accelerator_to_help_new_creative/.

Community Development and Environmental Justice Strategies

Flooding, air quality, and extreme heat poses risks to vulnerable residents and workers in the Queensbridge-Ravenswood neighborhood, and longtime residents have endured a legacy of environmental injustices, especially those in NYCHA facilities.

The attainment of the NYSERDA contracts that Rise is pursuing to transition the Ravenswood Generating Station into a renewable energy hub would reduce greenhouse gas emissions. Separately, a combination of federal and local incentives and funding will accelerate the decarbonization of buildings, business operations, and vehicles elsewhere in the neighborhood. However, it is not enough to improve the air quality and functionality of the public realm outside of NYCHA. Just community development also requires ensuring that living spaces in the neighborhood are comfortable, safe and remain affordable. NYCHA owns and operates over 5,300 units of housing in Queensbridge North and South and Ravenswood alone. According to the 2023 NYCHA physical needs assessment, Queensbridge and Ravenswood developments alone will need $2.8 billion in investment over the next 20 years to maintain a state of good repair and achieve compliance with climate regulations such as Local Law 97.[48] While not part of the scope of this analysis, we note that NYCHA must leverage state, private, and federal investment to generate the funds needed to resolve outstanding capital needs at these developments.

To complement the environmental benefits of Renewable Ravenswood, meaningful community development benefits are also achievable through policy support and investments that can transform Ravenswood Generating Station into a familiar and beneficial community asset, with the potential for new open space, coastal resilience investments, and a combination of urban tree canopy and farming initiatives.

1. Rise—in coordination with DEP, DOT, and other key City regulatory agencies—could create new public space, including access along the currently inaccessible waterfront, for local residents and workers to live and play. Through Renewable Ravenswood and beneficial reuse of the site, Rise could better link high-quality open space along the water and along Vernon Boulevard, transforming the experience of walking along Vernon Boulevard into an active experience that feels safe, vibrant, and welcoming. Parallel investments by other property owners and the City can further thread these investments to better tie together Queensbridge and Rainey Parks, which are currently separated by a space predominated by brick walls. This work would become feasible in stages over the course of the transition of the Ravenswood Generating Station into a renewable energy hub.

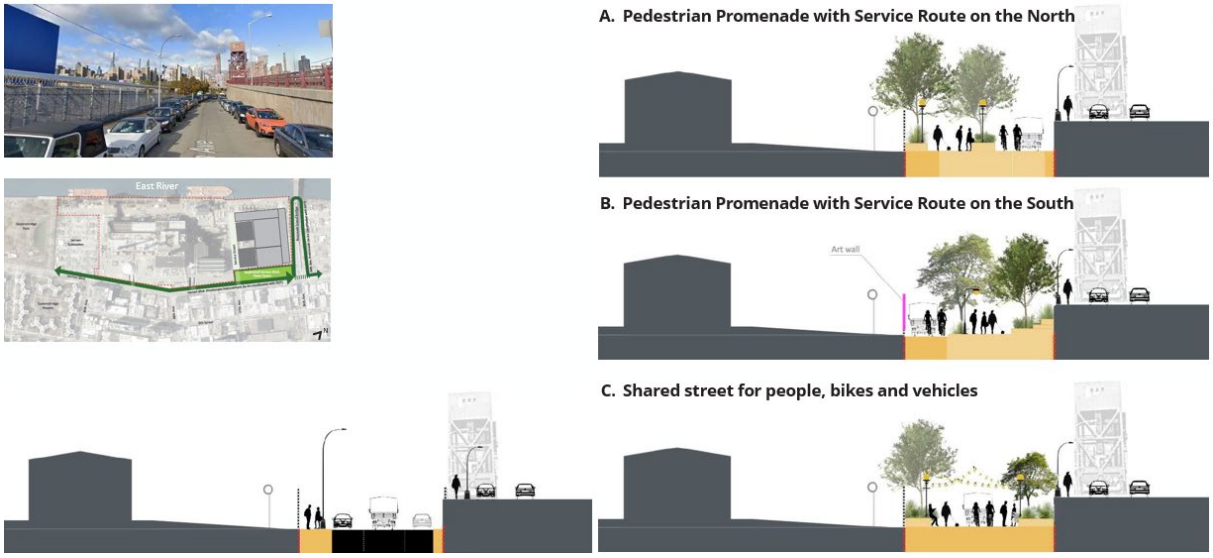
> 1A. Deliver quick wins for the public along Vernon Boulevard. Rise could kickstart the short-term transformation of Vernon Boulevard by working with the City to beautify and activate the sidewalk on the west side of Vernon Boulevard. Investments could include:
>
> - Planting trees or installing tree planters to expand the tree canopy;
> - Activating the public realm with places to sit;
> - Providing privately licensed spots for vendors and food carts/trucks to vend food and goods to local workers and residents;
> - Investing in public art to beautify walls around the plant; and
> - Enabling other pop-up events and programming (e.g., weekend boulevard pedestrianization and fairs).

[48] As noted by the NYCHA Sustainability Plan (Goal 2), capital needs assessments now incorporate decarbonization and energy efficiency measures.

Figure 29: Future Ravenswood Generating Station Opportunities for Vernon Boulevard

1B. Study the potential to pedestrianize and green 36th Avenue along the Roosevelt Island Bridge. The City could investigate the potential to pedestrianize (close to regular traffic or convert to "shared street") and expand tree canopy along the segments of 36th Avenue that run underneath the Roosevelt Island Bridge, terminating in a waterfront viewpoint with views of the planned working port and Roosevelt Island. Currently, there are no users other than Rise and Con Edison along this block and it is primarily used for parking of private vehicles. This reclamation of public space would complement investments along Vernon Boulevard, create a new waterfront experience between Queensbridge and Rainey Parks, and bring the general public into safe proximity with a new active working port. Any interventions on 36th Avenue would have to keep 36th Avenue accessible on a limited basis to service vehicles as needed by Rise and Con Edison.

Figure 30: 36th Avenue Existing Conditions + Illustrative Enhancement Concepts



1C. The City could improve public realm along Vernon Blvd and connecting corridors running east to west. Reimagine Ravenswood community survey responses uncovered that capital needs extend beyond Vernon

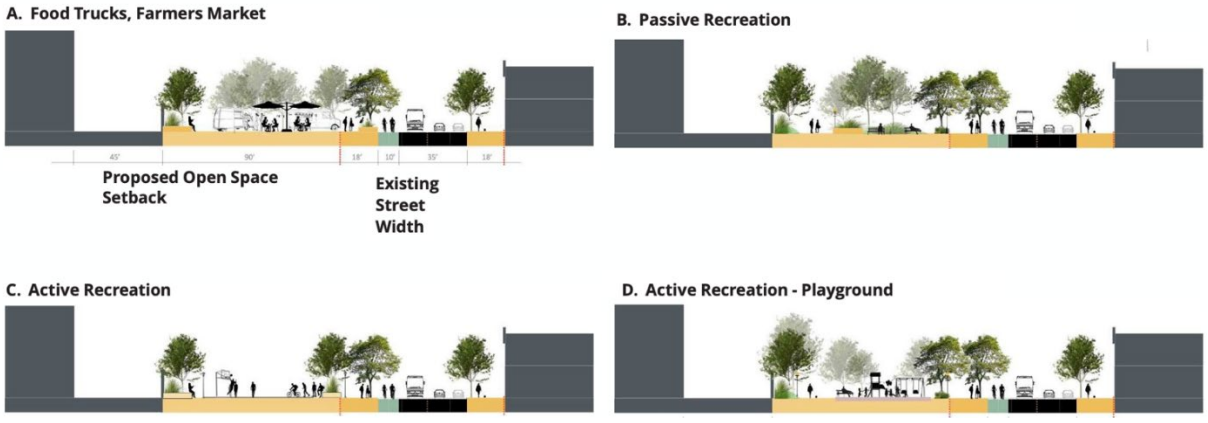
Boulevard into the IBZ. Residents called for improved street lighting and sidewalk repair along Vernon Blvd and east-to-west corridors through the neighborhood to create safer, more welcoming conditions for pedestrians, cyclists, and motorists. Some residents called for more Citibike stations (if complementary and necessary in the context of broader Citibike investments in the neighborhood). The City could confirm the need and evaluate the feasibility of such investments, as well as the potential for micromobility to play a role in industrial and cargo activities in the area. Community members also note significant frustration at sidewalks blocked by illegally parked cars, dumpsters, and debris.

1D. In the long term, Rise could improve and expand the local public realm by delivering new, high-quality open space fronting Vernon Boulevard in conjunction with future site uses. As part of the late stages of the transition of the Ravenswood Generating Station into a renewable energy hub, new developable space would become available in a parcel facing Vernon Boulevard. There may be the opportunity to mix new development on this site with high-quality open space that welcomes in residents, workers, and visitors to rest and engage in outdoor activity.

In response to desires and ideas gathered through the Reimagine Ravenswood community survey, a portion of the open space could function as an outdoor food court, and another portion should serve as an outdoor event space that could host a farmers market, performances, and other rotating programming.

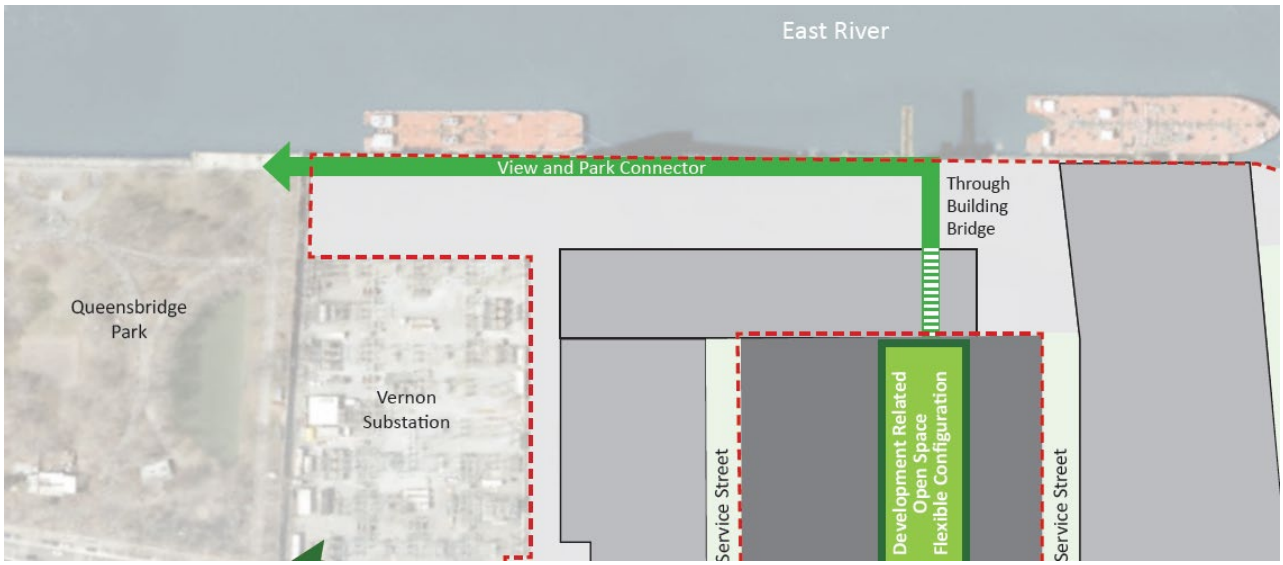
Figure 31: Potential Future Ravenswood Generating Station Opportunities for Community and Economic Development Uses

Figure 32: Vernon Boulevard Illustrative Enhancement Concepts



1E. In the long term, site reuse possibilities could include new indoor community-serving space, such as community meeting rooms and sports facilities. As part of the late stages of the transition of the Ravenswood Generating Station into a renewable energy hub, Rise could explore developing parts of the site for various uses, including providing indoor community space. During the public engagement conducted as part of this study, residents expressed a preference for uses such as indoor athletic space, indoor community space, and performing arts space.

Figure 33: Future Public Waterfront Access



1F. In the long term, Rise could consider safely expanding public waterfront access along a portion of the Ravenswood Generating Station waterfront. As part of the long-term transition of the Ravenswood Generating Station into a renewable energy hub, Rise may have the opportunity to deliver in a high-quality, elevated waterfront pathway that passes through the site, overlooking the East River. The elevated pathway could connect Queensbridge Park to the new public realm created along Vernon Boulevard, while providing views of certain preserved legacy energy infrastructure. Consideration of such potential would need to evaluate the risk associated with public access to an operating industrial site and working waterfront.

Case Study: Newtown Creek Nature Walk[49,50]

The Newtown Creek Nature Walk, located in Greenpoint, Brooklyn, is a self-guided waterfront nature walk along the edge of Newtown Creek and Whale Creek. The walk was designed by environmental sculptor George Trakas and commissioned by the NYC Department of Environmental Protection (DEP) as part of the Department of Cultural Affairs' Percent for Art Program, which required that open space amenities be provided as part of municipal construction—in this case, the upgrade of the Newtown Creek Wastewater Treatment Plant. The walk features native trees, shrubs, and other flora inviting the community to explore a part of the waterfront that was previously inaccessible.

2. A combination of private-sector and public-sector actions could fortify the resiliency of upland communities in Western Queens as part of a holistic resiliency approach in Queens along the East River. No single property owner or agency can address the coastal and inland flood risks facing the neighborhood, but in combination, a holistic series of investments made possible by government agencies and private property owners could deliver meaningful flood risk mitigations for the community.

2A. City, State and Federal agencies could protect vulnerable areas of the community and surrounding upland areas by making available funding for waterfront resilience infrastructure at large industrial parcels like the Ravenswood Generating Station. Much of the site lies in the 100-year or 500-year floodplain, and these floodplains extend further upland into the neighborhood encompassing portions of the NYCHA Queensbridge Houses North and Ravenswood Houses as well as portions of the IBZ (see "neighborhood existing conditions" and "site conditions and opportunities"). Through a combination of waterfront bulkhead repair and heightening; dry floodproofing; such investment would reduce risk of flooding for critical infrastructure and may be able to help protect upland, offsite areas from coastal flooding.

The Lower Manhattan Coastal Resiliency Project is a good example of how multiple agencies and stakeholders are working together to ensure resiliency of a large community. As with that project, agencies should consider resilient industrial design best practices (e.g., Waterfront Edge Design Guidelines by the NYC Waterfront Alliance); in doing so, investments will avoid limiting ship-to-shore access, which is crucial for an effective working port in the northwest end of the site's waterfront, and avoid limiting the ability to exchange significant volumes of water between the plant and the East River, which is necessary to enable the thermal energy network.

Crucially, sufficient funding and collaboration from abutting property owners and government is needed so that any future flood mitigation investments at the Ravenswood Generating Station are part of a holistic chain of investments that reduce risk for the neighborhood as a whole.

2B. Coordination by the City and the Queens Borough President's Office, together with funding from City, State, and Federal sources, can improve drainage infrastructure throughout the neighborhood to mitigate flooding, reduce heat index, and enhance the day-to-day experience of residents, workers, and visitors. In addition to storm surge risk from the East River, inland flooding during periods of intense rainfall is a worsening issue in the neighborhood (see "neighborhood existing conditions"). In coordination with the Queens Borough President's Office, City agencies including DEP and DOT can conduct a holistic planning exercise and make a series of investments to resolve this challenge. Planning and investments should align with principles that

[49] Atlas Obscura. "Newtown Creek Nature Walk," Accessed August 10, 2024. https://www.atlasobscura.com/places/newtown-creek-nature-walk.
[50] NYC Department of Environmental Conservation. "Newtown Creek Nature Walk," Accessed August 10, 2024. https://www.nyc.gov/site/dep/environment/newtown-creek-nature-walk.page.

emerged from Rainproof NYC, a joint planning effort between MOCEJ, DEP, HRO, Rebuild By Design, and One Architecture, which concluded in June 2024.[51]

2C. The City can expand efforts to help businesses fortify their assets against mounting climate risks, protect workers from increasing extreme heat conditions, and protect communities from hazardous materials. Small businesses also face revenue disruption and capital losses due to extreme heat and storms, but they are rarely eligible for grants to fund often expensive flood mitigation or heat mitigation investments that do not always pay for themselves over time. Moreover, rising disaster and business interruption insurance costs, for businesses that carry these policies at all, are causing further financial strain as risks escalate.

City agencies can expand the financial incentives to small businesses that make investments in flood resiliency (e.g., backflow prevention and other drainage improvement). One pathway is to extend and increase the size of the 2024 NYC SBS Business Preparedness and Resiliency (BPREP) grant program, so it serves more than the initial pilot goal of 450 businesses. Through an expanded BPREP, industrial businesses will access natural disaster hazard risk assessments that acknowledge the unique needs of light and heavy industrial firms, connect secure up to $5,000 in grants for small resiliency investments, and leverage additional low-cost or below-market loans for additional resiliency investments.[52]

Case Study: New York City Small Business Services Business Preparedness and Resiliency (BPREP) Program

Announced in April 2024, the NYC Department of Small Business Services launched a new grant program to support small businesses in New York City become more climate resilient in the face of climate emergencies. The grant will offer a free risk assessment to identify vulnerabilities within businesses and offer up to $5,000 to eligible businesses that are located in the floodplain and seeking to improve and fortify their infrastructure. The goal is to serve 450 businesses on a first-come, first-served basis, with a focus on small businesses with annual revenue under $30 million. In addition to funding, NYC SBS offers free guidance and webinar resources to help businesses identify their vulnerabilities and prioritize resiliency investments.

3. Invest in additional community amenities that integrate health, sustainability, and economic empowerment, with a focus on NYCHA residents.

3A. The City could explore a program to compensate residents to steward community gardens and safeguard a growing tree canopy. NYCHA and Green City Force are already cultivating urban farms that give New Yorkers a chance to grow their own food close to where they live. As part of PlaNYC and associated urban forestry and urban farming initiatives, the City could incentivize New Yorkers to steward green spaces by compensating them for the management of community gardens in residential areas and on NYCHA campuses. As part of this, the City could also explore the potential to connect participating urban farmers and gardeners to professional fellowships with indoor urban agriculture and vertical farming that might occur in the industrial areas of the neighborhood or on the Generating Station Site, whereby they can deepen their urban agriculture expertise with transferrable high-tech skills. NYC Parks' GreenThumb program offers volunteers technical assistance, programming support, and gardening equipment to reduce community garden maintenance costs. Parks could expand this by introducing paid fellowships or positions for NYCHA residents to grow and steward public gardens.

3B. The City, in collaboration with NYCHA residents and the local Community Board, can explore the feasibility and desirability of expanding commercial space within NYCHA campuses to bolster existing grocery service or provide space to host entrepreneurs. City of Yes for Economic Opportunity allowed larger-scale commercial spaces within NYCHA campuses, pending public review and approval. To support affordable commercial space for entrepreneurs that is close to where they live, and to allow existing grocery stores (e.g., Fine Fare

[51] Rebuild by Design. "Rainproof NYC: Overview of Recommendations," Accessed August 5, 2024. https://rebuildbydesign.org/rainproof-nyc-overview-of-recommendations/.
[52] NYC Small Business Services. "SBS Announces New Grants to Help Small Businesses Shore Up Against Natural Disasters - SBS." New York City Small Business Services, April 2, 2024. https://www.nyc.gov/site/sbs/about/pr20240402-bprep-ragp.page.

Supermarket) the opportunity to expand further, evaluate whether residents desire additional commercial development on campus. If so, consider allowing the expansion of existing commercial grocery and other commercial spaces at Queensbridge and Ravenswood as well as the creation of new spaces (up to 15,000 SF) to expand access to healthy food and immediate affordable commercial space that NYCHA residents and entrepreneurs could use.

Parallel City and State Strategies:

- **PlaNYC:** Green Space
- **NYCHA Sustainability Agenda, Strategy 10:** Expand NYCHA farms, gardens, and urban agriculture programs.
- **New York State Disadvantaged Communities Barriers and Opportunities Report, Strategies 1d, 7d:** Develop wealth-building and asset-building options or pathways; Find and support local champions.

Recommended Timeline and Actions

Reimagine Ravenswood lays out a vision of just transition in the Queensbridge-Ravenswood neighborhood around the Ravenswood Generating Station, a vision in which clean energy and welcoming public space shapes the future of the waterfront and where a green economy creates economic opportunity for all. Leadership by the Queens Borough President's Office and catalytic investments by Rise Light & Power and other local business owners will lay a strong foundation and create momentum for change. However, change at the scale of the neighborhood will take combined, coordinated action by City and State agencies, local non-profit institutions, and private business owners supported by effective policies and incentives.

The table below lays out an action plan, at a high level, which organizes the strategies detailed above into short-, medium-, and long-term timeframes and identifies potential actors that can complete or support each strategy. Approximated timeframes depend on successful permitting and development processes.

Table 7: Summary of Strategies, Implementation Actors, and Estimated Potential Timeline for Implementation

Decarbonization Strategies			
No.	**Strategy**	**Implementation Actors**	**Timeframe**
1	Decarbonize the Ravenswood Generating Station and transform it into a renewable energy hub by pursuing permits and contracts for renewable energy infrastructure.	State agencies, Rise Light & Power, regulatory agencies	Long-Term (5-10+ Years)
2	Expand a thermal energy network from the Ravenswood Generating Station to provide highly efficient and renewable heating and cooling to surrounding area, including NYCHA developments.	City and State agencies, Rise Light & Power	Long-Term (5-10+ Years)
3	Accelerate the deployment of heat pumps in Western Queens NYCHA developments by scaling the successful pilot at Woodside Houses and charging the program with more funding to help meet NYCHA's Local Law 97 goals.	City and State agencies, philanthropy	Mid-Term (2-5 Years)
4	Find funding to subsidize rising cooling costs for NYCHA residents during increasingly hot summers, until heat pumps/thermal energy network solutions are in place.	City and State agencies	Short-Term (1-2 Years)
5	Invest in a working port that meets the needs of Renewable Ravenswood and potentially integrates marine freight services to local IBZ businesses, as an alternative to cars and trucks.	City and State agencies, Rise Light & Power	Long-Term (5-10+ Years)
6	Create "green" micro-distribution facilities in the neighborhood, which are carbon-free last-mile distribution centers that rely on maritime freight, cargo bikes, and zero-emissions vehicles and can serve as a safe location to charge batteries for vehicles and micro-mobility devices.	Private business owners	Mid-Term (2-5 Years)
7	Incentivize and support business owners in implementing private deployment of large-scale charging infrastructure for zero-emissions vehicles (ZEV) that can serve industrial freight needs.	City and State agencies	Mid-Term (2-5 Years)
8	Increase the usage of local electrically powered equipment—including mobility devices, construction equipment—by spreading convenient, safe places to store and batteries and to store electrically power devices that cannot be stored in businesses or at homes. Replace noisy, diesel-powered floodlights at NYCHA developments with lower-intensity, electrically powered lighting.	Private business owners, City agencies	Short-Term (1-2 Years)

Workforce Development and Economic Opportunity Strategies			
No.	**Strategy**	**Implementation Actors**	**Timeframe**
1	Leverage City funding to scale collaboration among existing neighborhood-based workforce development partners to connect more local youth and adults—including disadvantaged community members, NYCHA residents, and new immigrants—to good-paying, high-quality jobs in growing industries.	City and State agencies, local non-profit leaders	Mid-Term (2-5 Years)
2	Set targets for future jobs connected to state renewable energy procurements in which Rise Light & Power might participate to local disadvantaged residents, including NYCHA residents.	State agencies	Mid-Term (2-5 Years)
3	Open an onsite renewable energy and offshore wind training center at the Ravenswood Generating Station, in connection with a future renewable energy contract award.	Rise Light & Power	Short-Term (1-2 Years)
4	Invest in an educational visitor center on the Ravenswood Generating Station that informs guests about the transformation of the center, contemporary renewable energy technology, and the opportunity represented by green jobs; the center could also offer free space for events and programming by local non-profit institutions and community groups.	Rise Light & Power	Short-Term (1-2 Years)
5	Expand information about pathways to high-quality jobs of the future in local middle and high schools by leveraging NYC Public Schools's FutureReadyNYC and "Leading the Charge" programs in Western Queens. Enroll Rise and other businesses into the Career Readiness and Modern Youth Apprenticeship pilot program.	City agencies, City schools, private business owners	Mid-Term (2-5 Years)

Business Support and Industrial Development Strategies			
No.	**Strategy**	**Implementation Actors**	**Timeframe**
1	Set targets for local supply chain interventions in future procurements in order to spur business and job growth in industrial areas like the Long Island City IBZ, in which Renewable Ravenswood could participate.	State agencies	Mid-Term (2-5 Years)
2	Help existing businesses retool or expand their work to participate in Renewable Ravenswood energy supply chain and the broader green economy and connect these businesses to local hiring resources.	State and City agencies, LICP, and private business owners	Mid-Term (2-5 Years)
3	Help new businesses relocate to or expand in the Queensbridge-Ravenswood neighborhood in sectors like renewable energy, energy storage, waterfront reconstruction, electric vehicle services and maintenance, and advanced manufacturing, and connect these businesses to local hiring resources.	LICP, City agencies	Long-Term (5-10+ Years)
4	Cultivate new startups in the Queensbridge-Ravenswood neighborhood that focus on sectors like renewable energy, energy storage, waterfront reconstruction, electric vehicle services and maintenance, technology, and advanced manufacturing.	Office of the Queens Borough President, LICP, City agencies	Mid-Term (2-5 Years)

Business Support and Industrial Development Strategies			
No.	**Strategy**	**Implementation Actors**	**Timeframe**
5	Cultivate entrepreneurship, including among NYCHA residents, focused on "small-scale clean production" activities such as small-batch food, apparel, furniture, and 3D printing.	City agencies, Office of the Queens Borough President	Mid-Term (2-5 Years)
6	To better balance residential and industrial uses north of Queensborough Bridge and allow for denser industrial and manufacturing development in the heart of the IBZ, explore the application of new manufacturing district designations offered by City of Yes for Economic Opportunity and investigate potential land use actions to support responsible growth.	City agencies	Long-Term (5-10+ Years)

Community Development and Environmental Justice Strategies			
No.	**Strategy**	**Implementation Actors**	**Timeframe**
1	Create new publicly-accessible space, including space along the waterfront and community-serving indoor space, to increase the area of high-quality space for local residents and workers to live and play.	Rise Light & Power, City agencies	Long-Term (5-10+ Years)
2	Invest in waterfront resilience infrastructure in the area surrounding the Ravenswood Generating Station to protect vulnerable areas of the site and inland areas.	Federal, State, and City agencies; Rise Light & Power	Long-Term (5-10+ Years)
3	Invest in improved drainage infrastructure and green infrastructure throughout the neighborhood, including the IBZ, to mitigate flooding, reduce heat index, and enhance the day-to-day experience.	City agencies	Mid-Term (2-5 Years)
4	Help all businesses fortify their assets against mounting climate risks, protect workers from increasing extreme heat conditions, and protect communities from hazardous materials.	City agencies	Short-Term (1-2 Years)
5	Compensate residents to steward community gardens and safeguard a growing tree canopy.	City agencies	Short-Term (1-2 Years)
6	Explore the feasibility and desirability of expanding commercial space on NYCHA campuses to bolster grocery service or host entrepreneurs.	City agencies	Mid-Term (2-5 Years)

Appendix A. Additional Background

Acknowledgements

This study would not have been possible without contributions from many different community members, who completed the survey, attended public workshops, participated in focus groups, sat on the steering committee, and otherwise engaged with this work. Special thanks to Jacob A. Riis Neighborhood Settlement for generously hosting the public workshops and to Variety Boys & Girls Club of Queens for hosting the youth focus group. Additionally, we thank NYSERDA for providing key funding for this study.

Parallel and Previous Studies

Reimagine Ravenswood is in direct conversation with parallel and past studies occurring in Western Queens, seeking to complement or reflect strategies offered in its context.

Table 8: Recent and Ongoing City and State Efforts

Plan or Initiative	Lead Organizations	Description and Goals
One LIC Plan	Department of City Planning and Council Member Won	The study will examine ways to create new housing, economic growth, transit connectivity, and open space, concluding with a neighborhood plan including zoning changes.
DCP City of Yes	Department of City Planning	City of Yes captures the City's plan to modernize and update zoning regulations to support small businesses, create affordable housing, and promote sustainability.
NYC Citywide Industrial Plan	Department of City Planning, New York City Economic Development Corporation, and New York City Small Business Services	The City will lead a study to identify ways to grow industrial and manufacturing businesses and jobs in the city, including uses within Industrial Business Zones (IBZ) and throughout the rest of the city.
NYC Blue Highways Initiative	New York City Department of Transportation and New York City Economic Development Corporation	The City is promoting the use of New York City's waterways for transporting goods in and around the city by utilizing and expanding marine facilities for freight and encouraging low-carbon or zero-carbon last-mile transportation alternatives after goods arrive on land. By reducing reliance on trucks for shipping, the city can reduce traffic congestion, lower greenhouse gas emissions, and improve air quality.
PlaNYC Getting Sustainability Done	Mayor's Office of Climate & Environmental Justice	This plan aims to ensure that every New Yorker is protected from climate hazards, has improved quality of life, and benefit from the City's growing green economy.
Green Economy Action Plan	New York City Economic Development Corporation and the Mayor's Office of Talent and Workforce Development	The action plan outlines New York City's vision for the green economy, the definition of New York City's green economy in New York City, and actions and commitments from the City to drive equitable growth in this economic transition.
Climate Strong Communities	Mayor's Office of Climate & Environmental Justice	Climate Strong Communities focuses infrastructure and climate funding opportunities in climate- vulnerable communities not initially addressed by Hurricane Sandy recovery funds.

Plan or Initiative	Lead Organizations	Description and Goals
NYCHA Sustainability Agenda	New York City Housing Authority	The agenda serves as a roadmap for creating healthier, safer, and more comfortable homes for NYCHA residents while ensuring that NYCHA developments survives and thrives to serve generations to come.
PowerUp	Mayor's Office of Climate and Environmental Justice	New York City's first-ever Long-Term Energy Plan, which outlines 29 clean energy initiatives across three topic areas, Energy Grid, Transportation, and Buildings, centered on Equity, Affordability, and Health. PowerUp provides a roadmap to accelerate New York City's commitment to meet its clean energy and greenhouse gas reduction goals.
Getting 97 Done	Mayor's Office of Climate and Environmental Justice	This strategy lays out a set of action items the City will pursue and the collaborations it will seek to achieve climate mobilization under LL97.
New York State Disadvantaged Communities Barriers and Opportunities Report	New York State's Climate Justice Working Group, New York State Energy Research and Development Authority, New York State Department of Environmental Conservation, New York Power Authority	This report assesses why some communities are disproportionately impacted by climate change and air pollution and have unequal access to clean energy. The report also recommends actions for New York State agencies to design climate mitigation and adaption programs through an environmental justice lens.
New York State (Climate Act) Scoping Plan	New York State Climate Action Council	The plan provides a framework for how the state will reduce greenhouse gas emissions and achieve net-zero emissions, increase renewable energy use, and ensure all communities benefit in the clean energy transition.

Table 9: Relevant Past Studies

Plan or Initiative	Lead Organizations	Description and Goals
Civic Action Plan: A Vision for Long Island City, Noguchi Museum + Socrates Sculpture Park	The Noguchi Museum and Socrates Sculpture Park	Civic Action was a two-part exhibition where a team of artists architects, urban planners, writers, historians, and other consultants re-imagined the northern industrial stretch of Long Island City to respond to increasing residential development, rezoning, and ecological threats. The results of this visioning process were then realized through art installations and performances at Socrates.
Senior Studio: Reimagining the Long Island City Waterfront with the WQCLT	Western Queens Community Land Trust (WQCLT), Long Island City Coalition (LICC), and Rutgers University Landscape Architecture Senior Studio	The 2021 Rutger's Housing and Open Space Studio collaborated with WQCLT and LICC to develop open space, site design, and planning ideas on key neighborhood assets including the Rise Generation Station
Hunter Point North Vision Plan for Resiliency	Long Island City Coalition and Hunts Point Community Coalition	This community vision plan details strategies to support sustainable development in Hunters Point North and create a more resilient waterfront.

Sample Industrial Business and Real Estate Development Resources

The City and State already offers a suite of incentives, financing, and support to help develop new industrial real estate and attract industrial tenants to New York City, including but not limited to:

Business Incentives:

- Department of Finance offers a variety of tax incentives to businesses that are relocating or expanding: the Relocation Employment Assistance Program (REAP), the Commercial Expansion Program, and the Industrial Business Zone Relocation Credit.
- The Business Incentive Rate subsidizes electricity costs for qualified manufacturing and industrial uses.

Real Estate Development:

- The Industrial Development Loan Fund, launched in the spring of 2016, provides low-cost debt gap financing capital to non-profit and qualified for-profit industrial real estate developers.
- The NYCIDA Program provides tax abatements to new or redeveloped industrial property.
- The DOF Industrial and Commercial Abatement Program (ICAP) subsidizes significant property improvements.

Other Financing:

- The New York City Fund for the Future, announced summer 2024 as a successor to the popular Covid-era Small Business Opportunity Fund, will dedicate $10 million to seed a larger small business loan fund with a focus on small business owners, particularly early-stage businesses, as well as Black, indigenous, and people of color (BIPOC) and women entrepreneurs that otherwise often cannot obtain traditional bank financing.[53]
- New York State Empire State Development State Small Business Credit Initiative (SSBCI) funding, enabled by U.S. Treasury commitments, funnel millions of dollars of affordable capital to support new startup creation, lending for more mature and growing businesses, and contract financing for businesses pursuing larger contracts for the first time. Much of this money is directed through Community Development Financial Institutions (CDFIs) that are mission-driven to serve inclusive audiences and already have ties to undercapitalized communities.
- Federally backed SBA loans through various lenders.

Other Support:

- NYC Industrial Business Service Providers helps industrial business owners navigate a plethora of incentives and funding resources, prepare for new contracts, hire staff and subsidize training costs, conduct business planning, and connect to government support.

[53] The official website of the City of New York. "Mayor Adams Makes $10 Million Investment to Seed New Small Business Loan Fund," May 29, 2024. http://www.nyc.gov/office-of-the-mayor/news/420-24/mayor-adams-makes-10-million-investment-seed-new-small-business-loan-fund-city-reaches.

Appendix B. Methodology & Sources

Stakeholder Engagement Methodology

For almost a year the team engaged community members and stakeholders to understand the nuances of the Queensbridge-Ravenswood neighborhood alongside the data. The following section provides more details to key components of the engagement process.

Table 10: Reimagine Ravenswood Steering Committee

The steering committee played an essential role in guiding the engagement process and plan development. The committee consisted of the following members:	
▪ Green City Force ▪ LaGuardia Community College ▪ Long Island City Partnership ▪ NYC Department of City Planning ▪ NYC Mayor's Office of Climate and Environmental Justice ▪ New York City Housing Authority ▪ NYCHA Astoria Houses	▪ NYCHA Queensbridge Houses ▪ NYCHA Ravenswood Houses ▪ NYCHA Woodside Houses ▪ Riis Settlement ▪ Urban Upbound ▪ UWUA Local 1-2 ▪ Variety Boys and Girls Club

Stakeholder Interviews

The Reimagine Ravenswood team engaged 30 stakeholders representing various aspects and scales of economic and community development.

New York City Housing Authority

- NYCHA Ravenswood Houses
- NYCHA Queensbridge Houses
- NYCHA Astoria Houses
- NYCHA Woodside Houses

Union Representation, Job Quality, and Workforce Development

- Green City Force
- LaGuardia Community College
- Utility Workers Union of America (UWUA) Local 1-2
- Make the Road NY
- Andromeda Community Initiative
- Cornell Tech

Business and Industrial Development

- Long Island City Partnership
- United Hoisting
- Western Queens Community Land Trust

Neighborhood Services, Community Development, and Culture

- Riis Neighborhood Settlement
- Noguchi Museum
- Urban Upbound
- Hunters Point Park Conservancy
- Queens Public Library 21st Branch
- Variety Boys and Girls Club

Advocacy and Neighborhood Planning

- Queens Community Board 1
- NYC Environmental Justice Alliance

Commercial and Industrial Real Estate Market Dynamics

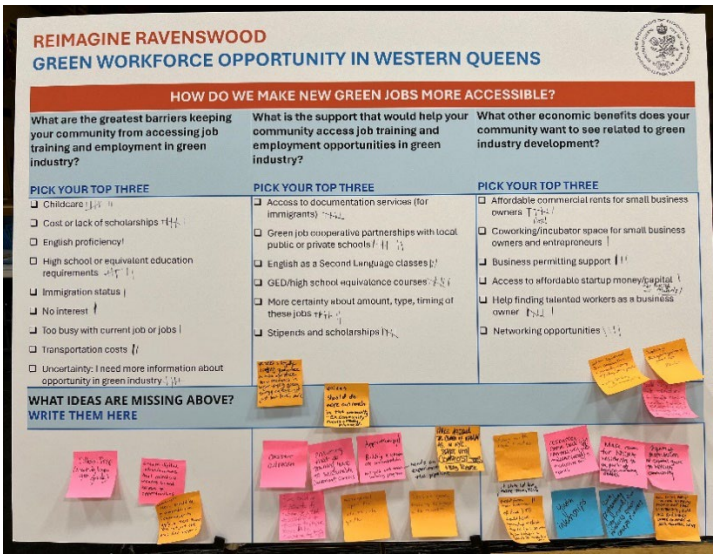
- Patrick Smith, The Smith Team
- Pinnacle Realty
- CBRE

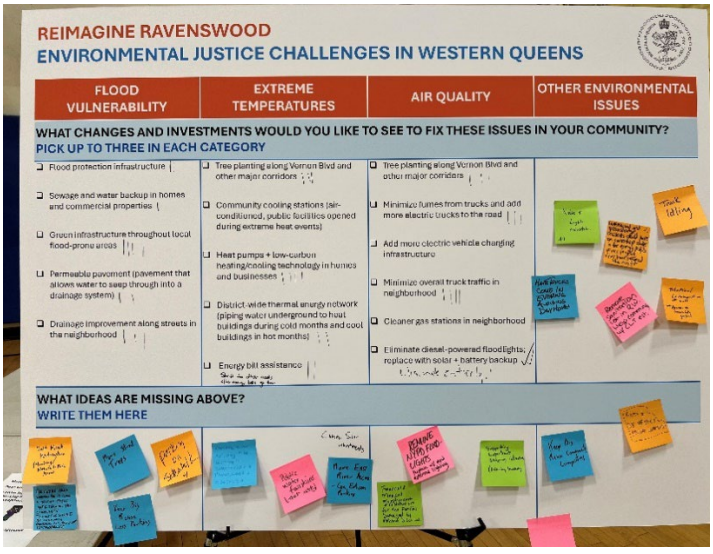
Public-Sector Agencies

- NYC DCP
- NYCHA
- NYDEDC
- NYC Talent
- MOCEJ

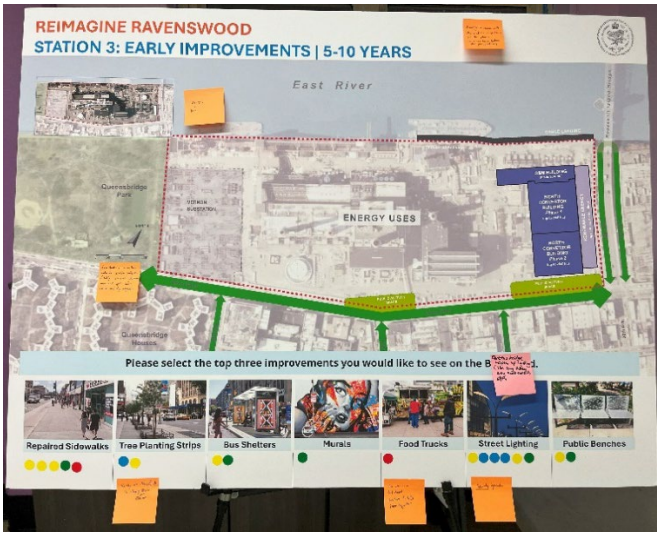
Public Workshops

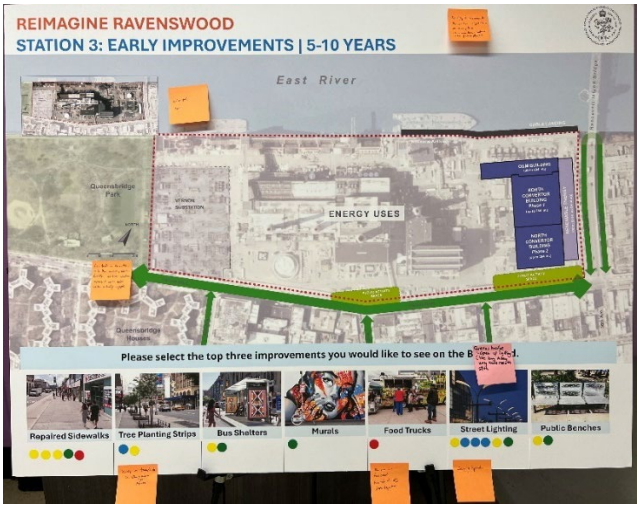
Public Workshop 1 was generously hosted by Jacob A. Riis Neighborhood Settlement at Queensbridge Houses North on Monday, March 25th 6:30pm-8:00pm. Participants had a chance to learn about the scope of Reimagine Ravenswood. Participants could also engage with facilitators and record their ideas at three thematic stations focused on (a) environmental justice challenges and solutions, (b) green economic opportunities and barriers, and (c) transforming the Vernon Boulevard corridor.





Public Workshop 2, hosted by Jacob A. Riis Neighborhood Settlement at Ravenswood Houses on Wednesday, May 15th 6:30pm-8:00pm, allowed community Members who live or work in Western Queens to attend the second Reimagine Ravenswood public workshop. Participants had a chance to learn about the scope of Reimagine Ravenswood. This workshop specifically focused on future opportunities on the Station site. Participants were invited to engage with specific stations focused on (a) early improvements at the edge of the site in the next 5-10 years, (b) opportunities to access the waterfront in the next 10+ years, and (c) new community and economic development uses onsite.





Queensbridge Family Day Pop-Up Stand, held on August 24 from 12-7 pm, also gave NYCHA Queensbridge residents the chance to learn about Reimagine Ravenswood and the planned transformation of the Ravenswood Generating Station into a renewable energy hub. This pop up allowed residents to share their ideas on new community and economic development projects that could benefit their neighborhood.

Site Tours

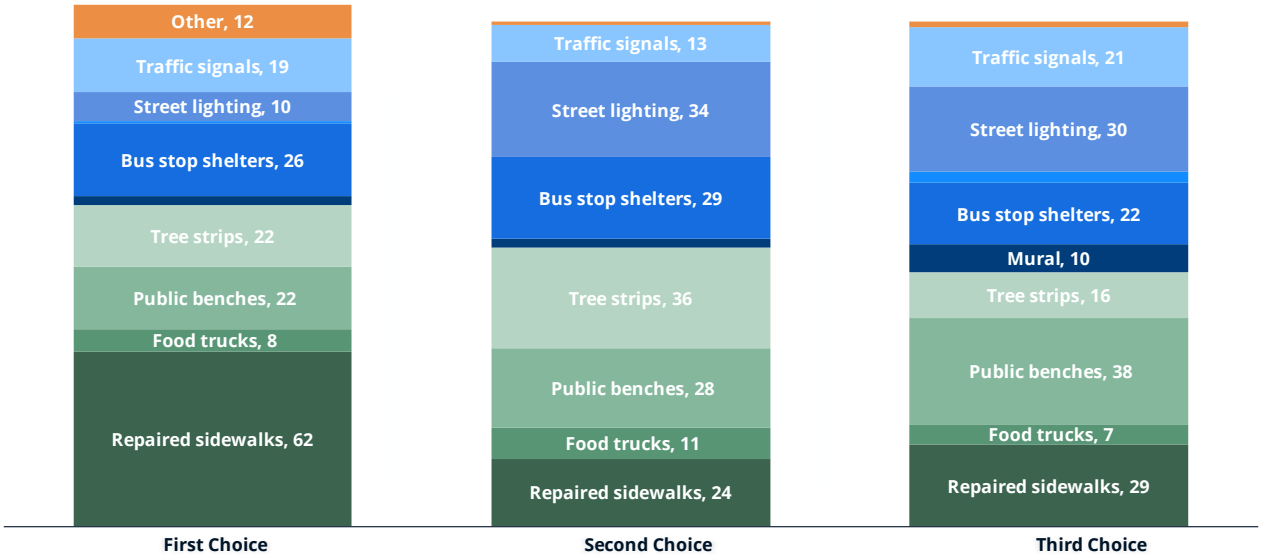
The Reimagine Ravenswood process did not ultimately facilitate any site tours as part of community engagement for the project, due to the logistical difficulty of securing site access for a large number of unknown guests; however, since taking ownership of Ravenswood, Rise Light & Power has conducted numerous tours with more than 600 guests including local community members, elected officials, environmental advocates, and more.

Survey Methodology and Data

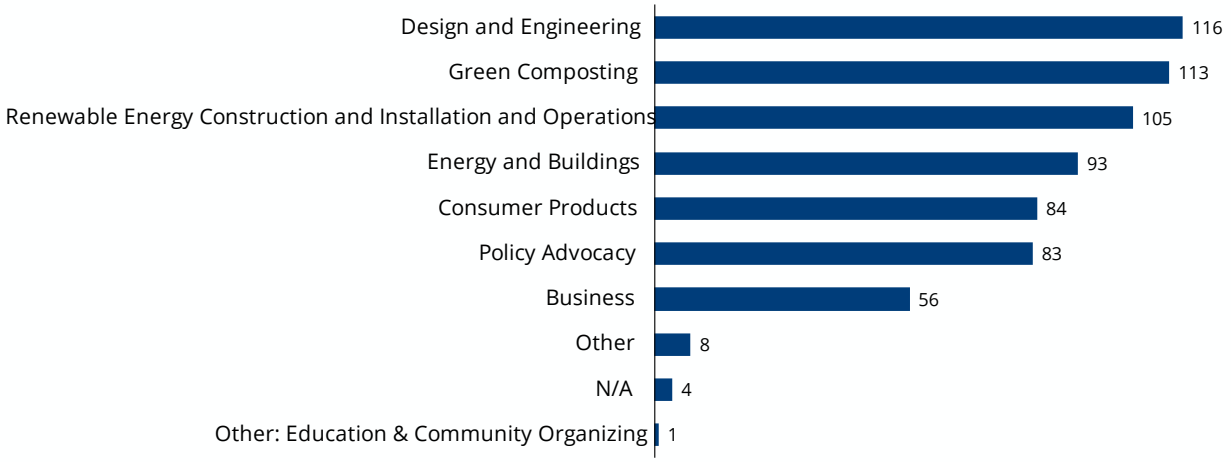
The Reimagine Ravenswood survey was conducted between April 23rd and September 9th, 2024. A total of 158 surveys were collected. The purpose of the survey was to help the Reimagine Ravenswood team understand what types of development and investments those who live and work in the community believe are necessary to improve the neighborhood and experience around the Ravenswood Generating Station, as well as what types of green jobs the community is interested in and the barriers they face in accessing economic opportunities. The survey was anonymous and available in English, Spanish, Bengali, and Simplified Chinese. Of those that responded to the optional demographic questions, 49% indicated they were residents of NYCHA Queensbridge, Ravenswood, Astoria, or Woodside Houses. Additional tables and figures reflecting the survey results are below:

Which of the following are the most important uses to improve the quality of life in your community?

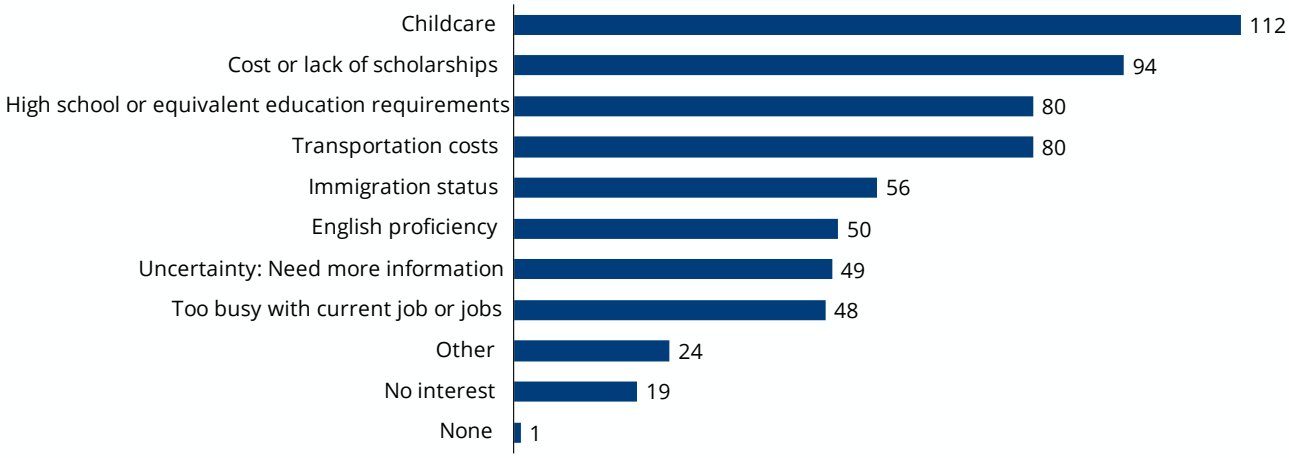
What improvements should be made to transform Vernon Boulevard?



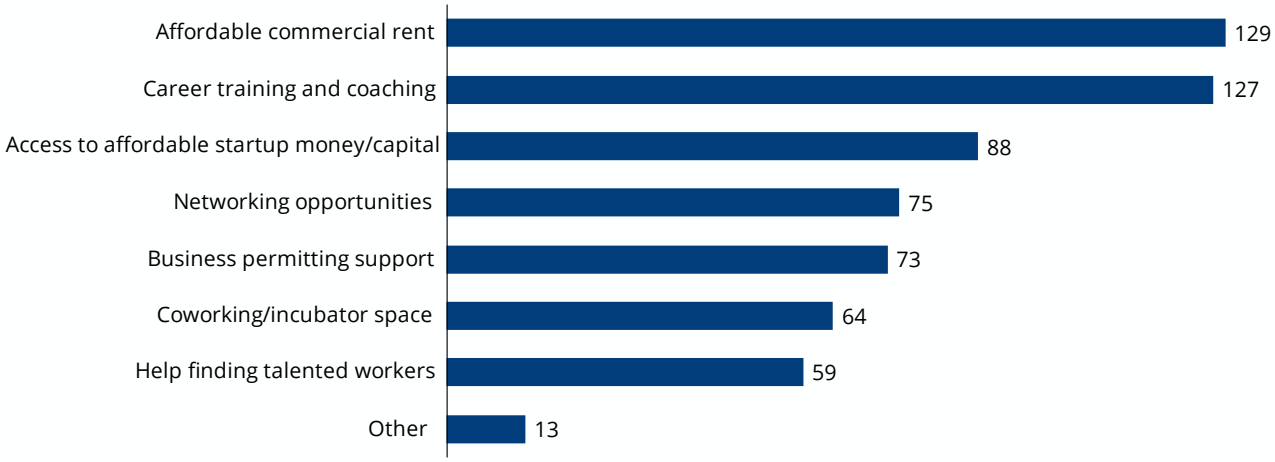
What types of green jobs do you believe would interest members of your community? Select as many as you like.



What barriers or challenges do you foresee in accessing job training or employment opportunities? Select as many as you like.



In addition to jobs, what economic benefits do you want to see in your community? Select as many as you want.



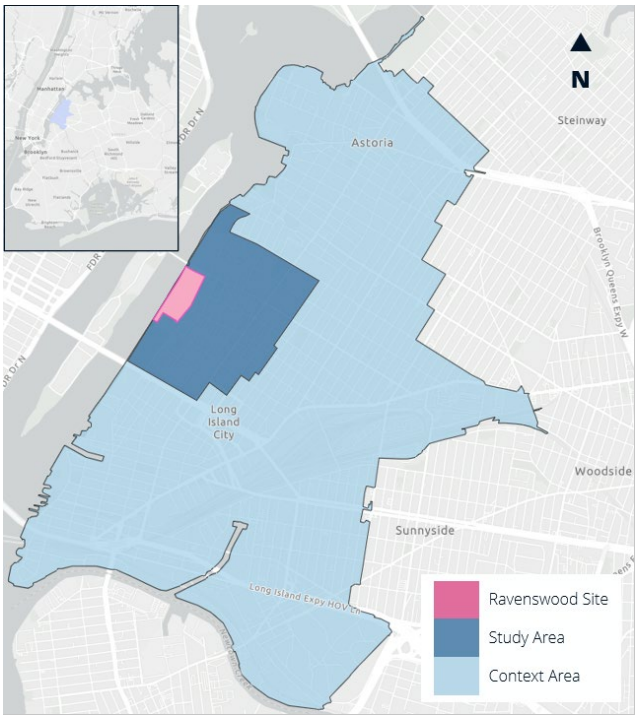
Reimagine Ravenswood Geographies

The Queensbridge- Ravenswood neighborhood aligns with seven (7) existing 2020 census tracts—25, 33.02, 37, 39, 43, 47, 85—which formed the basis for gathering all census data used to describe the area.

A broader **Context Area of "Western Queens"** encompasses zip codes 11101, 11102, 11106, 11109, representing Long Island City and the southwestern-most areas of Astoria, including NYCHA Astoria Houses.

	Households (2021)	Median Annual Household Income (2021)
Queensbridge-Ravenswood neighborhood	8,500	$36,400
Context Area	49,400	$107,000
Queens	807,500	$75,900
NYC	3,250,700	$70,500

The 2020 Census divided census tract 33 into tracts 33.01 and 33.02. To enable geographically consistent analysis of historical trends, 2011-2021 comparisons consider census tract 33 (2011-2019) and then tracts 33.01 and 33.02 (2020-21).



Reimagine Ravenswood

July 2025

Office of the Queens Borough President Donovan Richards Jr.

New York State Energy Research and Development Authority

Rise Light & Power