# PLANNING FOR PUBLIC HEALTH IN BROOKLYN

EXISTING CONDITIONS REPORT



Produced by Regional Plan Association and the New York Academy of Medicine for the office of Brooklyn Borough President Antonio Reynoso



THE NEW YORK ACADEMY OF MEDICINE





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Transportation Alternative Coney Island Alliance Waterfront Alliance

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Funded by Office of Brooklyn Borough President Antonio Reynoso

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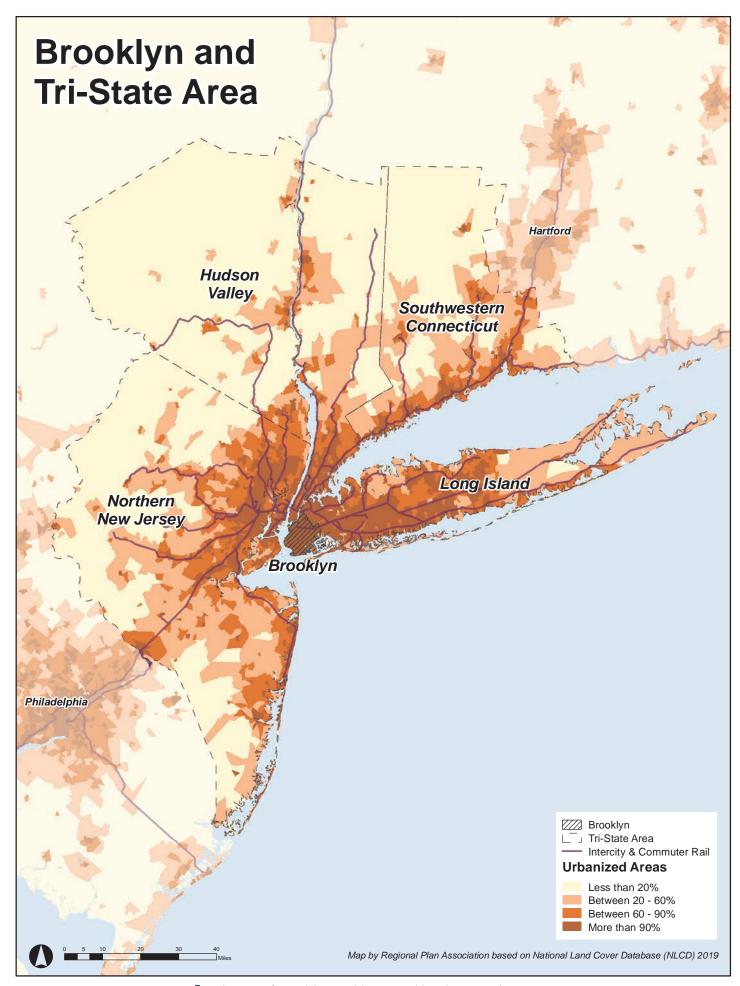
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### Introduction

Almost every major city in the world has a long-term comprehensive or strategic spatial plan. The Comprehensive Plan is a document intended to guide the growth and development of the city and often the surrounding metropolitan area.

London has the London Plan, Hong Kong has Hong Kong 2030, Lagos the Development Plan 2052, Sao Paulo Urban Management SP, Sydney the Greater Sydney Region Plan, Delhi the Development Authority Master Plan, Mexico City the General Development Plan, Bogotá the Territorial Arrangement Plan 2035. In the United States, most large cities have also developed comprehensive plans. New York is unique among its peers for not having undertaken a similar effort.

Though New York City has traditionally produced various waterfront plans, housing plans and jobs plans, a comprehensive plan is different -because it focuses on the city as a whole. All urban policy, budget and land use decisions are necessarily interrelated. A housing plan is unachievable if land use does not allow for new residential development. A waterfront plan will languish if funding is not allocated to realize its goals. A jobs plan is just a "wish list" if policies are not put in place to support workers and businesses. As such, the need for a true comprehensive plan—encompassing all areas of urban planning, all aspects of city governance, and all of its diverse neighborhoods—remain acute and unfulfilled

The idea of more comprehensive planning is not new to New York City, and efforts have been made at the neighborhood, borough, and citywide level. Yet a citywide comprehensive plan, enforceable by law, has thus far eluded policy makers.

The modern history of comprehensive planning in New York City dates back to two efforts in the 1960s. The first was the 1961 citywide revision of the zoning code, under Mayor Robert Wagner, that changed how the City approached land use and development. While other citywide zoning changes have been implemented since, most notably Quality Housing regulations in 1987 and Mandatory Inclusionary Housing (MIH) in 2016, the current land-use framework is still largely based on this 61-yearold effort.

While there is a view that the 1961 zoning code functions as New York's comprehensive plan, substituting one for the other hamper's a municipality's ability to address its physical and social needs. Zoning, by nature, is a limited planning tool. By regulating uses and forms, it can limit inappropriate development, but cannot, alone, provide for a city's physical and social needs.

After implementing the 1961 zoning code, the city fully developed and published a comprehensive plan - the 1969 Plan for New York City. This was a true comprehensive planning effort undertaken by then-Mayor John Lindsay, that yielded a statement of existing conditions, specific policy proposals, and a spatial development strategy for each borough. However, this plan was never adopted by the City Council and as such never officially guided development in New York City.

In addition to the 1969 plan, New York City has produced longterm strategic documents like PlanNYC, OneNYC, and more recently AdaptNYC. There have also been long-term plans for the region, such as the four regional plans developed by Regional Plan Association (RPA). While these strategic documents have laid out objectives and policies, they have all lacked a land use plan that lays out spatial changes needed to achieve the City's stated goals.

In 2020, the Office of former New York City Council Speaker Corey Johnson published Planning Together: A New Comprehensive Planning Framework for New York City. This report proposed legislation that would create a comprehensive planning process and bring coordination to the City's ad-hoc method of planning and implementation. Though this legislation would not alter the present land-use framework, it would address unmet needs by encouraging greater inter-agency alignment and coordination, while providing an essential template for growth and development. The Speaker's legislation failed to pass in the previous City Council term and has yet to be reintroduced. However, support for the idea remains strong among many advocates and elected officials.

#### NEIGHBORHOOD PLANS

Perhaps the 1969 plan's greatest legacy is its empowerment of local Community Planning Councils which have since been superseded by Community Boards (CBs). The rationale was that comprehensive planning should embrace community participation within a greater framework. Today, Brooklyn has 18, CBs each representing a community district (CD) ranging from 50,000 to more than 200,000 residents. CBs (whose members are appointed by Borough Presidents and Council Members) provide local input on planning and development primarily, through their annual district needs statements. Nearly all comprehensive planning efforts start with an "existing conditions" report, and these statements summarize issues of concern to local residents - a valuable component of neighborhood planning. However, it is rare to see a community that does not want to bolster assets such as parks, transportation capacity, and school seats, while at the same time working to block perceived burdens such as shelters or sanitation garages, even if such facilities are critical to City or borough functions. Effective planning requires looking at conditions across the borough, and balancing city- or borough-wide objectives with neighborhood needs and desires.

Communities have also been active participants in the 197-a plan process, which provides a way for communities to guide long-term planning and development. 197-a plans, instituted in the 1989 Charter revision, require collaborative visioning around housing, jobs, schools, open space, and other key issues that go beyond zoning recommendations into true comprehensive planning. Community Boards are not the only entities able to sponsor 197a plans—Borough Boards, Borough Presidents, the Mayor, the Department of City Planning, and the City Planning Commission can initiate the process as well. Moreover, a 197a plan does not necessarily need to apply to a single community district—for instance, the City's Waterfront Revitalization Program (WRP) was done through the 197a process in 1992

However, the majority of 197a plans have been developed by a Community Board and apply to that geography. Perhaps the most notable community-based 197a plans were the Williamsburg and Greenpoint Waterfront 197a Plans, which the Department of City Planning used as a basis to push its own rezoning of Greenpoint-Williamsburg, and to create the Greenpoint-Williamsburg Waterfront Master Plan. Ultimately, 197a plans are only as useful as the City's desire and ability to implement them, and the Administration has often prioritized citywide goals before, or even in place of, community desires in implementation. As a result, communities now rarely undertake the 197a planning process, and focus instead on codifying protective zoning changes in the Zoning Resolution (ZR). In this way, neighborhoods have also fallen back on zoning as a primary planning tool.

#### PLANNING FOR BROOKLYN

While the Boroughs (and Borough Presidents) lack municipal powers and lost some of their authority and influence in the 1991 charter revisions, they are large, different, and diverse enough to merit comprehensive planning. In terms of population, the Brooklyn Borough President's comprehensive plan is the largest such municipal planning effort since the 2001 update to the Los Angeles General Plan.

A plan is just that - a plan. It is intended to inform and guide future decisions made by elected officials and government agencies. The existing conditions documented in this report and the forthcoming recommendations are meant to establish this framework for Brooklyn. While the Comprehensive Plan is detailed and expansive, there is a special focus on two deeply intertwined issues - housing and health.

## A Focus on Housing and Health

Several factors that shape community health, such as the presence of pedestrianfriendly neighborhoods; access to a range of transportation options; levels of violent crime; access to education, employment, and essential goods and services have been linked to land development and zoning patterns.1

Similarly, poor living conditions or lack of housing have also been associated with worse health outcomes and morbidity from infectious diseases, chronic illnesses, injuries, poor nutrition, and mental disorders.2

Historically in the United States, marginalized and low-income individuals have fared worse due to redlining, exclusionary zoning, involuntary displacement and other mechanisms of patterned residential segregation.3 As a result, low-income neighborhoods of color are less likely to have access to quality food, transportation, educational and employment opportunities, recreation, and preventative health services.4

In New York City, the number of white people living in Brooklyn has risen in recent years but residential segregation remains high. The dissimilarity index (a demographic indicator measuring the percentage of an area's demographic group needing to move to another neighborhood to achieve complete integration for the area) for Brooklyn is 77.4%, indicating high racial segregation.5

Segregation creates "sacrifice zones," or communities with low environmental quality. Within these "sacrifice zones," many buildings experience problems including indoor chemical hazards, extreme heat in the summer and cold in the winter, and mold due to moisture.6

Fifteen percent of New York City households report three or more hazards, but the rate is double for Latino and Black households. This figure mirrors the racial disparities in asthma diagnoses across the five boroughs. Further, 90% of childhood lead poisoning cases involve children of color. Injuries also occur more commonly in low-income households due to substandard housing conditions and a lack of resources to repair them.8

Gentrification, substandard housing, and fear of homelessness have been linked to psychosocial stressors that lead to mental health problems.9 Life expectancy in East New York and Brownsville, two predominantly Black neighborhoods in Brooklyn, is 77.7 and 74.1 years, respectively, while Park Slope and Borough Park, predominantly white neighborhoods, have life expectancies of 81.4 and 84.2 years, respectively.10

During the COVID-19 pandemic, Cypress Hills, Spring Creek, Starrett City, Gateway, and Highland Park, all predominantly communities of color, reported 1,397 COVID-19 deaths per 100,000 people, substantially higher than NYC's overall COVID death rate of 407.55 per 100,000.11 In a 2022 study conducted to explore the relationship between discriminatory historical practices and COVID-19, researchers found that lowincome neighborhoods with a predominantly Black and Latino population had a greater risk of infection with COVID-19 than other neighborhoods. A key deterrent to the transmission of

Lindberg & Narayan. Land Use and Community Planning Strategies Can Promote Health Equity

Krieger J, Higgins DL. Housing and health: time again for public health action. Am J Public Health,92(5):758-68. doi:10.2105/ajph.92.5.758. PMID: 11988443; PMCID: PMC1447157 (2022)

Swope, C.B, Hernández, D. Housing as a determinant of health equity: a conceptual model. Soc Sci Med, 243,112571, 10.1016/j.socscimed.2019.112571 (2019)

<sup>4</sup> LaVeist TA. Racial segregation and longevity among African Americans: An individual-level analysis. Health Serv Res, 38(6):1719-1734 (2003)

Chronopoulos, T. What's Happened to the People? Gentrification and Racial Segregation in Brooklyn. J Afr Am St 24, 549-572 (2020).

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Mutnick, D, Cuonzo, M, Griffiths, C, Leslie, T, Shuttleworth, J.M. The City is an Ecosystem

Sustainable Education, Policy, and Practice. Routledge, London (2022)

<sup>8</sup> Krieger J, Higgins DL. Housing and health: time again for public health action. Am J Public Health,92(5):758-68. doi:10.2105/ajph.92.5.758. PMID:11988443; PMCID: PMC1447157 (2022)

New York City Community Health Profiles (2018)

Radulescu (2022)

COVID-19 was quarantine and isolation during illness, but higher rates of crowding and housing insecurity among communities of color left these communities at higher risk.<sup>12</sup>

Many policies influence housing conditions, including code enforcement, housing stability programs, and design for active living. One key component is planning for affordable housing and housing growth overall and doing this in an equitable way. Residential development occurs in every neighborhood and represents by far the largest use of the city's land. However, housing growth is not as evenly distributed. Without adequate housing for the city's growing population, residents are forced into overcrowded and expensive accommodations, far from jobs and social networks.

As this existing conditions report lays out, both existing housing stock and recent construction are concentrated in certain neighborhoods, many of which are lower-income communities of color concentrated in the northern half of the borough. Yet the distribution of infrastructure across the borough means many other neighborhoods can and should accommodate housing growth.

Given the above, there is a critical need to shift the present discourse, and planning practice, to prioritize underlying housing conditions that promote health, well-being, and a sense of community. Advancing affordable housing is critical to achieving health equity. This will require nothing less than collaborative engagement from stakeholders including city planning and policy, neighborhood advocacy, architecture and construction, real estate development, and City government.

<sup>12</sup> Li & Yuan, et al, Assessing the mechanism of citywide test-trace-isolate Zero-COVID policy and exit strategy of COVID-19 pandemic (2022)

## Demographic

Brooklyn is New York City's largest borough with an estimated population of 2.65 million, roughly a third of all inhabitants. The borough is also incredibly diverse, with residents from over 100 countries and more than 150 spoken languages. If Brooklyn were a city, it would be the fourth most populous in the United States. Yet the borough's development has been marred by a painful history of discrimination and opposition to residential integration. As a result, there are stark disparities in socioeconomic factors and public health outcomes.

Between 2010 and 2020, Brooklyn saw the largest population growth of the five boroughs (9%), though it was the only where the immigrant population declined (4%). These figures and the concurrent 10% increase in bachelor degree attainment suggest an influx of highly-educated, wealthier individuals.

Brooklyn's racial and ethnic makeup is approximately 35% non-Hispanic white, 27% Black or African American, 13% Asian, 4% two or more races, 0.9% American Indian or Alaska Native, 0.1% Native Hawaiian and other Pacific Islander, and 19% Hispanic or Latin American of any race. Despite the borough's diversity, racial groups tend to be clustered together in ways that perpetuate segregation. The borough's dissimilarity index is 77.4%, indicating high racial segregation.

#### Race and Ethnicity (p. x)

Most of Brooklyn's Black population is concentrated in its central and eastern neighborhoods. Brooklyn's Asian population is clustered in southwest Brooklyn. The Hispanic/Latino population is concentrated in the borough's northeast, along the Queens border, and its southwest neighborhoods. Brooklyn's white population is mostly found in the westernmost CDs 1, 2, 6, 10, 12, and 15 (Greenpoint, Williamsburg, Fort Greene, Brooklyn Heights, Cobble Hill, Carroll Gardens, Park Slope, Bay Ridge, Dyker Heights, Fort Hamilton, Borough Park, Sheepshead Bay, and Mill Basin). .

#### Median Age (p. x)

Generally, Brooklyn's population gets older moving south, except for Borough Park, which has one of the borough's largest concentrations of residents under age 33.

#### Sex Ratio (p. x)

While most neighborhoods in the borough have roughly equal proportions of male and female residents (as defined by the US Census, which does not survey for different gender identities), there are pockets where there are more females. Eastern Brooklyn has the widest sex ratio of anywhere in the borough, with a large area of less than 80 males per 100 female residents. Conversely, many areas of CDs 1, 10, 12 and the southern half of 14 have modest concentrations of more males than females (Greenpoint, Williamsburg, Bay Ridge, Dyker Heights, Fort Hamilton, Borough Park, and Midwood).

#### **English Proficiency (p. x)**

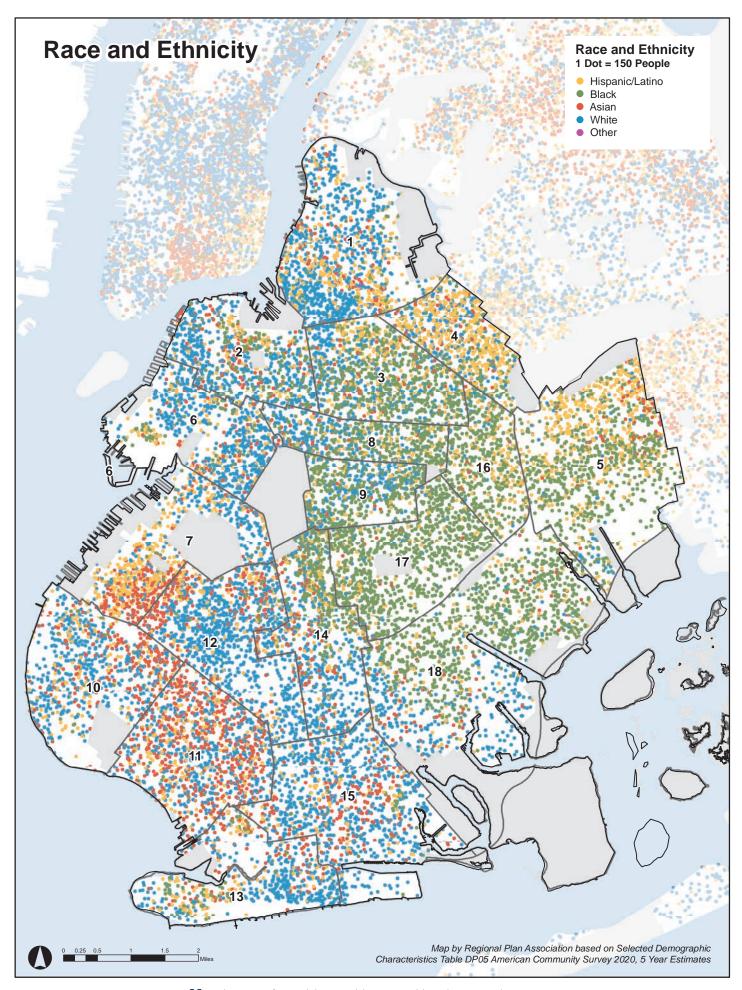
In Sunset Park, over 53% of the population self-identifies as "speaking English less than very well." CDs 1, 11, 13, and 15 also have smaller pockets of populations with limited English proficiency (Greenpoint, Williamsburg, Bensonhurst, Bath Beach, Sea Gate, Coney Island, and Sheepshead Bay, and Homecrest). Other languages spoken in these neighborhoods - besides English - include Spanish, Chinese, Russian, and Yiddish.

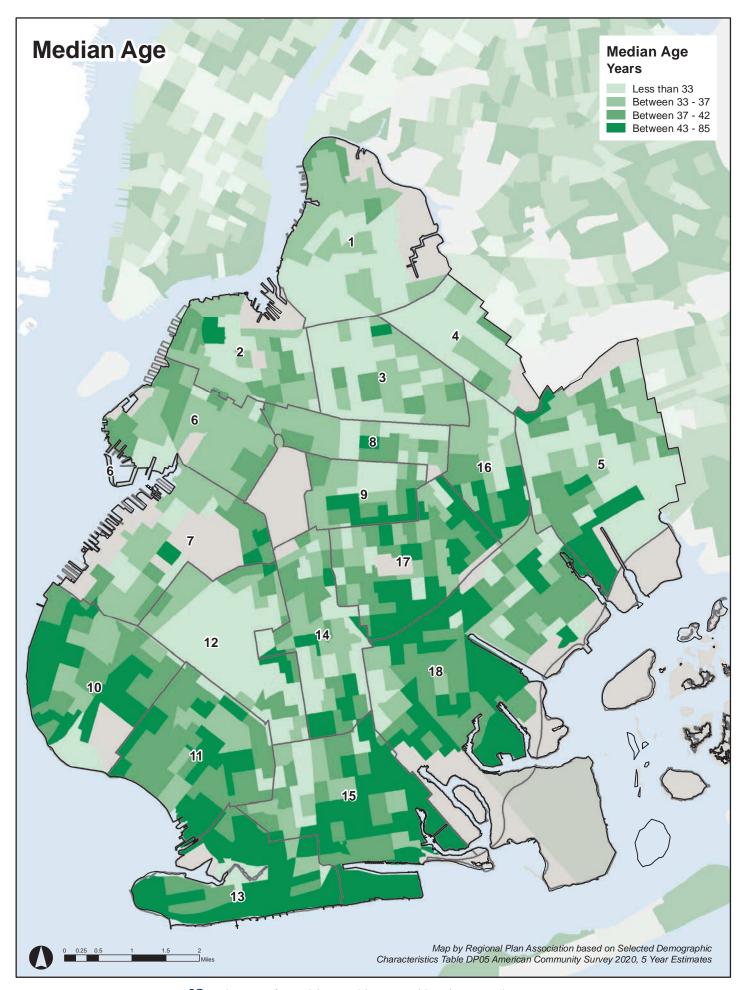
#### **Educational Attainment (p. x)**

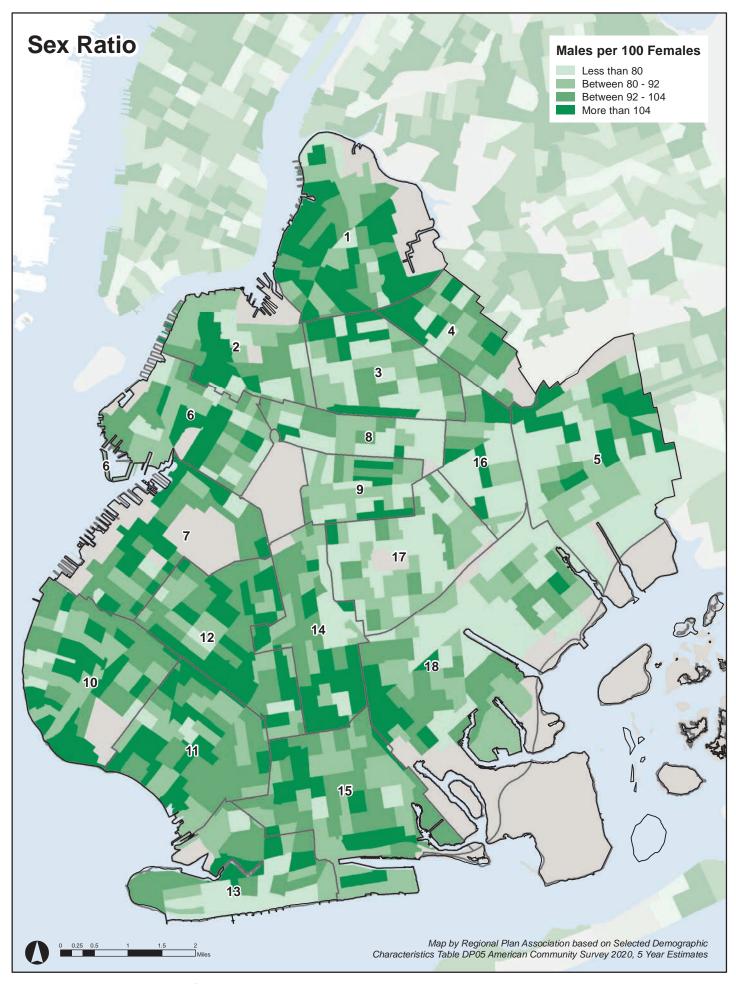
In many Brooklyn census tracts, less than 21% of people over 25 hold a bachelor's degree. North and northwest Brooklyn neighborhoods have the highest number of residents who are college graduates.

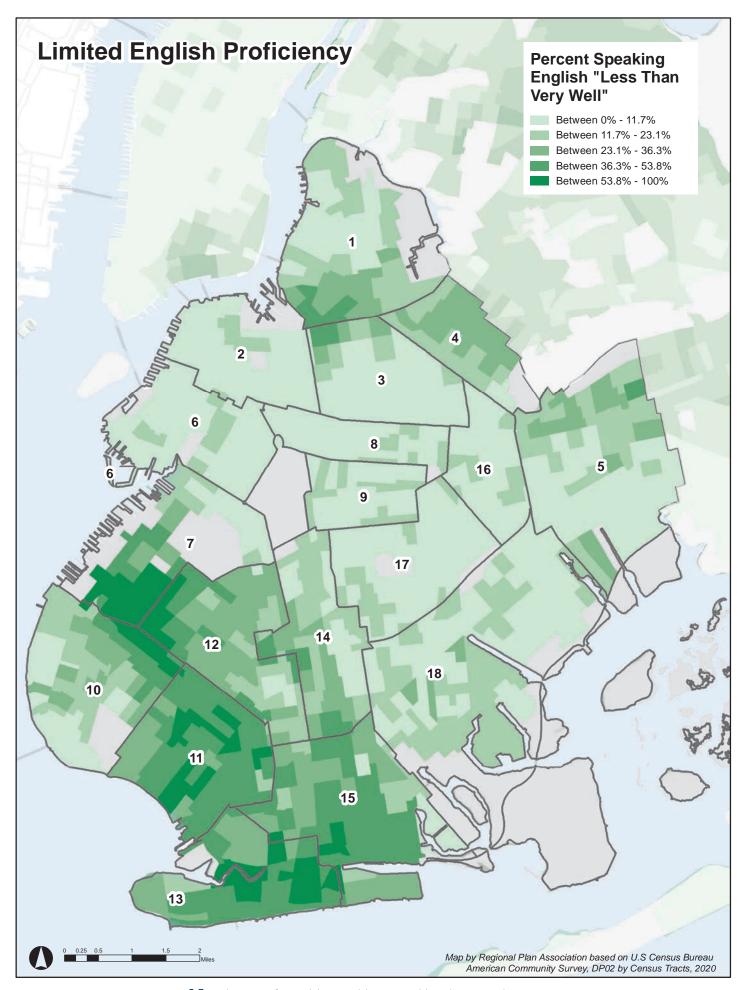
#### Foreign Born (p. x)

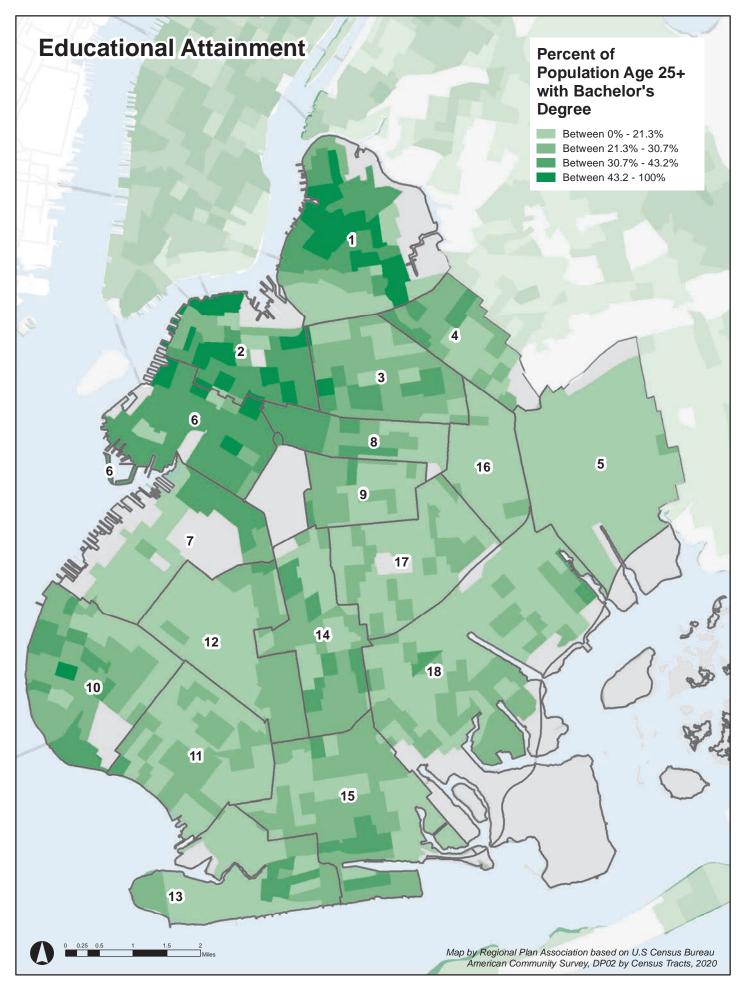
Generally, the northern half of Brooklyn has a higher percentage of native-born residents (meaning those born in the United States, not necessarily in New York City). In the borough's southern half, Bensonhurst, Sunset Park, Dyker Heights, Sheepshead Bay, East Flatbush, and Coney Island have significant foreign-born populations.

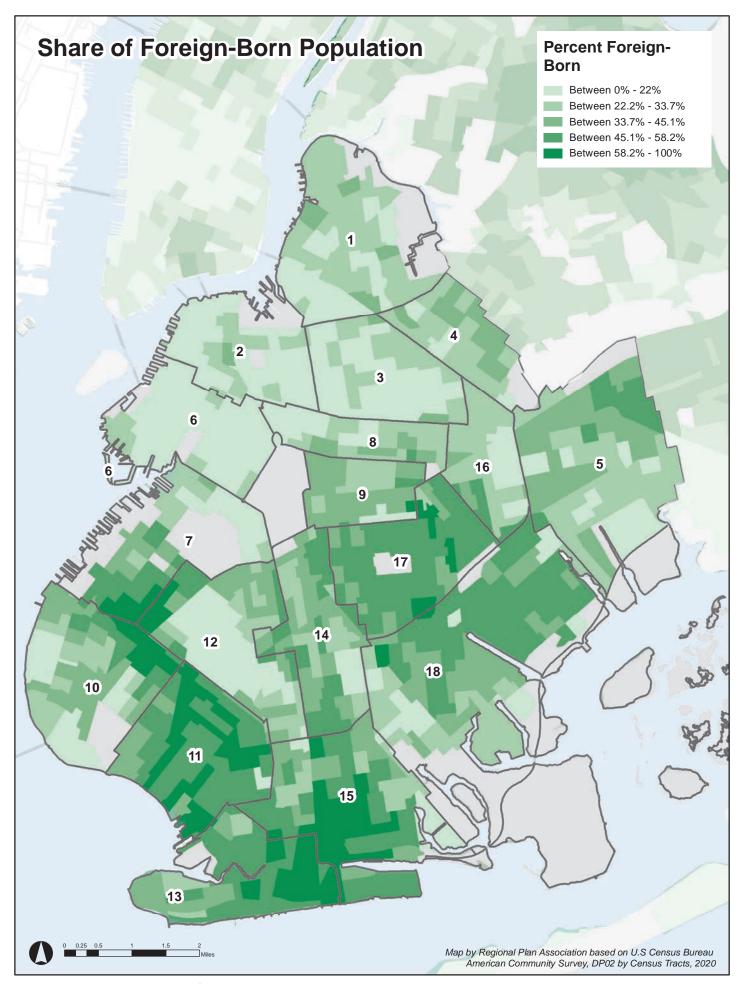












### Health

The socio-economic factors discussed in the previous section have a major influence on public health outcomes in Brooklyn, as does the physical environment, which will be explored in the next section.13

Research by the University of Wisconsin Population Health Institute and Robert Wood Johnson Foundation describes how these social and physical determinants of health are related to health outcomes.<sup>14</sup> As the maps illustrate, disparities in these factors across the borough can result in equally disparate-or sometimes worse-public health outcomes.

To explore a range of possible mechanisms through which housing acts as a social determinant of health, we include in this report several health indicators listed below. These indicators were obtained from numerous sources including the New York City Community Health Profiles, American Community Survey, and from the Center for Disease and Control (CDC) 500 Cities Census Tract-level Data. They are divided into those that directly measure health phenomena (e.g., diseases, deaths, use of services) and indirect measures (e.g. food insecurity); often referred to as proximal and distal indicators respectively. While there are far more health indicators to choose from, we selected indicators that were based on literature, their validity (ability to measure what they are supposed to measure), utility (ability to provide information that is useful to decision-makers and can be acted upon) and their ability to encompass and reflect the community's needs holistically.

Many studies have shown that health outcomes on a neighborhood level can be worse in low-income communities of color. 15 An increasing body of literature ties community health outcomes to policies of segregation and their impacts over time, although the specific pathways by which health is affected are not fully understood.

These issues are especially relevant to the New York region, which has the highest level of Black-white segregation, and the second-highest level of Hispanic-white segregation, compared to other metropolitan areas.16 From life expectancy to COVID-19 related deaths, health outcomes documented in this section are by and large a reflection of the borough's pervasive physical and socioeconomic disparities.

#### Life Expectancy (p. x)

Life expectancy in Brooklyn can vary as much as twenty years from neighborhood to neighborhood. Residents of Brownsville, Bedford-Stuyvesant, East New York, and Coney Island have life expectancies as much as 10 years below the city average. By contrast, in Cobble Hill, Carroll Gardens, Park Slope, Bensonhurst, Borough Park, and Flatbush, life expectancy exceeds the city's average by up to 10 years

#### Premature Mortality (p. x)

The percentage of people who die before age 65 can indicate the overall health of a population. This includes deaths from health complications and disease, as well as factors such as gun, violence and traffic incidents. A swath of Eastern Brooklyn, centered around Atlantic Avenue reports the highest rates of premature mortality in the borough. This is consistent with data showing that Brooklyn has the highest rates of maternal mortality and morbidity in NYC - indicating that similar risk factors are contributing to this crisis.

#### Adult Asthma (p. x)

The highest rates of adult asthma are found in central and eastern Brooklyn, including Brownsville, East New York, eastern Crown Heights, East Flatbush, and portions of Canarsie. The lowest instances of adult asthma occur in northwestern Brooklyn and in areas east of and adjacent to Prospect Park.

#### Asthma Hospitalizations (Children) (p. x)

Northeastern Brooklyn has the largest concentration of childhood asthma hospitalizations, with a notable cluster of childhood asthma hospitalizations straddling the border of CDs 14 and CD17.

#### Adult Cancer (p. x)

Adult cancers are more prevalent in southern Brooklyn, due in part to its older population. The highest incidence, with 9% to 19% of the population experiencing any type of cancer, occurs in CDs 11, 13, and 15 (Bay Ridge, Dyker Heights, Sea Gate, Coney Island, Sheepshead Bay, and Mill Basin). With the exception of Greenpoint, the borough's northern half has the lowest cancer prevalence rates, of less than 5%.

Regional Plan Association, State of the Region's Health (July 2016)

Robert Wood Johnson Foundation & University of Wisconsin Population Health Institute County Health Rankings & Roadmaps: 2015 Measures & Data Sources Robert Wood Johnson

Health Affairs Blog, Poverty's Association With Poor Health Outcomes and Health Disparities

<sup>16</sup> Regional Plan Association, Fourth Regional Plan (2017)

#### **Coronary Heart Disease (p. x)**

The area around Kings County Hospital in East Flatbush has the highest number of coronary heart disease cases. Coney Island, which has many (low-income) senior residents, also has a high prevalence of this ailment.

#### Adult Diabetes (p. x)

Like asthma rates, adult diabetes is generally clustered in central and eastern Brooklyn, in and around CD 16, with scattered pockets on the Coney Island peninsula, along the border of CDs 7 and 12, and around the intersection of CDs 1, 2, and 3. Brownsville, East New York, eastern Crown Heights, and East Flatbush have the highest proportion of adults with diabetes.

#### Adult Obesity (p. x)

Adult obesity largely correlates with diabetes rates. Obesity among adults is most prevalent in and around CD 16 and generally less common in western Brooklyn.

#### **Wellness Doctor Visits (p. x)**

East Flatbush and Canarsie report the highest percentage of people who have gotten a routine doctor's checkup in the last year with similarly high rates of 78-88% in surrounding areas. Interestingly, there is no observed correlation between routine check-ups and higher incomes in Brooklyn.

#### **Mental Health (p. x)**

Many communities in Brooklyn report poor mental health with a higher percentage of residents in parts of CDs 1, 3, 5, 7, 8, 12, 13 and 16, reporting that their mental health has been "not good" for over two weeks.

#### No Health Insurance (p. x)

Lack of health insurance is particularly pronounced in predominantly Hispanic/Latino parts of Brooklyn including portions of CDs 4 and 5 bordering Queens (Bushwick, Ocean Hill, and Cypress Hills), and CD 7 where there is also a significant Asian population (Sunset Park).

#### Self-Reported Health (p. x)

Those living in/around Downtown Brooklyn and areas nearest to Manhattan are most likely to report good health. Communities least likely to report good health are mostly found in the borough's peripheries, especially in CDs 5, 7, and 15 (East New York, Sunset Park, and Sheepshead Bay).

#### Low Birth Weight at Full Term (p. x)

Low birth weight is closely associated with infant death, cognitive development issues, and inhibited growth. It is also indicative of contributing maternal health factors at the time of pregnancy such as a mother's nutritional intake, chronic illness, and mental health status. Low birth weight at full term is more common in eastern Brooklyn, with CD 5 (East New York) and the adjacent portion of CD 4 (eastern Bushwick) representing the highest rates.

#### Avoidable Adult Hospitalizations (p. x)

CDs 5 (East New York) and 16 (Brownsville) have the highest avoidable adult hospitalizations per capita, meaning that between 2,100 and 3,100 hospitalizations in each district could have been prevented with effective primary care. CDs 10, 11, 12, and 15 have the fewest instances of avoidable hospitalizations.

#### Fall-Related Emergency Visits (p. x)

Brooklyn CDs 6 (Park Slope, Carroll Gardens) and Cobble Hill) and 13 (Coney Island and Gravesend) report the highest number of adult residents who have gone to the hospital after suffering a fall.

#### Food Insecurity (p. x)

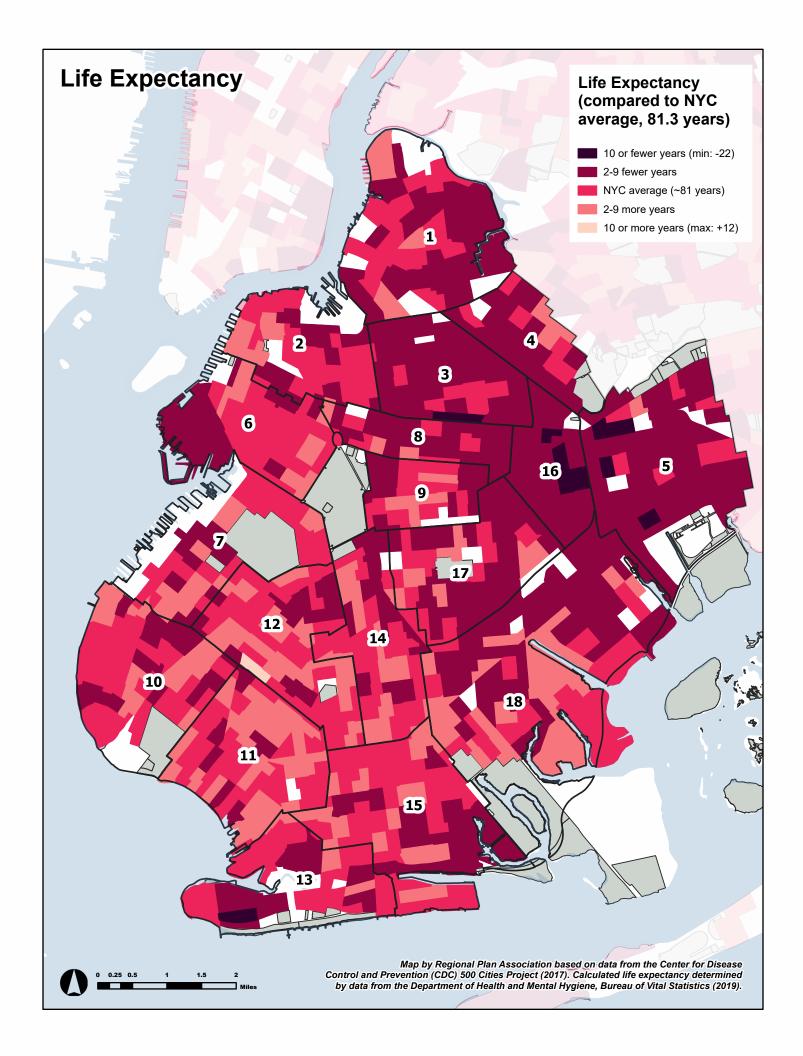
Food insecurity is a lack of consistent access to enough food for every person in a household to live an active, healthy life. Food insecurity is one way to measure how many people cannot afford food. CDs 13 (Coney Island and Gravesend) and 16 (Brownsville) have the highest percentage of food insecure households (ranging between 20% and 27%). These geographies also correlate to neighborhoods with the highest share of households receiving SNAP assistance, which for some families is insufficient to meet their nutritional needs. While CD 13 is bordered by community districts that are significantly more food secure, CD 16 is bordered by areas that are still significantly insecure.

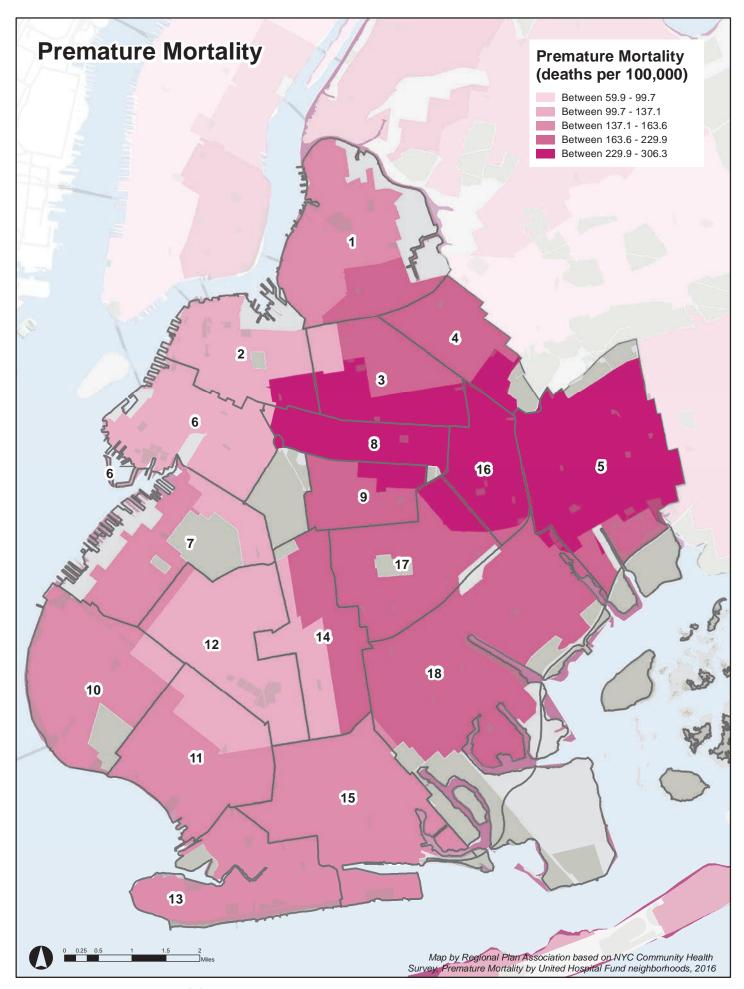
#### **Covid-19 Vaccinations (p. x)**

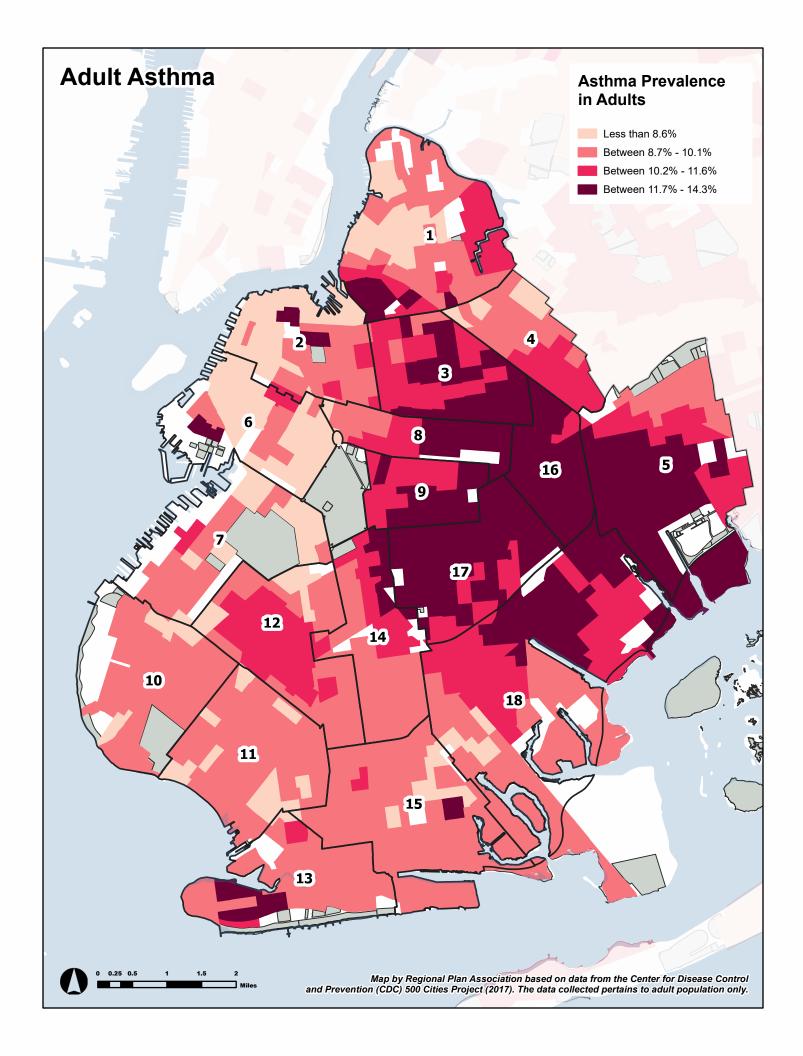
The uptake of COVID-19 vaccinations can be affected by a combination of access and trust. In March 2021, CD 7 experienced some of the lowest vaccination rates in NYC due to lack of access. However, as of October 2022, Brooklyn's highest rate of Covid-19 vaccination is in CD 7 (particularly Sunset Park) where 99% of the population has received at least one dose. Lowest instances of vaccination-where less than 60% of the population have received a dose-occur in CDs 1 (Williamsburg), 12 (Borough Park), and 14 (Midwood).

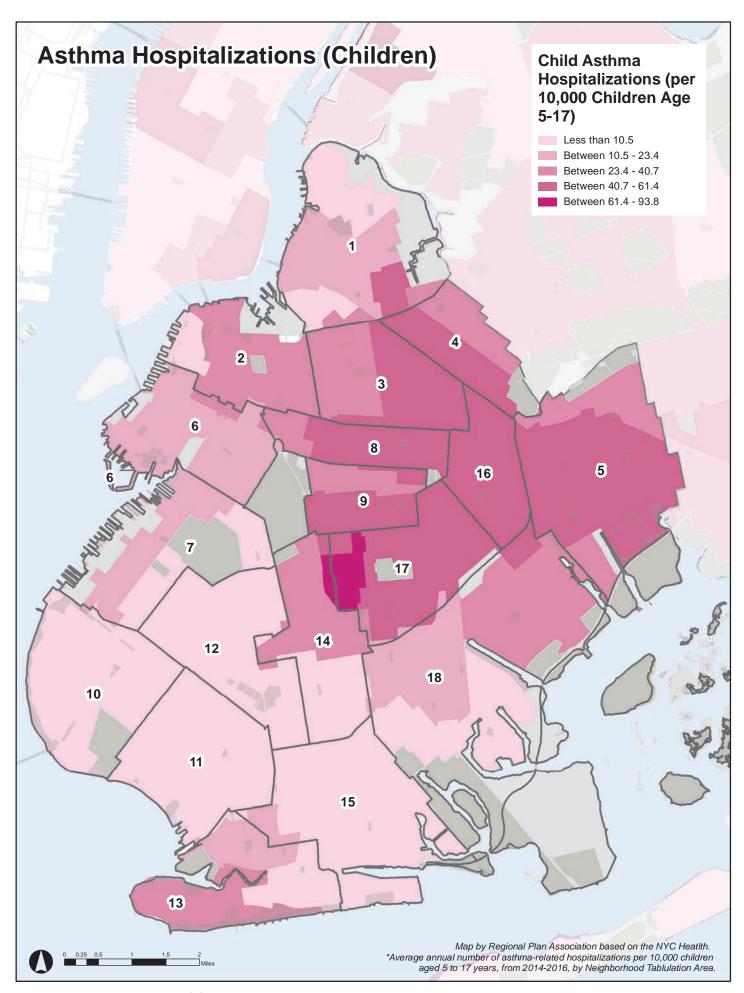
#### Covid-19 Deaths (p. x)

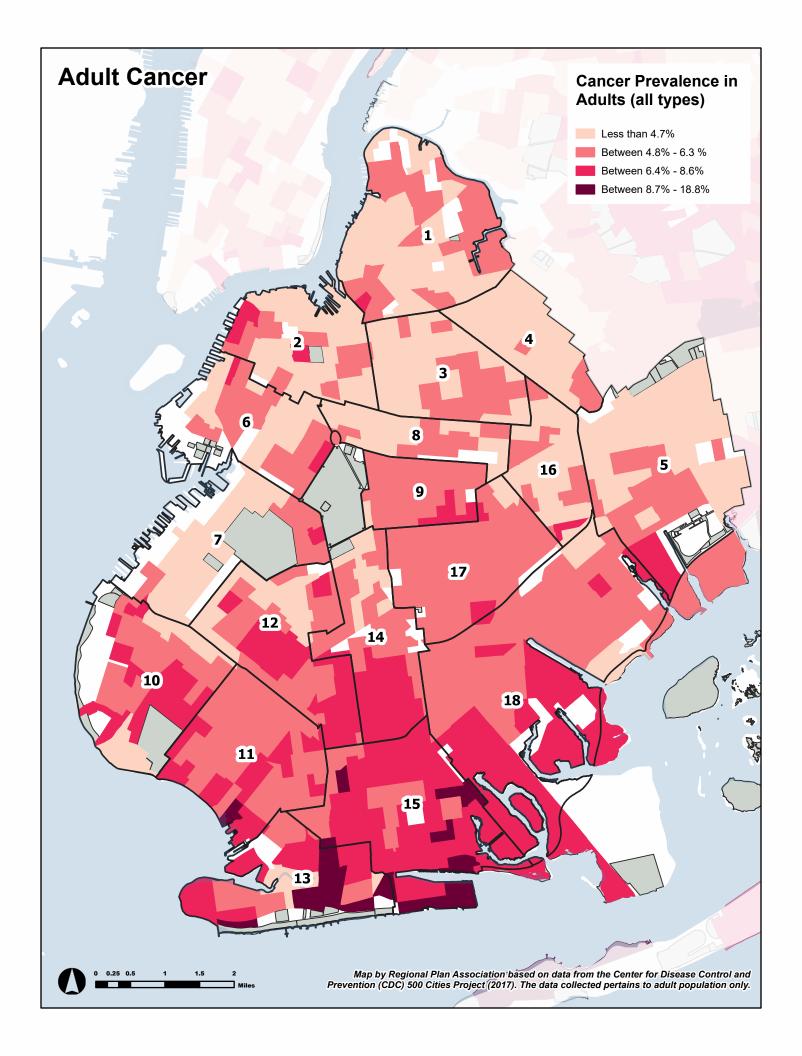
There is a general correlation between lower-income communities of color and neighborhoods that have experienced the highest death rates from Covid-19. This overlap is most pronounced in eastern Brooklyn (Brownsville, East New York, Canarsie, and East Flatbush). The highest death rate occurred across Coney Island, Brighton Beach, Manhattan Beach, southern portions of Sheepshead Bay, and Starrett City, where between 856 and 1,420 for every 100,000 residents died from Covid-19, compared to the city average of 506 per 100,000.

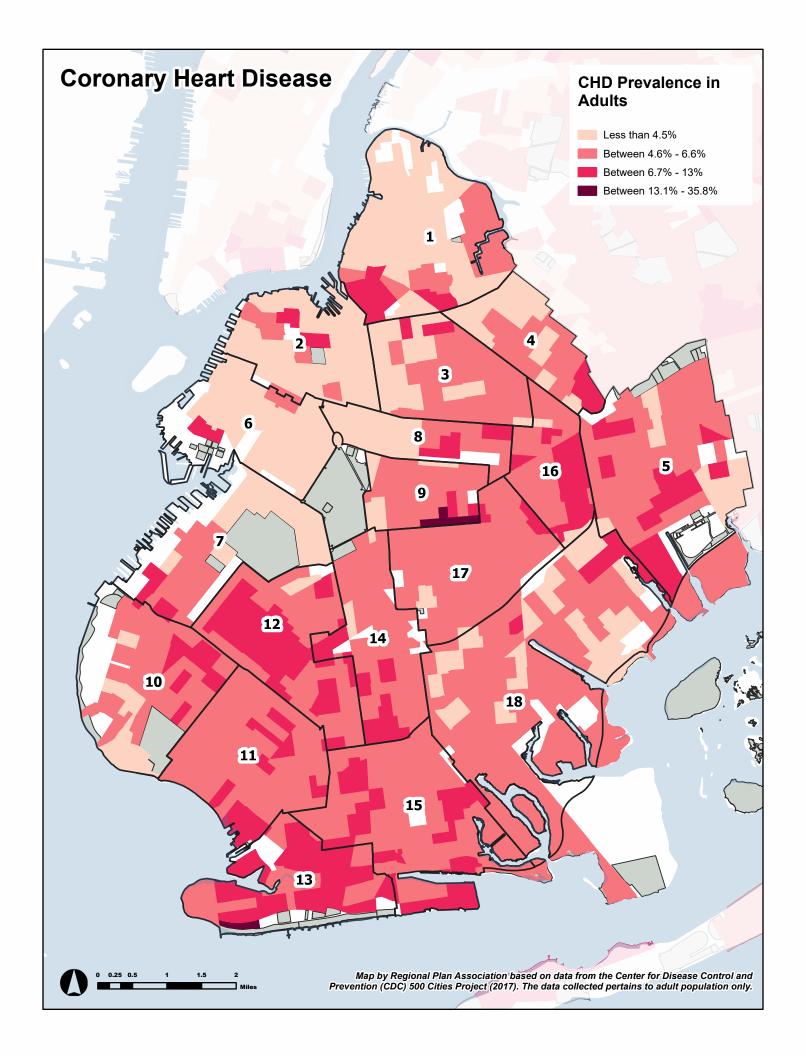


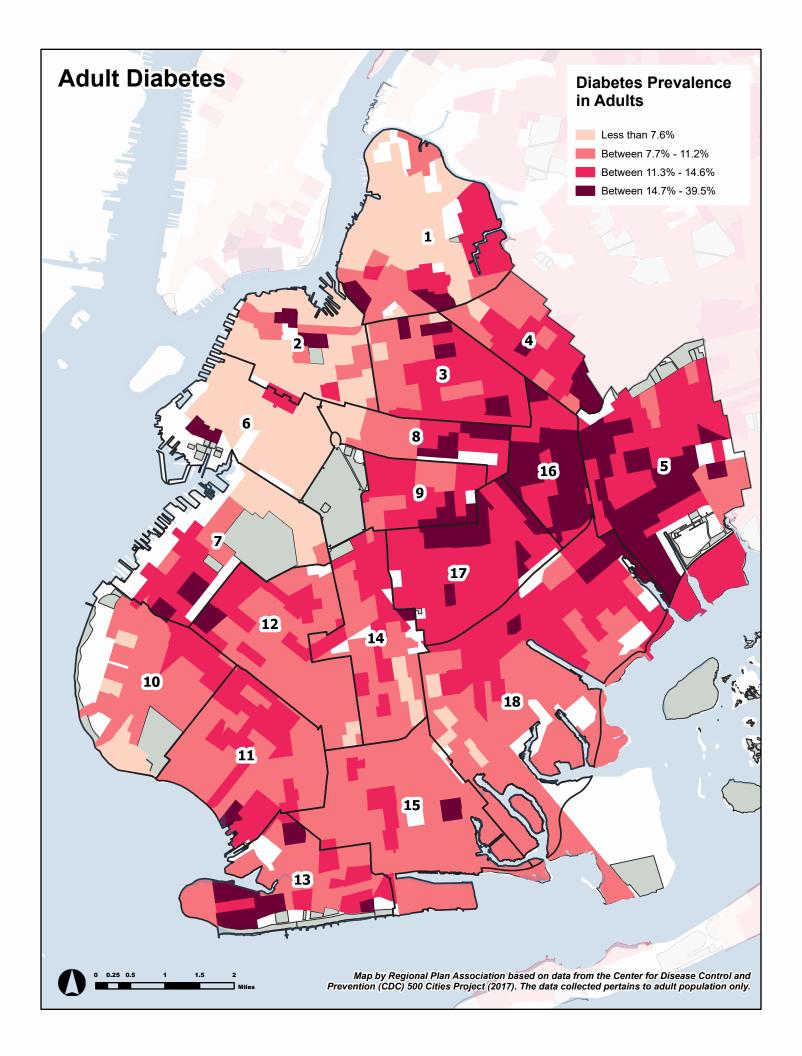


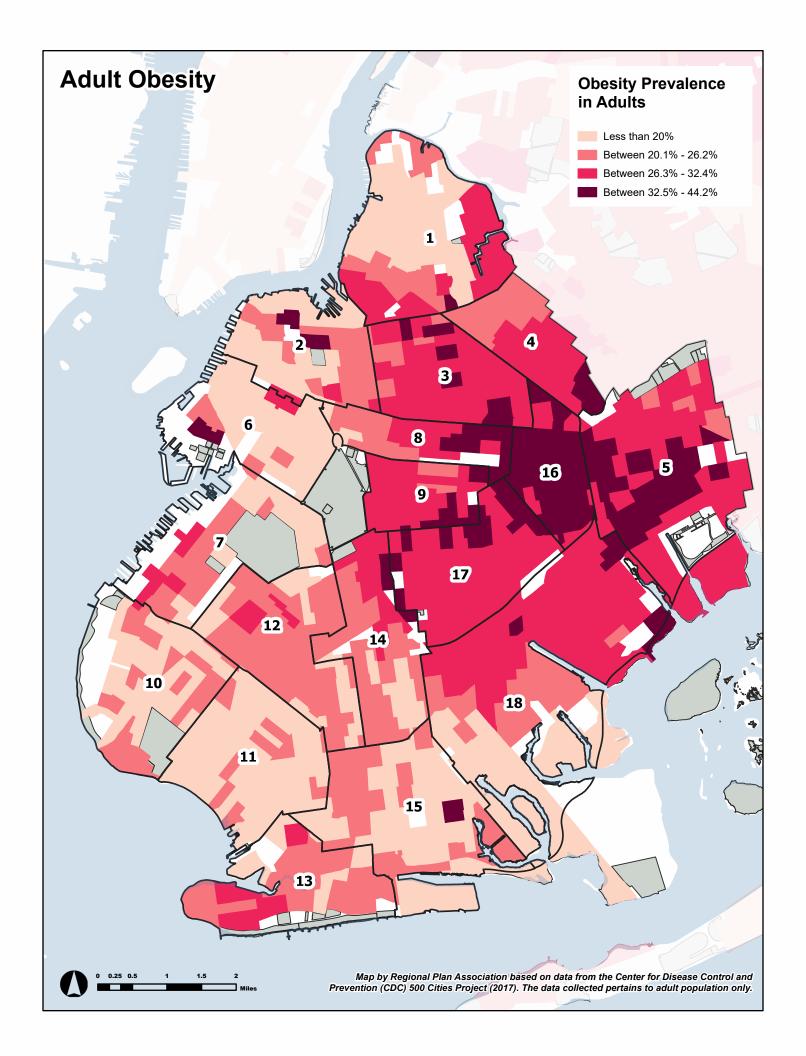


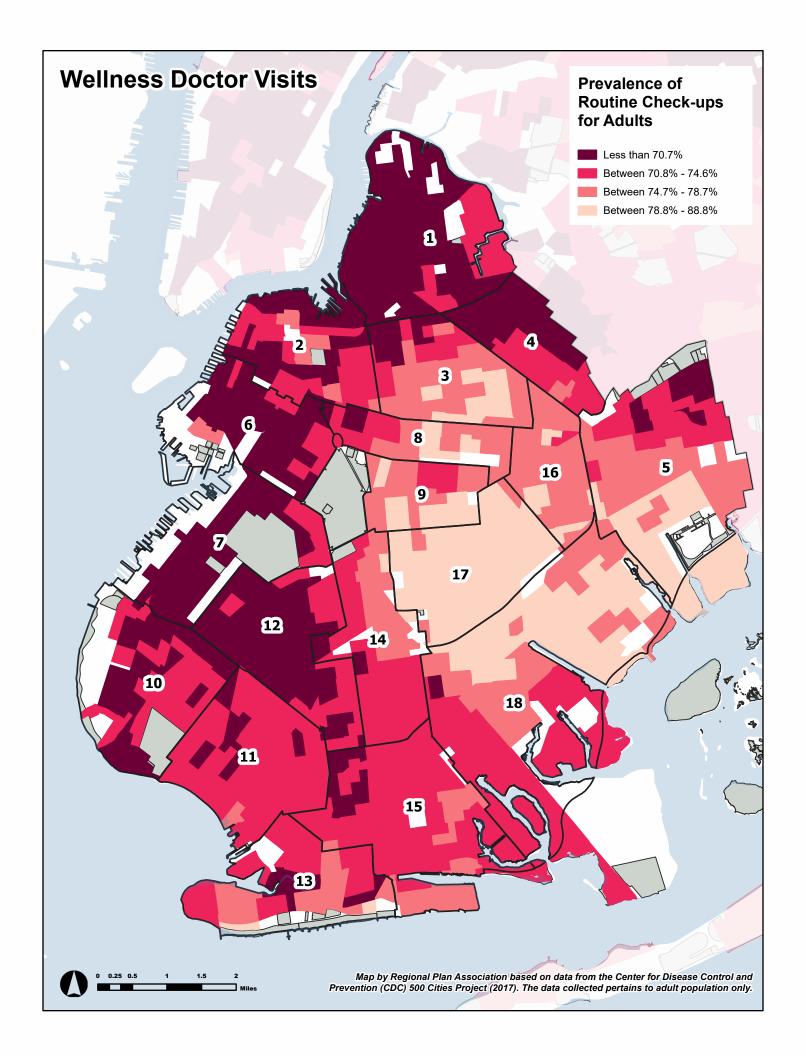


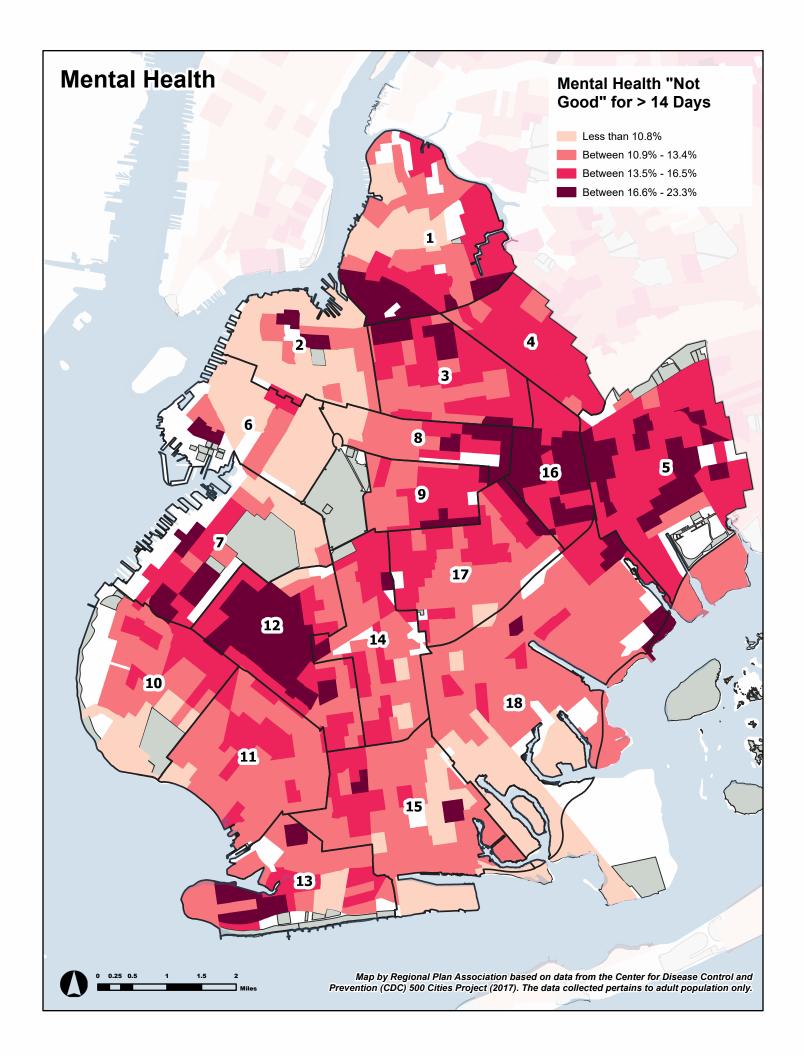


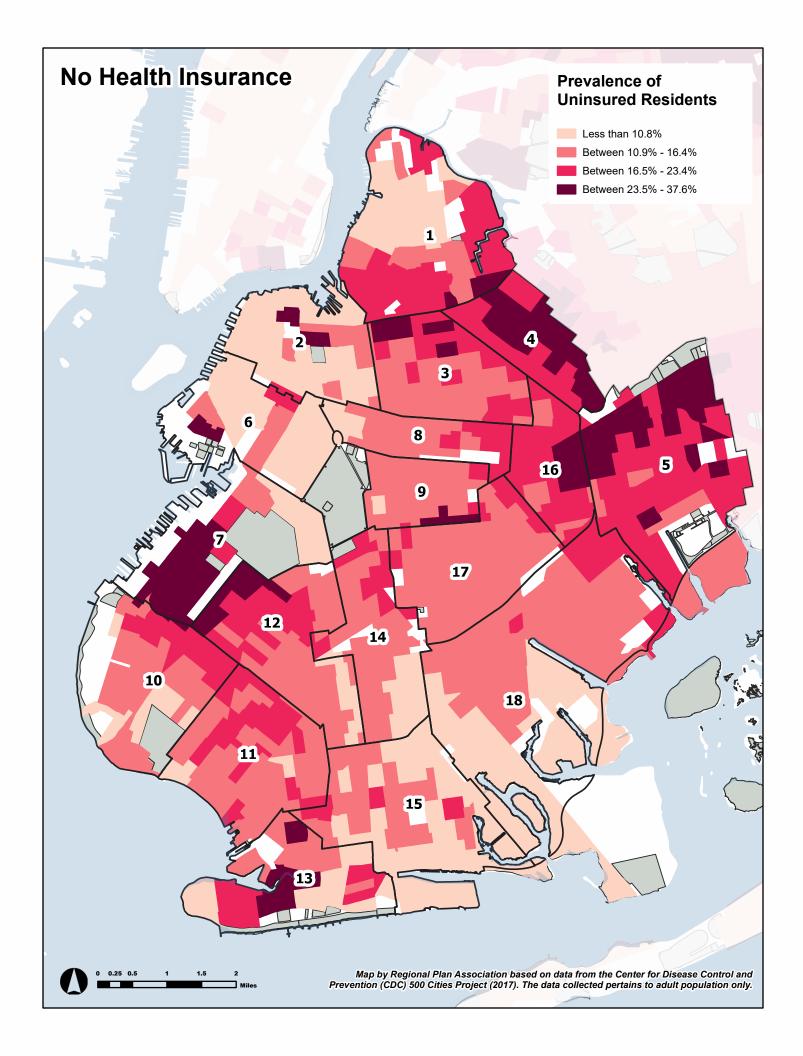


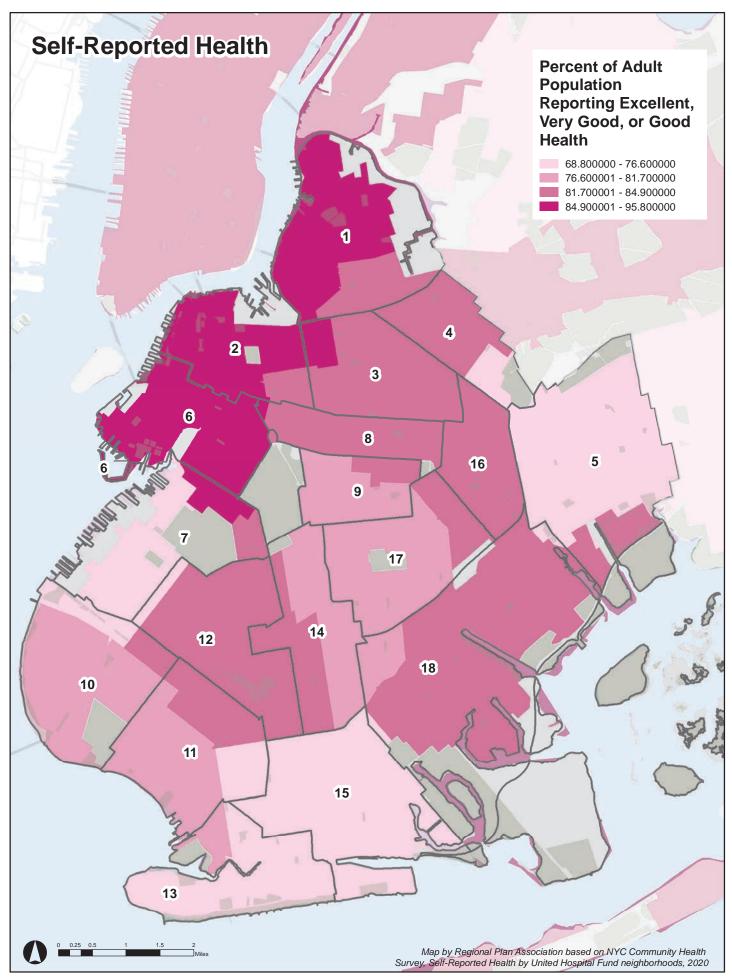


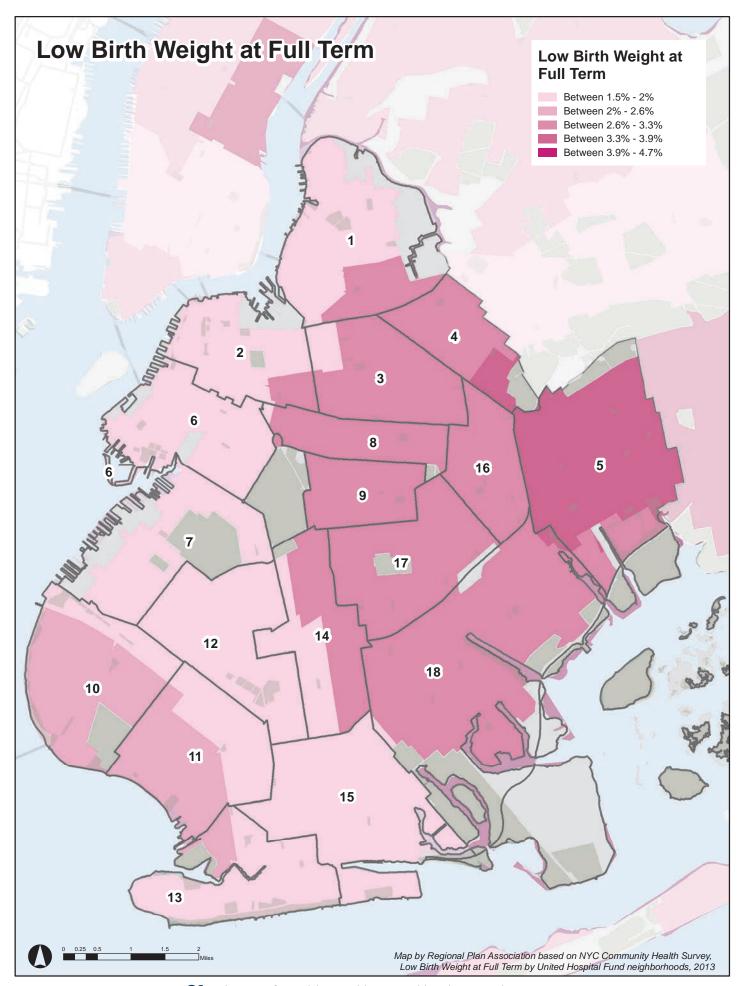


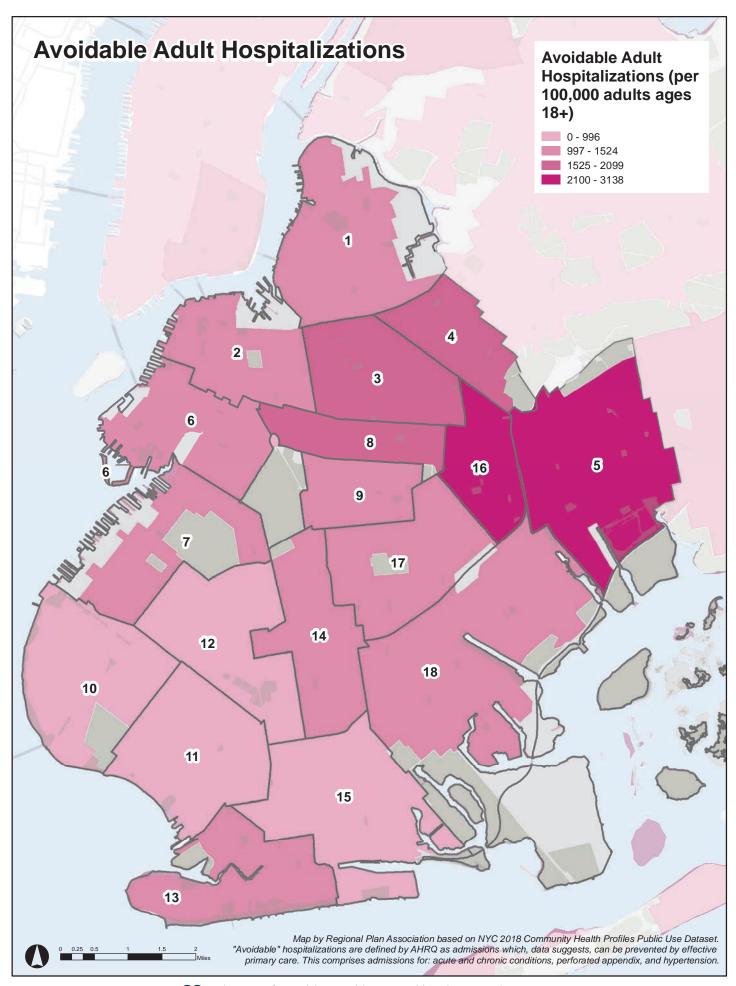


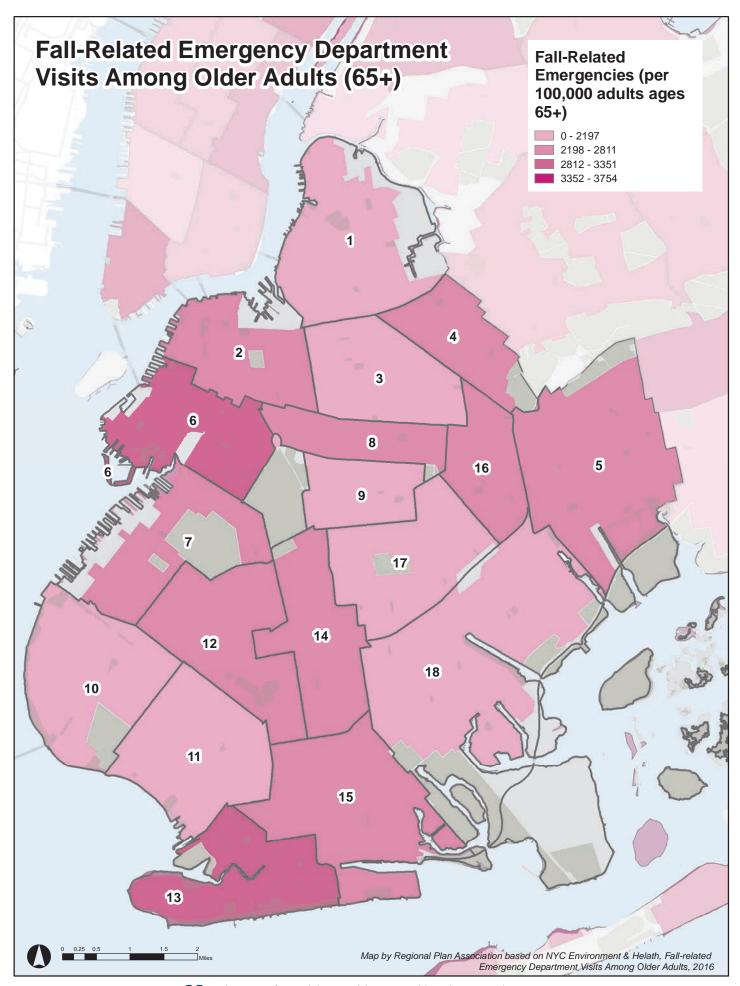


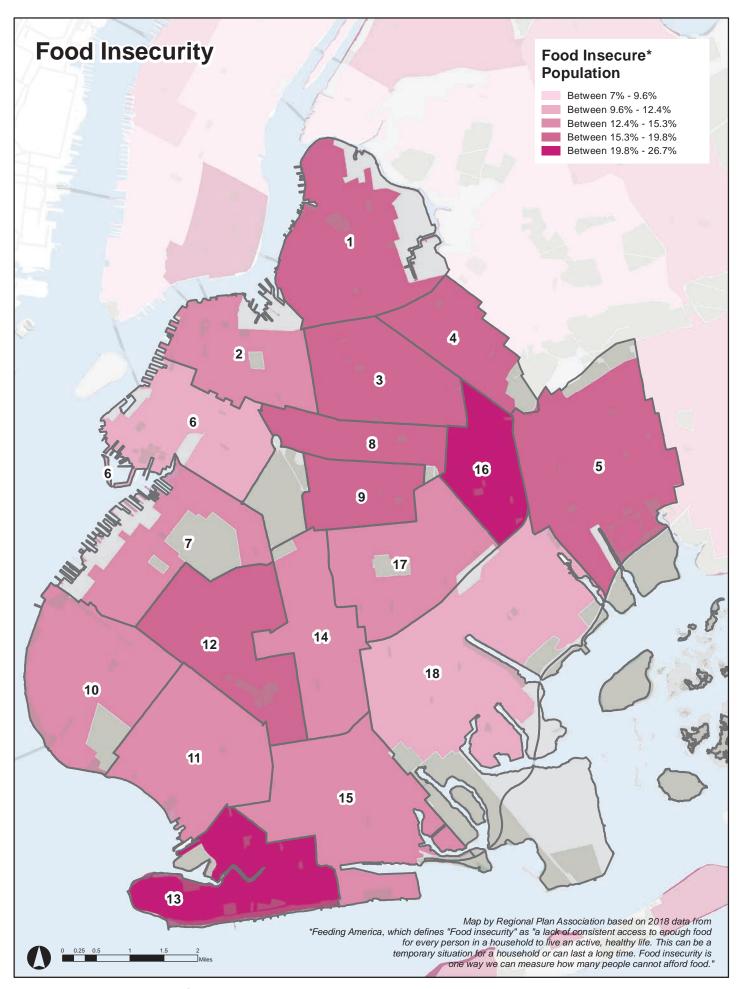


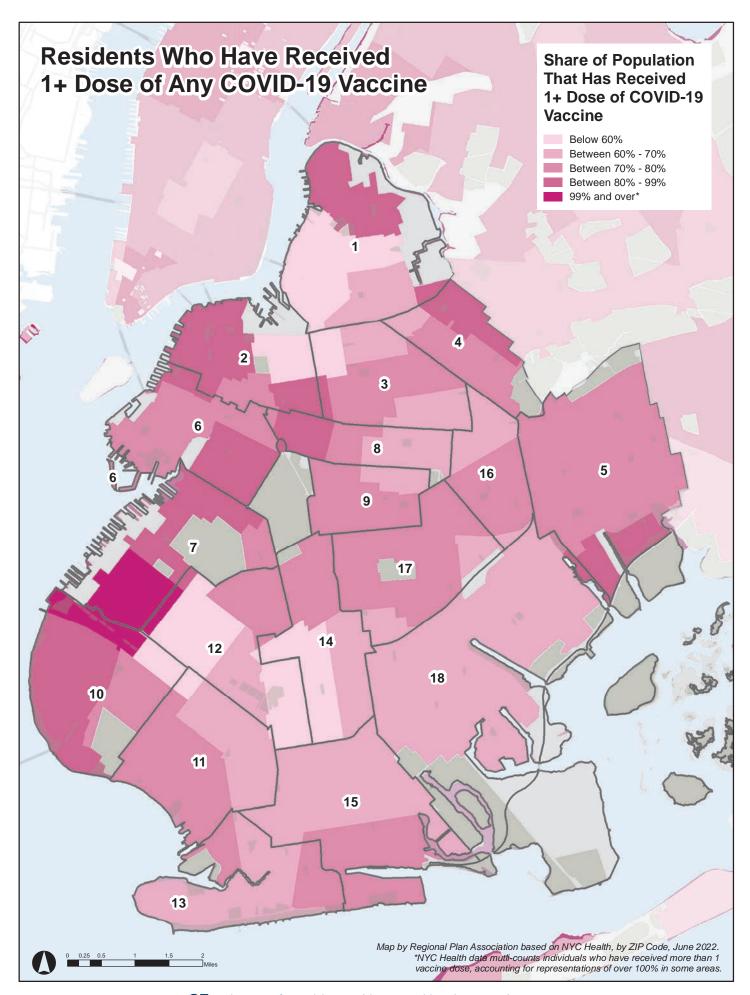


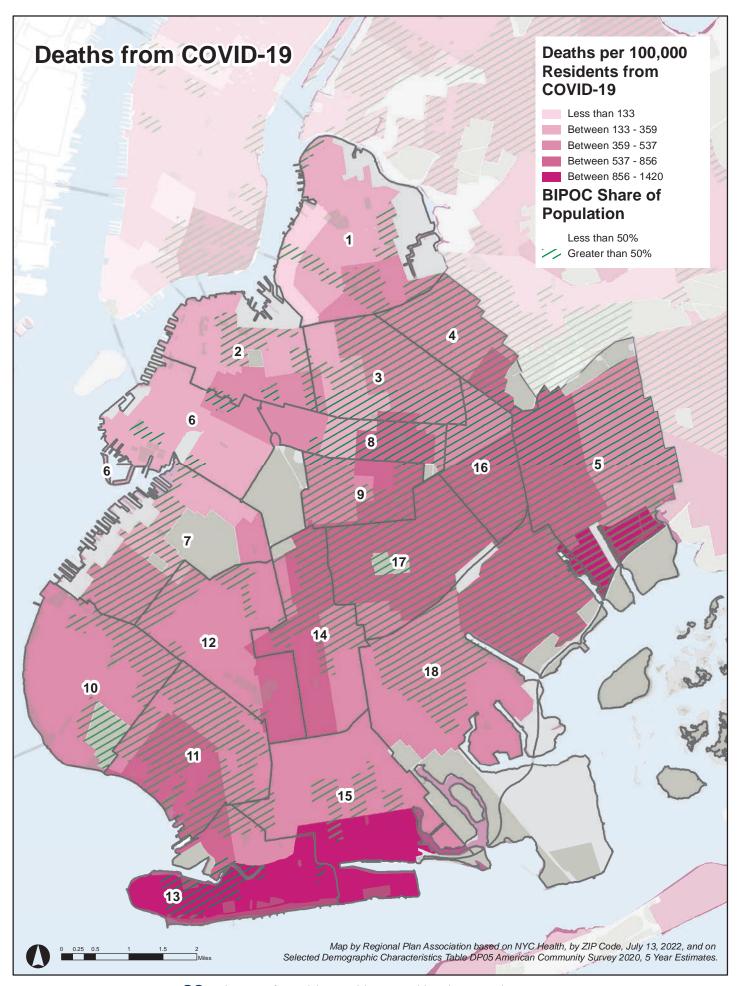












### Socioeconomic

Between 2010 and 2020, Brooklyn's economy expanded dramatically, outpacing citywide employment growth with a 47% increase in jobs.

The borough added 210,798 jobs, of which 42% were generated by three communities. Seven out of 10 New York neighborhoods with the highest income growth were in Brooklyn, underscoring the borough's prominent position in the City's economy.

Unfortunately, these figures mask severe disparities in growth and compensation. Low-income communities of color in central and eastern Brooklyn added fewer than 10,000 jobs. Median household income varied tremendously across the borough, with a difference of nearly \$125,000 between Park Slope and Brownsville. Of the five boroughs, Brooklyn saw the highest increase in median household income (58%) and total wages (75%) but also reported the lowest wage increase (18.3%), and average salary (\$45,000).

In 2021, Brooklyn's median household income was \$67,500, significantly below Manhattan's \$84,400, but comparable to the city's as a whole.<sup>17</sup> Approximately 15% of all families in Brooklyn had incomes below the poverty level (compared to 13% in Manhattan and 14% for the city as a whole). 18 A family of four is considered to be living in poverty if they earn less than \$27,750 per year, based on the national standard.

Healthcare remains Brooklyn's top employment sector, accounting for 45% of jobs, followed by retail (15%) and food services (10%). It should be noted that the healthcare, construction, utilities, retail, and education sectors account for a greater percentage of Brooklyn jobs than of overall City employment. Between 2010 and 2020, the borough saw a 32% growth in private enterprises, specifically information, hospitality, and business services. Most of these were microbusinesses with 10 or fewer employees. Notably, jobs in the leisure and hospitality sector grew by 109%, with three-quarters generated by bars and restaurants.

In the past decade, the borough, and specifically the intersection of Downtown Brooklyn, DUMBO, and Brooklyn Navy Yard known as the Tech Triangle, has become an innovation center. The Tech Triangle draws on synergies between companies and higher educational institutions. The mass movement of startup firms to this area has created a powerful economic engine and demand for skilled workers. The trend has since spread to other parts of the borough, cementing Brooklyn's reputation as a research and manufacturing hub.

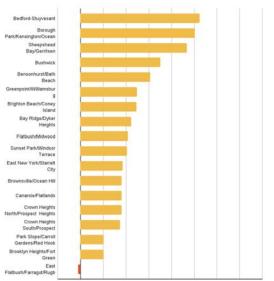
Brooklyn's job sectors were severely impacted by the COVID-19 pandemic, but its recovery has outpaced citywide trends. Between February and August 2020, the borough's unemployment rate reached 20%, but by September 2021, Brooklyn regained more than 100,000 jobs. The borough benefited significantly from various stimulus efforts to shore up companies and jobs, receiving more than one-fifth of federal relief loans and more than one-tenth of relief grants.

Approximately 246,000 workers living in the borough are employed in service occupations (about 20% of the total workforce). Service employees were among the most likely to have been unable to work due employer closures or cutbacks caused by the COVID-19 pandemic.

U.S. Census Bureau; American Community Survey, 2021 American Community Survey 1-Year Estimates, Table DP03 (September 2022)

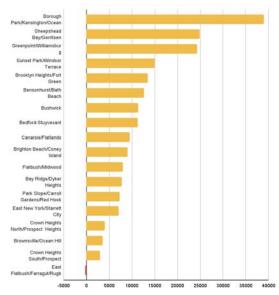
#### Percent Change Jobs by Neighborhood: 2010 - 2019

U.S. Census Longitudinal Employer-Household Dynamics (LEHD)



#### Total Number of Jobs Added by Neighborhood: 2010 - 2019

U.S. Census Longitudinal Employer-Household Dynamics (LEHD)



#### **Median Income (p. x)**

Household income in the borough generally declines as one moves further from Downtown Brooklyn. Neighborhoods north of Prospect Park (CDs 1, 2, and 6) have the highest household incomes ranging from \$123,000 to \$232,000. There are smaller pockets of high-income households in Prospect Park South, Flatbush, and Manhattan Beach. Large pockets in CDs 10 and 18 have high incomes ranging between \$75,000 and \$123,000. On the other hand, lower -income households (earning less than \$39,000 per year) are largely concentrated in the eastern part of the borough, including Brownsville and East New York. Other pockets of low-income households can be found in Coney Island, eastern portions of Crown Heights, South Williamsburg, and Borough Park.

#### Poverty (p. x)

There are relatively high concentrations of poverty in most of the borough's community districts. Brooklyn's northeastern quadrant has the highest concentration, where 20% or more families are earning below the federal poverty line. Moving south, contiguous stretches of poverty are also found in Sunset Park, Borough Park and Coney Island.

#### Service Workers (p. x)

The borough's workforce is employed primarily in service occupations, including but not limited to healthcare, "protective" professions such as security food service, building maintenance, and personal care The workers in these industries (by their place of residence) are predominantly concentrated in Brownsville, East New York, Flatbush and Sunset Park

#### Cash Assistance (p. x)

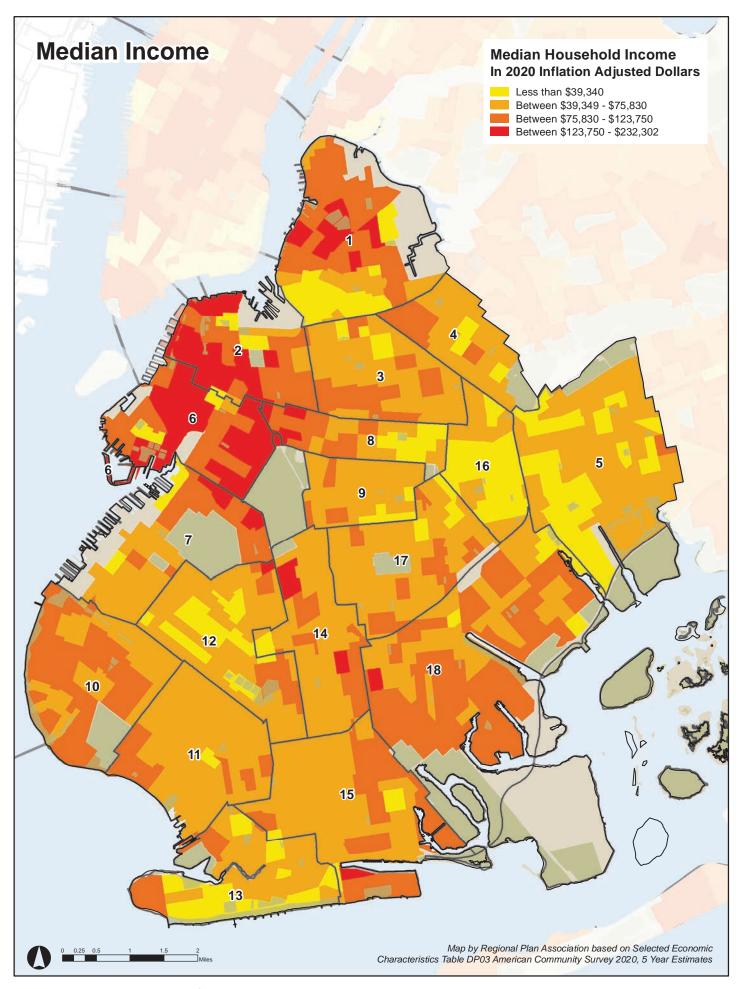
Households that receive cash assistance live primarily in CDs 16, 5, 1 and 9. Other notable concentrations exist in southern Red Hook, in sharp contrast to the rest of CD 6, and across the Coney Island peninsula

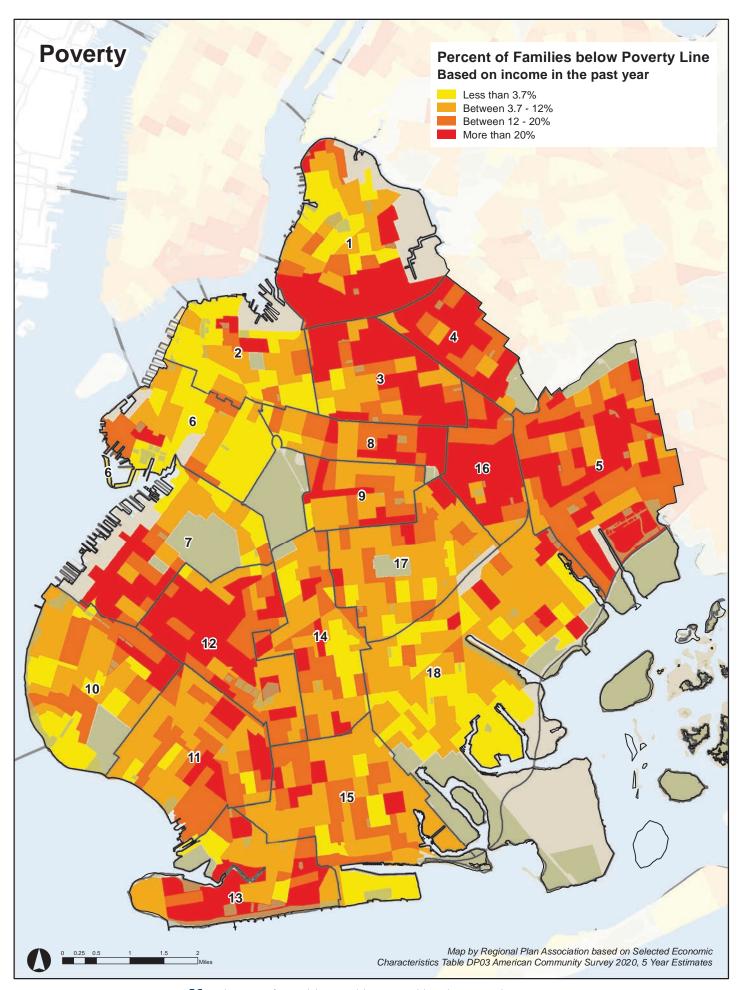
#### **SNAP Assistance (appendix)**

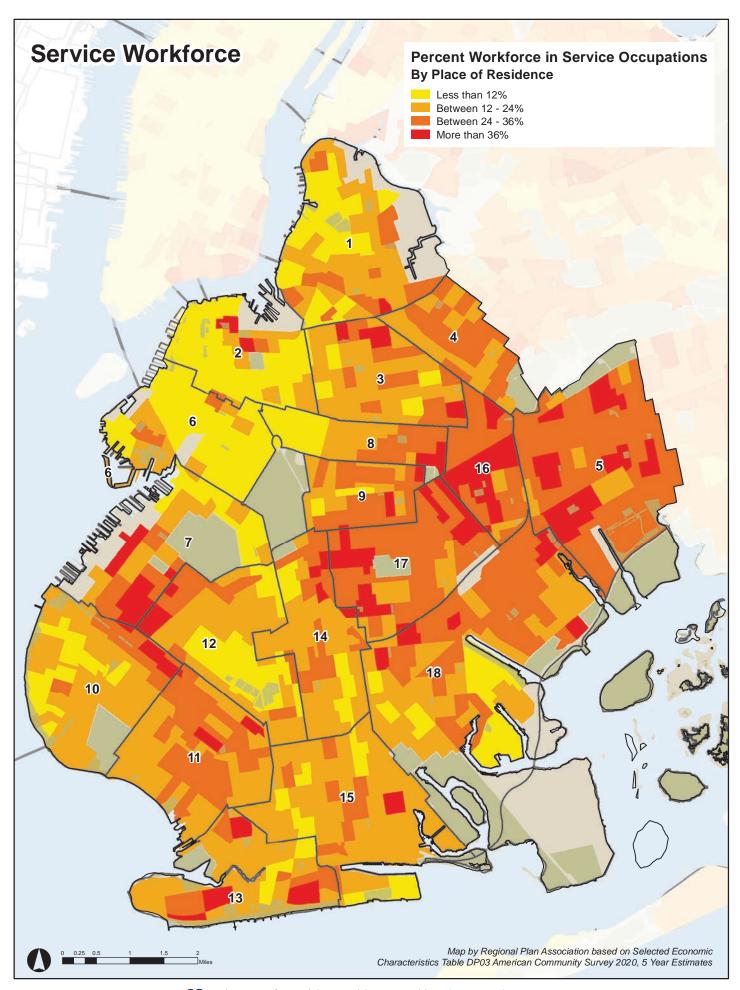
The federal Supplemental Nutrition Assistance Program (SNAP) provides assistance to low-income individuals and families, seniors, and the disabled with US resident or citizenship status, in the form of a card that can be used like cash to purchase food. Large areas where nearly half (42% or more) of households receive SNAP benefits are found in CDs 16, 5, 1, 12, and 13.

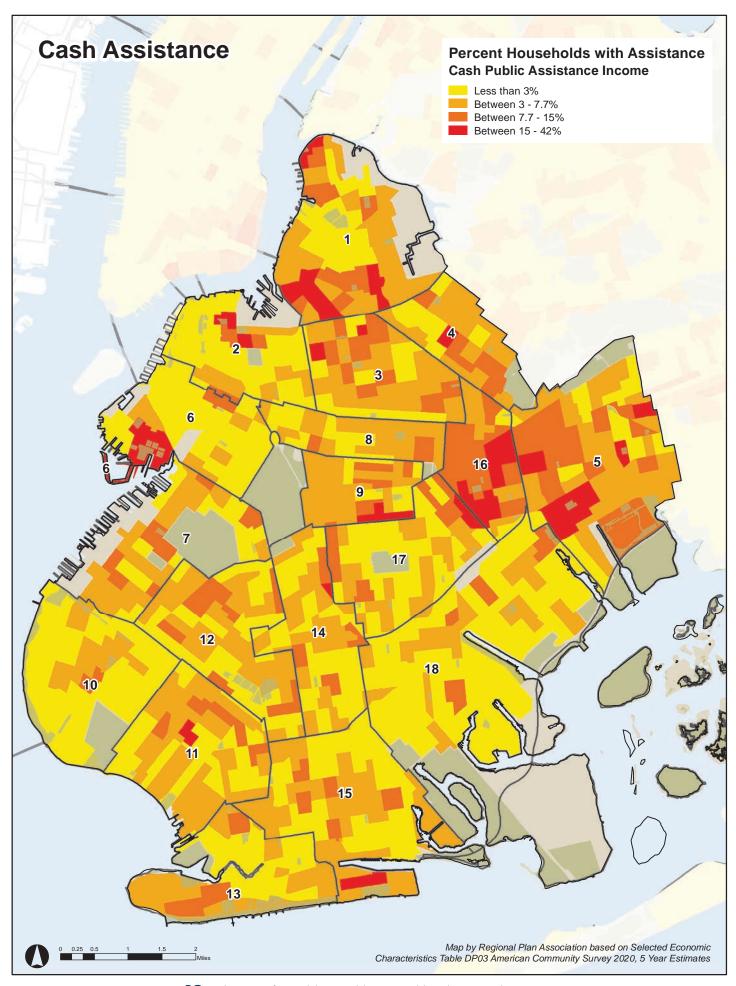
#### Social Vulnerability (p. x)

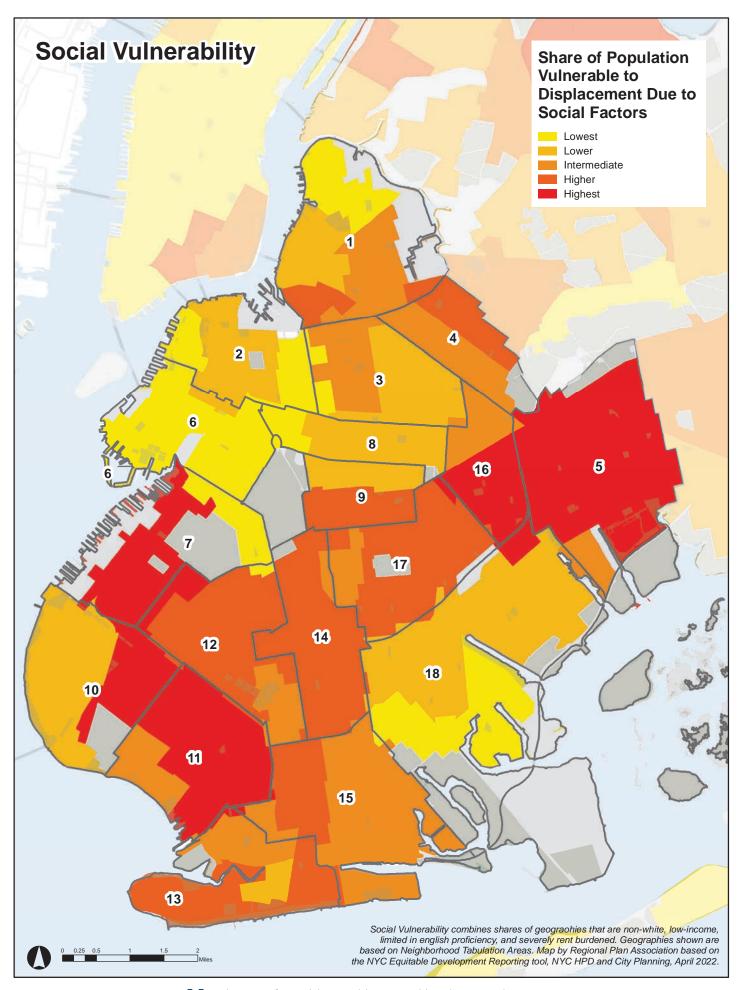
Social vulnerability refers to a combination of factors related to rent burden (when a household pays more than 30% of income on rent), limited English proficiency, low-income, and non-white population. Brooklyn's most socially vulnerable populations are concentrated in the east and southeast portions of the borough. However, most of central and southern Brooklyn displays indicators of higher social vulnerability compared to the city as a whole.











## Land Use and **Built Form**

#### Brooklyn's land area is approximately 71 square miles, large enough to fit Prospect Park almost 90 times.

This land is distributed across 276,000 individual tax lots. The majority of these properties are improved with residential uses, and over half (144,000) are classified as detached single-family

Brooklyn contains approximately one million residential units, with roughly half located on lots classified as multi-family buildings. Of the remainder, 35% are classified as attached singlefamily homes, and 15% are detached, single-family residences on larger lots. The northern half of the borough contains the vast majority of its multi-family buildings. These neighborhoods, particularly Downtown Brooklyn, are also home to most of the borough's commercial and mixed-use buildings. Single-family homes and lower-density uses are largely concentrated in Brooklyn's southern half.

Low-density commercial corridors (often overlaid on residential zones) form a network across the borough, providing neighborhood retail and services. The majority of the borough's manufacturing uses are clustered along the northern border with Queens abutting Newtown Creek, the western shore between Red Hook and Sunset Park and in the eastern Industrial Business Zones (IBZs, or geographic areas that serve as safe havens for manufacturing firms) of East New York and Flatbush/Flatlands.

#### Land Use (p. x)

Though Brooklyn boasts a diversity of land uses across its neighborhoods, the plurality of land is devoted to residential use. Multifamily residential buildings are most common in the northern half of the borough, while one- and two-family homes are more common in the borough's southern half. The manufacturing sector tends to seek proximity to major roadways and industrial waterways. Heavy M-zoning is mapped primarily along the New York Harbor, East River, and Newtown Creek, though a significant industrial employment base is also located in Eastern Brooklyn. Open spaces and public facilities are distributed throughout the borough, though certain types are clustered disproportionately in particular neighborhoods. Downtown Brooklyn, the borough's commercial core, contains the bulk of

its mixed-use and office buildings. Lower-density commercial buildings are found in outlying residential areas that permit local retail and offices.

#### Zoning Districts (p. x)

Brooklyn is mapped with residential, commercial, and manufacturing zoning districts that regulate building uses and forms. Industrial districts are prevalent along the waterfronts of the New York Harbor, Newtown Creek, and the Gowanus Canal. Allowable manufacturing intensities range from M1-1 to M3-2. Many major avenues and most of Downtown Brooklyn are zoned to support commercial uses, allowing densities with Floor Area Ratios (FAR) that range between 1 and 15. Residential zoning makes up the balance, with the Downtown area and select corridors allowing for the greatest densities, and low density residential districts dominating the southern half of the borough.

#### Residential Floor Area Ratio (p. x)

The floor area ratio (FAR) is the principal bulk regulation controlling the size of buildings. FAR is the ratio of total building floor area to the area of its zoning lot. Most of the borough's residential districts only allow for low densities ranging from 0.5 up to 2 FAR. These districts are found in the southern half, but also in a few neighborhoods in the central part of the borough (Bedford Stuyvesant and Clinton Hill, and East New York, Canarsie, East Flatbush, Flatlands, Sheepshead Bay, Brighton Beach, Gravesend, Bath Beach, Bensonhurst, Dyker Heights, and Bay Ridge in the south). Downtown Brooklyn allows for the greatest residential density, with an allowable FAR of up to 10. Some waterfront areas, select corridors along Fulton Street and Atlantic Avenue, as well as northeastern blocks adjacent to Prospect Park allow up to 6 residential FAR. Most neighborhoods concentrated in the northern half and outer borough commercial corridors, allow FAR densities of up to 4 FAR (Bushwick, Williamsburg, Flatbush, Crown Heights, Brownsville, Brooklyn Heights, Cobble Hill, Borough Park, and Coney Island).

#### Zoning Changes (p. x)

Most zoning map amendments adopted during the past seven years sought to facilitate new affordable housing and mixed use. CD 6 (Gowanus) and CDs 5 and 16 (East New York) saw large neighborhood-scale rezonings aligned with these goals

during the de Blasio administration. Additionally, the City has approved 85 smaller private rezonings to support increased development in Brooklyn since 2014.

During the Bloomberg administration (2002-2014) neighborhood rezonings generally limited residential density to preserve neighborhood character and discourage out-of-scale development. These rezonings generally occurred in central Brooklyn and the borough's southern half (Flatbush, Midwood, Bensonhurst, Dyker Heights, Bay Ridge, Fort Hamilton, Canarsie, Park Slope, Sunset Park, Carroll Gardens, Fort Greene, and Bedford Stuyvesant). 19 A notable exception is the 2005 Greenpoint/Williamsburg rezoning which has enabled significant multi-family development along the North Brooklyn waterfront.

#### Historic and Individual Landmarks (p. x)

The New York City Landmarks Preservation Commission (LPC) designates individual buildings and districts with historical significance as NYC landmarks. Alterations, demolitions, and new buildings in historic districts require LPC review and approval. Most of Brooklyn's historic districts are located in CDs 2 (Brooklyn Heights), 3 (Bedford-Stuyvesant), 6 (Park Slope) and 8 (Crown Heights) while individual landmarks are found across the borough. Neighborhoods such as Borough Park (CD 12), East Flatbush (CD 17), and Canarsie (in the northeast portion of CD 18) have relatively few individual landmarks and historic districts.

#### **Transit Zones (p. x)**

Adopted in 2016 and mapped within the ZR, Transit Zones delineate areas near public transportation where affordable and/or senior housing developments are exempt from parking requirements. While Transit Zones cover much of the borough they exclude large areas of southeastern and southwestern Brooklyn (notably CDs 10 and 18) where residents lack proximity to subway lines.

#### **Business and Industrial Areas (p. x)**

Much of Brooklyn's industrial land is concentrated along the New York Harbor, and East River, and in northern Brooklyn along Newtown Creek. These swaths, which are primarily zoned M2 and M3, also fall within Significant Maritime and Industrial Areas (SMIAs), designated in 1992 to protect and encourage the city's working waterfront.

As discussed previously, Industrial Business Zones (IBZs) were created in 2005 to protect the city's manufacturing sector. Brooklyn's IBZs cover the Brooklyn Navy Yard, and parts of East New York, Flatlands, North Brooklyn, and Southwest Brooklyn.

Business Improvement Districts (BIDs) are public-private partnerships overseen by the City and run by boards of local property owners, merchants, and elected officials. They support retail corridors with maintenance, marketing, and advocacy efforts. Brooklyn's BIDs are scattered throughout the borough's commercial areas.

#### FRESH Zones (p. x)

The Food Retail Expansion to Support Health (FRESH) program was created in 2009 to bring healthy, affordable foods to underserved neighborhoods. FRESH Zones offer incentives to create and maintain grocery stores "food deserts" where residents lack sufficient access to fresh meats, fruits, and vegetables. Much of Brooklyn is eligible for either the discretionary tax incentive FRESH Zone programs or zoning incentives offering greater development capacity in exchange for including a grocery store. However, the City has targeted Borough Park/Bensonhurst, Brownsville, Coney Island, and Flatbush as FRESH focus areas.

#### Improvement Land Value Ratios (p. x)

Lots in northern Brooklyn and Sunset Park tend to have high improvement value ratios, meaning that buildings built on these lots are worth 12 to 100 times as much as the underlying land. In southern Brooklyn, improvement ratios for small sites are generally lower, especially in East Flatbush. Large lots throughout the borough often have improvement ratios between 6 and 12. As long as zoning allows, new development is more likely to occur in parcels with lower improvement ratios.

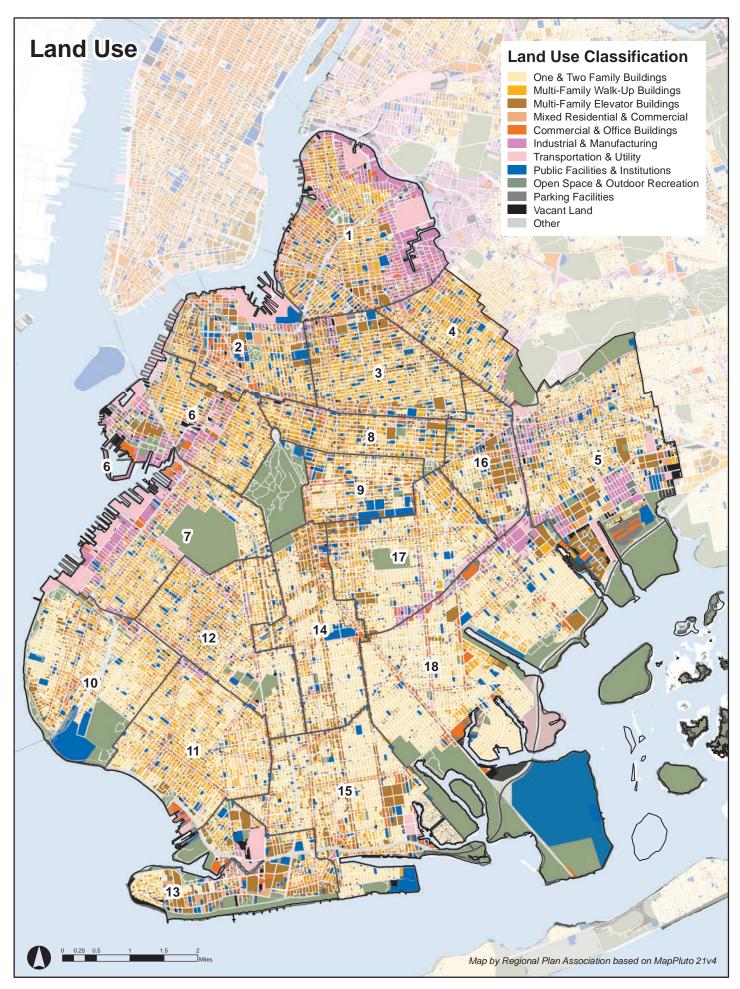
#### New Buildings since 2010 (p. x)

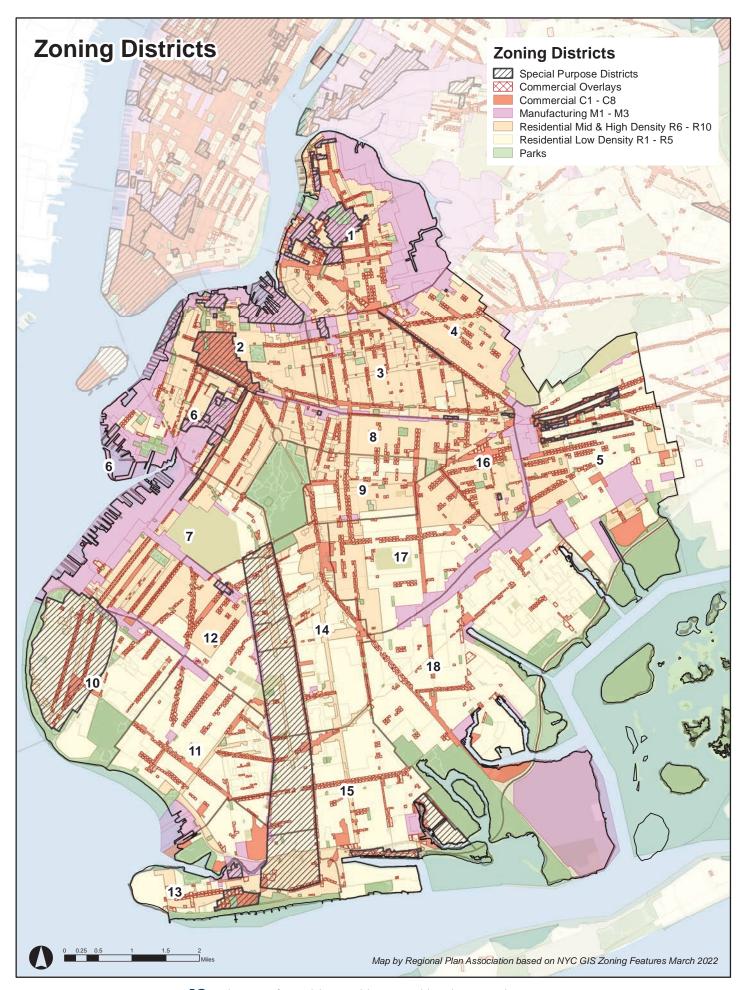
Areas north of Prospect Park (CDs 1, 2, 3, and 4) have had the most development since 2010. Other key developments include hundreds of affordable units in Spring Creek (CD 5), and sporadic multi-family construction in parts of southern Brooklyn (Flatbush, Borough Park and Gravesend). In some cases, large scale developments were facilitated by the disposition of cityowned land.

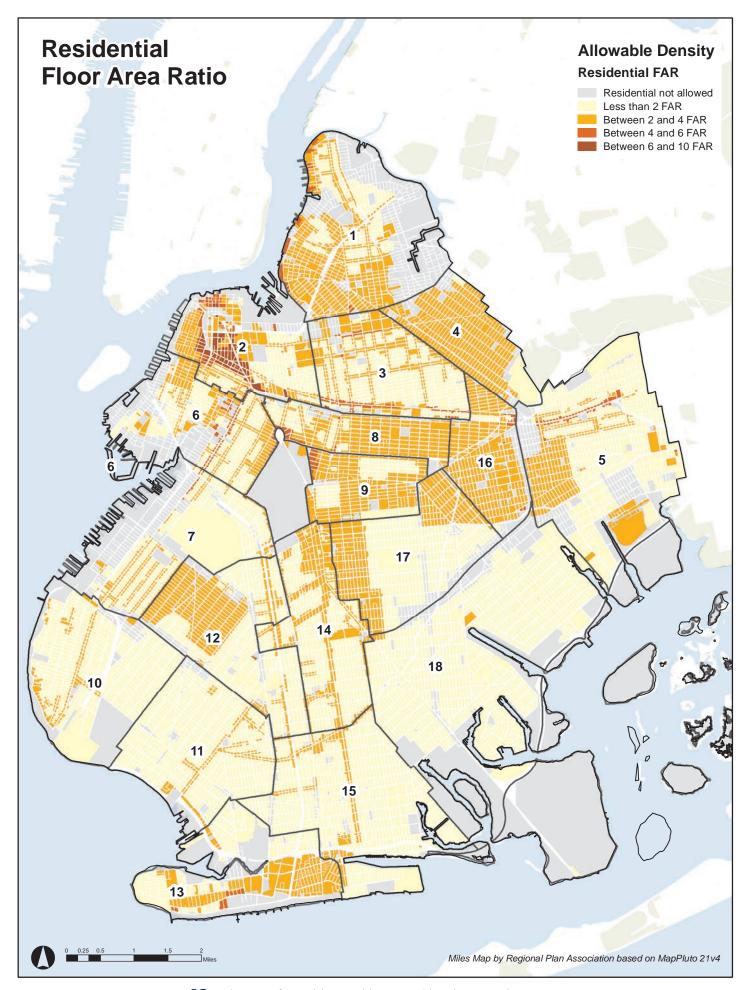
#### Alterations since 2010 (p. x)

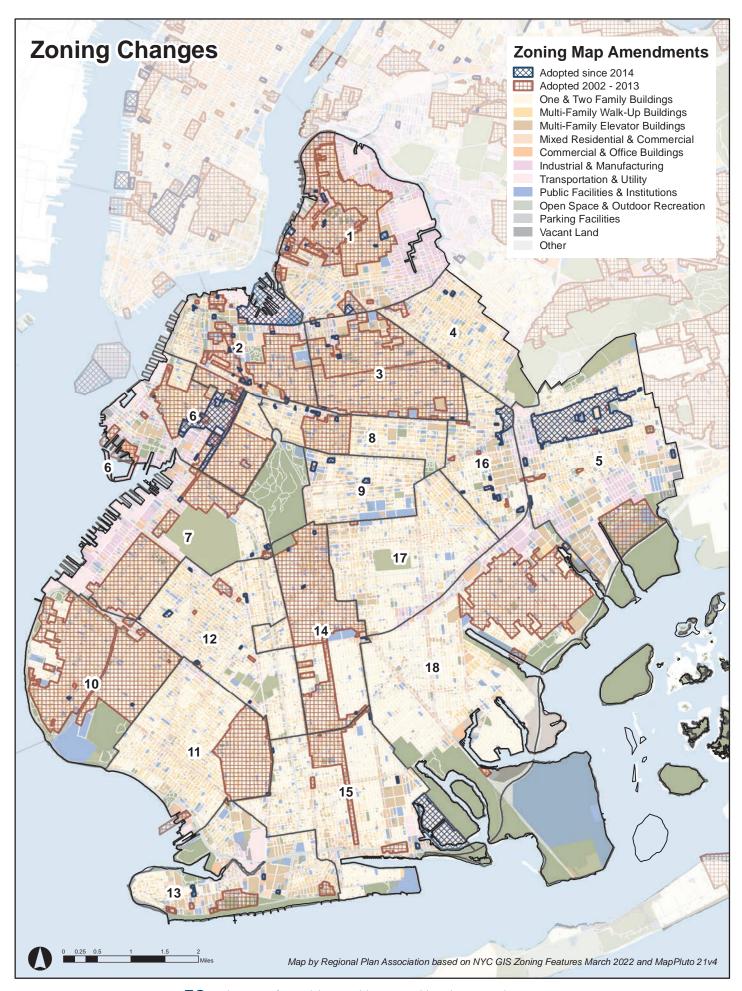
Building alterations since 2010 have been heavily concentrated in Bushwick, Bedford-Stuyvesant, Greenpoint-Williamsburg, Prospect-Lefferts Gardens, Flatbush, and around the 8th Avenue N-train stop in Sunset Park. CD 10 (Bay Ridge) has also seen a significant number of alterations since 2010.

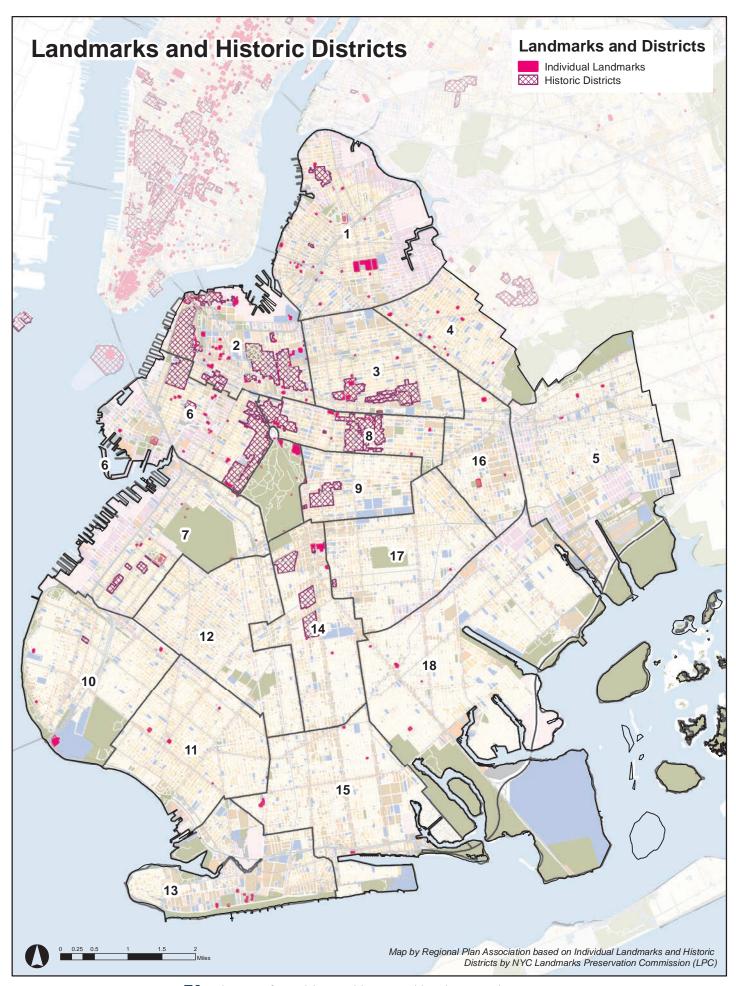
<sup>19</sup> Golberg, Leo. Game of Zones: Neighborhood Rezonings and Uneven Urban Growth in Bloomberg's New York City (June 2015)

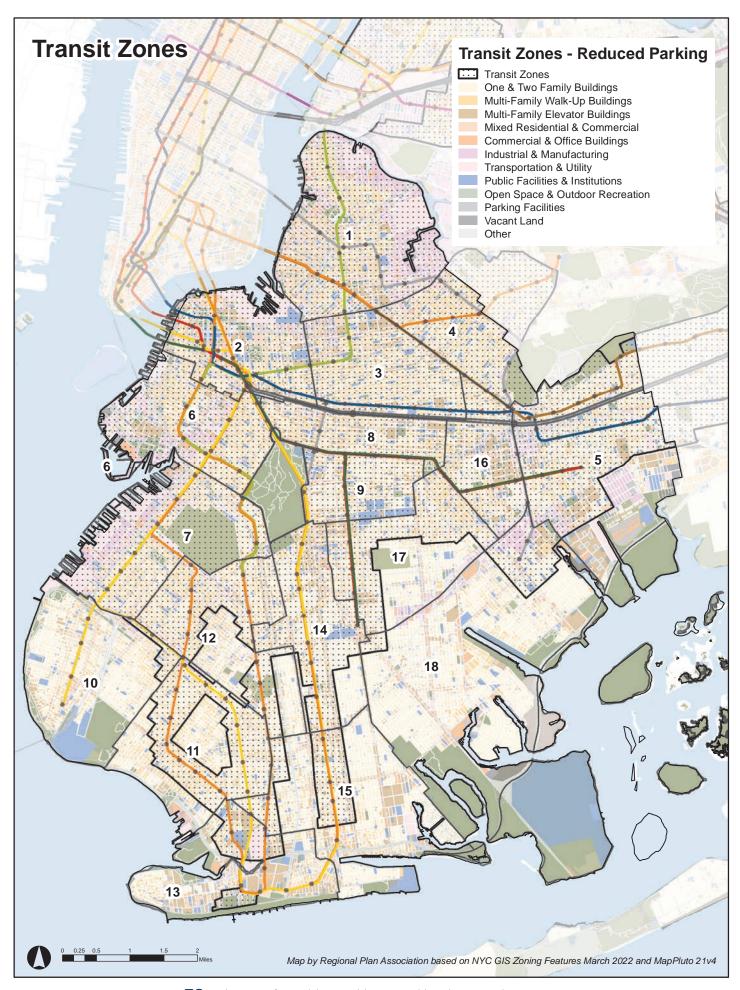


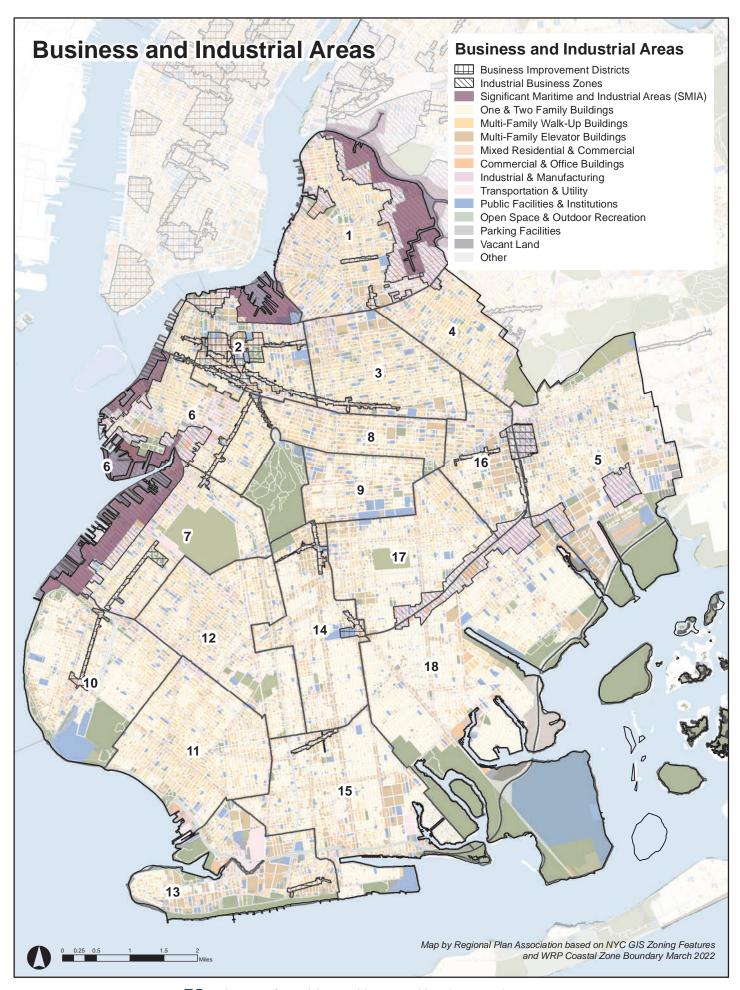


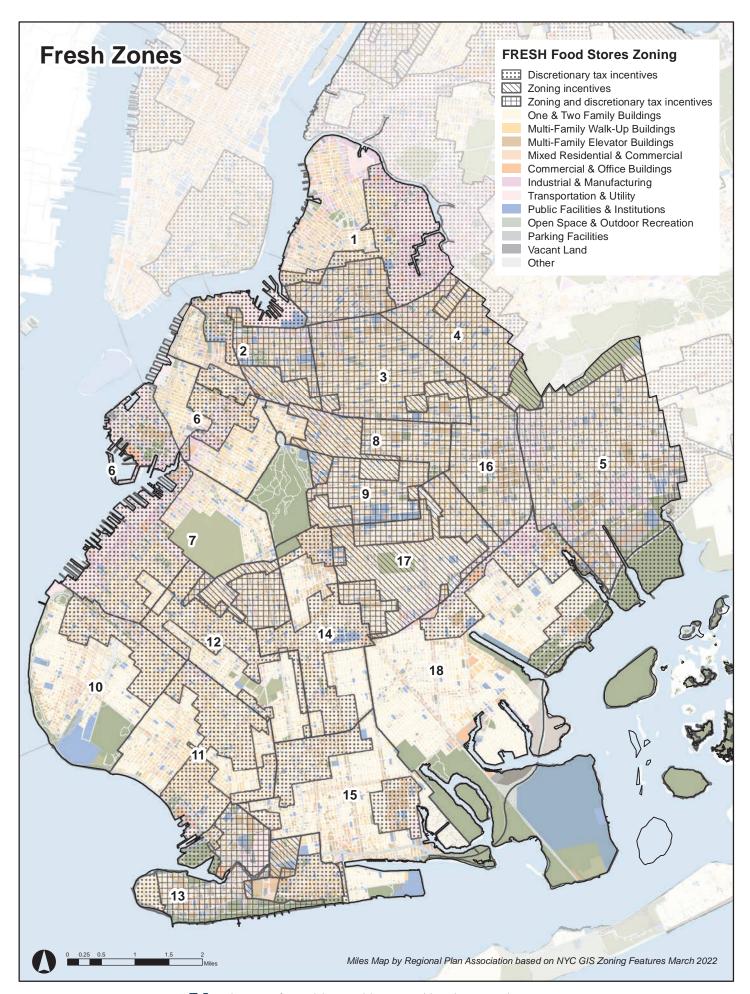


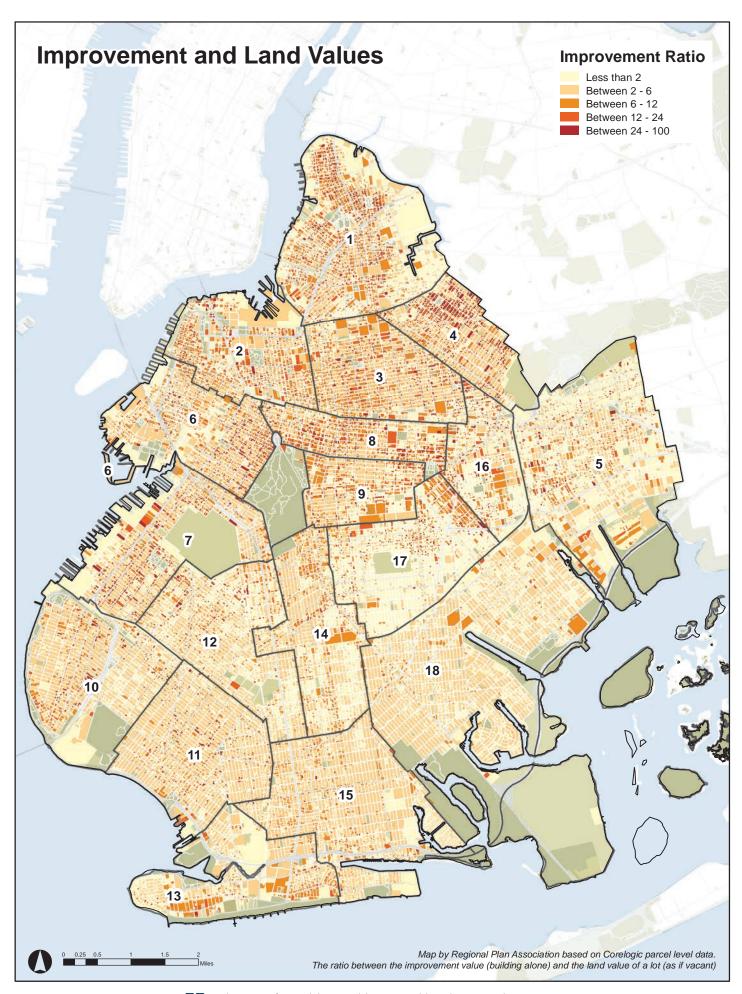


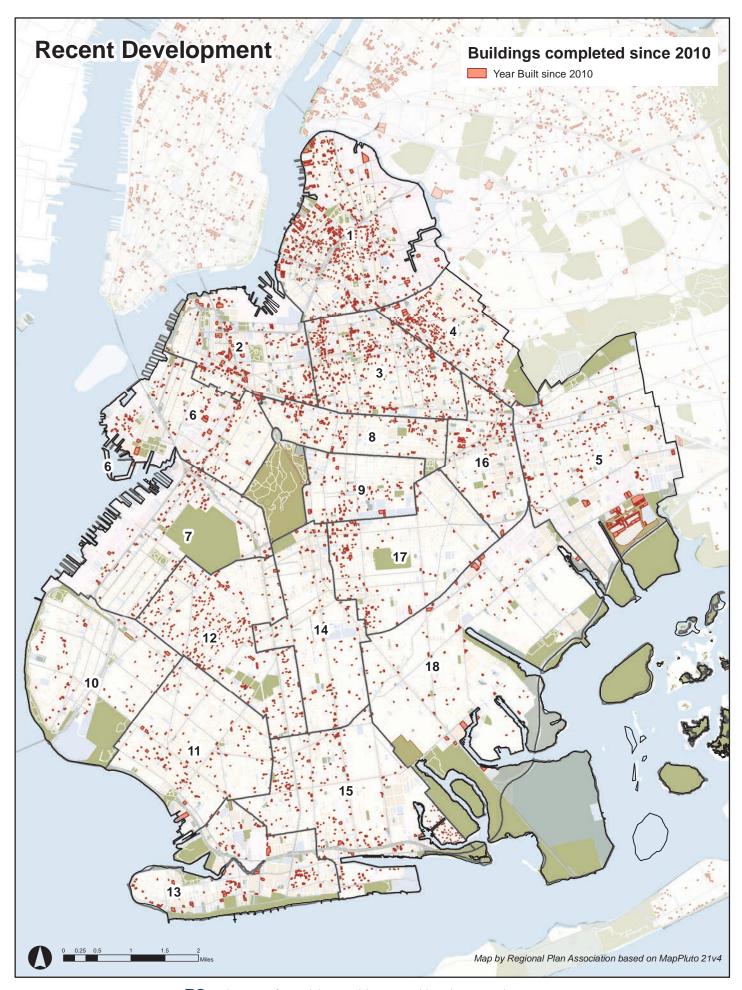


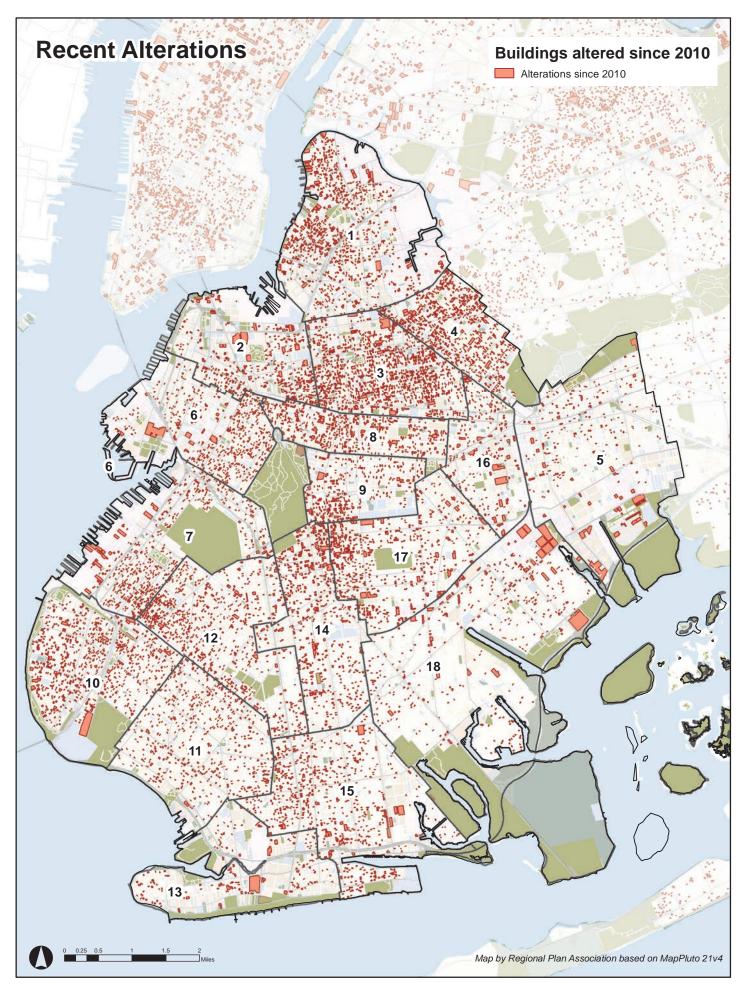












## Housing

As discussed in the introduction ("Focus on Housing and Health"), the connection between access to safe, affordable, and quality housing and public health cannot be overstated.

Housing conditions can adversely affect physical health by exposing residents to hazards. Housing can also affect financial health by limiting the amount of income that can be spent on other basic necessities-including healthcare-or, conversely, by increasing property owners' wealth over the long-term.

As the most populous borough, Brooklyn also contains 30% of the City's housing stock, from single-family brownstones to high-rise apartment buildings. Its explosive growth has disproportionately benefited property owners, who saw a 40% increase in home values. Rents, however, have spiked by 37.5%, leading to a persistent shortage of affordable housing. Overall, 50% of Brooklyn renters and 36.6% of its homeowners are burdened by housing costs.

There are approximately one million housing units in the borough. A typical residence has an average floor area of 1,000 sq ft per unit. Together these residences comprise over one billion square feet of floor area. Roughly half of these units are located in multi-family buildings (totaling 464 million sq ft), 35% are classified as attached single-family homes (443 million sq ft), and the remaining 15% are detached single-family residences on larger lots (representing 179 million sq ft).

The northern half of the borough has the vast majority of multifamily buildings and has seen the bulk of new development, including income-restricted and market-rate housing. Between 2010 and 2020 neighborhoods in north and central Brooklyn saw large increases in the total number of residences, in some cases adding hundreds of units per census tract (ranging between 120 and over 740). Some of these gains can be attributed to policies that facilitated multi-family residential development, such as the 2005 Greenpoint/Williamsburg rezoning. In other neighborhoods such as Bushwick, zoning allows for relatively large new buildings to be constructed without any discretionary changes.

Over the same period, Park Slope, Carroll Gardens, and Brooklyn Heights saw the largest declines in their housing supply, in some cases losing as many as over 100 units per census tract.

#### **Housing Units over Time:** change 2010 - 2020 (p. x)

Between 2010 and 2020, northern and central Brooklyn gained the most housing units, in some instances gaining between 120 and 740 units by census tract. Wealthier areas just south of Manhattan and immediately west of Prospect Park reported housing unit loss, likely due to consolidations of 2- and 3-family residences into single-family homes, and in some cases due to Historic Districts regulations. Scattered areas along southbound subway lines (south from Prospect Park and Greenwood Cemetery) gained modest amounts of housing units. Most of the borough's southern half remained stable during that time.

#### **Income-restricted Housing & Zoning (p. x)**

The City supports private developers in creating incomerestricted housing by providing subsidies, tax exemptions, density bonuses, or some combination of these incentives. For example, developers may construct 100% income-restricted housing using City subsidies. Before 2016, the City designated some neighborhoods such as Greenpoint/Williamsburg as Voluntary Inclusionary Housing (VIH) areas, where developers could choose to build more density in exchange for providing a percentage of income-restricted units. In 2016, the City adopted the Mandatory Inclusionary Housing (MIH) program, which requires any developer that receives a rezoning for more density (or is building in a neighborhood that was rezoned post-2016) to provide a percentage of income-restricted housing. The State's 421-a tax exemption sunset this year, but previously provided a tax exemption in exchange for creation of new income-restricted housing.

Additionally, the City may provide subsidy and/or tax exemption for property owners to maintain income-restricted rents in existing buildings (commonly referred to as "preservation" though notably different from historic preservation, described above).

Income-restricted housing-both new construction and preservation-has been almost entirely concentrated in the northern and eastern parts of Brooklyn. With the exception of Coney Island, some new construction in Flatbush, and limited preservation in Sunset Park Much of southern Brooklyn has not seen any affordable housing. Inclusionary Zoning areas are yet to yield significant amounts of affordable units.

#### **Income-restricted Housing Units (p. x)**

"Housing New York" was the name of the City's affordable housing plan under Mayor de Blasio (so "Housing New York" refers to income-restricted housing). As described above, spatial distribution of City-sponsored income-restricted housing has been uneven, largely concentrated in the northern and eastern parts of Brooklyn. Individual building sizes (based on the number of units produced) have similar variability. The northern and eastern parts of the borough have produced new buildings with hundreds of affordable units, while developments in other parts of the borough have produced much smaller buildings.

#### Conversions from single into two-family (p. x)

Conversions from single-family to two-family homes have been common in New York throughout its history, with most taking place in the 1980s and 90s. The highest concentration of such conversions is found in CD 3 (Bedford-Stuyvesant) with others clustered in the western and northern edges of Prospect Park. Most notable is CD 11 (Bensonhurst and Bath Beach), where conversions have been uniquely concentrated, contrasting with most of southern Brooklyn's more dispersed conversion pattern.

#### Overcrowded Households (p. x)

Borough Park and Sunset Park have the highest number of overcrowded households-meaning more occupants than roomsfollowed by South Williamsburg, East New York, Bensonhurst, and Coney Island.

#### Rent Burden (p. x)

Rent burden (defined as rent costing 30% or more of household income) is pervasive in Brooklyn. Only eight scattered census tracts report less than 21% of the population experiencing rent burden. Borough Park, East New York, Brownsville, Crown Heights, Coney Island, and South Williamsburg have the deepest concentrations of rent burdened households in the borough.

#### Owner Burden (appendix)

Borough Park, Sunset Park, Williamsburg, Bensonhurst, Crown Heights, East Flatbush, and East New York have high concentrations of cost-burdened homeowners who pay more than 50% of their income toward a mortgage. While the implications are different than for renters, who can face eviction for non-payment, missing one or two mortgage payments can put an owner at risk of foreclosure.

The most stable home owning neighborhoods are Downtown Brooklyn, Brooklyn Heights, Red Hook, Park Slope, Prospect Heights, Flatbush, and pockets in Crown Heights and East New York, adjacent to Queens.

#### **Rent Stabilized Units (p. x)**

Rent stabilized units—generally found in buildings of six units or more built before 1973—make up the highest share of rental apartments in eastern Brooklyn neighborhoods. On the other hand, Crown Heights, Prospect Lefferts Gardens, and Prospect Park South have the lowest proportion of rent-stabilized units in the borough.

#### **Income-Restricted and Public Housing (p. x)**

Another type of income-restricted housing is Public Housing, administered by the New York City Housing Authority (NYCHA). This map includes both NYCHA units and incomerestricted units.

These are largely concentrated in the northern quadrant of Brooklyn, particularly within areas connected to Manhattan by the subway. The eastern Brooklyn neighborhood of Starrett City represents an area among those with the highest concentration of income-restricted units citywide: over 53% of all housing units are income-restricted. Coney Island and Brownsville also have high concentrations of income-restricted housing, at between 31% and 54% of units.

#### NYCHA (p. x)

New York City Housing Authority (NYCHA) public housing developments are primarily concentrated in Brooklyn's northern half, with a few campuses in southern Brooklyn. Five community districts, all in the southwestern part of the borough, have no public housing at all.

#### Shelters (p. x)

Group quarters, which are mainly but not exclusively emergency homeless shelters, are generally spread throughout the borough but are particularly prevalent near Bushwick Avenue in CD 4.

#### **Non-Institutionalized Group** Quarters (appendix)

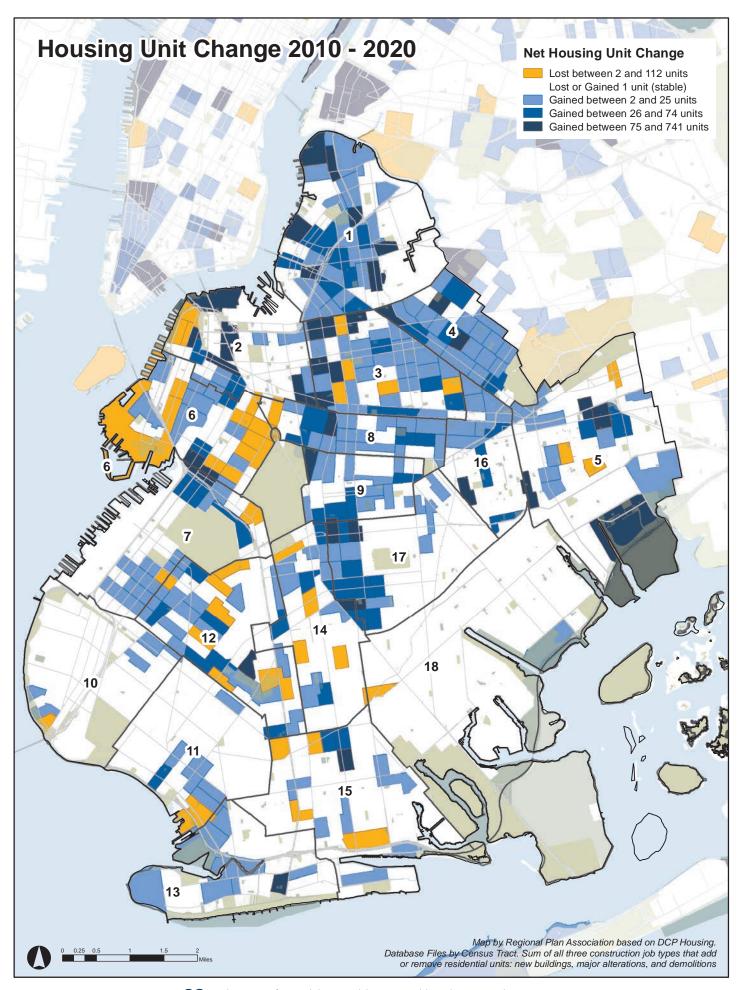
Non-Institutionalized group quarters may include emergency homeless shelters, college housing, and military barracks. This map showing an estimate of the homeless shelter population excludes persons living in college housing and military barracks. Ocean/Hill Brownsville has the largest proportion of residents living in congregate shelters, with other significant groupings in the Bushwick, Bedford-Stuyvesant, Crown Heights, and sizeable scattered in Midwood, East Flatbush, and Flatlands as well as Sunset Park; and Coney Island.

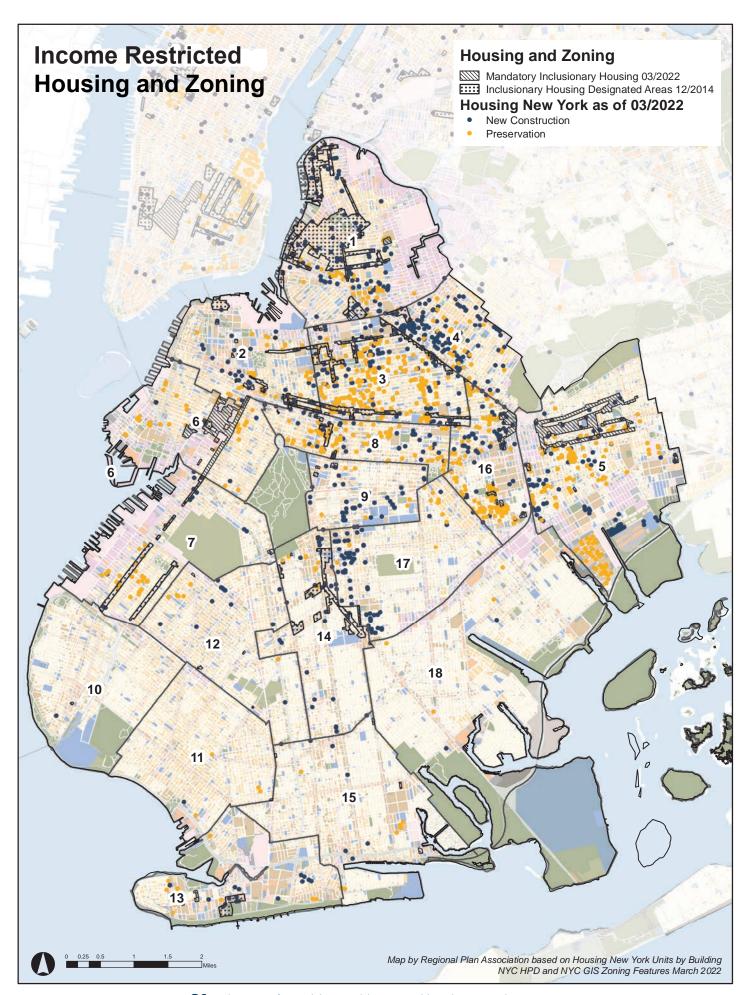
#### **Market Pressure (p. x)**

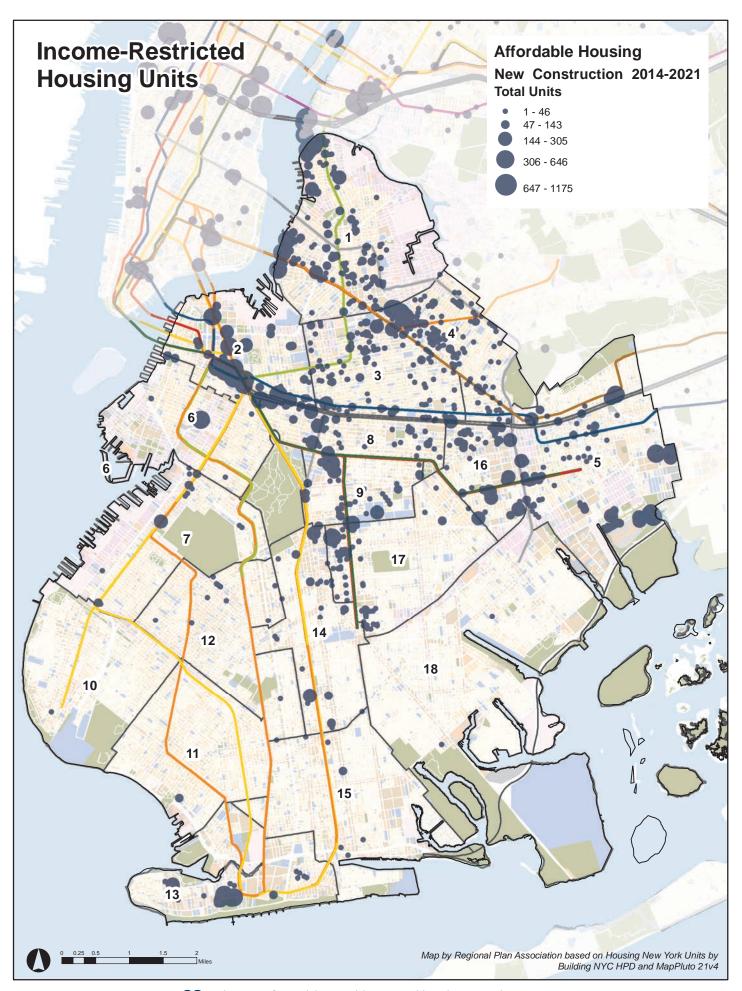
Market pressure is found in neighborhoods where changes related to median gross rents, housing price appreciation, and demographic composition over the last decade have accelerated. Market pressure is strongest in areas of the borough that are connected to Manhattan via bridges, tunnels, and highways. In Brooklyn neighborhoods south of Prospect Park's northern edge, market pressure is most prevalent along subway lines.

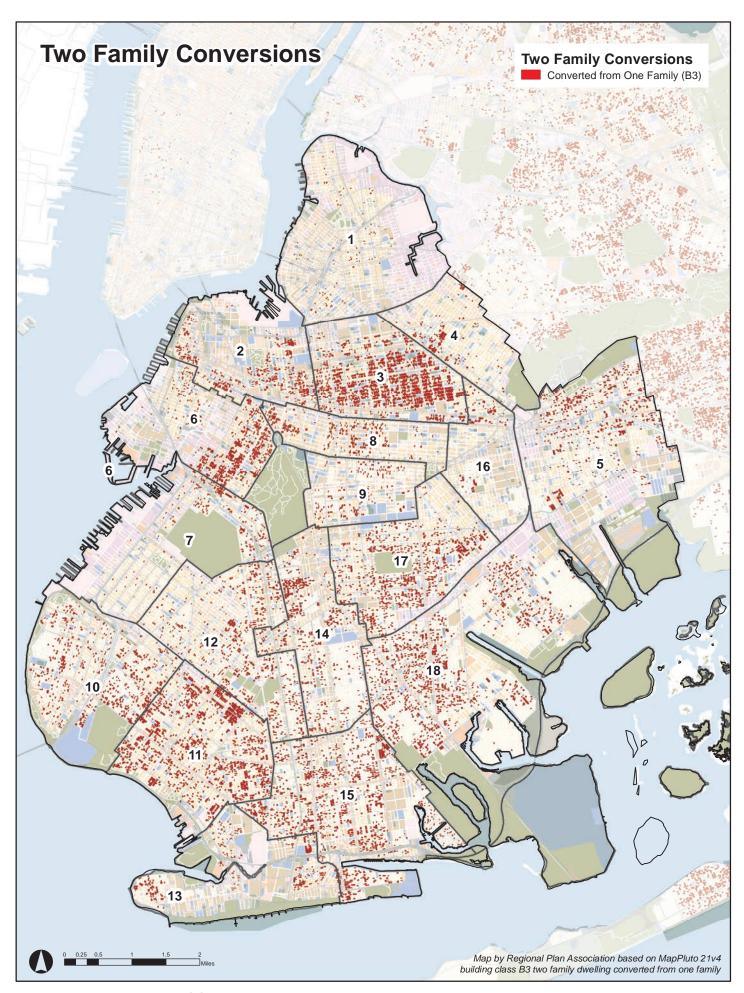
#### Displacement Risk (p. x)

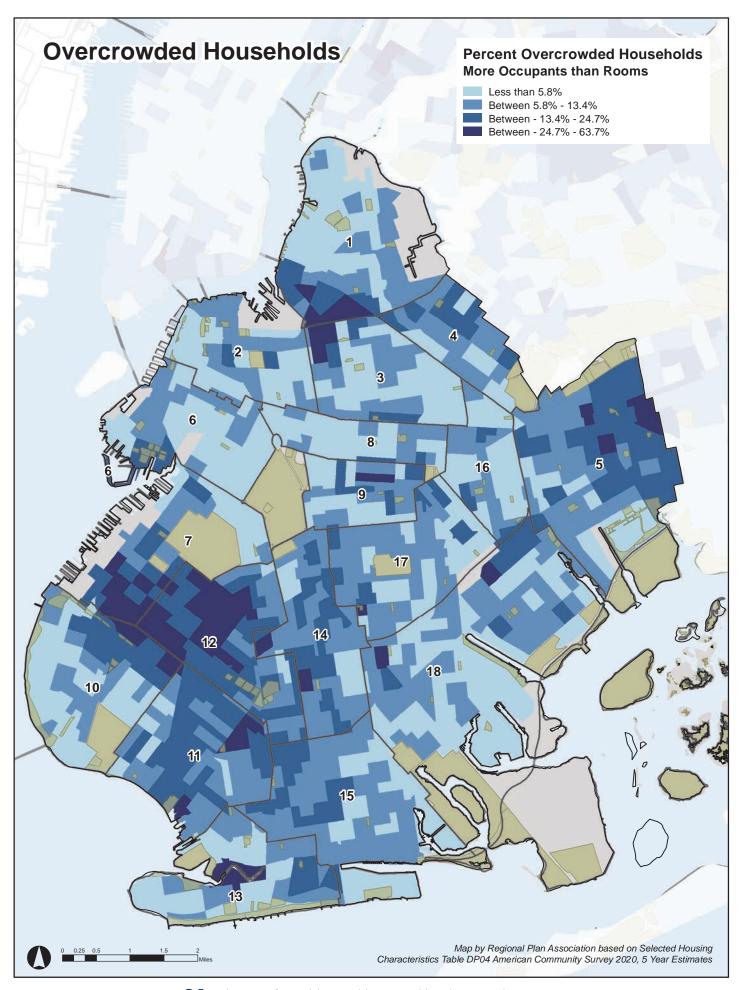
Displacement risk refers to residents' inability to remain in their neighborhoods due to housing/real estate conditions and socioeconomic pressures. Higher and lower-risk areas are found across all community districts. However, displacement risk is highest in CDs 4, 5, 7, 9, 11, and 14, affecting neighborhoods immediately south of Prospect Park, as well as in Bensonhurst and northern Bushwick.

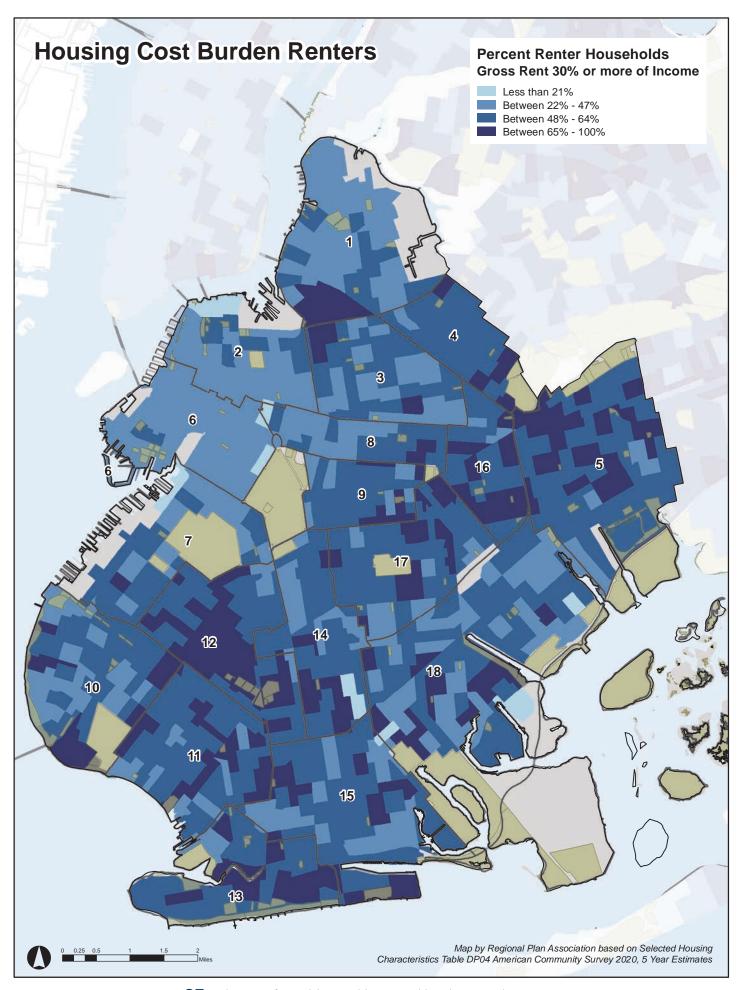


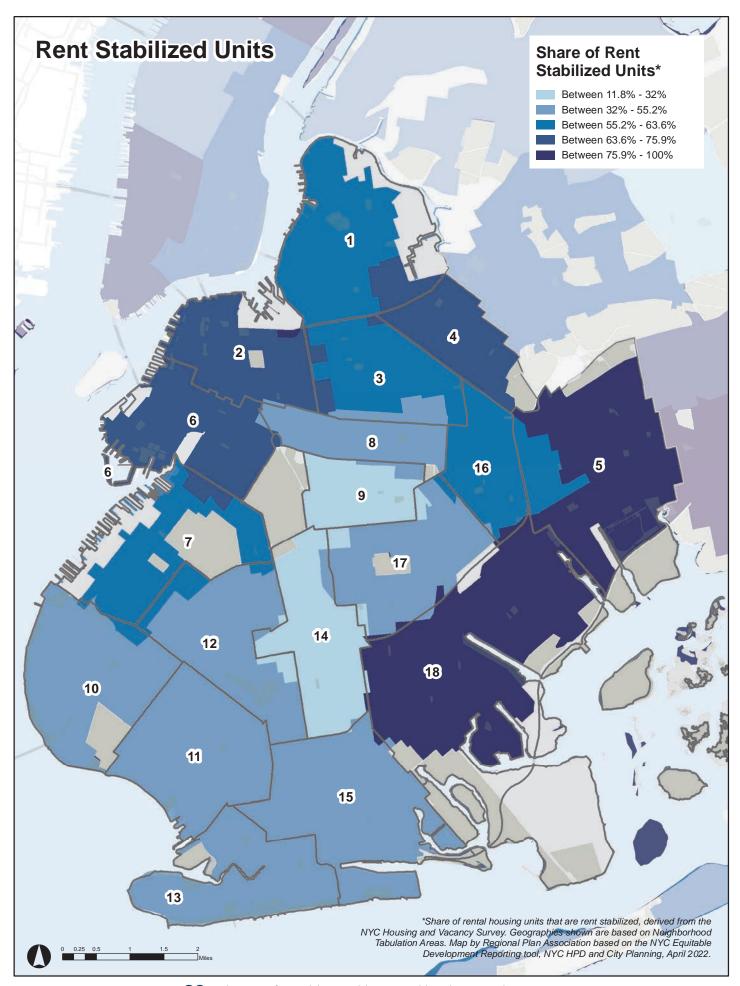


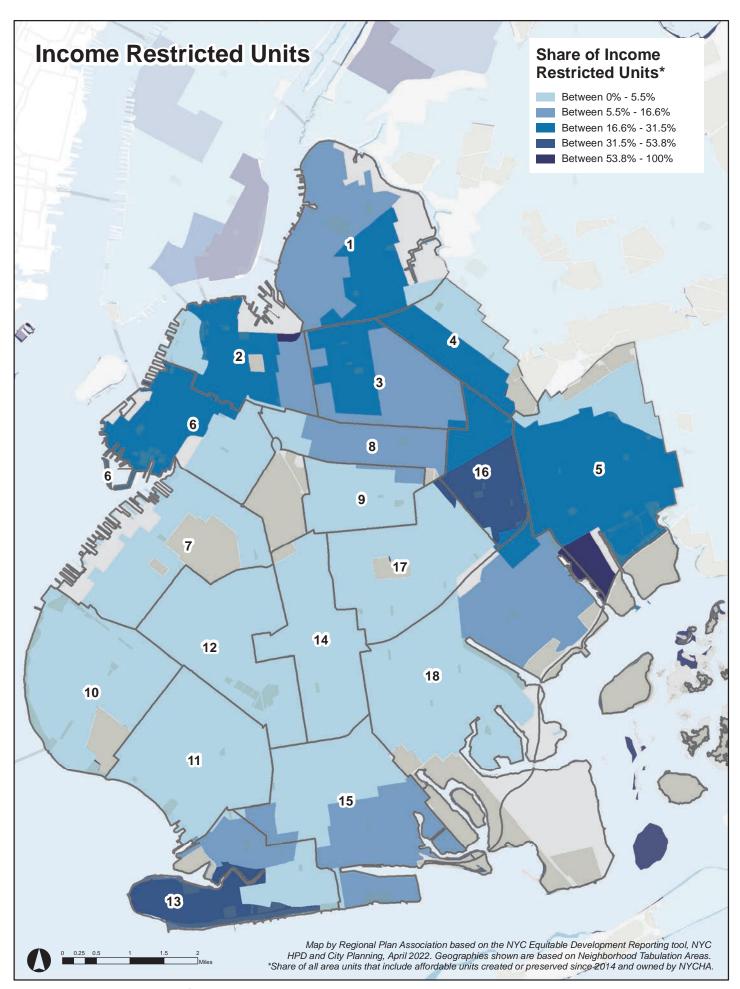


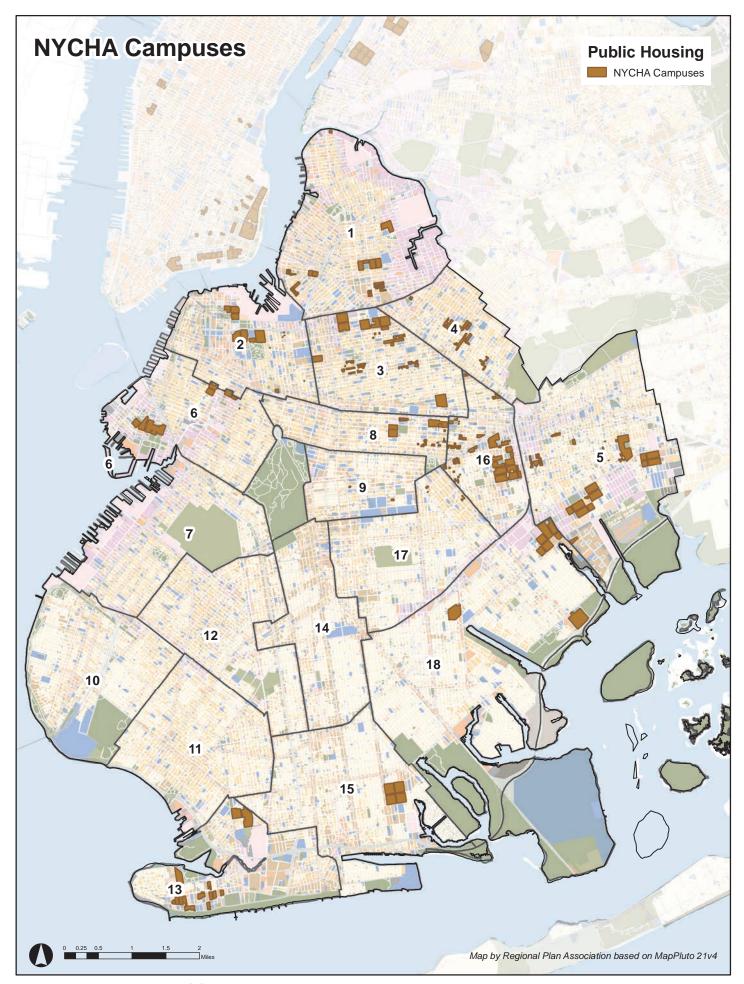


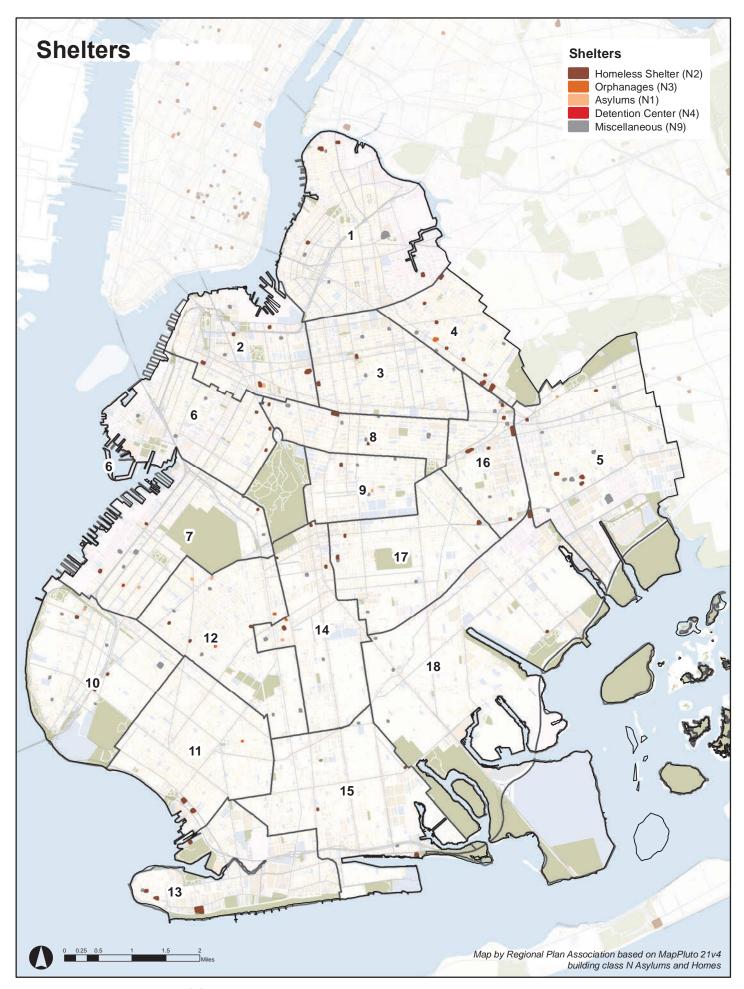


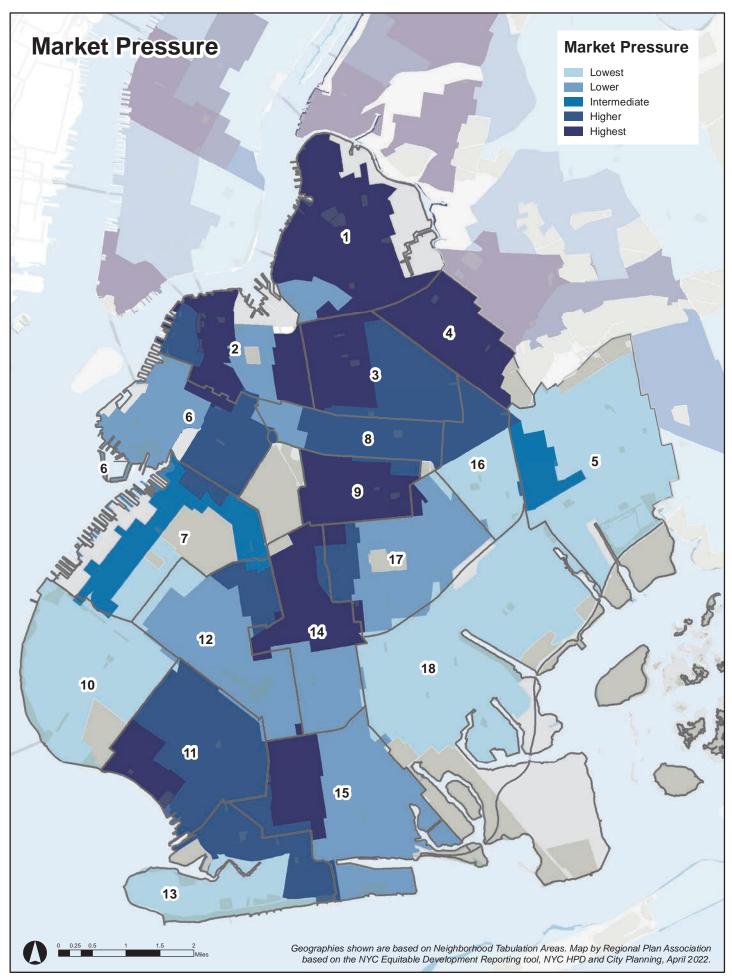


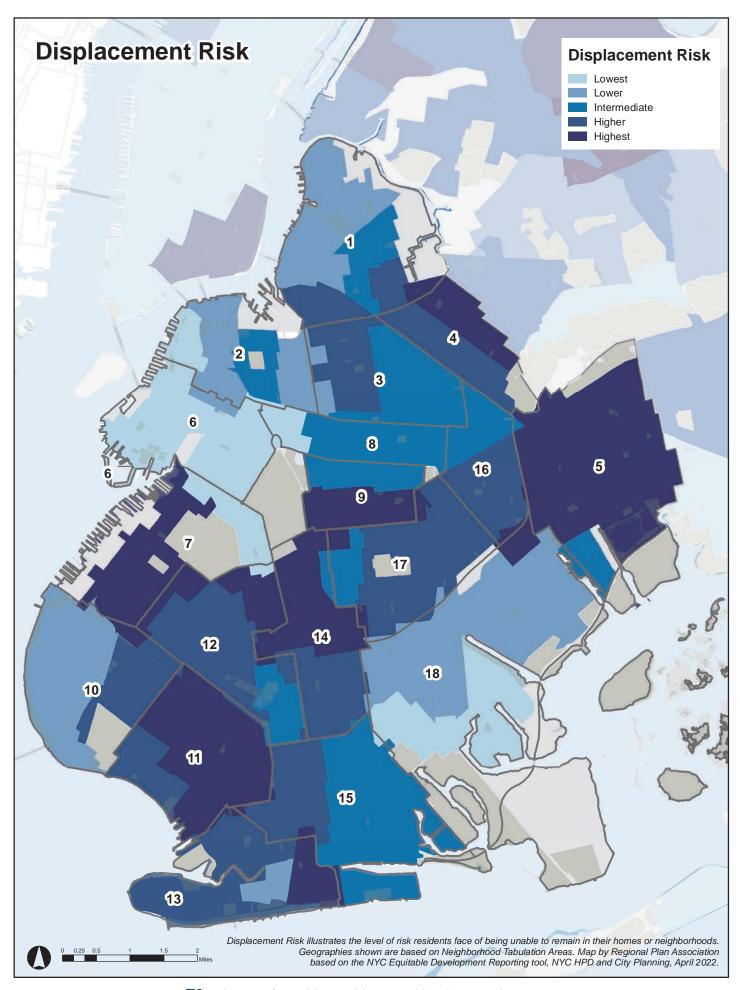












# Transportation and Utilities

Brooklyn is served by a vast transportation network that includes subways, commuter rail, buses, ferries, roads, and bike lanes, as well as municipal facilities such as sewers, and wastewater treatment plants.

However, transit infrastructure is not evenly distributed; for example, 358 out of 542 subway station pedestrian entrances are concentrated in the borough's northern half. As a result, households in southern Brooklyn tend to have higher levels of automobile use and ownership. Accordingly, those neighborhoods report more frequent and deadly collisions involving pedestrians.

#### **Transit Network (p. x)**

Brooklyn north of Prospect Park has rich and robust transit options, including subways, buses, and ferries. Buses serve much of central and south-central Brooklyn, but service tapers off moving east or west. Much of Brooklyn's southeast is underserved by transit, with no subway or ferry service and limited bus service. However, even in places that are served by transit service, many stations are not fully accessible. Only 23 out of 170 subway stations in Brooklyn have full ADA access.<sup>20</sup>

#### Transit and Land Use (p. x)

Many neighborhoods in the borough have walking accessibility to subway stations. Downtown Brooklyn where most subway and bus lines serving the borough intersect, provides the best access to transit. However, the eastern and especially southeastern parts of the borough are not easily accessible by subway and are sometimes referred to as "transit deserts." These neighborhoods encompass many single- and two-family residential areas, numerous public facilities, and scattered commercial/office areas.

#### Subways (p. x)

Subway lines primarily stem from Manhattan and extend directly southbound and eastbound. Much of Brooklyn's southeastern quadrant lacks accessibility to the city's subway infrastructure. The same area also lacks commuter rail (Long Island Railroad) and ferry service.

#### **Interborough Express IBX (appendix)**

The Interborough Express (IBX) is a current proposal led by the Metropolitan Transportation Authority (MTA) to connect southern Brooklyn and Queens utilizing an existing freight rail line. This new connection would vastly improve transit access options for residents of southern and eastern Brooklyn who by and large, lack access to subways. Potential stops could connect not only residential neighborhoods but areas with commercial offices, industrial businesses, and public facilities.

The IBX would also bridge the nature of the Manhattan-oriented subway lines in the borough, giving residents, workers, and visitors the opportunity to move east-west within the borough and connect to Central Queens.

#### Bus and Ferry (p. x)

Bus lines expand the transit network serving the borough but are less accessible below Prospect Park. Ferries currently serve the eastern coast of Brooklyn along the East River and Upper Bay. Notably, southwestern Brooklyn is largely cut off from ferry service and has limited bus service, leaving it heavily dependent on cars.

#### **Bicycle Network (p. x)**

According to the American Community Survey (ACS), more than 22,000 Brooklynites used bicycles for regular commuting in 2021. Thousands more ride bicycles regularly for recreation and exercise. The most robust bike infrastructure exists in the areas nearest to Manhattan, as well as southwestern Bay Ridge. Much of southern, central, and eastern Brooklyn lacks adequate bike infrastructure.

Conventional bike lanes (unprotected) are often co-located with arterial roads. Places with more bike lanes, like Crown Heights and Bushwick, tend to have safer roadway conditions for cyclists and pedestrians.

#### Bicycle Usage (p. x)

Bike usage correlates positively with the presence of bike infrastructure. Areas where residents use bicycles regularly tend to have more demand for bike infrastructure, while adequate provision of protected bike lanes and docks tends to promote bicycle usage.

<sup>20</sup> New York City Council: Increasing Accessibility (Sept 2019)

### Road Network (p. x)

Brooklyn's highways run primarily along its shoreline, forming a network along the periphery of the borough. Arterial roads connect the central part of the borough with the periphery carrying heavier vehicle traffic and trucks.

### Vehicle Miles (p. x)

Areas of southern Brooklyn, which have very limited subway access, have the greatest number of vehicle miles traveled. On a weekday basis, households in the southern half of the borough can drive between 25 and 68 miles every day.

### Reported Driving (p. x)

Areas of southern and southeastern Brooklyn have reported the greatest share of residents driving. This correlates with neighborhoods where households have traveled vehicle miles, indicating generalized car dependency and lack of transit service.

### Pedestrians Injured/Killed (p. x)

Borough Park, East Flatbush, and the northwest corner of Brooklyn have the least number of pedestrian fatalities. Generally, the frequency of crashes correlates to areas with high automobile usage and truck traffic.

### Cyclists Injured/Killed (p. x)

Cyclist fatalities from motor collisions tend to be highest where there are bike lanes in Brooklyn, likely because these lanes tend to be intermingled with arterial roads carrying more and faster traffic, including trucks. However, areas with bicycle infrastructure report lower numbers of non-fatal cyclist injuries from motor vehicle collisions compared to areas where no bike infrastructure exists.

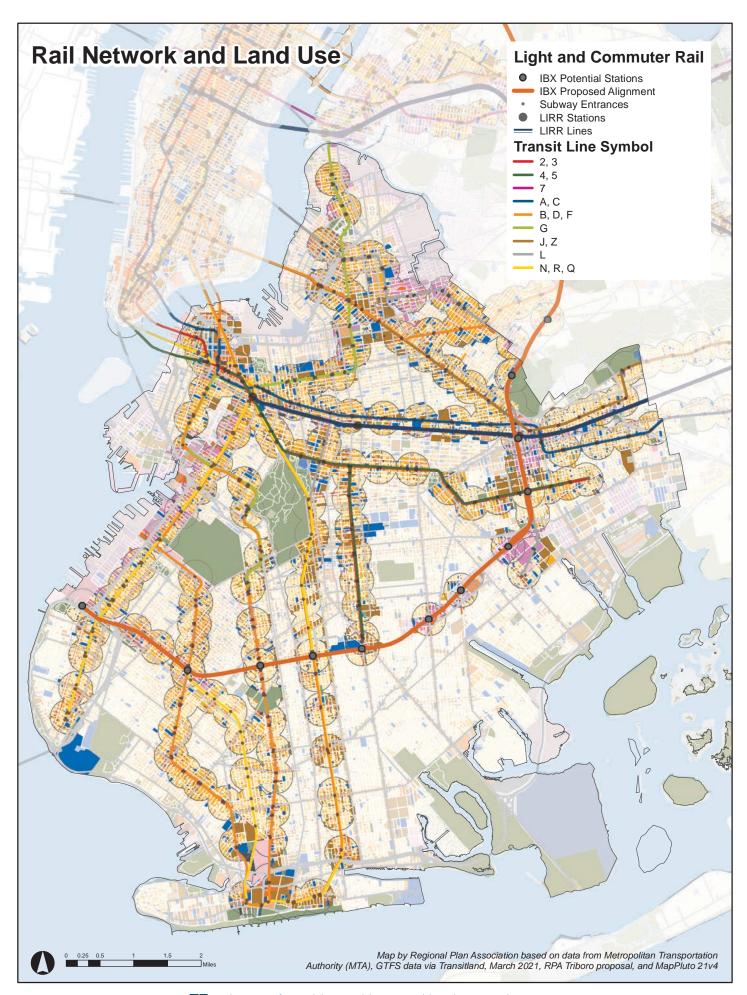
### **Broadband Adoption (p. x)**

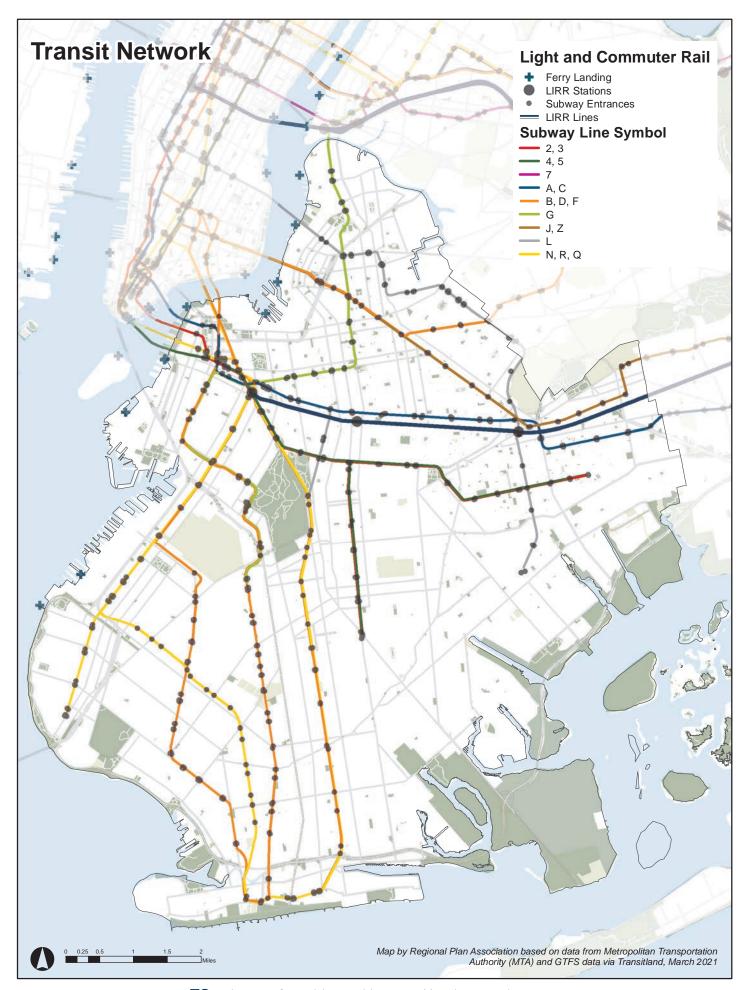
Broadband adoption correlates heavily with high-income areas and is strongest in the northwestern section of the borough. One outlier is South Williamsburg, where less than 24% of households have broadband access

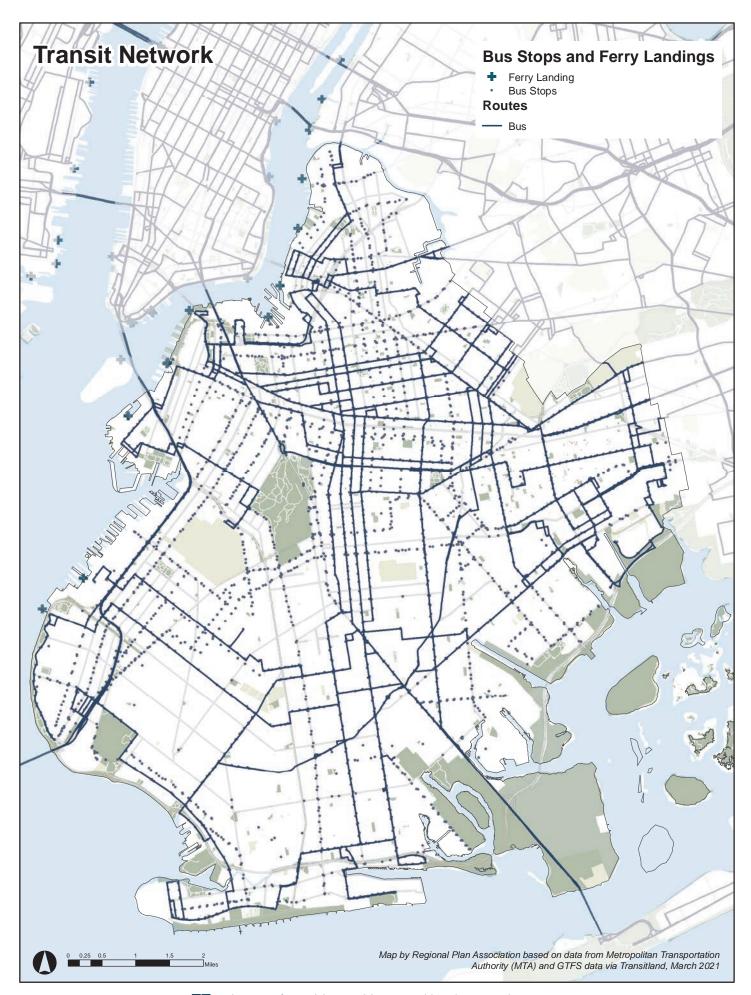
### Waste Water Infrastructure (p. x)

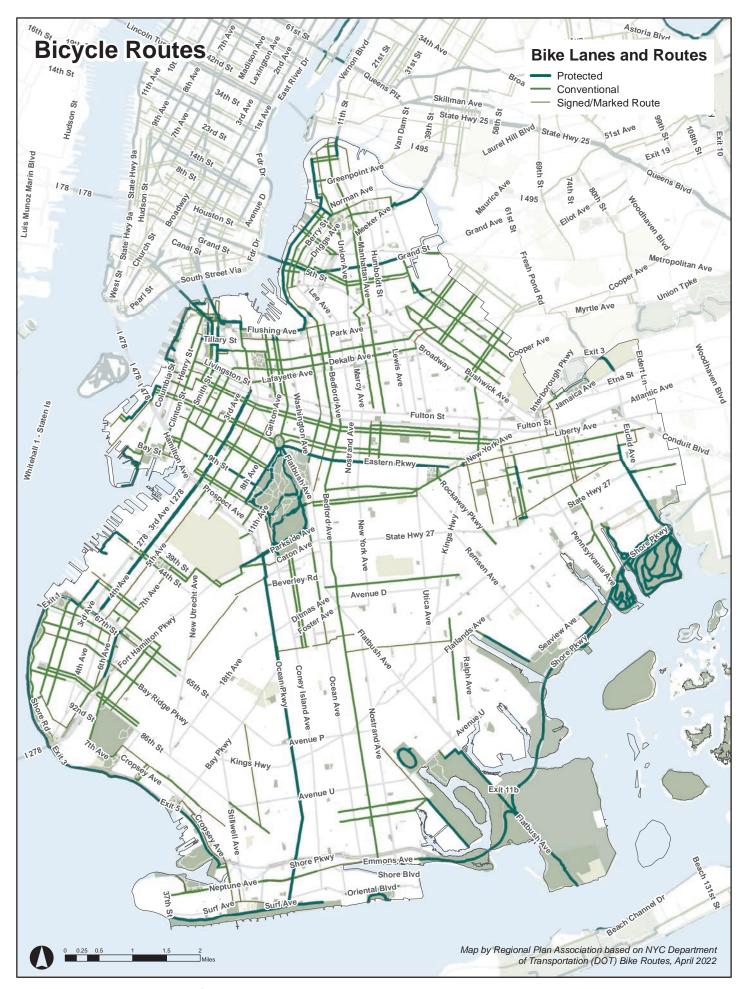
Brooklyn's water infrastructure includes five sewer sheds, each with its own waste treatment processing plant. Brooklyn has a combined sewer system that collects stormwater and wastewater/sewage in the same pipes. Usually, these pipes carry both to the treatment plants. However, during heavy rainfall, this stormwater/wastewater mix flows into the city's waterways. The Combined Sewer Outfalls (CSOs) where this happens are concentrated mainly along the western coastline and in Brooklyn's polluted waterways.

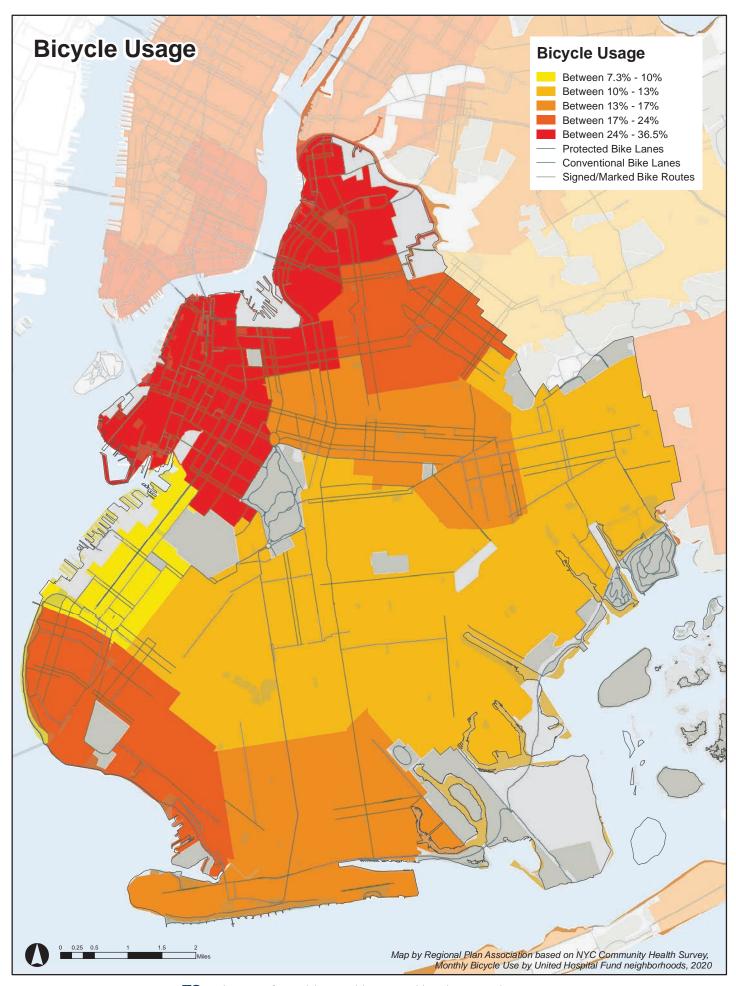




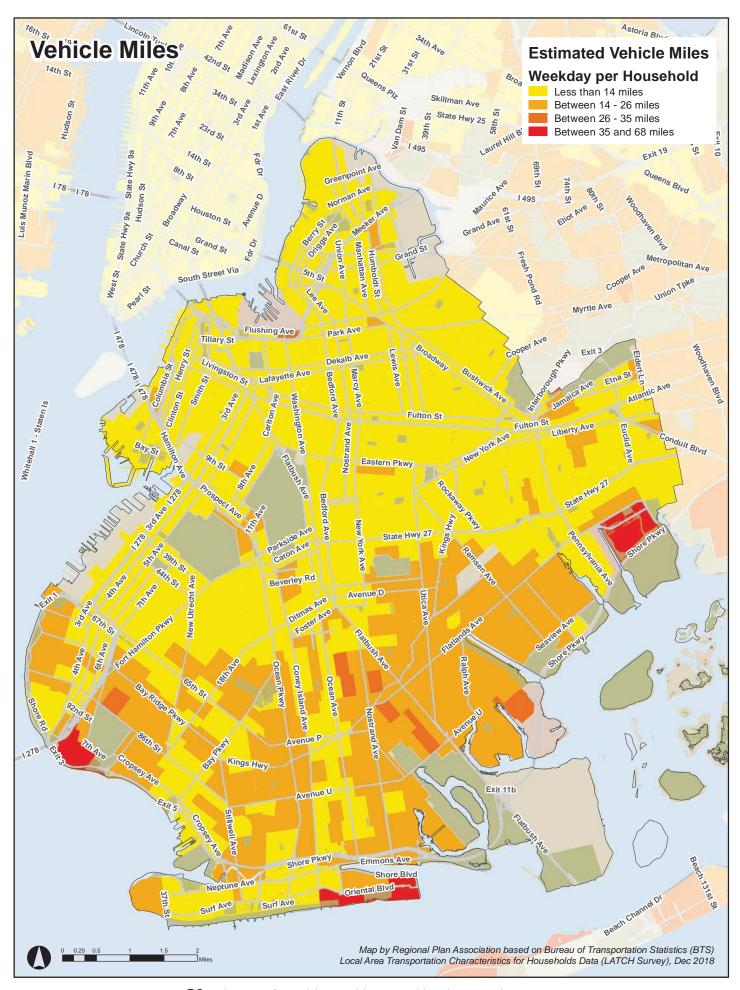


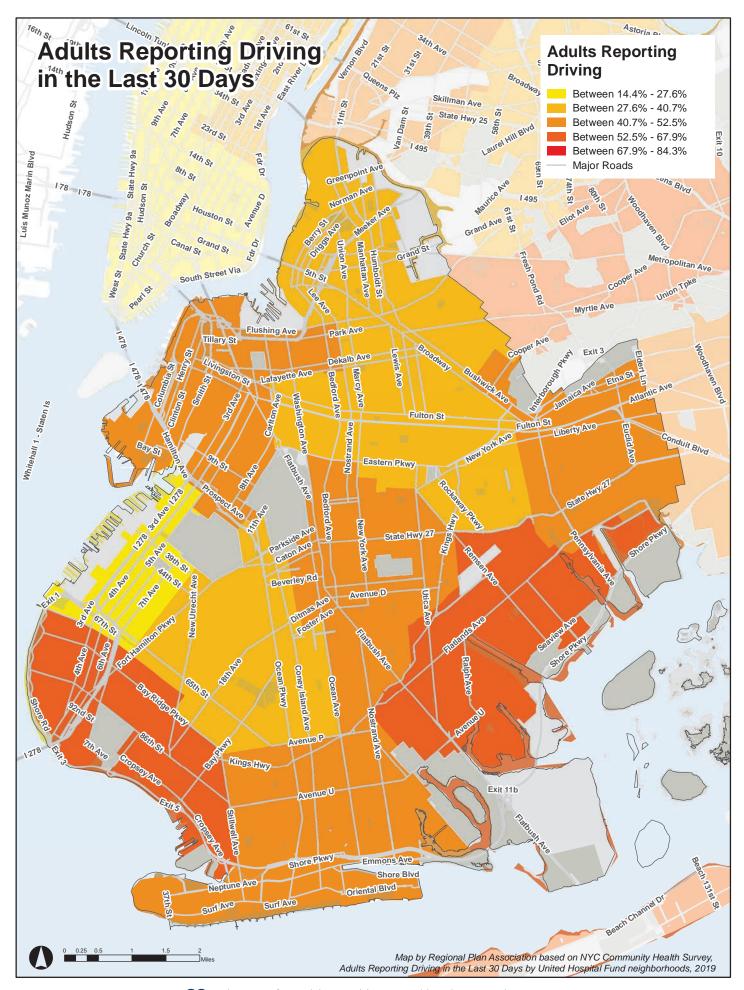


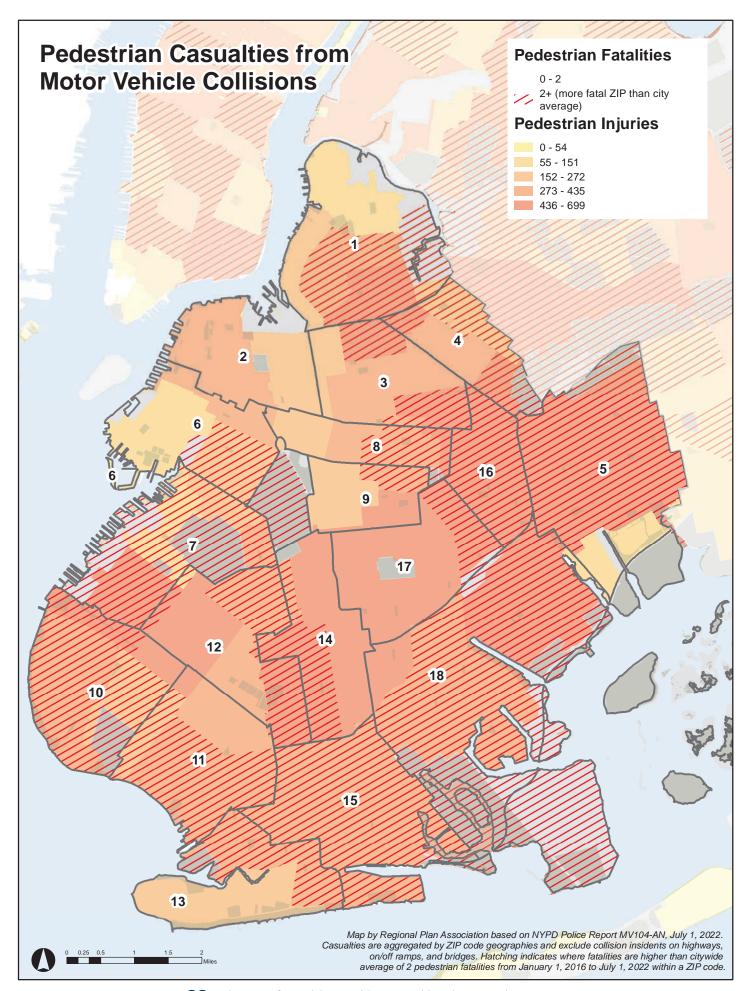


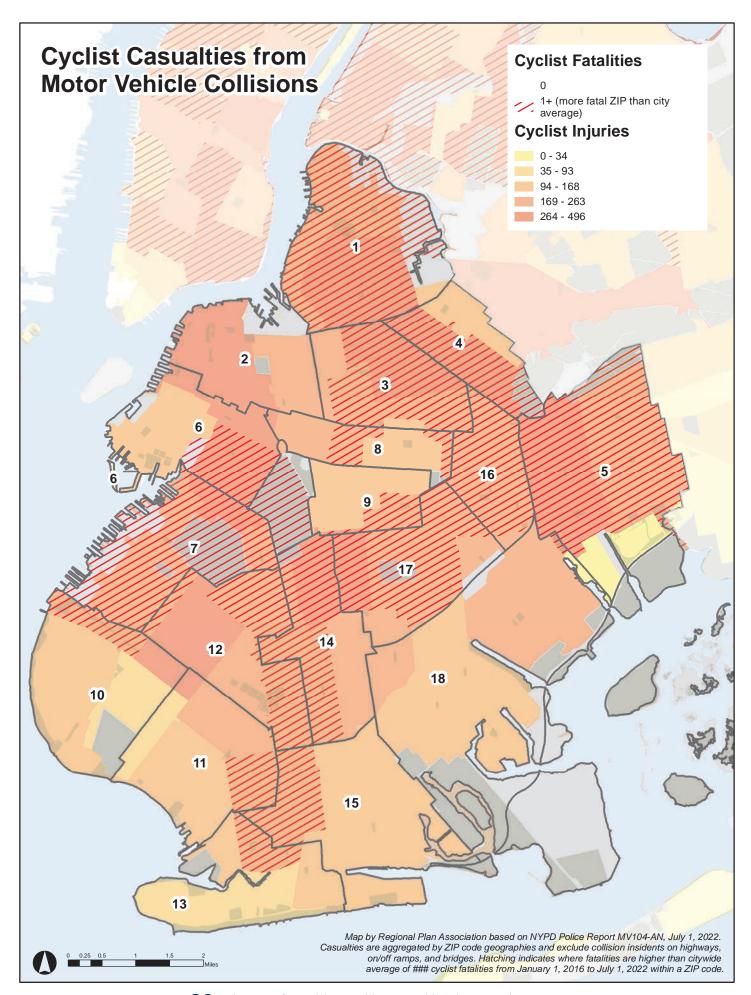


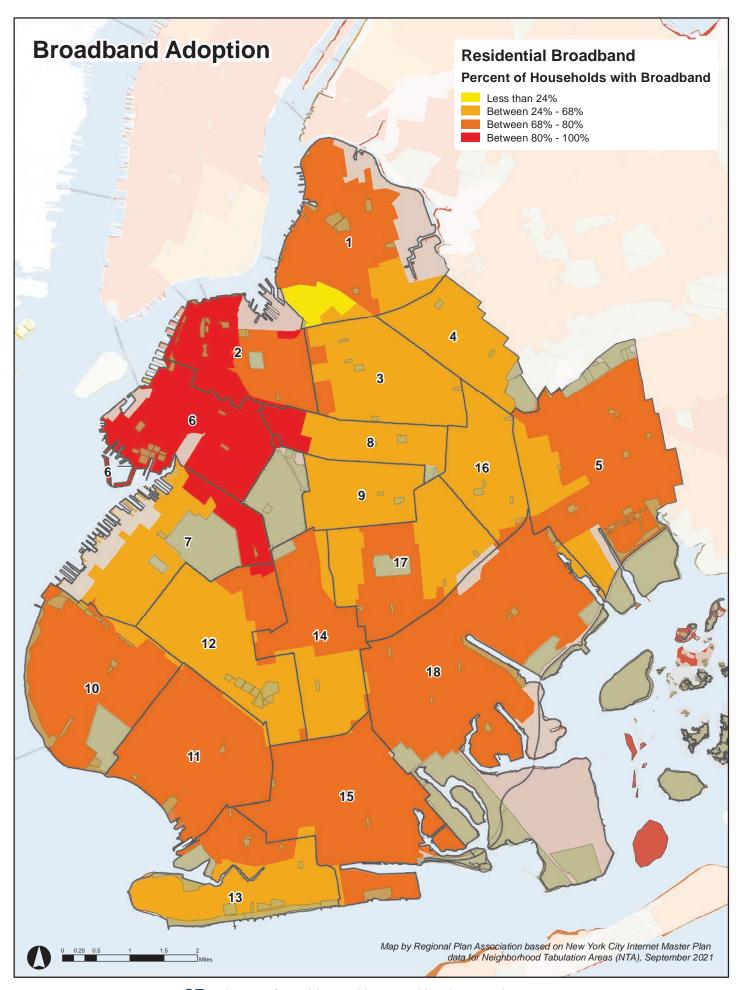


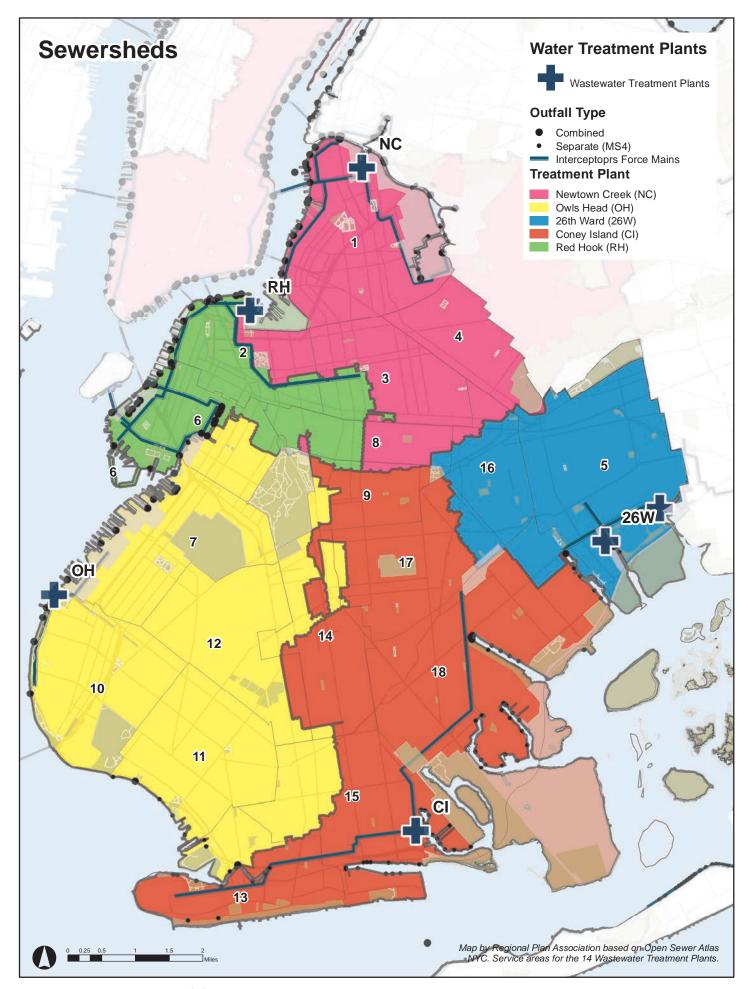












# Environmental

# Climate change is the most pressing threat to New York City's future.

This year marks 10 years since Superstorm Sandy, and many of Brooklyn's waterfront communities are still recovering from the devastating impacts of that storm, which flooded an area twice the size of the 100-year flood plain, damaged homes, disrupted transportation systems, and left residents - especially public housing residents - stranded in their homes for weeks until power was restored. As the severity of storms increases, temperatures become more extreme, and heat waves become more common, the impacts of these changes will hit some communities much harder than others.

### Future Coastal Flooding (p. x)

The NYC Panel on Climate Change determined that sea level rise occurring over time is likely to increase coastal flooding during hurricanes and storms. As a result of sea level rise, neighborhoods concentrated in the southeastern waterfront will likely see coastal flooding increase in frequency, extent, and depth. By the year 2050 and based on high estimates (sea level rising by 31 inches), all of CD 13-comprising Sea Gate, Coney Island, Brighton Beach, and Manhattan Beach-will likely fall in the 100-year floodplain (1% chance of flooding on any given year) and within the high-risk zone (Zone AE according to Flood Insurance Rate Maps). Red Hook and portions of Greenpoint will also see increased coastal flood risk.

### **Stormwater Flooding (p. x)**

Different from coastal floods, stormwater flooding comes because of extreme rainfall events. As such, stormwater flooding mostly affects areas with low elevations and poor drainage. An extreme precipitation event of 3.5"/hour will likely affect most neighborhoods in Brooklyn, with only a few high-ground areas such as Sunset Park and Prospect Heights being exempt. By 2080, most of Coney Island (CD 13) is anticipated to be affected by high tides on a regular basis.

### Park Access (appendix)

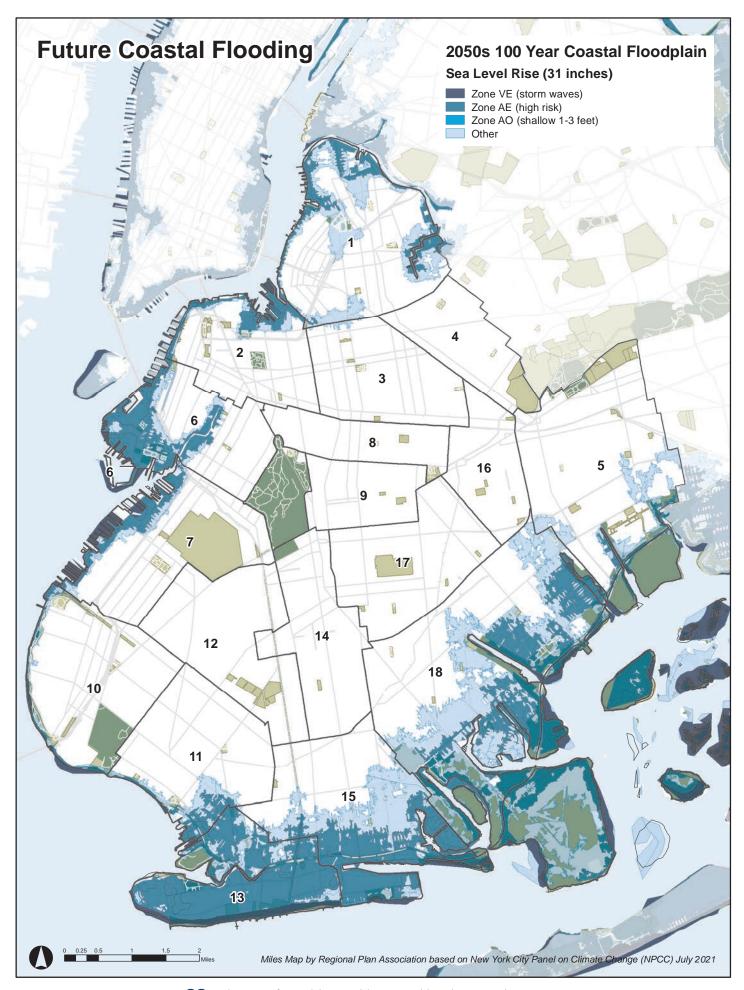
Most of the borough is within a five-minute walking distance to a park. However, significant pockets of southern and eastern Brooklyn have a 10-minute walk to access a park. Fewer areas located in Sea Gate, Mill Basin, Flatbush and Cypress Hills are underserved, requiring 10 minutes or more to reach a park. It should be noted that all parks are not created equal. Many City parks are covered in blacktop or concrete, meaning access to open space does not imply availability of green space.

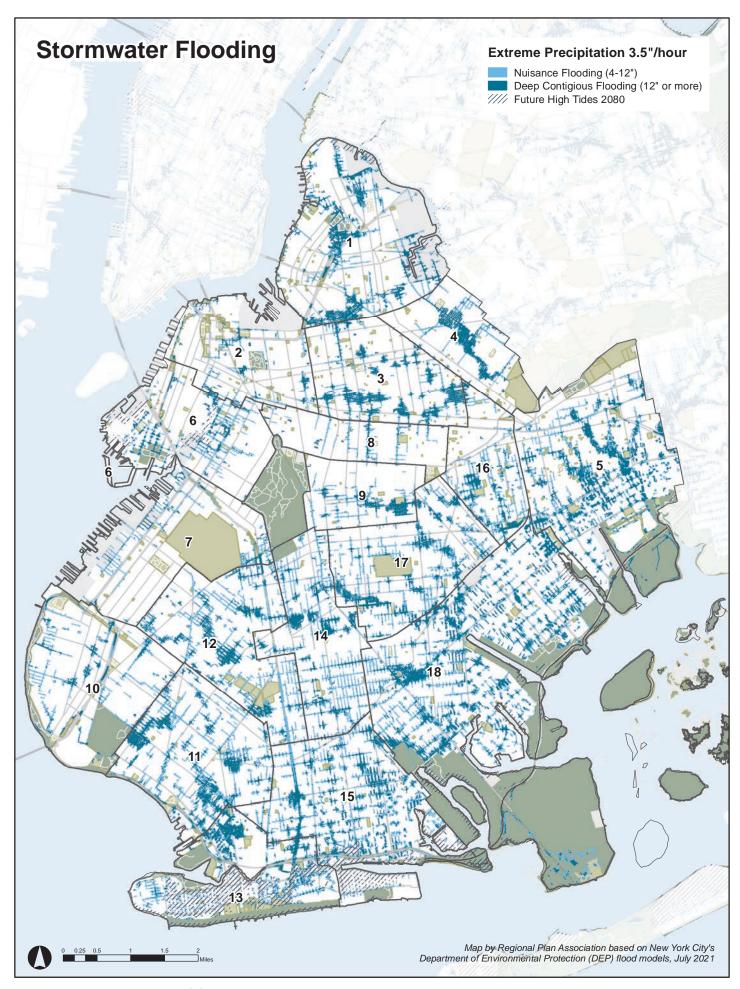
### Land Cover (p. x)

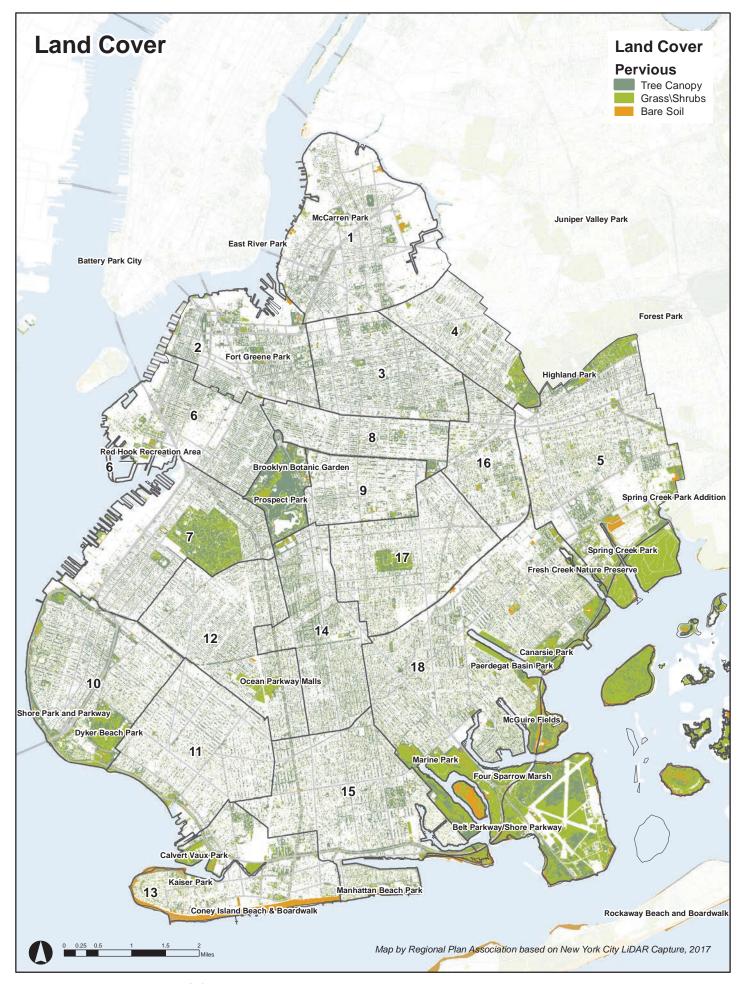
Most pervious land cover is provided by parks and cemeteries. The urban canopy is widely dispersed throughout the borough's street trees and residential areas. However, impervious surfaces prevail in manufacturing areas in the northeast and in industrial maritime uses along the western shore of the borough. In southern Brooklyn most pervious surfaces are adjacent to coastline, indicative of the generally softer water's edge of beaches and vegetation along that coast as opposed to the bulkheads in northwest Brooklyn.

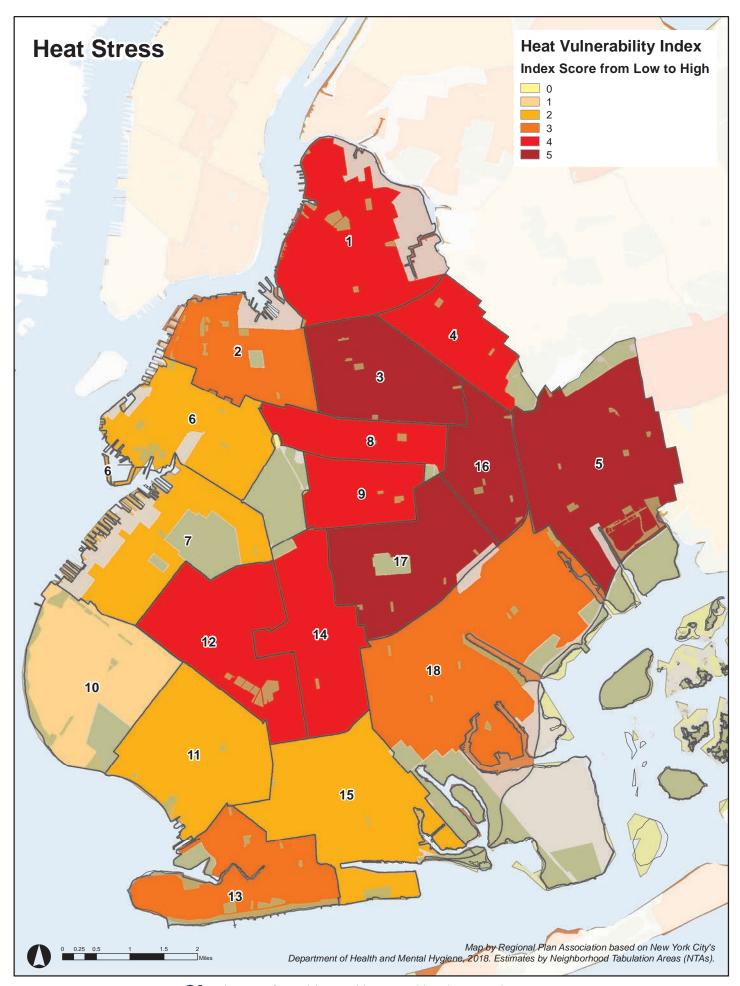
### **Heat Stress (p. x)**

The NYC Heat Vulnerability Index measures how the risk of heat-related illness or death differs across neighborhoods. Neighborhood risk factors that increase heat vulnerability in NYC are: less home air conditioning, less green space, hotter surface temperatures, and more residents who are low-income or non-Latino Black. Central, northern, and eastern Brooklyn suffer the highest levels of heat stress. CD 10 has the lowest heat vulnerability throughout the borough.









# Neighborhood Conditions

Numerous studies endorsed by the medical community demonstrate that neighborhood conditions such as cleanliness, freedom from violent crime, presence of supportive community organizations, access to greenspace, and related variables, significantly contribute to the physical and mental health of adult residents.

These indicators also serve as strong determinants of physical health, psychological well-being, and quality of life for youth residents raised in a given area.

The supportiveness of a community is largely due to the prevalence of accessible healthcare facilities; places of assembly and community events; and schools, youth services, and daycare programs to enable households and families to maintain stability in everyday life and in times of crisis. According to the 2021 American Community Survey, approximately 24% to 28% of households with children in Kings County are headed by a single parent.<sup>21</sup> Likewise, approximately 30% of Brooklyn households in 2021 had one or more residents over age 65. In both cases, strong and supportive community associations and services are essential for keeping these households safe, happy, and healthy.<sup>22</sup>

### Hospitals and Health Facilities (p. x)

Health Care facilities include hospitals, infirmaries, and pharmacies. Other health related facilities include nursing homes and adult care institutions. These types of facilities are spread evenly throughout the borough, with an average of a dozen per community district.

### Public Assembly (p. x)

Places of public assembly-defined here as non-religious institutions where the public generally gathers such as libraries, museums, and community centers-are distributed fairly evenly throughout the borough.

## Schools (appendix)

K-12 schools include public, charter, private special education, and alternative high schools. CDs 1, 3, 5 and 12 have the greatest number of these schools. CDs 10 and 13 have the fewest schools serving K-12 students.

#### Overcrowding and Schools (p. x)

Public schools in Brooklyn face uneven enrollment across the borough. Overcrowding is more prevalent in southern Brooklyn - and particularly acute in Community School District (CSD) 20, which encompasses Bay Ridge, Dyker Heights, Borough Park, and surrounding neighborhoods. Most public schools east of Prospect Park are under-enrolled. This could be due to several factors, including changing demographics and school choice.

Brooklyn does have enough school capacity when measured at a borough level. Moreover, the available school capacity is often in areas far from students' home neighborhoods. The youngest students are best served when they have short distances to travel by foot to their elementary and middle schools. Therefore, the City measures overcrowding at the Community School District (and sub-districts in formal land use review). As a city, we expect that high school students can travel further distances than elementary or middle school students, and therefore overcrowding for high school is measured at a borough level.

The School Construction Authority (SCA) is a NY State Public Authority that is responsible for building new public schools and additions to existing facilities in New York City. SCA's budget is funded by New York City and allocates funding at the "sub-district" boundary (these boundaries are available on SCA's website). SCA's Capital Plan is released every four years (with intermittent amendments). New schools are funded in school districts along the western and southern coastlines of the Borough. To date, over 10,000 school seats have been funded in Brooklyn. Siting schools in southern Brooklyn is complicated by the fact that these neighborhoods have been mostly built-out and have limited soft sites for SCA purchase and construction. SCA is currently executing its 2020-24 Capital Plan.

#### **Daycare and Pre-Kindergarten (appendix)**

This map indicates the location of universal pre-K, group and school based childcare centers, preschools for students with disabilities, and head start programs. Due to its very high propor-

U.S. Census Bureau; American Community Survey, 2021 American Community Survey 1-Year Estimates, Table DP02 (September 2022)

<sup>22</sup> U.S. Census Bureau; American Community Survey, 2021 American Community Survey 1-Year Estimates, Table DP02; (September 2022)

tion of households with small children, CD 12 has the greatest number of day care and preschool facilities compared to other parts of Brooklyn. CD 9 and CD 16 have the fewest childcare facilities in the borough.

### **Child and Youth Services (appendix)**

Child and Youth Services, which include child nutrition programs, youth centers, literacy programs, job training, and after school programs, are concentrated most heavily in northern Brooklyn and in Cypress Hills/East NY (CD 5). CD 10 has the lowest concentration of these programs boroughwide.

### Parks and Historical Sites (appendix)

Most individual parks, gardens, and historical sites are found in CDs 1, 2, 3 and 5 in northern and eastern Brooklyn, although the borough's largest parks are found in Central Brooklyn (Prospect Park) and along the southeastern shoreline.

### **Libraries and Cultural Programs (p. x)**

CD 2, in Downtown Brooklyn, has the most libraries and cultural programs. Moving radially outwards from that area, concentrations of these facilities tend to decrease. While libraries and cultural programs are not evenly distributed throughout the borough, their largest concentrations are highly accessible via subways.

### **Neighborhood Safety (p. x)**

Brooklyn is divided into 23 New York Police Department (NYPD) Precincts. Seven major felony crimes (murder, rape, robbery, felony assault, burglary, grand larceny, and grand larceny of a motor vehicle) have steadily declined since the year 2000 - dropping by almost 50% since then.

While some of those felony crimes have begun to trend upwards, violent crimes have recently fallen. These are committed most frequently in Brooklyn's most vulnerable communities as it relates to public health - including East New York, Brownsville, Flatbush, Bedford-Stuyvesant, and Bushwick. Since 2000, major felony crimes have remained below median crime rates except in the 75th Precinct (East New York).

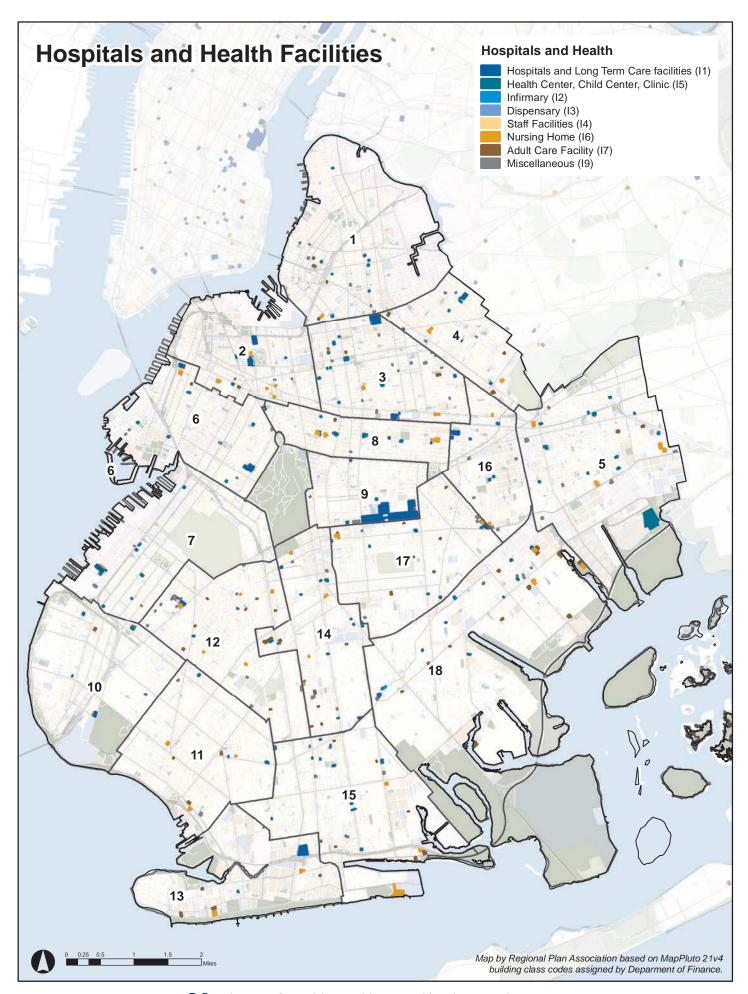
With the exception of Sunset Park, the perception of neighborhood safety is markedly higher in the western half of the borough than the eastern half, with residents of the southwestern corner of the borough self-reporting the highest perception of neighborhood safety.

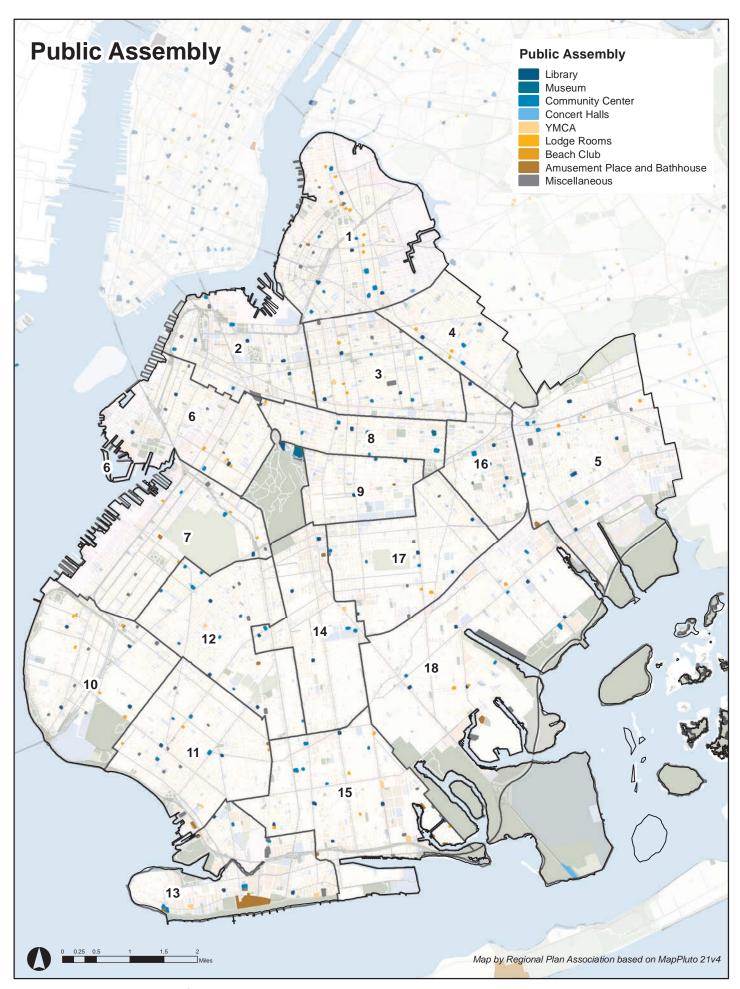
### Street Cleanliness (appendix)

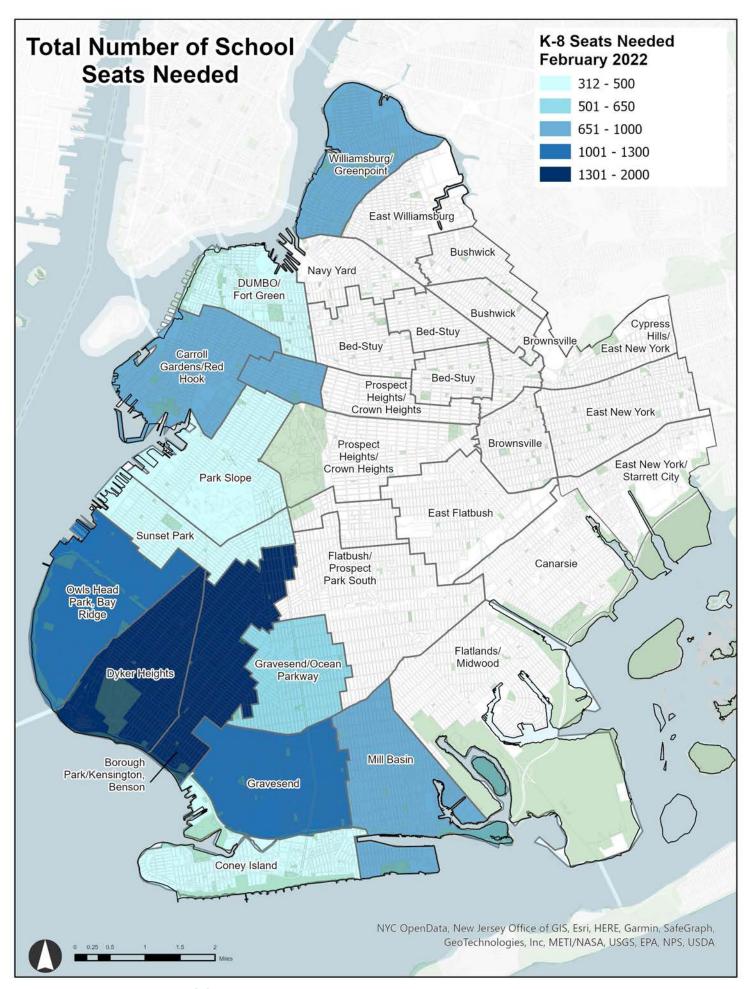
According to surveys conducted on-site by NYC Department of Sanitation (DSNY) staff, the Brooklyn areas with the least clean streets are along the northeast corridor of the borough and headed southbound from the southern half of CD 6 through CD 15's southern coast.

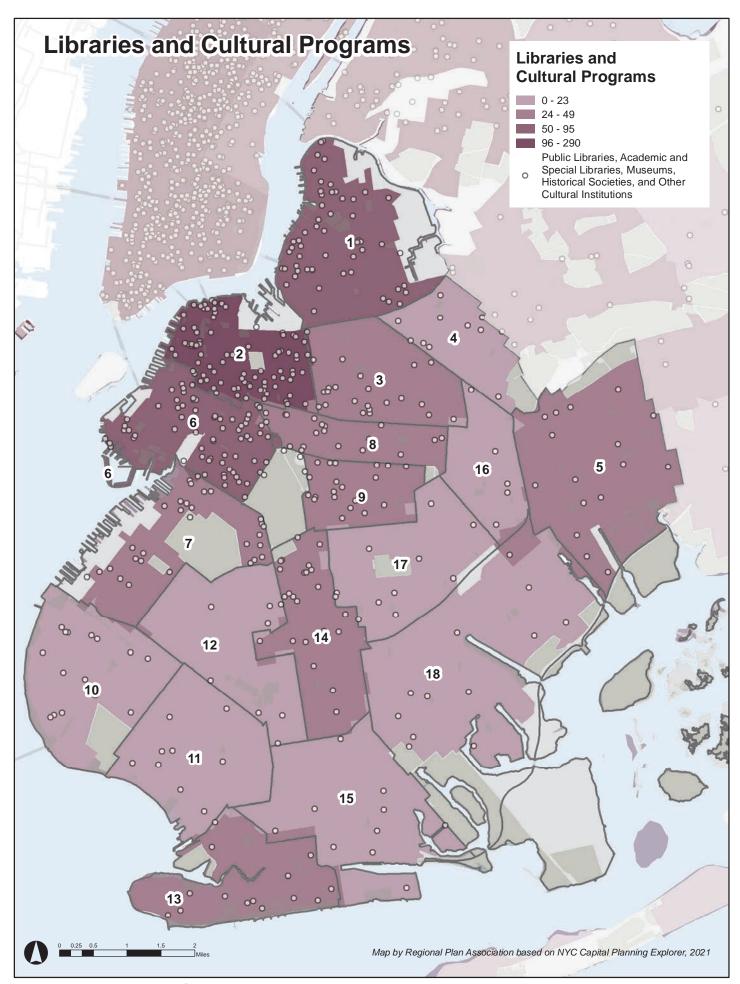
### Sidewalk Cleanliness (appendix)

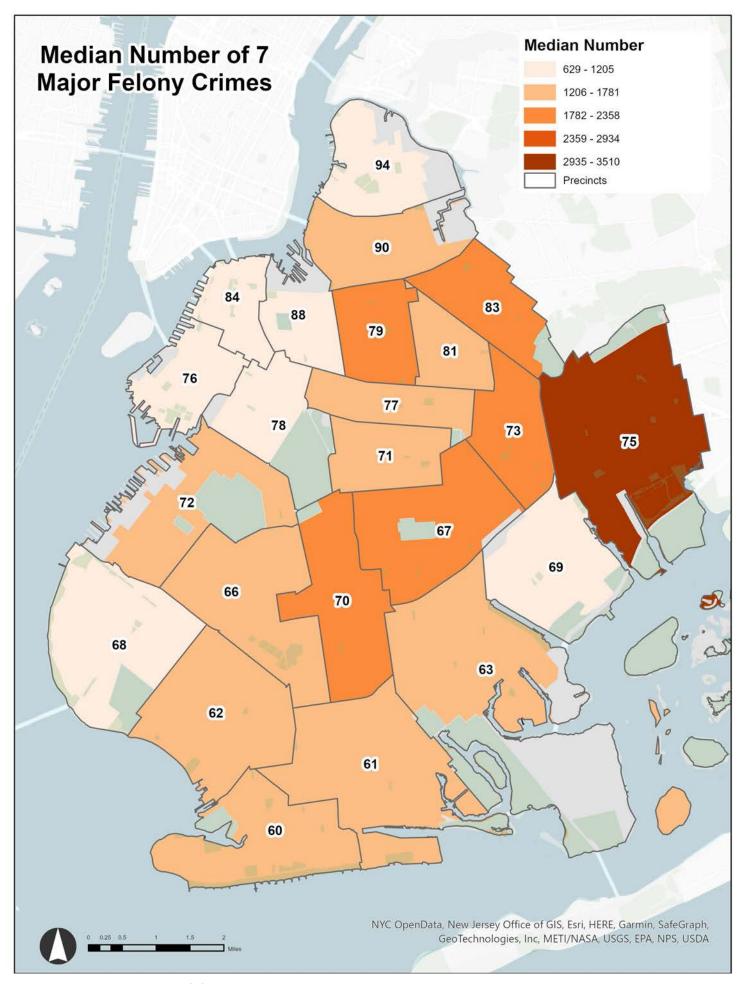
Sidewalk cleanliness surveys align with reports of street cleanliness. According to surveys conducted on-site by DSNY staff, the least clean sidewalks in the borough are found along the northeast corridor of the borough, and in the North-South stretch from CD 6 through CD15.











# Appendix

Includes: Race and Ethnicity - BIPOC (Black, Indigenous, and people of color), SNAP Assistance, Street Types by Use, Rail Network and Land Use, Housing Cost Burden Owners, Population in Group Quarters, Rail Network and IBX, Bicycle Routes with Roads, Truck Routes, Car Collision Fatalities, Walk Access to Park, Impervious Land Cover, Schools (K-12), Day Care and Pre-Kindergarten, Child and Youth Services and Programs, Parks Gardens and Historical Sites, Perception of Neighborhood Safety, Acceptable Street Cleanliness, and Acceptable Sidewalk Cleanliness.

