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Hunter College School of Urban Affairs and Planning

Graduate Urban Planning Studio
2013 - 2014

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1 – EXECUTIVE SUMMARY
EXECUTIVE SUMMARY

Western Queens is poised at the forefront of an economic phenomenon—the rise of “tech,” one of the fastest growing sectors in NYC. Its proximity to Manhattan, its relationship to the Cornell NYC Tech campus on Roosevelt Island, and its physical and human assets make for an ideal tech hub.

The Studio client, Coalition for Queens “C4Q,” has recognized this opportunity. C4Q is a Long Island City non-profit focused on advocacy for the tech community and tech education for the general public. The organization is currently working to form a task force composed of city officials, tech experts, and community members to explore the implementation of a tech-zone master plan. The recommendations in this report will serve as a platform for further research and public engagement by the task force.

The vision of this study is to assess and facilitate western Queens’ future as a center for tech, while being mindful that it must not come at the cost of social equity – as has been the case in many other tech hubs.

The area has undergone considerable demographic changes over the last several decades. There’s been an increase in household median income. There have also been increases in educational attainment rates – however the area still lags behind New York City and Queens County. The area also suffers from a high level of poverty, particularly among youth.

In order to assist western Queens in reaching the economic and social potential C4Q has recognized, the Studio sought to develop a broad understanding of the issues at play. The Studio broadly divided our analysis into two major sections: Physical Infrastructure and Human Infrastructure. When an area is examined, it is evaluated on the basis of the physical space, environment, and the people who use it.

Land use and zoning, real estate, broadband Internet, and the transportation network all fall under physical infrastructure. Human infrastructure considers the area’s political landscape, major demographic trends, economic development, and placemaking strategies. These infrastructures are interrelated – changes to one will have repercussions for the other – emphasizing the need for a holistic approach.

Physical Infrastructure

Real Estate

- Amend the zoning code to preserve existing industrial use and prohibit storage facilities and hotels along the 21st Street Corridor. These uses offer higher returns to property owners than office and manufacturing but contribute little to street-level activity.
- Encourage a live, work, play community around the transit hub at Queens Plaza. Amend zoning to allow larger buildings.
- Establish a local development corporation “LDC” to supply office spaces with short-term leases for start-ups and entrepreneurs. The LDC will intervene by creating a Master Lessee program which will rent spaces from property owners and sub-lease them to tenants.
**Broadband**

- Create a Public-Private Partnership to implement a fiber backbone network in neighborhoods with inadequate broadband connection.
- Utilizing the LDC’s power to issue tax-exempt bonds to finance the construction of the fiber network. A “use tax” will also be included on service bills to cover debt service of the bond.
- Lease back a portion of the bandwidth of the fiber network for other Internet service providers “ISPs” to provide service in the covered area. This will improve redundancy and encourage competition.
- Reserve part of the bandwidth for government use, which may include using it for the implementation of “smart infrastructures” in the Study Area.
- Through the ConnectNYC program, partner with landlords directly to improve “last mile” connection to buildings in the Study Area.
- Educate property owners about internal wiring and infrastructure upgrades for their buildings.

**Transit**

- Improve access between Queens and Roosevelt Island
  - Create an elevator between the Ed Koch Queensboro Bridge and Roosevelt Island.
  - Expand the existing East River Ferry service to Roosevelt Island.
  - Construct a new subway station on Roosevelt Island on the E and M line.
  - Extend Roosevelt Island Tram eastward from Roosevelt Island to Queens Plaza in Queens.

- Improve mobility within the study area.
  - Add additional bus service to areas that lack connections to mass transit.
  - Install new bike lanes and bike racks to improve north-south connectivity.
  - Install way-finding signage to improve walkability of the Study Area.
- Anticipate the opening of the Long Island Railroad “LIRR” Sunnyside Station by coordinating effort to improve connection between the LIRR station and other public transit facilities.
- Improve pedestrian safety on 21st Street.

**Human Infrastructure**

**Community and Politics**

- Form a coalition of community organizations.
  - Community organizations within western Queens represent a diverse range of interests, but each will be impacted by the Cornell NYC Tech campus. These groups would benefit by forming a coalition to coordinate resources and pool support.
- Make economic development incentives “Opt-Out” rather than application based.
  - The rapid growth characteristic of young tech companies results in uncertainty navigating available program applications. As a result, few businesses apply for those incentive programs available to them. We propose that incentive programs be
restructured as “opt-out” so that a greater percentage of eligible companies can benefit.

- Create a Mayoral Tech Officer position, or “Tech Czar”
  - Many within the tech industry feel this position was beneficial, they believe Mayor de Blasio should go further and create an official digital liaison with broad authority to coordinate efforts across multiple city agencies.¹

**Economic Development**

- Tailor incentive programs to the unique characteristics of tech startups, and increase promotion and accessibility.
- Enhance financing opportunities for tech focused innovation and local entrepreneurialism.
- Build local human capital and create employment channels to the new tech economy.
- Form a stewarding entity to champion and create a successful environment for the tech industry in western Queens, and enhance and engage local community stakeholders on a permanent basis.

**Placemaking**

- Connectivity through Placemaking.
  - Plan for green space, construct areas to meet and create, and establish an identity of place.
- Capitalize on Existing commercial corridors.
  - Take advantage of the infrastructural capacity, including open space and area prime for small-scale development, to execute a neighborhood-wide placemaking campaign of sporadic parklets that provide creative seats, places to eat, and photos to tweet.
- Quality of Life Initiatives.
  - Improve quality of life, creative activity, revitalize local economies, create attractive commercial corridors and develop a sense of civic pride.
  - Create a network of spaces that present opportunities to build a collective sense of identity.
2 – CLIENT AND PROJECT DESCRIPTION

2.1 – CLIENT MISSION, BACKGROUND AND GOALS

C4Q represents Queens tech companies by advocating for the technology industry in the Borough of Queens. Hoping to capitalize on the rapidly expanding tech scene in New York City, C4Q uses education, events, and advocacy to create an appealing and supportive environment in which technology companies can thrive. The Studio’s mission is to assist C4Q with its Queens Tech Zone master plan, focusing on the key areas of branding, transportation and infrastructure, urban design, land use and zoning, economic policy, and workforce development.

Educational Programming

C4Q offers introductory tech courses to grow the talent pool in Queens and New York City. Recently, the organization held a 10-week course called “Access Code,” in which students were given hands-on, practical experience with programming applications and entrepreneurial advice to encourage them in their future endeavors.

In addition to the desire to develop workforce talent, the nonprofit’s founders, Jukay Hsu and David Yang, have a social goal of increasing participation among underrepresented groups in tech. In line with this vision, full scholarships to the Coalition’s educational programs are offered to traditionally underrepresented minority groups.

Events

C4Q organizes Queens Tech MeetUp sessions. These MeetUps feature a mixture of speakers and demonstrations focusing on new companies in the industry, and offer entrepreneurs and tech workers a networking opportunity. In addition to the MeetUp series, the Coalition participates in relevant citywide and national events, such as Start-Up Advisory Day and the Tech Mayoral Forum.

Advocacy

The technology industry has garnered the attention of elected officials, and local residents and community groups in the area that are interested in attracting the benefits of job growth. Understanding the significance of this interest, C4Q has made it a mission to advocate politically for tech companies, as well as encourage both public and private financial investment in tech. In 2013, C4Q took Congresswomen Nydia Velazquez and Grace Meng on a tour of tech companies located in Long Island City; C4Q also helped support local tech workers after Hurricane Sandy by offering pop up co-working space in their offices.

C4Q’s Staff

Since its founding in 2011, C4Q has added two additional staff members: Ben Wei, director of community and chief food officer, and Elizabeth Fisher, development associate. The team shares the common themes of diversity and innovation in their prior work experience:

- Jukay Hsu led economic development initiatives in Iraq, where he served as an Army officer, and is the public face of the coalition.
- David Yang, an architect by training, brings a design perspective along with advanced programming skills.
• Ben Wei has experience launching companies in the industry, and has aided economic development in Singapore with the co-founder of Facebook, Eduardo Saverin.

• Elizabeth Fisher, a graduate of McGill University, has worked in Africa, supporting entrepreneurial efforts in Rwanda and Kenya.

C4Q’s Political Support
In 2013, New York City Mayor, Bill de Blasio appointed Hsu to the city’s transition committee to assist the mayor in key appointments and jobs. C4Q also received political support from the Queens Borough President’s office and the Queens Chamber of Commerce. The organization received financial support from the New York City Regional Economic Development Council (REDC) through a $125,000 grant to create a tech incubator in Long Island City. In addition to the REDC grant, City Council Speaker Christine Quinn’s office for workforce development also gave financial support to Coalition for Queens.

Premise
C4Q is leading a political process to support a growing tech sector in Queens. To establish a strong political mandate, C4Q seeks a development strategy that identifies barriers and solutions to tech sector growth, while seeking to incorporate the local community’s needs. To that end, the Studio’s goal is to propose a socially equitable and sustainable development strategy to retain and attract tech companies to western Queens. Our proposals directly address concerns about the rising housing prices; displacement of the host area’s residential and working population; and residents’, especially of New York City Housing Authority (NYCHA) properties, lack of access to tech sector employment. This plan will form the foundation for C4Q’s efforts to lead an inclusive political process involving all stakeholders.
2.2 - REASONS FOR CHOOSING LONG ISLAND CITY

Mayor De Blasio’s tech platform calls for tech hubs in the outer boroughs. Western Queens possesses many qualities of a potential tech hub for the following reasons: the Cornell NYC Tech on nearby Roosevelt Island, relatively low land costs, buildings with open floor plates desirable by tech startups, and transit accessibility.

The population and built environment among the neighborhoods of western Queens differ greatly. The Studio embarked on a semester-long research initiative of data collection, case study evaluations, and analysis of existing conditions of western Queens’ neighborhoods for viability as a potential tech zone. Topics for consideration included client goals, city- and borough-wide political landscape, and neighborhood land use and demographic trends. These studies were supplemented by interviews with various community and business influencers, as well as research on best-practices in tech hubs around the world.

The Studio’s research suggests the neighborhood of Long Island City is best suited to support a growing tech community and the academic and professional community that Cornell NYC Tech will produce. Long Island City, as opposed to other neighborhoods in western Queens, has the physical infrastructure and zoning. The area boasts strong political support for tech, large swaths of developable square footage, adequate transportation infrastructure, close proximity to Roosevelt Island and steadily improving levels of educational attainment, median income and employment.

However, potential shortfalls exist. Long Island City’s history as an industrial center has limited streetscape activity and existing ground floor uses. Additionally, LIC hosts two large public housing developments, which necessitates a plan that promotes inclusiveness and equity. And while the real estate sector has transformed the area over the last decade, these changes have primarily taken the form of luxury tower residences, rather than mixed-use development featuring residential spaces for a range of incomes, flexible commercial and retail crucial to neighborhood development.

The purpose of this analysis is to provide a holistic examination of the physical and human infrastructure of western Queens. Our recommendations lay the foundation for a tech-zone master plan that can enhance the thriving tech sector and promote livability and equity for all area residents.
3.0 PHYSICAL INFRASTRUCTURE

This section analyzes the physical infrastructure components important to consider in the creation of a tech zone. These key infrastructure components are land use and zoning, real estate trends, broadband internet capacity, and transportation. These built environment considerations are essential to the comprehensive planning approach used by the Studio. A successful equitable tech zone cannot be achieved, however, without the human infrastructure components to be discussed later.

3.1 – LAND USE

For the purpose of the Studio’s land use analysis, the Study Area was divided into three distinct sub-areas, based on the physical barriers of the Sunnyside Yards and the bisection of the Queensboro Bridge. These sub-areas were used to survey the land use, zoning regulations, and general neighborhood character. Despite differences between these sub-areas, the primarily industrial character remained consistent throughout the entire Study Area despite recent well-publicized and rapid residential and retail development along the waterfront.

Due to the increased momentum of the real estate market and major rezonings by the New York City Department of City Planning (DCP) in 1995, 2001, 2004 and 2008, continued neighborhood metamorphosis is not likely. A large part of the Study Area is affected by the Special Long Island City Mixed Use District—designed to encourage mixed-use development including residential, commercial, community facility and industrial uses—that employs a paired zoning classification allowing for both residential and non-residential buildings as-of-right. Please refer to the special district map in Figure 2.

The LIC Special District contains several sub-districts with different purposes and zoning text. The Court Square and Queens Plaza sections of LIC were created for high-density transit-oriented development, as both areas provide access to several MTA subway and bus lines. Lower density and higher lot coverage buildings are also allowed in these sub-districts. Additional density can be obtained through a floor area bonus (zoning incentive) for a building that provides public open space and public parking. In regards to floor area ratio (FAR), a 15.0 FAR is available for
providing subway improvements only if the minimum lot and development requirements are met.

The most significant impact of this special district, adopted by the City in 2001, is its facilitation of several tall, high-bulk residential towers that have radically changed the character of the area. Due to the far greater financial returns from residential development, the new development resulting from this 2001 rezoning has been primarily residential. Because the paired zoning allows for either residential or commercial or manufacturing space, developers have overwhelmingly opted for residential towers. This leaves the area primarily residential with insufficient retail and commercial space adequate for tech startups.

In 2006, the City created 16 Industrial Business Zones (IBZs) where expanded business services are available for industrial and manufacturing businesses. This designation fostered high-performing business districts by creating competitive advantages over locating in areas outside of New York City. The IBZs are supported by tax credits for relocating within them, zone-specific planning efforts, and direct business assistance from Industrial Providers of NYC Business Solutions Industrial and Transportation. In November 2013, an IBZ Boundary Commission was convened to consider citywide modifications to these districts and to add three more areas to the Industrial Business Zones.
These zones were designated with the former Bloomberg Administration’s promise that there would not be any zoning changes away from manufacturing in these areas, with the policy goal being to preserve and sustain existing manufacturing businesses and attract new ones. The LIC IBZ encompasses all of sub-area 1, and some portions of the others – mainly on the area bordered with the Queensboro Bridge to the north and the areas north and east of the Queensbridge NYCHA developments. These areas, as will be further illustrated, are those mostly zoned as M districts.

But as these land use surveys demonstrate, much of the land remains unchanged since the rezoning actions, maintaining its low-bulk industrial character. The Studio has determined that the area is largely underbuilt for an area so close to the Manhattan central business district with transit access. This yields the potential for future development—complemented by stunning view corridors to the Manhattan skyline and the East River, strong public transit access and the beginnings of bicycle infrastructure, and new retail, residential, and commercial construction that holds the promise of increasing pedestrian traffic. With the aid of a holistic master plan focused on tech development, these existing strengths can be honed and enhanced.

**SUB-AREA 1**

**Location and Boundaries**

Sub-Area 1 is located south of the Sunnyside Yards rail terminal. It encompasses some 80 blocks, with 17,824,768 square feet of built space. It is bounded by 39th Street on the east, Borden Avenue and the Long Island Expressway on the south, 23rd Street and Skillman Avenue on the west, and the Sunnyside Yards runs along the north end of this area. Five wide avenues cross the area from east to west:

43rd, Queens Boulevard, 47th, 48th and Hunters Point Avenue. Queens Boulevard and Hunters Point Avenue also serve as the major commercial corridors of the area. Narrower streets run north to south.

**Land Use Figure 4: Boundaries of Sub-Area 1**

**Land Use and Zoning Districts**

The major zoning districts in the area are M1-1, M1-4, M2-1 and M3-1. According to the Department of City Planning, M1 zones generally serve as buffers between M2 or M3 districts and adjacent residential or commercial districts. M1 districts typically include light industrial uses, such as woodworking shops, repair shops, and wholesale service and storage facilities. Nearly all industrial uses are allowed in M1
districts if they meet the stringent M1 performance standards, such as noise levels and emissions. Offices, hotels, and most retail uses are also permitted. Certain community facilities, such as hospitals, are only allowed in M1 districts by special permit, while houses of worship are allowed as-of-right.

**Land Use Figure 5: Zoning in Sub-Area 1**

FARs in M1 districts range from 1.0 to 10.0, depending on location; building height and setbacks are controlled by a sky exposure plane, which may be penetrated by a tower in certain districts. Although industrial buildings are usually low-rise structures that fit within sky exposure planes, commercial and community facility buildings can be constructed as towers in M1-3 through M1-6 districts. Parking and loading requirements vary with district and use. M1-1, M1-2 and M1-3 districts are subject to parking requirements based on the type of use and size of establishment.

M2 districts occupy the middle ground between light and heavy industrial areas. The four M2 districts, with different FAR and parking requirements, are mapped mainly in the city’s older industrial areas along the waterfront. Required performance standards in all M2 districts are lower than in M1 districts. The FAR is 2.0 in M2-1 and M2-3 districts and 5.0 in M2-2 and M2-4 districts. The maximum base height before setback is 60 feet in M2-1 and M2-3 districts. Parking requirements vary according to use and are the same as those for the M1 and M3 districts. M2 districts in Long Island City are exempt from parking requirements.

M3 districts are designated for areas with heavy industries that generate noise, traffic or pollutants. Typical uses include power plants, fuel supply depots, solid waste transfer facilities and recycling plants. Like M2 districts, M3 districts are usually located near the waterfront and buffered from residential areas. The two M3 districts, both with a maximum FAR of 2.0 and a maximum base height before setback of 60 feet, differ only in their parking requirements. M3-1 districts are subject to the same parking requirements as M1-1, M1-2, M1-3, M2-1, and M2-2 districts. Despite several small residential enclaves within the Study Area, residential use is largely negligible and not developable under current zoning restrictions.

The vast majority of the area is low density industrial, encompassing primarily manufacturing and warehousing space. Residential and retail uses represent only 3% and 4% respectively. Land classified under manufacturing use accounts for 29%
of the land, land used for storage is 25%, and other uses (excluding residential, office, retail or garage) account for 23% of the area.

Findings: Sub-Area 1

Several key conclusions affect the utility of this sub-area for tech hub development:

1. This is an almost uniformly industrial area, with very limited residential or retail uses; thus, the area is mainly a work destination space with minimal pedestrian traffic during non-business hours

2. Due to the concentration of industrial uses, the city designated this area as an Industrial Business Zone (IBZ) in 2005.

SUB-AREA 2

Location and Boundaries

Study area 2 is a roughly 70 block area bounded by Queensboro Plaza on the north, Jackson Avenue to the east, 48th Avenue to the south, and the East River to the west. Four main arterial roads span the area from west to east: Vernon Boulevard, 11th Street, 21st Street, and Jackson Avenue.

Land Use and Zoning Districts

There is a mix of industrial (29%), residential (25%) and commercial uses (22%) in sub-area 2. Only 2% of the area features retail, and like residential uses, they are predominantly located in the southern section of the sub-area. The northwest corner of the area is designated M-1, allowing for nearly all industrial uses in addition to offices, hotels, and most retail uses. Community facilities, such as hospitals, are allowed in M1 districts only by special permit, but houses of worship are allowed as-of-right.
There are pockets of land zoned for commercial use at Court Square as well as commercial overlays on the southern portions of Vernon Boulevard, Jackson Avenue, and 21st Street. These overlays enable ground floor commercial activity in residential buildings along these corridors.
South of 44th Drive there is more street activity, with increased pedestrian and vehicular traffic, due to commercial and recreational uses including bars, nightclubs and other related establishments.

Findings: Sub-Area 2

The utility of Sub-Area 2 as a tech hub is affected by several key considerations:

1. North and west of 44th Drive (outside of the special zoning district), is primarily zoned M1-4 and is designated for manufacturing and industrial uses, which limits potential for residential development.

2. Conversely, the areas south and east of 44th drive are included within the special zoning district, which enables property owners to develop mixed use, exclusively commercial, or exclusively residential spaces.

SUB-AREA 3

Location and Boundaries

Sub-Area 3 is bounded by Broadway to the north, 30th Street and Northern Boulevard to the east, Queens Plaza North to the south and Vernon Boulevard and the East River waterfront to the west. This 114-block area is approximately two square miles.

Land Use and Zoning Districts

Despite having large areas zoned for manufacturing, Sub-Area 3 is primarily residential. Seventy-six percent (76%) of its total land area is dedicated to residential use. 7% of the land is dedicated to warehousing and storage, while only 5% is still used by industrial or manufacturing firms. Our survey found that 1% of the land is used for garages, including taxi or livery lots and those attached to private homes.
The historic base of the southern part of Sub-Area 3 was distribution and industrial firms, which has shifted in the past 10 years to include more new commercial and residential development.

Still, the proportion of land dedicated to office uses is very low at only 5%. The retail sector is likewise underrepresented in this community, at only 2% of the land area. Other or miscellaneous uses encompass 4% of the land area. The northeastern section of Sub-Area 3 is mostly lower density residential with commercial overlays on some avenue corridors, such as 34th and 36th Avenues. Several of these blocks are filled with single-family homes, with larger midrise 5-6 story apartment buildings scattered among them. This area has a lower density neighborhood character, with transit access to the N and Q trains along 31st Street.

The vast majority of the northern part of this sub-area is zoned R5, intended as a transition between lower and higher density neighborhoods, with some blocks closer to Broadway zoned R6A. R5 districts have a 1.25 FAR, typically producing 3-4 story attached apartment buildings with a maximum height of 40’. R6 districts under quality housing rules have an FAR between 2.2 and 3.0, and a maximum height of 55 to 70 feet, depending on the width of the street. Most of the buildings
in this area were built prior to the 1961 zoning resolution; the zoning designation aims to preserve the existing Pre-War building size and aesthetic.

Land Use Figure 12: Zoning in Sub-Area 3

Zoned R6A, Broadway is a bustling commercial corridor with 3-4 story residential and commercial buildings with a wide variety of ground floor retail. The eastern end of Broadway is primarily a residential and service-oriented retail area, without much apparent available commercial space. The sub-area’s neighborhood character shifts significantly as one moves north of 36th Avenue, with increased pedestrian activity due largely to the high density NYCHA and coop developments between 36th and 33rd Avenues. The 36th Avenue commercial corridor is an unofficial border between Long Island City and Astoria.

Land Use Figure 13: Broadway looking west near 30th Street

Despite being strongly residential in character, large sections of the Sub-Area 3 (southeast and northwest) appear to still be used for manufacturing, or these buildings were once under industrial use and are currently vacant. Especially in the western part of the Study Area abutting the waterfront, there is an abundance of non-conforming manufacturing buildings on many blocks that are zoned R5. Typical uses in the manufacturing area are taxi garages, construction related businesses, warehousing and distribution, printing and graphic design, light manufacturing and catering firms.
The section of the sub-area between 24th Street and Vernon Boulevard to the east and west and Queens Boulevard and Broadway to the north and south, is dominated by small-scale manufacturing, mass commercial storage, vehicular service centers (likely located here because of the proximity to taxi lots), and the high-density residential towers of NYCHA’s Queensbridge and Ravenswood Houses.

Much less common, but still prevalent, are local service retail with residential or commercial units on the upper floors—beauty salons, small grocery and convenience stores, discount retail, and restaurants.

There are not many soft sites for development in Sub-Area 3, however there are some major construction projects currently underway, particularly along 24th and 25th Streets. This includes two high-rise residential developments (between 17 and 20 stories) with ground floor retail, and several large commercial storage projects.

The vast majority of the sub-area is zoned R5 and R6. M1-3 districts are the next most significant type of zoning with just over 11% of the total building area. Mixed-use commercial and residential districts are significant along the avenues, where ground floor retail exists mostly as delis or local markets. As can be seen from the zoning map (Figure 12), various integrated M/R districts occupy the southeastern portion of Sub-Area 3.
This allows for as-of-right residential development or continued industrial use. In certain M1-5 and M1-6 districts, with FARs of 5.0 and 10.0 respectively, space in an industrial building may be converted to residential use, provided that a specified amount of floor area is preserved for particular industrial and commercial uses.

Unusual for outer-borough zoning, parking is not required in M1-5/R9 or in M1-6/R10 districts, as it was intended to accommodate high density transit-oriented development. Buildings in R5 and R6 zones occupy almost 37 million gross square feet, signalling the predominance of residential use in Sub-Area 3.

Interestingly, many buildings are zoned for mixed use, though the character of the area is not consistent with the intention of the zoning (vibrant mixed use commercial/residential), as the majority of the building stock pre-dates the rezonings.

Notable Land Uses
Public Housing Projects
As the Sub-Area 3 land use map illustrates, there are several superblocks occupied by public housing developments, Queensbridge and Ravenswood Houses. On blocks zoned R5 and R6, these housing developments are the tower-in-the-park style typical of public housing, with central courtyards, community centers and some retail uses along the avenues.
Queensbridge is the largest public housing development in the NYCHA’s portfolio. Built in 1939, Queensbridge Houses has 3,149 residential units in 33 six-story buildings totaling over 2.2 million gross square feet of floor area. Meanwhile, Ravenswood has 1,974 public housing units across 29 six-story buildings that contain an approximate 1,239,329 gross square feet of floor area. Queensview Homes, on both sides of 21st Street north of 34th Avenue, is another large residential tower-in-the-park cooperative community built in the 1950s. Queensview includes 1,091 coop apartments in 21 buildings that rise 14 to 15 stories, giving the development has approximately 1,007,915 gross SF of floor area.

Large-Scale Commercial Development

There are several large commercial buildings in this area, such as 27-01 Queens Plaza North, which houses JetBlue, MetLife, and the Long Island City Partnership, and includes over 337,400 gross square feet of newly renovated office space. The JetBlue building is located in the Special Long Island City Mixed Use District, uniquely zoned M1-5/R9, which allows for residential in a manufacturing district. There are also large government offices of the NYC Department of Education and other city agencies between 28th and 29th Street.

Hotels

A unique aspect of the land use in this Sub-Area 3 is the abundance of new hotels that are under construction or have been recently built. This land use analysis counted six 8-12 story hotels in the eastern part of the sub-area, in addition to 2 under construction. This is clearly a function of the proximity to midtown Manhattan and growth in the NYC tourist industry over the past decade, wherein tourists seeking lower cost lodging options flock to the outer boroughs. Most importantly, hotels are permitted as-of-right in M1 zones, which are prevalent throughout, where non-transitory residential use is not allowed.

Findings: Sub-Area 3

Despite large swaths of underutilized manufacturing space and the proliferation of commercial storage facilities, the neighborhood’s proximity to midtown Manhattan, its attractive waterfront view corridors, and the paired zoning districts have encouraged some new high-rise residential and commercial development. It is important to note, however, that there are several significant challenges affecting its effectiveness as a tech zone:

1. There is a predominance of low density residential property, such as one- and two-family homes, along with large-scale NYCHA developments that provide minimal development opportunity.
2. A large ConEdison utility plant dominates the waterfront and prevents development in this area.
3. Recent large-scale construction includes residential towers, hotels, and storage facilities.
4. Special District mixed-use zoning has tended to produce high-end residential properties because developers can build these as-of-right in lieu of manufacturing or commercial.
Western Queens has maintained a low scale, industrial character, yet is undergoing significant change in development patterns. Since the 2001 and 2008 rezonings allowed for mixed-use residential development, Long Island City has been targeted for multiple large-scale projects, particularly in areas along the waterfront, near Court Square and around Queens Plaza. However, despite some high-profile commercial construction in Long Island City, the majority of this new development has been residential.

This section will discuss the current office and housing conditions in western Queens, including classification of office space, pricing trends, vacancy rates and lease terms. It will also discuss current development trends and potential future development scenarios, making recommendations for how best to direct such development in support of the growing tech sector. This discussion is limited by one major factor: the striking opaqueness of the commercial real estate market. The difficulty of obtaining a holistic understanding of office space type (such as class A, B, or C), per square foot (PSF) pricing, lease terms and vacancy rates for such a small sub-market (beyond those used by brokerage firms to ensure potential investors of property profitability) is a significant barrier to a well-rounded commercial real estate overview, and a significant barrier for startup tech companies searching for appropriate real estate.

Ultimately, the Studio’s analysis of available data suggests that the current zoning square footage in the Study Area would allow for ample commercial development appropriate for a growing tech and creative business community; however, this square footage cannot be unlocked without significant regulatory intervention that would mitigate the development pressures of the market. Based on the elusiveness of aggregate data, there is an acute need for a thorough, navigable and low-cost system for tech startups to find commercial real estate options.

**Methodology**

For the purpose of this analysis, the Studio modified the Study Area to include Queens Community Districts (CDs) 1 and 2. The Studio limited its real estate analysis to this area due to its greater share of commercial and manufacturing space, proximity to the Cornell NYC Tech campus, increasing development activity and transit access to the Midtown Manhattan Central Business District.

The Studio gathered data from several commercial brokers working in the area, online commercial property listings, and various other published sources. This analysis relied most on data from: Ariel Property Advisors, Massey Knakal Realty Services, Greiner Maltz Real Estate, LoopNet, Sholom & Zuckerbrot, the NYC Mayor’s Management Report (MMR) 2013, New York City Department of City Planning PLUTO data 2013, the New York City Department of Housing Preservation and Development Housing and Vacancy Survey (2011 HV S), and the NYU Furman Center for Real Estate and Public Policy. This section does not delve deeply into the area’s residential real estate dynamics, as the focus of the tech zone was on commercial use and growth potential.
The Studio discovered that data regarding office space class (A/B/C/D) is not collected in an aggregate manner for sub-geographies as small as neighborhood level. Several professional brokers confirmed that this information is proprietary or simply not collected in aggregate at all. As the Studio was unable to purchase a subscription to real estate data services such as REIS Reports, which are generally in the $1,000-$3,500 range, this level of information gathering proved impossible. This illustrates the barrier to involvement by community stakeholders and nonprofit organizations seeking to learn about the real estate market and encourage tech sector growth.

There were also challenges to obtaining aggregate data for total square footage of underutilized industrial office space. The Studio encountered several instances in which property owners had rented a portion of their building and kept another significant portion vacant. Most significantly, the chosen Study Area is far too large to thoroughly assess vacant or underutilized space into aggregate data. In order to conduct a more intensive real estate inventory of underused property that may be suitable for tech and creative startup companies, it would be useful to hone in on a much smaller area, such as 10-15 square blocks where development activity is most likely to occur.

**DEVELOPMENT TRENDS**

**Types of Development**

According to data compiled by the Department of City Planning, zoning modifications enacted in 1995 and 2004, as well as the Special LIC Mixed Use District designation in 2001, have spurred the creation of 15,945 new residential units. Despite this rapid development, there has been limited non-residential development in the area; in fact, of the 26 new non-residential developments constructed or under construction since 1995 in the Special District and the surrounding area, 18 are hotels. In Long Island City, the remaining new developments include mostly government-owned or institutional buildings, save a few class A office spaces constructed in Court Square.

Tech and creative startup companies need flexible spaces with open floor plates, room for co-working and recreation in the office, laissez faire building management policies, rents below $40 per square foot, and above all short and flexible lease terms with an eye toward business expansion. The Brooklyn Tech Triangle Strategic Plan, citing the gap between the space tech companies need and the underutilized space that exists, proposes some potential solutions to the tech office space crunch in Brooklyn. Despite significant differences between the Brooklyn Tech Triangle area and western Queens, namely the global publicity of the Brooklyn brand and the attractiveness of large-scale developments like CityPoint and Barclays Center, the commercial tech office space issues are similar.

The overwhelming trend in commercial development is that new projects are initiated only when a major tenant is already in place: Citigroup, for example, or an institutional entity like the United Nations Federal Credit Union, or the NYC Department of Health and Mental Hygiene. As cited in the Brooklyn Tech Triangle Strategic Plan, which deals with the complex issues of finding real estate appropriate for tech companies, the promise of tech tenants, many of whom have limited capital and credit, does not incite or justify ground-up development given today’s prevailing ground-up construction costs.
This assumption is supported by current alternatives favored by property owners when residential construction is not permitted by zoning. When a property is not particularly conducive to hotel construction (lot size constraints or undesirable location) and residential construction is prohibited by zoning, our analysis shows that developers in this area have often elected to produce commercial storage facilities. Although storage spaces and Class B and C offices have similar ground-up construction costs (between $150 and $200 PSF) and the space constructed can be very minimalist in terms of add-ons and infrastructure, mini storage has a few key advantages—first, owners can charge a much higher rental rate per square foot (PSF) because of the highly divided space allocation (units average 150 to 300 square feet). Second, storage spaces are easy to rent up quickly due to a catch-all marketing strategy, so significant vacancy rates for extended periods (more common in commercial office buildings) is not as serious a risk. Finally, storage facilities are always needed in urban areas and require very little maintenance, so they are convenient places to invest in an income property that may be easily converted to other uses in the future.

Key Financial Considerations: Capitalization Rates-Construction Costs

A key element in determining what type of property an owner will build on a given site is the capitalization rate – defined as the ratio between the net operating income (NOI) of a given property and the property’s acquisition cost or market value. This ratio is used by investors to assess the potential profitability of a particular investment – the lower the capitalization or “cap” rate, the better. In Queens, Class B and C office buildings located along commercial corridors with adequate transportation access yield a cap rate of between 5.5% and 6%; multi-family residential properties, particularly elevator buildings, yield a cap rate of below 5%. Despite the fairly small difference in percentage, the cap rate reflects the steadier, more profitable NOI that comes with residential development.

A second crucial factor in determining the fate of a particular site is ground-up construction costs. However, these costs (included in the overall development budget during financial analysis) are closely compared with projected NOI. Thus, residential development generally justifies its $300-$350 PSF construction costs, while Class B and C office properties fall short, even at the lower $150-$200 PSF for ground-up builds.

Retrofitting existing older properties for commercial use, therefore, will play a significant role in increasing the number of office buildings appropriate for tech and creative companies. As rehab and retrofit costs per square foot vary widely depending on the current use, age and condition of a building, further investigation should be done on individual properties or groups of properties to analyze their commercial tech office potential.

Commercial Potential: Overview and Comparisons

Over the two year period 2010-2012, New York City ranked 4th in the US “tech twenty” as measured by CBRE (down from its position as #2 in 2009-2011) for the biggest job markets in software development, mobile and social media technologies. NYC high tech services job growth and office rent growth was strong from 2010-2012, with tech jobs growing by 29% overall and rents up 18%. In the Midtown South submarket (the top tech submarket in NYC), rent growth was even stronger over same period at 44%.
The NYC market is undergoing substantial expansion as tech office space vacancy is declining, rents are rising at a faster pace, and new supply office space additions are underway or on the horizon. There is a significant risk in the NYC market as a whole (and in certain submarkets), however, of an impending oversupply of office space. Such an oversupply of office space has the potential to keep PSF prices in areas like western Queens (with very little class A space and insufficient retrofitted space) down.

Deciding where to locate is a key consideration for both tech startups and property investors. The clustering of tech talent is a key driver of both demand for office space and underlying property performance, especially in tech submarkets like Midtown South where rent yields have widened. This drives real estate investors (developers) to prefer higher performing submarkets over areas such as western Queens as investment yields are lower.

The Manhattan Central Business District (CBD) has 10.4% of its total real estate categorized as offices and other commercial space. Brooklyn and Queens, each vying for companies relocating to the outer boroughs, are lagging well behind, with 3.4% and 3.3%, respectively. Strikingly, the land use breakdown in Queens does not yet reflect the quickly rising trend of mixed-use buildings with both commercial and residential potential; while Manhattan has a rate of 13.4%, Queens is at a mere 1.7%. Brooklyn is showing modest growth in this land use sector, with 3.9% of total land use categorized as mixed-use.

Nevertheless, Queens has 6,929 commercial and office lots, 11,332 lots of mixed use, and 3,777 lots of industrial space – a total of 198,532,700 square feet. Comparatively, Manhattan, which covers less than a quarter of Queens’ square mileage, has a total of 122,384,300 square feet of these types of spaces. How can Queens’ ample square footage be capitalized on to accommodate a growing tech sector? This challenge can be mitigated with planning tools to stimulate investment in office space alongside residential development.

**Space Class Breakdown**

Commercial office space is generally divided into three categories: Class A, Class B and Class C. The standards for what makes a space class A versus class C vary widely by sub-market, and can only be classified in relation to the context of office space stock in that particular area. Building classification is more of an art than a science, as no formal standard exists for classifying a building, which is one reason why aggregate data is not collected as mentioned earlier.

Class A buildings command the highest rental rates per square foot and are the newest and best in their market, usually with the highest quality fixtures, amenities and infrastructure systems. Class A buildings also provide the best access to transportation and are usually professionally managed. Class A space is required by large corporations, law firms, and the banking industry. Class B space is the next tier down, and can range widely in its amenities and systems. Class B buildings are generally of older, but well maintained building stock. Class B is often seen as a good investment for developers as it can be renovated or retrofitted to serve various types of office and professional tenants. Class C is the lowest tier of office space, consisting of the oldest buildings in a market that have outdated architectural elements, infrastructure and technology. Class C rents are the lowest
in a given market, and often require extensive renovation to serve modern professional needs.\textsuperscript{xiii}

In terms of division between Class A, B, and C commercial space, western Queens is home to primarily Class C office spaces, with some more recently retrofitted Class B buildings. Class A offices here, which yield an average of $45 per square foot, are concentrated in the Court Square area (Citibank Tower and 2 Court Square are examples). However, the majority of western Queens, apart from its prolific new residential development, is Class C “raw” space and other forms of industrial and traditional manufacturing properties. In fact, based on this Studio’s land use analysis, there is an estimated 12,209,182 square feet of built M-zoned industrial space in our Study Area.

\textbf{Price}

According to commercial brokerage firm Massey Knakal, the average lease price per square foot for both professional office-style industrial space and traditional or “raw” industrial space meets the generally accepted tech requirements for affordability, at $18-22 PSF and $12-14 PSF, respectively.\textsuperscript{xiv} However, in a search for Class B office space with adequate existing infrastructure, opportunities for office space adjustments and build-outs, and adequate distance to public transportation, the range was between $22-30 PSF.\textsuperscript{xv}

The tables found in the Appendix provide a limited snapshot of recent commercial listings in the Study Area, as provided by several brokers and online resources. As the sample size is so low, interpret the average PSF figures with caution. In sales, lower-quality office space yielded an average of $342.37 PSF; even a small number of residential spaces bump the price per square foot up significantly (selected mixed-use properties yield $652.70 PSF). This is due in part to the attractiveness of the classic configuration of retail ground floor use and residential above.

\textbf{Vacancy Rate}

A three percent (3\%) vacancy rate is generally used to calculate net operating income (NOI) on a property; however, a 5\% vacancy rate was cited by Massey Knakal as a positive and low vacancy rate for an industrial office building in the sub-
market that includes the Study Area – for example, the Standard Motor Product Building, which is currently leasing at 95%, and located at 37-18 Northern Boulevard in Long Island City. This building, which several local brokers believe has great potential as a tech office hub, was remodeled within the last four years, and upgraded from Class D to class B office space.

**Lease Terms**

Landlords generally offer a three to five -year lease term with a 5-year option for renewal. Most often, commercial leases are net leases in which the tenant pays an agreed upon rent plus most operating expenses and taxes for the property, including utilities insurance and or maintenance expenses, and is required to pay for utilities, as well as applicable portions of real estate taxes and insurance.

Unfortunately, this complicates a particular concern of tech companies, that five or even three years can be quite a long time for rapidly growing startup firms which may hire new staff at exponential rates. Some commercial spaces listed as loft and creative that were analyzed for this study did offer shorter lease terms, however, such as 12 months to 2 years, so there is evidence that property owners are beginning to respond to tech office market demands. Another significant barrier is that startup tech companies often cannot demonstrate the credit required to sign a typical 5-year lease.

**Major Property Owners**

While the majority of properties are owned by small entities, there are several major players in the Queens real estate development scene. The family behind the company Plaxall Inc., founded by Louis Pfohl in the 1950s, owns more than two dozen properties and 1 million SF of holdings in LIC. The Plaxall family is invested in the long term health of the LIC community and want to see the tech and creative sector grow. The Plaxall family portfolio includes the 10-story, 200,000 SF Hunters Point Plaza office building, and they have plans for a 4-story residential building on 49th Avenue, as well as a food and drink establishment in an old ferry on the waterfront.

In addition, Muss Development LLC, owned by the Muss family, holds a over 1 million square feet of office and mixed-use office/retail space in Queens; this portfolio includes three 2-story buildings with small offices and retail along the ground floor, and two large office towers- the Forest Hills Tower (266,618 SF) and the Queens Tower (170,853 SF). All of these buildings were constructed between 1960-1983, with some expansion in 1995. TF Cornerstone is the most visible major developer in Long Island City, with its six residential towers along the waterfront and Center Boulevard dominating the LIC skyline. TF Cornerstone was also selected to develop Phase II of Hunters Point South, the 5,000 unit moderate and mixed income and mixed use development along the waterfront that house several hundred thousand square feet of new space.

**RESIDENTIAL REAL ESTATE**

Residential development in the Study Area has increased substantially since the DCP-initiated rezonings in the 2000s. DCP-collected data on new Building Permits and final Certificates of Occupancy indicate that from 2000-2009 the vast majority of building permits authorized residential construction. In CB 1 there were 5,311 units authorized by permits, and 2,691 units brought to market with final COs; while
in CB2 there were 6,065 units authorized by permits and 3,555 new units brought to the residential market from 2000-2009.xvii

An analysis conducted by Ariel Property Advisors of 136 multifamily residential real estate transactions in 2013 in western Queens xviii showed a sales volume of $987,587,165. The average price per square foot (PSF) was $246 for the same transactions in 2013. It is important to note that the analysis conducted by Ariel included several neighborhoods with high price variability that may bring down the average. Waterfront neighborhoods in LIC such as Hunters Point, near Queens Plaza and Court Square fetch far higher PSF prices than those farther east or with poor transit access. The sub-neighborhood in western Queens with the highest prices PSF was Hunters Point, at $355 PSF, while the lowest prices were in Glendale at $166 PSF. According to the New York Real Estate Journal, the average turnover rate for multifamily residential properties is 3.95%.

According to the 2011 Housing and Vacancy Survey, the last year for which sub-borough data are available, the homeownership rate in Astoria (CD1) was 15.3%, while in Sunnyside/Woodside (CD2) it was 28.3%. In the same year, Astoria had a total of 79,512 housing units, while Sunnyside/Woodside had 55,149.xvii There were 62,358 renter households and 11,226 owner households in Astoria in 2011; and CD2 had 37,587 renter households and 14,850 owners the same year.

The average lease price for rental housing (based on 2013 data) is $36 PSF. This figure, from Ariel Property Advisors, includes an area considered to be western Queens that is larger than our Study Area, in which lower rental prices significantly bring down the average. Hunters Point had the highest rental prices per square foot in the Ariel analysis, at $45 PSF, while Ridgewood rental rates were $26 PSF.

According to Evan Daniel at Massey Knakal, who specializes in the Long Island City and Astoria neighborhoods, residential rental prices there are closer to $55-60 per square foot. However, as most apartment seekers do not consider price per square foot, another way to state rental prices in the Study Area is by bedroom size and amenities. Rental prices vary greatly along the LIC waterfront, in the new construction at Queens Plaza, and in the Vernon-Jackson triangle. In new elevator buildings with amenities such as a doorman and terraces, upper floor units with
better views will rent for as high as $2,700 a month for an approximately 600 SF 1 bedroom; and $3,500-$4,000 a month for an 800 square foot, 2-bedroom unit.

As the pie charts above show, there is an insignificant share of studio apartments in CDs 1 and 2, while the proportion of 3 bedrooms is also comparatively small. The majority of housing is concentrated in one and two bedroom units. This housing stock, along with the increasing residential development along the waterfront that is driving up rents, poses a substantial challenge for young singles looking for independent living in affordable studio apartments.

The current average rental property vacancy rate for western Queens in 2013 was 3.7%, according to the Census and the 2011 Housing and Vacancy Survey. The chart below, based on Furman Center data, indicates change over time in the residential rental vacancy rates in Queens Community Districts 1 and 2 as compared with Queens County as a whole. The spike in vacancy rates for all three geographies in 2007 reflects the intense construction boom and speculative residential development that took place in western Queens and the city as a whole just before the residential real estate bubble burst in 2008. Despite the age of the available data from the Furman Center, the number of rental units has continued to climb year over year since the real estate bubble burst in 2008.

In addition to 5,305 units of public housing, there are 3,120 units of publicly subsidized apartments in CDs 1 and 2, for a total of 8,425 apartments with affordability restrictions.

As the map below reveals, 2 of this Studio’s 3 Study Areas include no subsidized housing developments at all. Partially this is a function of the zoning context and historic use, primarily manufacturing in areas 1 and 2; it signals, however, that the
new development that is occurring in LIC, mostly in Sub-Area 2, is not geared toward income-limited, affordable units.

The 8,425 affordable units represented in the following map include NYCHA public housing, housing financed or refinanced using Low Income Housing Tax Credits (LIHTC), Project Based Section 8, HUD Section 221, 223 and 236 insurance, financing and rent subsidy programs, Mitchell Lama, J-51 tax exemptions, and other NYC Housing Development Corporation financing. It is important to point out that within the land use analysis Study Areas identified by the Studio, the only affordable housing units present are high density NYCHA public housing properties. In the Study Area, there is a striking lack of income-limited housing that is affordable to households making less than 80% of Area Median Income (AMI), which is $47,000 for an individual and $67,100 for a family of four.xi

Data gathered from the Housing and Vacancy Survey show that the proportion of rental housing units that are market rate steadily increased in the Study Area from 2002-2011, signaling a loss of rent stabilized units. In CD 1 the share of market rate units went from 25.6% to 33.8% over that time period, while the climb in CD2 was even more dramatic, from 18.8% in 2002 to 39.0% in 2011.xii There was a concomitant decrease in rent stabilized units over the same period. The loss of rent stabilized units signals an alarming trend toward the loss of affordable housing in the Study Area. Most of the new construction has been condo units, as this provides higher returns for developers. Likewise, the majority of the new rental housing that has come onto the market is market (luxury) rate and not rent regulated.

![Real Estate Figure 2: Publicly Subsidized and Income-Limited Rental Housing, Queens CD1 and CD2](image)

**DEVELOPMENT SCENARIOS**

Under current zoning conditions, the LIC Study Area can accommodate over 69 million square feet of new development, as 69,558,744 SF of buildable floor area remain unbuilt. According to this Studio’s analysis of 2013 City Planning PLUTO data, there are 70,987,230 square feet of lot area and 96,604,293 square feet of building area in our 3 Study Areas. This total built floor area is made up of 50,672,745 SF of Residential space and 45,939,273 of Commercial space.
Long Island City, especially in CD2, has a significant amount of manufacturing and industrial property that can be used for tech and creative startup firms as-of-right with only some investment in renovation, technology upgrades and retrofitting of space. According to the Furman Center, the percentage of lot area in Astoria (CD1) that is zoned Residential in 2008 was 74.79%, while 23.82% of the lot area was Manufacturing, and a mere 1.38% of lot square footage was zoned Commercial. Similarly, in CD2 only 1.10% of lot area was Commercial, while 46.91% was Residential and 51.99% of the lot square footage was zoned Manufacturing. 

Examining the buildable square footage of floor area available under current zoning does not provide a complete picture of the development potential of the area, however. The multitude of special LIC paired use zoning districts and their unique requirements for lot coverage, maximum building height, and accessory parking spaces creates a layer of complexity that unmapped FAR cannot capture. Market conditions that create higher profit margins and decreased capitalization rates for residential over commercial construction also negate the growth in commercial office space. Construction buildout and renovation or retrofitting costs are also an important factor to be analyzed related to challenges to growth in the commercial real estate sector in LIC.

**REAL ESTATE FINDINGS**

Despite challenges in assessing the economic condition of the Study Area’s commercial condition from an economic standpoint, a key element of the Studio’s analysis was first-person observation. Following an extensive land-use study that took into account not only available GIS data, but also on-the-ground assessment of actual usage, allowed usage, development activity, lot size and lot location, the Studio determined that the major deterrent to ample commercial space and an active environment for a growing tech industry is land use.

**Commercial real estate trends and data indicate that:**

1. The existing commercial square footage does not meet tech companies’ needs for floor plate and amenities requirements, lease terms flexibility, and redundant broadband infrastructure.
2. Based on interviews with experts, area property owners lack the conviction and/or capital to retrofit or rehabilitate their spaces to suit emerging tech business’ needs.
3. The substantial difference in profit margins between residential yields and commercial yields (residential is roughly three times more profitable)
combined with the recent LIC rezonings makes for a pressurized development environment. Land banking is rampant in the area; there is minimal investment in existing buildings, as property owners appear to be waiting until residential conversion becomes a possibility.

4. Current zoning has led to a proliferation of commercial storage facilities and hotels, and the market has not responded to existing zoning by creating new or upgraded office space needed for a growing tech sector.

Residential real estate trends and data indicate that:

1. Affordable housing is at risk as market-rate and condo development is increasing and rent stabilized units are steadily being lost from the Study Area.
2. Higher per square foot costs and greater yields for residential construction make investors and developers most likely to opt for residential construction over commercial where permitted by current zoning.
3. There is an extremely limited number of studio apartments in the Study Area, often a crucial option for young single professionals seeking to live independently.

REAL ESTATE RECOMMENDATIONS

Despite efforts by DCP to amend the area’s zoning to accommodate both residential and commercial growth, current conditions are inhospitable to a growing tech community. Current zoning exacerbates, rather than alleviates, the pressure to develop residential. As a result, the current commercial inventory is too small, too expensive, and technologically archaic. The Studio envisions a future with residential and commercial balance and financial support for property owners choosing to develop well-wired, modern office and manufacturing space, leading to better inventory for growth in the tech sector and a hospitable environment for any entrepreneur. The Queens Tech Studio plans to achieve this future with changes to the existing zoning, use restrictions, a new incentive framework, and a non-profit Local Development Corporation (LDC) management structure that will enable flexible lease terms cognizant of tech startup office culture.

We acknowledge the need for continued residential development, as has been encouraged by the Special Long Island City Mixed Use District. To reconcile the shortcomings of this district, however, including a severe lack of commercial development, speculation in the residential market and the prolific production of commercial storage facilities and hotels where residential is not allowed, we propose the creation of three new sub-districts: The 21st Street Corridor, Queens Plaza South, and Dutch Kills.
Sub-district A, The 21st St Corridor: A New Commercial Hub

Why Here? Bounded by 21st Street to the west, 36th Avenue to the north, 23rd and 24th Street to the east, and Queens Plaza North on the south. The 21st Street Corridor Sub-district boasts easy access to existing commercial hubs and provides proximity to the key public transit hubs. Additionally, this corridor is connected to 36th Avenue, the only existing pedestrian, vehicular, and bicycle throughway to Roosevelt Island and the Cornell NYC Tech campus. The 21st Street Corridor also has a high concentration of large lots over 5,000 square feet. Its M-zoning has led to a proliferation of commercial storage facilities, particularly in areas where hotels are not viable due to distance from transit.

Recommendations: The 21st Street Corridor Sub-district should maintain its existing zoning, M1-1 to M1-5. In order to reduce the proliferation of warehousing and storage facilities, the Studio seeks a Sub-district Zoning Text Amendment to prohibit storage facilities and new hotel development, Use Groups (UGs) 6-14 and 17. This Sub-district should also include a new “Inclusionary Office” incentive framework allowing for a 1.0 FAR bonus for new and retrofitted commercial developments.

The Inclusionary Office Program offers a 1.0 FAR bonus for achieving two of the following: 1) Low cost, redundant fiber internet connection for tenants; 2) Maximum lease price set by median revenue of borough businesses, to be provided by Small Business Services; 3) 12-, 18- and 24-month, incremental leases with flexible renewal and expansion options; and 4) Assumption of electric inclusions and real estate taxes for first three years of building operation. Program will be tested in the 21st Street Corridor Sub-district for a period of 10 years, then reassessed for possible expansion to other manufacturing areas.

Real Estate Figure 3: Special LIC Mixed Use District

The Special LIC Mixed Use District, abutted by three proposed sub-districts.

Sub-district A has a maximum 5.0 FAR and 85' max height, no penetration of the Sky Exposure Plane, required rear yards and loading docks. This physical configuration will preserve a mid-bulk, mid-height industrial feel for a mixed manufacturing and commercial business district.
**Sub-district B, Queens Plaza South: A Live, Work and Play Community**

**Why Here?** Bounded by 11th Street, Queens Plaza South, 21st Street along 43rd Avenue to 23rd Street, extending 100' south of 44th Road. Sub-district B is designed to enable residential growth near the Court Square transit hub, while preserving light manufacturing and office uses. This Sub-district simply extends the Court Square Sub-district of the Special Long Island City Mixed Use District a few blocks west to capture the large underutilized industrial lots in the area. Connections to transit, current landbanking, new investment activity, and adjacency to the already existing Special Long Island City Mixed Use District were the primary reasons for selecting this location.

**Recommendations:** The Queens Plaza South Sub-district should be rezoned from the existing M1-4 zoning to a new M1-6M district with an R7X quality housing equivalent. Mimicking the successful iteration of the M1-6M garment district in Chelsea, this new zoning will facilitate the mixed-use development required for a live-work center for the tech community and help to attract the retail desired by existing residents.

The M1-6M with an R7X equivalent zoning proposed for Sub-district B is designed for higher bulk and greater building heights. This physical configuration enables 10.0 FAR as-of-right with a allowable 2.0 FAR bonus for the creation of a public plaza. Requiring a cohesive street wall through a minimum base height, as well as mandating 50% retail frontage, this zoning creates an innovative live, work, play district with active, attractive streets and the potential for more open space.

Special Zoning Text should be written under this Sub-district, requiring developers to provide 20% of floor area for light industrial or commercial uses in order to receive residential building permits, subject to DCP administrative review. The key difference between this zoning district and the paired M1-4/R7A district adjacent to it is that developers will not be able to choose 100% residential projects, but would have to invest in manufacturing or office space. Allowing for residential development only after preserving or creating commercial/light industrial space, as well as requiring ground floor retail along wide streets, would make for active and attractive mixed use corridors. The Studio also recommends that Sub-district B include a Zoning Text Amendment limiting parking requirements for residential buildings there, as it is located near a key borough transit hub.

**Sub-district C, Dutch Kills: The New Frontier for Start-Up Office Space**

**Why here?** Bounded by 29th Street and 30th Street to the west, Skillman Avenue to the north, 48th Avenue to the south and Van Dam Street to the east.
This area is home to a high concentration of large, historic industrial buildings and buildings listed on the National Registry of Historic Places, both eligibility criteria for Federal Historic Tax Credits. Additionally, portions of Dutch Kills are included as Qualified Census Tracts for New Market Tax Credits, a federal program created in 2010 to encourage development in low-income areas (more about this program, and Dutch Kills’ eligibility, in the Economic Development section of this report). Use of these credits will engage up-front capital for a Master Lessee program, enabling a newly-formed LDC to invest in properties without extensive fundraising prior to obtaining a traditional bank loan or other financing mechanism.

**Recommendations:** Sub-district C should be the testing ground for a Master Lessee program administered by a new LDC setup for this purpose. The LDC will intervene in the real estate market by acting as a nonprofit developer, purchasing buildings, investing in fiber optic Internet redundancy and other appropriate retrofits, and marketing to tech and creative firms. The LDC should begin by working with institutional property owners to target five underutilized sites, designated as start-up office spaces for tech companies. It would partner with large property owners in Sub-district C to lease large portions of buildings and then sub-lease sections to startups, offering shorter, flexible lease terms and affordable, subsidized PSF prices cognizant of tech culture and revenues. Details of this new LDC envisioned by the Studio will be discussed further in the Economic Development section.
3.3 – BROADBAND INTERNET

In an age where information, job opportunities, and city services are increasingly accessed via the Internet, a stable connection to the digital infrastructure is paramount. However, perhaps because of its history as an industrial center, existing broadband connection in the Study Area doesn’t meet the requirements of startups and other tech companies.

By the early 21st century, most consumers had chosen faster broadband technologies such as DSL or cable Internet (or fiber, if available) over the dial-up method from the late 20th century. Fiber-optic connection has become an increasingly important commodity, both for residential and commercial use. People at home want to be able to seamlessly stream videos online, while businesses need an ultra-fast and ultra-reliable connection. As a result, fiber optic infrastructure patterns have important implications for real estate decisions by business owners regarding where to locate their operations.

In order to fully understand the impacts of broadband Internet infrastructure, the Studio did a GIS analysis of data from the New York State Office of Information Technology Services, presented here in a series of maps that illustrate the existing conditions in Queens, Manhattan, and Brooklyn. A comparison of Internet speeds in cities across the globe will lead to a discussion of local incentives and programs relevant to NYC tech companies looking for a new broadband connection.

Broadband Technology

There are three main technologies used by broadband Internet Service Providers (ISPs): DSL, Cable, and Fiber; it is worthwhile to briefly describe them before moving on.

- **Digital-subscriber line (DSL)** – DSL uses the existing copper wire telephone network to transmit data between computers. As a result, DSL coverage is the most extensive of the three because it is available where telephone lines are available. The disadvantages of DSL are that download and upload speeds are asymmetric and differ greatly, and there is a lack of service reliability as phone lines are vulnerable to signal interference.

- **Cable** – Cable ISPs also rely on copper wires to transmit data, but the capacity of the cables is much higher which prevents signal interference. As a result, cable Internet speed and reliability are many times better than DSL.

- **Fiber-optic (Fiber)** – Fiber-optic cables use glass, one of the most stable materials, to transmit data, making it immune to electromagnetic interference so fiber reliability is the best of the three. It also ensures faster speeds because the threaded glass wires are much smaller in diameter allowing more data to be transmitted over the same gauge (width) of cable.

In addition, the broadband network is broadly made of two types of connection:

- **Backbone Connection** – The equivalent of highways of the broadband network, transmitting data between geographic neighborhoods and areas.

- **Last-mile Connection** – The final leg of the broadband network, bringing internet service into buildings.
**Existing Conditions: Broadband Internet Access in NYC**

At home, New Yorkers have a variety of options for connecting to the Internet. Most parts of the city have multiple DSL and cable providers. As Broadband Figure 1 demonstrates, Verizon and MegaPath have almost identical DSL coverage across the city. Similarly, there is a fair bit of cable redundancy shown in Broadband Figure 2, although there are numerous pockets of the city with a Time Warner or Cablevision monopoly on the cable internet market. As a result, most of the city has two faster (cable) options and two slower (DSL) options, but there are parts of Queens and Manhattan with Time Warner as the only cable choice, and parts of Brooklyn with Cablevision as the only cable choice.

As Broadband Figure 3 demonstrates, fiber infrastructure is most prevalent in Manhattan. In Queens, residential fiber tends to be clustered in neighborhoods further to the east of the borough, while commercial fiber is oriented linearly along major business corridors. Although there are many areas in Queens with neither residential nor commercial fiber, these are typically the same areas that have two options of cable providers. Similarly, the neighborhoods with only one cable provider tend to be those that have fiber available.
For residential customers, there is only one option for fiber Internet: Verizon. In contrast, there are over four different commercial cable providers. Broadband Figure 4 identifies the different networks, and shows some interesting patterns. For example, the most robust commercial fiber network is run by Light Tower Fiber LLC, which comprises the majority of fiber coverage in Queens. Midtown and the Financial District in Manhattan have the most overlapping coverage in the city, although there is a fair bit of redundancy in Downtown Brooklyn, and to a lesser extent, Long Island City.

Given that fiber is faster than cable, it is not surprising that the maximum Internet speeds shown in Broadband Figure 5 closely resemble the outline of the commercial fiber networks. What is surprising is that areas with residential-only fiber connections have slower speeds than Cablevision’s cable service. For example, the connection speed in Ridgewood, Queens is slower than that in Bushwick, Brooklyn.
Finally, Broadband Figure 6 shows locations of free public Wi-Fi hotspots in NYC, where anyone can use their smartphone, laptop, or tablet to connect to the Internet. By now the pattern should look familiar, with the majority of the locations offered in Midtown or Downtown Manhattan, and only a handful of such public infrastructure goods located in Brooklyn or western Queens.

Comcast and Time Warner Merger

On February 12, 2014, Comcast Corp. announced a deal to buy Time Warner Cable for $45 billion to merge the two largest cable providers in the U.S. The proposed merger is currently under review by the U.S. Department of Justice, but many already fear that the merger between the two cable giants will cause consumer cable bills to rise for the roughly 30 million subscribers affected. However, a closer look suggests that service reliability and content delivery would be an even bigger problem should this merger go through.
Observers have asserted that the merger will give the newly formed company significant monopoly power to charge subscribers higher rates or ignore service quality. However, closer examination suggests that the merger may not bring considerable disruption to the local cable market, since both cable companies are already operating as monopolies. In fact, according to Comcast’s Chief Executive, Brian Roberts, the two companies “do not operate in any of the same zip codes.”

The New York City cable licensing-franchising market is designed to prevent competition. Therefore, this merger represents essentially an increase in customer-base for Comcast rather than an attempt to eliminate competition.

The real danger of this deal has to do with the so-called “net neutrality” principle, the principle that all Internet traffic is treated with the same priority. If this principle is breached, ISPs could charge some content providers to speed up the delivery of their data or block access to certain websites unless the site owner pays a fee. In fact, Netflix, the television and movie streaming service, has already reached an agreement to pay for faster and more reliable delivery on Comcast’s network. A merger would create a company with access to about 70% of U.S. households, thus, giving it more negotiating power with content providers to set the price of delivery.

With little overlap in their customer bases, the joining of the two biggest cable providers is not likely to disrupt the level of competition and bring rate increases to the local NYC market. However, Comcast’s relationship to content providers after the merger and its effect on “net neutrality” should be monitored as events unfold.

**Broadband Incentive Programs**

**ConnectNYC Incentive Program**

As discussed above, residential broadband access is adequate but commercial access is “spotty and unreliable” in New York City. To correct this problem, the New York City Economic Development Corporation (NYCEDC) created the ConnectNYC program to fund the installation of fiber optic cable in commercial properties. The NYCEDC has allocated up to $14 million for ConnectNYC to cover the full construction costs of fiber connection to commercial buildings for participating companies with offices in NYC and less than 500 employees.

Unfortunately, the program has had limited impact as business owners have not widely taken advantage of this economic development incentive. One challenge is the program’s limited budget; while significant, $14 million is insufficient to work as a game changer for bringing fiber connections to commercial properties across the entire city. Second, the business applicant must enter into a one-year service contract with the ISP prior to starting fiber construction. The resulting increased operating costs can be prohibitively high for small and medium sized firms in many communities such as western Queens. Unfortunately, many business owners have not been willing to take on the ongoing cost of investing in fiber, despite the generous public subsidy.

According to Debra Mesloh, Director of Business Expansion and Retention at the Long Island City Partnership, one small business interested in ConnectNYC was quoted a $700 monthly service fee by the ISP, while its existing DSL plan only cost around $100. In essence, businesses located in areas with poor fiber
infrastructure end up paying the installation costs through the increased monthly service fee.

Fortunately, the ConnectNYC program has some laudable benefits. It has been successful in introducing competition to the fiber market by connecting businesses with smaller, local ISPs that are offering more competitive service rates than the larger ISPs. For example, Projective, a co-working space in on the Lower East Side, saved $1,450 in monthly service fees (and took advantage of a shorter contract term) by choosing Stealth, a ConnectNYC participating ISP, over Time Warner. The score makes it easier for potential tenants to evaluate the quality of the broadband connection of a building and find workspaces that meet their broadband needs.

Despite its success for some, the ConnectNYC program only has limited impact for businesses located in areas not currently served by fiber connection. However, the program’s limited funding and the future-shifting of construction costs can be addressed with regulatory and legal changes, given the political will to focus on fiber connectivity as a priority for outer-borough neighborhood tech development.

**WiredNYC Certification Program**

Since broadband connections in commercial buildings are still below par in New York City, finding workspaces with adequate broadband connection is a challenge for startups and other technology companies. As a result, the NYCEDC created the WiredNYC Certification Program to help commercial property owners to advertise broadband connected buildings to potential tenants that are looking for reliable Internet access.

The WiredNYC Certification Program asks landlords to fill out an internet capability survey of their buildings and return it to NYCEDC for review; NYCEDC then arranges a building audit and issues a Wired Certified score ranging from “Connected” (meeting minimum level) to “Platinum” (best in class). The score makes it easier for potential tenants to evaluate the quality of the broadband connection of a building and find workspaces that meet their broadband needs.

Property owners are also able to find out the capital improvements needed in their buildings to attract tenants in the growing technology sector. One of the problems in bringing improvements to the fiber network is the landlords’ lack of understanding regarding the technology. Property owners often confuse commercial fiber connection with residential connection, which most of them have experience with. The commercial demand for bandwidth makes it commercial-class connection inherently more expensive. In fact, a monthly cost of $3000-$4000 is not uncommon. In addition, commercial ISPs often only bring their cable to the door and leave the landlords’ responsible for the internal infrastructure that connects their tenants to the outside world.

Making Internet connectivity of buildings available to the public and easy to access will put commercial buildings in direct competition in attracting new tenants that demand broadband connection. This will incentivize landlords to continue investing in Internet infrastructure for their buildings in order to not lose out to other landlords. Aggregating their efforts, the Certification Program will improve the quality of broadband connection in New York City.
As a recent program (launched in September 2013), it is still too early to gauge the impact of the WiredNYC Certification Program. However, it represents a step in the right direction and the commitment of the City to help startups and other businesses to find workspaces with broadband connection that fits their needs.

**Findings: Broadband Internet**

1. **The Study Area has inadequate broadband service coverage.** The majority of the best broadband Internet infrastructure is currently located in Manhattan. In comparison, the Study Area’s broadband service has lower speed and reliability.

2. **The market for commercial broadband lacks competition.** Connection to commercial buildings in the Study Area is mainly dominated by one ISP: Light Tower. This greatly limits redundancy and competition among ISPs.

3. **Available incentives to connect businesses to broadband is underutilized.** The ConnectNYC program lacks sufficient funding to make substantial impact and the associated cost makes it difficult for businesses to justify economically.

4. **Certificate program for buildings may help educate landlord about the importance of broadband for business tenants.** Property owners’ lack of understanding of broadband is a major reason why a large part of the Study Area is still unconnected with broadband. Making building connection data available can make it easy for landlords and tenants to evaluate the broadband-readiness of buildings, thus making comparison easier.

**BROADBAND RECOMMENDATIONS**

Use the proposed Local Development Corporation (LDC) to form Public-Private Partnership (P3) to construct a fiber network.

The P3 would bring together the City, a dedicated ISP, and the LDC to improve connection speed, reliability and redundancy and lower cost of connection in the Study Area.

Each party of the P3 is expected to perform a different function:

- City Government coordinates various government agencies to smooth the implementation.
- ISP provides technical advice, performs actual laying of cables, and operates the backbone network when built.
- LDC finances the construction and oversees the implementation.

The first step the P3 should undertake is identifying areas with inadequate broadband connection. The Studio’s recommended sites (The 21st Street Corridor, Queens Plaza South, and Dutch Kills) can serve as pilot, with the option to expand in the future.

The LDC would then issue tax-exempt bonds to finance the cost of construction, a power given by New York State. The low interest rate environment and high credit rating of New York City could help keep the cost of borrowing low and make bond financing a good option.
A "use tax" should be included on the users’ service bills to cover the associated debt servicing cost. The rate and amount of the "use tax" would depend on the number of connected customer of the future network.

The partnering ISP will operate the fiber network when construction is completed. However, a portion of the bandwidth capacity is reserved for government-use and other ISP to deliver broadband service to the covered area.

Bandwidth reservation for government-use will lower the cost for the City to connect its offices in the covered area, but the main purpose is to prepare for the possibility of bring “smart infrastructure” to western Queens. “Smart infrastructure” uses sensors to gather real-time data for analytics and visualization, improving efficiency and environmental-friendliness of infrastructures. xxxviii Allocating Internet capacity for this purpose can accelerate the development of “smart infrastructure.”

Besides inadequate speed and poor reliability, lack of service redundancy and competition are also problems identified within the Study Area. The root of these two issues is the prohibitively high cost of entry into the ISP market. xxxviii Smaller ISPs may not be able to cover the immense cost of wiring construction. Reserving a portion of the bandwidth for leaseback to other ISPs will lower the cost of entry significantly. xl Other ISPs will only need to connect their equipment to the network to begin delivering service. This will encourage competition in the local broadband market while improving service redundancy.

Amend existing ConnectNYC incentive to increase its impact on last-mile connection.

The ConnectNYC program is already in place to try to channel resources to enhance last-mile connection – to individual buildings. However, as mentioned earlier, many businesses do not take advantage of this incentive because of high monthly service charges. To increase its impact, ConnectNYC can work directly with property owners instead of business tenants. The one-year service contract requirement is especially deterring to startups and entrepreneurs because of uncertainties in their short-term outlook. Property owners are much better able to absorb the cost of the one-year contract.

More importantly, the incentive should be made as-of-right in certain districts where last-mile connection is the most lacking. Wiring one building in an underserved area is very different from wiring the whole area. Making the program as-of-right will encourage more buildings to be connected to the network. Economies of scale will lower the average cost each subscriber has to bear, thus reducing the monthly service cost for the whole area.

Educate property owners about broadband demand and technology.

Wiring inside buildings is also important in delivering fast and reliable Internet service to businesses (tenants), but often overlooked by landlords. The lack of knowledge with commercial broadband service is the primary reason for poor Internet connection in buildings. ConnectNYC can work jointly with WiredNYC – the broadband certification program – to promote and educate property owners about providing broadband connection to buildings. Communicating the minimum Internet service requirements potential tenants are seeking to property owners should help them understand what type of upgrades are needed in their buildings to improve Internet service quality.
3.4 – TRANSPORTATION

The Study Area and western Queens in general, feature an abundance of transportation options. Eight subway lines and many bus lines make western Queens easy to reach by public transit, while major roads and East River crossings like the Queens Midtown Tunnel and Ed Koch Queensboro Bridge help connect the area to the rest of Queens, Long Island, and Manhattan. Other modes of transit like the East River Ferry and bike lane facilities enhance western Queens’ transportation infrastructure.

However, the area faces challenges in terms of mobility and continuity between the north/south corridors. In addition, some sections are completely neglected by public transportation of any sort. Even though there is transit redundancy into and out of the Study Area, it is important to note that these options are heavily concentrated in Queens Plaza. Therefore, it is worth highlighting the need to take into consideration extending service to these locations, and to create alternate transport modes. Another challenging aspect to observe is the lack of critical pedestrian and traffic safety measures along 21st Street, which over the last decade has been the site of multiple injuries and fatalities.

Lastly, a number of additional transportation projects have been proposed for western Queens, such as the Roosevelt Island Tramway extension and additional East River Ferry stops in Queens and Roosevelt Island. This chapter is divided into three sections. The first section analyses the existing transportation modes. Following, there is a section devoted to identifying constraints for the transportation network. The last section focuses on the possible solutions to improve the connectivity in the area.

**Existing Transportation Modes**

The existing transportation modes section contains an inventory of the existing transport modes and infrastructure within western Queens, including Astoria, Long Island City, Hunters Point, and Roosevelt Island (Manhattan). The different modes found within the area are subway, buses, tramway, bicycle facilities, ferry service, and automobiles.

**MTA New York City Transit**

Western Queens is serviced by MTA New York City Transit Buses and Subways. For subway access, the E, F, G, M, N, Q, R, and 7 trains all run through the area, providing direct connections to Manhattan and Brooklyn. Bus access is also readily available throughout the area, providing east-west and north-south travel options, including connections to Brooklyn, Manhattan, and LaGuardia Airport. Below, are statistics showing bus and subway ridership within the Study Area.

<table>
<thead>
<tr>
<th>Transportation Table 1: Study Area Subway Routes - Ridership</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subway Station</td>
</tr>
<tr>
<td>----------------</td>
</tr>
<tr>
<td>21st Street - Queensbridge</td>
</tr>
<tr>
<td>Court Square - 23rd Street</td>
</tr>
<tr>
<td>Queens Plaza</td>
</tr>
<tr>
<td>Queensboro Plaza</td>
</tr>
<tr>
<td>Vernon Boulevard - Jackson Avenue</td>
</tr>
</tbody>
</table>
With the future Cornell-Technion campus on the southern portion of Roosevelt Island, the F train connection between Roosevelt Island, western Queens and Manhattan will help foster the growth of tech in western Queens, as it will provide accessibility in and out of the Study Area. New York City Transit’s extensive infrastructure in western Queens can prove beneficial for the connectivity of higher educational institutions in surrounding areas. Numerous educational institutions in Queens, Brooklyn, and Manhattan are situated within close proximity to public transit. These include:

- St. John’s University
- CUNY Law School*
- CUNY LaGuardia Community College*
- CUNY York College
- Cornell-Technion Campus**
- CUNY Hunter College (Manhattan)

*Within Study Area
**Future campus to be built on Roosevelt Island

<table>
<thead>
<tr>
<th>Bus</th>
<th>Route</th>
<th>2011</th>
<th>2012</th>
<th>2011-12 Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q18</td>
<td>Maspeth 69th St/Grand Av - Astoria 27th Av 2nd St</td>
<td>2,544,439</td>
<td>2,590,414</td>
<td>45,975</td>
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<tr>
<td>Q19</td>
<td>Flushing/Roosevelt Av/Main St - Astoria/Astoria Blvd</td>
<td>733,947</td>
<td>810,382</td>
<td>76,381</td>
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<td>Q39</td>
<td>Ridgewood/Cooper Ave/60 Ln - LI City 28th St/Qnz Plz S</td>
<td>1,619,604</td>
<td>1,590,125</td>
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<tr>
<td>Q60</td>
<td>S. Jamaica 109th Av 157th St - E. Midtown /E.60th St 2nd Av</td>
<td>4,900,914</td>
<td>4,793,143</td>
<td>-107,771</td>
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<tr>
<td>Q66</td>
<td>Flushing/Roosevelt Av/Main St - LI City 28th St/Qnz Plz S</td>
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<td>Q67</td>
<td>Ridgewood/Metropolitan Av/Fresh Pond Rd - LI City Qnz Plz S/28th St</td>
<td>692,826</td>
<td>685,648</td>
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<tr>
<td>Q69</td>
<td>LI City 28th St/Qnz Plz S - Jackson Hts 82nd St/Astoria Blvd</td>
<td>3,046,006</td>
<td>2,887,471</td>
<td>-158,535</td>
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<tr>
<td>Q100</td>
<td>LI City Jackson Av/Qnz Plz S - Riker’s Island</td>
<td>1,319,577</td>
<td>1,420,910</td>
<td>101,333</td>
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<td>Q101</td>
<td>Steinway Hazen Street/19th Av - Queensboro Bridge Exit/E.61st</td>
<td>1,032,556</td>
<td>1,020,574</td>
<td>-11,982</td>
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<td>Q102</td>
<td>Roosevelt Island Goldwater Mem Hospital - Astoria 27th Av/2nd St</td>
<td>774,738</td>
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<td>Q103</td>
<td>Astoria 27th Av/2nd St - Hunters Point Vernon Blvd/Borden Av</td>
<td>138,205</td>
<td>160,918</td>
<td>22,713</td>
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<td>Q104</td>
<td>Sunnyside 48th Street/Qns Blvd - Ravenswood 11th St/34th Av</td>
<td>669,605</td>
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<tr>
<td>B32</td>
<td>LI City 44th Dr/21st St - Williamsburg Bridge Plaza</td>
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<td>&lt;no data&gt;</td>
</tr>
<tr>
<td>B62</td>
<td>Queens Plaza - Downtown Brooklyn Boerum Pl/Livingston St</td>
<td>3,392,036</td>
<td>3,276,948</td>
<td>-115,088</td>
</tr>
</tbody>
</table>
Automobile
Western Queens has an extensive automobile roadway infrastructure. This infrastructure includes bridges, tunnels, highways, and main arterial roads. Three East River crossings offer connectivity between Queens and Manhattan: The Robert F. Kennedy Triborough Bridge (Interstate 278), the Ed Koch Queensboro Bridge, and the Midtown tunnel. These three provide connectivity while also linking to main road feeders that maintain a general east-west direction, such as the Grand Central Parkway, New York State Route 25A, Queens Boulevard, Northern Boulevard, Bronx-Queens Expressway (BQE), and Interstate 495.

All three roads are connected by the north-south Brooklyn Queens Expressway (BQE), which intersects the Grand Central Parkway in eastern Astoria and the Queens Midtown Expressway in Sunnyside. The BQE continues south into Brooklyn, crossing Newtown Creek and passing through Greenpoint and Williamsburg before continuing south through Brooklyn.

Roosevelt Island Tramway
Roosevelt Island, the future home of the Cornell-Technion campus, features limited connections to Manhattan and Queens. The Roosevelt Island Tramway, one of the few transportation modes in and out the island, travels between the Manhattan station at 2nd Avenue between 59th and 60th Street and the tram station at Roosevelt Island. The service covers a distance of 3,140 feet in three minutes traveling at a speed of 17 miles per hour and reaching a maximum height of 230 feet. Each tramway carriage can carry a maximum of 109 passengers.

Both terminal points connect to nearby subway stations. The Manhattan terminal is located on 2nd Avenue, just a block from the entrance to the Lexington Avenue 59th Street Station. At this station passengers can take the N, Q, R, 4, 5, and 6 trains, which connect the downtown and uptown area in Manhattan, the Bronx, Queens and Brooklyn. Further south, there is also connectivity to the E train, which runs crosstown on 53rd Street before turning south on 8th Avenue. The Roosevelt Island terminal is also located approximately one block from the Roosevelt Island stop on the F train - the only subway station on Roosevelt Island.
**East River Ferry**
The East River Ferry is operated by NY Waterways and connects western Queens to Midtown Manhattan and the Financial District, as well as Downtown Brooklyn. It docks in Manhattan along the East River between East 34th Street and 35th Street and Pier 11-Wall Street and in Queens at 54th Avenue on Second Street. It connects to the LIRR trains at Borden Avenue, and the 7 train at the Vernon Boulevard/Jackson Avenue station.

**Bike Facilities**
Bike facilities in western Queens offer an alternative to automobile and public transit. Current bike lanes travel north-south and east-west, connecting to train stations, and creating an accessible corridor along Queens Plaza north and south. Most of the existing network consists of shared bike lanes.

*Adding an additional stop on the East River Ferry would give residents and students an alternative mode of transportation access to Roosevelt Island.*

*Transportation Figure 2: East River Ferry Map*

*Transportation Figure 3: Study Area Bicycle Routes*

*Bicycle Networks in the Study Area. The Dotted lines are future bike routes that will be implemented by the New York City Department of Transportation.*
Challenges and Issues

Based on the existing conditions, several constraints were found that pose challenges to the connectivity of the area. Moreover, this hampers the local mobility of residents along the north and south corridors, as well as having a negative impact on local businesses. These challenges require attention as they can deter the attractiveness of the area for existing and prospective businesses and residents.

Automobile Congestion and Parking

The main automobile challenges faced in the Study Area are traffic congestion and connectivity. The traffic congestion is mainly located at Queens Plaza as a result of merging traffic between Queens Boulevard and Northern Boulevard. Traffic congestion not only increases overall travel times, it is also detrimental to the environment. Parking within the Study Area also poses a concern to motorists. There is a limited parking, affecting business owners and residents who use a vehicle as their main source of transportation. Side streets are mostly crowded and parking garages are costly where they are available.

MTA New York City Transit Challenges

Within the Study Area, there are several un-serviced transit pockets that pose difficulty to residents’ mobility. These areas are located between Vernon Boulevard to 21st Avenue, between 40th Avenue to 34th Avenue, and along 21st Street to 31st Street, between Northern Boulevard and 35th Avenue. This challenge poses an issue to overall intra-western Queens connectivity, forcing residents to walk long distances to gain access to bus and subway services. In addition, residents in the Queensbridge Houses are only served by the F train, limiting their commute options in the case of service changes or disruptions on the line.

Transportation Figure 4: Walking Distance from Public Transit

A large percentage of the Study Area is at least a half-mile from public transit access.

Tramway and Ferry Service – East River Crossings

Connectivity between the Study Area and Roosevelt Island is limited. The island is serviced by one bus line (Q102) that accesses through the Roosevelt Island Bridge on 36th Avenue and loops around the island in its route. With the addition of the future Cornell-Tech campus, there will be a demand for increased bus service and options on and off Roosevelt Island. In regards to the tramway, one of the main
issues is its hours of operation. The tramway only serves Manhattan and Roosevelt Island, leaving a void for residents who want an alternative route to Roosevelt Island from Queens. This may be to the detriment of the population that the Cornell-Tech campus will bring.

Bicycle Facilities
The Study Area is one of the many neighborhoods in New York City that has seen an increase in cyclists over the past few years. However, the bicycle infrastructure has not kept pace with the growing cyclist population. For Roosevelt Island access there is one bike lane mirroring the bus route, which uses the Roosevelt Island Bridge for accessibility. Bike lanes within the Study Area also do not provide optimal north-south connectivity, as there are only about 15 bike lanes in place. New York City’s bike share program, Citi Bike, is not expected to arrive in Queens until late 2015. If the bicyclist population continues to grow, the City may have to rethink and expedite the process of expanding Citi Bike service to Queens.

21st Street Pedestrian / Traffic Safety Measures
21st Street traverses the Study Area from its northern to its southern tip. This street is a popular commercial corridor and trucking route. It is characterized by its amplitude, lending itself to cars, trucks, and motorcycles to speed through the highly populated neighborhoods of Long Island City and Astoria.

In the last decade, seven fatalities and over 100 injuries were documented due to vehicular collisions on 21st Street. This is a considerable rate of injury for an area that houses IS 126, Long Island City High School, Bishop Lakovos Senior Housing, and Queensview North and East. The conditions of the street threaten the safety of pedestrians, cyclists and drivers daily.

As 21st Street continues to be one of the most dangerous streets in New York it is necessary to assess its safety mechanisms, as it is imperative to protect the lives of pedestrians.

Transportation Concepts & Plans
Roosevelt Island Tram Extension - Project Description
In the fall of 2013, Claire Weisz, Mark Yoes, and Jacob Dugopolski of WXY Architecture + Urban Design proposed extending the Roosevelt Island Tram in both directions. The idea is for the Tram to extend from Queens Plaza to Central Park. A map of the plan and a rendering of the proposed Roosevelt Island Tram extension are shown on the following page.

Benefits
- The tram could serve as an attraction for tourists linking them to the museums and galleries of Long Island City.
- Serve commuters with a transit option that provides great views of NYC and easy access to Cornell’s new Tech Campus on Roosevelt Island from both Queens and Manhattan.
- The East River Ferry could be expanded to connect neighborhoods directly across the river from one another. Paired with new bikeways and express bus routes along the waterfront, the ferry would offer a quicker transportation alternative to existing multi-stop bus and subway routes. This could create new access points at:
  - Roosevelt Island
- Pier 35
- Houston Street
- Stuyvesant Cove
- Jay Street
- Brooklyn Navy Yard

**Challenges**

- The project is in early stages and not entirely planned out.
- Costs of funding new physical infrastructure are high.
- Political support is lacking.
- No coordination with Cornell Tech Campus as of yet.

**Transportation Figure 5: Rendering of Roosevelt Island Tram Extension**

**Transportation Figure 6: Map of Roosevelt Island Tram Extension**

*Source: WXY Architecture + Urban Design*
East River Ferry Expansion - Project Description

New York City Economic Development Corporation (NYCEDC) conducted a comprehensive citywide study, CFS2010, for ferry transportation throughout New York City. Referring to the CFS2010 recommendations, the City of New York launched several ferry initiatives including the East River Ferry. The goals of this project are to identify new ferry service opportunities, increase economic impact, and evaluate the potential of ferry service as a viable transportation option in New York City.

Benefits
- 11 new stops along five additional ferry routes, including East 23rd Street and Grand Street in Manhattan, Astoria in Queens, and St. George on Staten Island.
- EDC outlined the potential for 11 new ferry stations which include:
  - Van Brunt Street in Red Hook
  - Bay Ridge
  - Astoria Cove
  - Roosevelt Island South
  - Long Island City North
  - Soundview in The Bronx
  - East 62nd Street
  - East 23rd Street
  - Grand Street
  - St. George on Staten Island
  - Beach 108th/116th Street in Queens
- Expand ferry service to LaGuardia Airport.
- Increase access to NYC waterfronts.
- Ferry service provides key part of economic growth in waterfront communities.
- Increase in ridership.
- East River Ferry service is extended until 2019.

Challenges
- Lack of political support.
- No word yet on whether the city or private ferry companies are willing to spend tens of millions of dollars to get the new routes operational.
- In addition to an annual cost to run of $10 million, the 11 new stops would also require an $80 million capital investment to build docking stations, including barges, ticketing machines, benches and bike racks.

Citi Bike & Bike Lanes in Long Island City

Benefits
- Local support for adding bike lanes and Citi bike docking stations. North-south connectivity to supplement lack of bus routes.
- North-south connectivity to supplement lack of bus routes.
- Eleven docking stations are expected to be installed in Long Island City at sites like LaGuardia Community College, MoMA PS1 and Gantry Plaza State Park.
- Transportation advocates said the program could also make life easier for Brooklyn to Queens commuters and actually make the roadways safer as drivers get more accustomed to cyclists.
Roads designated for the shared and buffered bike lanes include portions of 11th Street, 39th Street, 49th Avenue, and Skillman Avenue.

**Challenges**
- Many elected officials and biking advocates don’t think the bikes will ever materialize without a commitment from the City Hall to expand the program, which had been conceptualized as a citywide network.
- There is no set timeline for this project. Local officials hope that the plan will roll out by the end of 2015.

**East Side Access - Project Description**
East Side Access is one of the largest public works projects in the history of the United States. East Side Access will connect the Long Island Rail Road’s (LIRR) Main and Port Washington lines in Queens to a new LIRR terminal beneath Grand Central Terminal in Manhattan. The new connection will increase the LIRR’s capacity into Manhattan, and dramatically shorten travel time for Long Island and eastern Queens commuters traveling to the east side of Manhattan.

**Benefits**
- Serving approximately 162,000 customers a day, providing a faster and easier commute from Long Island and Queens to the east side of Manhattan in a new 8-track terminal and concourse below Grand Central Terminal.
- Reducing Penn Station train arrivals while increasing LIRR Manhattan arrivals by 41 percent.
- Reduced pedestrian crowding in Penn Station.
- Reduced crowding on subway lines that use Penn Station and the No. 7 line.
- Reduced daily vehicle miles of travel in the region and improving air quality.
- Allowing for Metro-North Railroad service to Penn Station, thereby providing for a more balanced transportation system.
- New Sunnyside Station: A new station at Queens Boulevard along the LIRR’s main line into Penn Station will serve commuters and act as a catalyst for economic development and growth in Long Island City.

**Challenges**
- Lack of transit connectivity; there is no direct connection to any other mass transit network.
- The new plan is projected to cost more than double the original $4.3 billion budget, with a new estimate of $10.8 billion.
- The project is now delayed until 2023, taking over a decade longer to complete.
TRANSPORTATION GENERAL FINDINGS

1. The Study Area is well served by public transportation: There are 8 subway lines, several bus lines, ferry service, tramway, and bike facilities.

2. Transportation offers accessibility to educational institutions within and around the Study Area: With access to public transportation, college and university students have the opportunity to travel and network with neighboring institutions, which can prove beneficial to the tech ecosystem.

3. The Study Area is well connected to surrounding boroughs and Nassau County: The existing infrastructure offers residents a variety of options to connect to Brooklyn, Manhattan, The Bronx, Eastern Queens, and Nassau County. Multiple bridges, tunnels, and roadways connect the area. This sprawling connectivity makes the Study Area easily accessible.

4. Lack of connectivity within Study Area borders: Although there are many modes of transportation in the Study Area, several areas remain “transit deserts,” where residents experience difficulty finding public transit to traverse the area.

5. Poor access to Roosevelt Island: The F Train and the Q012 bus via the Roosevelt Island Bridge are the only routes between Queens and Roosevelt Island. With the future of the Cornell-Tech campus, access to Roosevelt Island will have to improve to accommodate the influx of students traveling to and from school.

6. 21st Street calls for better pedestrian and traffic safety measures. 21st Street, known for its ample travel lanes, and as a popular commercial corridor and trucking route, needs pedestrian, cyclist, and automobile safety improvements. Accountable for seven deaths in the last decade and more than 100 people injured, the corridor needs pedestrian improvements. These improvements not only save lives and enhance quality of life, but also boost businesses along the corridor.

7. Room for future transportation development: The Study Area boasts an extensive transportation infrastructure, which provides the opportunity to expand and enhance the already existing system. This will lead to a more efficient and effective transit network in the Study Area.

TRANSPORTATION RECOMMENDATIONS

The transportation recommendations contained in this chapter portray the culmination of more than seven months of research and study to identify the transportation needs of the Study Area. These recommendations are targeted to enhancing traffic operations, and the safety of all street users in the Study Area. The study and research performed to date, suggests that potential solutions to the issues vary depending on the scale of the project. Therefore, the recommendations presented in this chapter include some short-term improvements, followed by long-term projects.

**Improve Access between Queens and Roosevelt Island**

Access to Roosevelt Island is paramount to the future growth of western Queens as a tech sector. With the future Cornell-Technion campus set for completion on the island by 2018, improving access to Roosevelt Island from Queens will be vital for the incoming student and faculty population. Currently, only the F train and Q012 bus service Roosevelt Island from Queens.
Transportation Figure 7: Recommendations for Access to Roosevelt Island

New subway station.
Build a new subway station using the 53rd Street tunnel (E/M lines) which runs directly under the southern tip of Roosevelt Island. This additional station would offer residents an alternative route to Roosevelt Island, while providing relief on the overcrowded F line.

Extend the Roosevelt Island Tram into Queens.
Prioritize improving the connection between Queens Plaza and Roosevelt Island as the first phase to consider in this project.

Expanded Ferry service.
Expand the East River ferry service to Roosevelt Island. It would include creating a connection from the Hunters Point/Long Island City stop to Roosevelt Island.

Ed Koch Queensboro Bridge elevator.
Create a bridge elevator on Ed Koch Queensboro Bridge with direct access to Roosevelt Island to service pedestrians and cyclists.

Improve Mobility within the Study Area
Despite the various modes of transportation in the Study Area, there are various pockets of land that are considered “transit deserts” because of poor access to transit and lack of connectivity with the surrounding neighborhoods.

Expand bus service, making sure to service area “transit deserts.”
Add additional bus service, change certain bus routes and create new ones that travel through the Study Area.
**Additional bike lanes and bike racks.**
Add additional bike lanes and docking stations to improve connectivity.

**Pedestrian way-finding signage.**
Create a sense of a place by adding signage to provide residents with a sense of distance and direction within the neighborhood.

**East Side Access – Sunnyside Station**
This new connection will increase the Long Island Railroad’s (LIRR) capacity into Manhattan, and shorten travel time for commuters from Long Island and Eastern Queens. With the completion of East Side Access, a new LIRR station will open in Sunnyside, Queens. The new Sunnyside station will be located at Queens Boulevard and Skillman Avenue, but the proposed station does not have any direct connections to any other public transit options.
Create Connectivity between subway stations.

Connect proposed Sunnyside station to New York City Transit, Queensboro Plaza (7, N, Q); Queens Plaza (E, M, R); and 33rd Street- Rawson Street (7).

**Pedestrian Safety on 21st Street**

21st Street is a popular commercial corridor within the Study Area. This wide street is used by cars and trucks, and runs through densely populated neighborhoods. Pedestrian safety has been an issue along 21st Street for years, and measures have to be taken in order to eliminate pedestrian and bike accidents, because this corridor will only become more crowded as the student population moves into the area.

**Transportation Figure 10: Future East Side Access and Station Connectivity**

**Transportation Figure 11: Pedestrian Safety on 21st Street**

**Recommendations**
- Direct Connection to Subway Stations
  - Underground Tunnel or Overpass
  - Shuttle Service

**Recommendations**
- Traffic Calming
- Bus Rapid Transit: South BK to North BK
- Improve bicycle and pedestrian conditions

**Political Support**
- David长江, President (D-Manhattan)
- Michael Garcia, State Senator (D-Astoria)
- Aravella Simotas, Assemblyman (D-Astoria)
- Jimmy Van Bramer, Councilman (D-Sunnyside)
Transportation Figure 12: Pedestrian Safety on 21st Street

Transportation Figure 13: Pedestrian Safety on 21st Street
Traffic calming on 21st Street.
Several traffic calming alternatives are proposed for the 21st Street Corridor. Bus Rapid Transit (BRT) is one of the alternatives to slow down traffic and to create safer streets for pedestrians. This system would not only act as a traffic-calming alternative, but will also connect the Study Area with the South Bronx and Northern Brooklyn.

Transportation Figure 14: Proposed 21st Street Bus Rapid Transit Route
4 – HUMAN INFRASTRUCTURE

This section analyzes the human infrastructure components important to consider in the creation of a tech zone. These key components are political and community landscape, major demographic trends, economic development programs and placemaking. These human capital related subjects are essential to the comprehensive planning approach used by the Studio, as they complement the physical infrastructure.

4.1 – POLITICAL LANDSCAPE

This section presents the political landscape found in the Study Area. It lists elected officials and community-based organizations, their involvement in the political arena and their community engagement.

Elected Officials

A large number of elected officials are involved in the development of the tech sector in Queens, seeking to reduce the negative effects of rising property values and increasing Queens residents participation. A wide array of politicians and political bodies represent the area, from the Queens Borough President, to City, State and Federal elected officials. The various levels of political representation of the Study Area include:

- Queens Community Boards 1 and 2
- Queens Borough President Melinda Katz (D)
- NYC Council Member Jimmy Van Bramer (D, 26)
- NYC Council Member Costa Constantinides (D, 22)
- Governor Andrew Cuomo (D)
- Representative Carolyn Maloney (D, 12)
- Representative Joe Crowley (D, 14)
- NYS Senator Michael Gianaris (D, 12)
- NYS Assemblymember Margaret Markey (D, 30)
- NYS Assemblymember Aravella Simotas (D, 36)
- NYS Assemblymember Catherine Nolan (D, 37)

Community Boards 1 & 2, Queens

The Study Area falls within Queens Community Boards 1 and 2. Each year, the Community Boards release the District Needs Report to summarize the concerns of the community. Both CB#1 and CB#2 called for improvements in their 2013 District Needs Report. These improvements include local air quality, more public space, solutions to the lack of affordable housing, and concerns about the ability of the existing water and sewage infrastructure to accommodate high-density residential development.\[xii\]

Queens Borough President Melinda Katz

Queens BP Katz is a leading elected official from whom the Queens Tech Zone can cultivate support. She served as a City Council Member representing the 29th district (Forest Hills, Rego Park, Maspeth, Kew Gardens, Richmond Hill, South Elmhurst) from 2002-2009. While on the City Council, Katz served as Chairperson of the Land Use Committee, and oversaw numerous changes in the zoning code. Katz was a NYS Assembly Member in the late 1990s, and formerly the Director of Community Boards for the Queens Borough President. After her run for NYC Comptroller in
2009 against John Liu, Katz returned to the private sector, joining law firm Greenberg Traurig. Based on her platforms and experience, Katz will be a valuable partner and point-person in the implementation of a Queens Tech Zone. Katz identified the following points in her economic development plan:\textsuperscript{xlii}

- Promote Queens as a brand
- Attract new tech businesses
- Create incentives and tax breaks to bring small businesses to Queens
- Prioritize new development of incubator spaces for tech startups
- Work with MTA New York City Transit on improving transportation options
- Modernize new construction projects; equip buildings with fiber based internet access

City Council

Costa Constantinides’ District 22 covers Astoria and other parts of northwest Queens. He was elected in November of 2013 to represent the district, which was open due to Councilman Peter Vallone Jr.’s term limitation. Constantinides has a background in law and community organizing, having served as a staffer for the previous CM Gennaro, who served as Chair of the Environmental Protection Committee. Constantinides also served as Democratic District Leader and President of the Queens County Young Democrats.

Jimmy Van Bramer represents District 26, which includes portions of Long Island City, Sunnyside and Woodside. Council Member Van Bramer was first elected to represent the 26\textsuperscript{th} District in 2009. He previously worked with the Queens Public Library as its Chief External Affairs Officer, advocating for adequate funding of the system. The son of union members, Van Bramer advocates for workers’ rights and enhancing the educational opportunities of district residents. Under the leadership of Speaker Melissa Mark Viverito, CM Van Bramer was appointed to the influential post of Council Majority Leader. Both Constantinides and Van Bramer have been champions of economic growth and development within western Queens.

New York State Governor Andrew Cuomo

In his 2013 State of the State address, Governor Cuomo announced his Innovation Hot Spots initiative- - a potentially advantageous and relevant development, as this initiative emphasizes Cuomo’s vision of cultivating technology in New York State.\textsuperscript{xliii} The program will see the creation of ten higher education/private sector tech incubators across the state, with specific sites to be determined. The proposed "Hot Spots" will be tax-free zones in the hopes of further incentivizing growth.

Representative Carolyn Maloney (D, NY 12)

The support of Rep. Maloney will also be helpful in establishing a Queens Tech Zone. Rep. Maloney plans to capitalize on the existing features of Long Island City, such as its great transit options, diverse population and growing business district.

Representative Joe Crowley (D, NY 14)

Representative Crowley supported efforts to transform an Anable Basin warehouse in western Queens into a tech incubator; he acknowledged that innovation and technological advancement have replaced manufacturing as economic powerhouses.\textsuperscript{xliiv} Anable Basin’s location, directly across from the southern tip of Roosevelt Island, could make it one of the first areas to see growth spurred by tech offshoots of the Cornell NYC Tech campus.
NYS Senator Michael Gianaris (D, NY 12)

Senator Gianaris has worked to bring one of Governor Cuomo’s proposed Innovation Hot Spots to western Queens since the initiative was announced in January 2013. He said the Cornell NYC Tech campus on Roosevelt Island can be a boon to the economy, and that public efforts should be made to direct growth throughout Queens.

Senator Gianaris also has been an advocate for improving public transportation in the area, stating, “As western Queens continues to include our city’s fastest-growing neighborhoods, we need to make sure public transportation keeps up.” Most recently, Gianaris worked with MTA New York City Transit to increase service on the Q103 bus, which he referred to as “…a vital bus line that serves the subway-vacant areas of Astoria and Long Island City.” With the addition of the Cornell NYC Tech campus on Roosevelt Island, the student population will significantly increase demand for public transportation.

NYS Assembly Members (Districts 30, 36, and 37)

Three members of the New York State Assembly represent the area of study; Margaret Markey, Aravella Simotas, and Catherine Nolan represent the 30th, 36th, and 37th Districts respectively. Notably, 12 Queens Assembly Members joined forces in April 2013 to co-author a letter to Governor Cuomo urging him to locate one of the potential Tech Innovation Hot Spots within Queens.

Community-based Organizations

The Study Area is also served by a number of community-based organizations that will be important players in the way Queens Tech Zone takes shape. These organizations represent a broad range of interests. Their interests include maintaining and enhancing the quality of life for residents of the Study Area and beyond. Organizations range from multifaceted social service agencies like the Riis Settlement House, to single interest organizations like the Friends of Gantry State Park. Community-based organizations active in the Study Area include:

- Urban Upbound (formerly the East River Development Alliance)
- Hellenic American Neighborhood Action Committee (HANAC)
- The Jacob A. Riis Neighborhood Settlement House
- Green Shores NYC
- LIC Community Boathouse
- Friends of Gantry State Park
- Newtown Creek Alliance
- Newtown Creek Community Advisory Group
- Long Island City Artists
- Long Island City Cultural Alliance
- Dutch Kills Civic Association
- Long Island City Restaurant Association
- Long Island City Partnership

Grouped broadly, this list is comprised of social service agencies, open space access and preservation, cultural organizations and civic organizations, as well as business organizations, and the Long Island City Partnership.
Social Services
Organizations like Urban Upbound, HANAC, and the Jacob A. Riis Neighborhood Settlement House provide a broad range of services to residents of the Study Area and beyond. Typical programs include youth and senior services as well as counseling and immigrant programs.\textsuperscript{xlvii-xlix} Urban Upbound focuses more directly on providing financial education and services to clients through their federal credit union, financial counseling, and employment services programs.\textsuperscript{i} These agencies provide vital services to the most at-risk community members within the Study Area.

Open Space Access and Preservation
The waterfront is an important element of the Study Area. Accordingly, a number of organizations are active in rehabilitating, maintaining, and enhancing the space. Organizations like Green Shores NYC and the LIC Community Boathouse educate the community, assist with shoreline cleanup, and run boat rental programs.\textsuperscript{iii} Friends of Gantry State Park is more limited in scope, promoting green and publicly accessible space within Gantry State Park and the neighborhood, as well as working to maintain the park’s vegetation and landscaping.\textsuperscript{iii} Groups like the Newtown Creek Alliance and Newtown Creek Community Advisory Group are involved with the remediation of chemical waste in Newtown Creek through the Superfund process.\textsuperscript{lv}

Cultural Organizations
Long Island City Artists and the Long Island City Cultural Alliance are arts advocacy organizations.\textsuperscript{lv-iv} Long Island City Artists promotes artist exhibitions and helps to disseminate other relevant information. The Long Island City Cultural Alliance represents the leading visual arts museums within the area. These cultural organizations work to ensure that there will continue to be a vital arts community in Long Island City.

Civic Organizations
Since its formation in 1979 The Dutch Kills Civic Association has promoted the Dutch Kills area of Long Island City and lobbied elected officials and city agencies to enhance services. Following from this broad approach, the Civic Association strives to “maintain the community as a desirable place in which to live and work.”\textsuperscript{xviii}

Business Organizations
The Long Island City Restaurant Association formed in late 2013 to promote the neighborhood and collectively voice grievances with the health department grading system and sanitation department services Long Island City.\textsuperscript{lx} The group also hopes to steer public perception of the neighborhood away from being a hipster haven in favor of a quality dining district with something to offer everyone.\textsuperscript{l}

Long Island City Partnership
The Long Island City Partnership (the “Partnership”) has played a part in fostering the Queens Tech Zone plan. As a Business Improvement District (“BID”), the Partnership provides services to the commercial core of the neighborhood, with boundaries spanning Queens Plaza North/South, and Jackson Avenue.\textsuperscript{lxii} The BID’s mission is to advocate for economic development and growth within Long Island City.\textsuperscript{l} The Partnership has worked closely with Coalition for Queens to bring tech companies to the area; representatives have attended various tech MeetUps

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Findings

1. **Interest in making a home for tech in Queens already exists.** Elected officials from many levels of government have recognized the economic development potential of the tech sector.

2. **Community-based organizations in the area represent a diverse array of interests.** Social services, open space preservation, cultural organizations, civic organizations, and business organizations are all active within the Study Area.

3. **Social service organizations are integral to community members.** Large numbers of Study Area residents receive services from these organizations to meet their basic needs.

**POLITICAL LANDSCAPE RECOMMENDATIONS**

1. **Form a coalition of community organizations.** Community organizations within Western Queens represent a diverse range of interests, but each will be impacted by the Cornell NYC Tech campus. These groups would benefit by forming a consortium to coordinate resources and pool support. An example from recent history, the Lower East Side Joint Planning Council, was an assemblage of some thirty community groups working in Manhattan’s Lower East Side to “…coordinate and support all of the member organizations in their fights for better housing and a rational environmental plan for the Lower East Side...” As in the Study Area these groups included community development organizations, settlement houses, as well as cultural and recreational organizations.

2. **Make economic development incentives “Opt-Out” rather than application based.** Current incentive programs are poorly aligned to the needs of small tech startups. The rapid growth characteristic of young tech companies results in uncertainty navigating available program applications. As a result, few businesses apply for those incentive programs available to them. We propose that incentive programs be restructured as “opt-out” so that a greater percentage of eligible companies can benefit.

3. **Create a Mayoral Tech Officer position, or “Tech Czar.”** During the Bloomberg administration a Chief Digital Officer position was created to further the mayor’s Digital Roadmap for New York City. This plan involved five areas: Internet access, education, open government, engagement, and industry. While many within the tech industry feel this position was beneficial, they believe Mayor de Blasio should go further and create an official digital liaison with broad authority to coordinate efforts across multiple city agencies.

The creation of such a position within the de Blasio administration would signal a desire to work with the tech sector, as well as facilitate projects requiring multiple city agencies. A Mayoral Tech Czar would serve as a point of contact for tech companies within Western Queens, strengthening communication between tech and local government.
4.2 – MAJOR DEMOGRAPHIC TRENDS, 1990 TO 2010

The purpose of this section is to highlight the major demographic trends in our Study Area, particularly as compared to New York City-wide and Queens County data, for the decades between 1990 and 2010 (last Census year). In order to provide a fuller picture of the LIC community, several key demographic indicators were examined. Major categories including total population growth, foreign-born population growth, household size and median income, educational attainment, and the employment sector were analyzed. While the Study Area generally reflects growth patterns similar to those evident in the city and county, other notable trends emerged in this analysis, particularly in areas such as population composition and educational attainment.

This demographic analysis will inform the recommendations offered by the Studio as well as the criteria on which they will be evaluated. The Study Area includes two large public housing developments, and this analysis reveals a rift in the economic prosperity in the Study Area, significant even for starkly unequal New York City. Our plan strives to include the various populations that make up the area, from all age groups, income levels and ethnic backgrounds.

Total Population

Although the decade prior to the new millennium brought on swift population growth, when compared to the City as a whole and Queens County, the Study Area saw a moderate population expansion between 2000 and 2010, with an increase of 8.3%. Overall, the Queens County population grew by 14.3% between 1990-2010. The county showed a significant increase between 1990 and 2000 (14.2% or 277,781 new residents), while the first decade of the new millennium yielded a much smaller increase of 0.1%. The Study Area (which is an aggregation of all three Study Areas identified in the Land Use chapter) reflects a similar trend to that in Queens as a whole. From 1990 to 2000, the overall population grew by 10% (or 3,975 people) to 43,997 people in 2000. In the following decade the population expanded by 8.3% to 47,659 people in 2010. The overall population in the Study Area between 1990 and 2010 grew by about 19%. Meanwhile, the City as a whole experienced an 11.6% increase in population between 1990 and 2010.

<table>
<thead>
<tr>
<th>Demographics Table 1: Change in Population 1990-2010</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Year</strong></td>
</tr>
<tr>
<td>Study Area</td>
</tr>
<tr>
<td>Queens</td>
</tr>
<tr>
<td>New York City</td>
</tr>
</tbody>
</table>

Source: Census 1990, 2000 and 2010

The discrepancy between population change in our Study Area and that of greater NYC in the 2000-2010 causes concern. This is reflected in the transformation of the area as it has become more residential and moved away from manufacturing uses over the first decade of the new millennium, as the Studio discussed in chapters 3.1 and 3.2 of this report. This is borne out by the fact that the Population Division of the NYC Department of City Planning contested the Census Bureau’s 2010 figures.\textsuperscript{iovi}

Assertions of widespread undercounts in many areas of the city, particularly in Queens and in LIC, are commonly accepted by demographers.
Age

The age distributions of Queens and NYC are very similar. For both, the population peaks at the 25-29 cohort, and remains high through the majority of the working-age (25-64) cohort in 2012. The population begins to fall at near-retirement age (55-64). The rate of decline exacerbates after retirement at 65, suggesting that people tend to move out of the City after retirement.

The Study Area is slightly younger than Queens and NYC in 2012. The median age in the Study Area is between 30 to 34 years, while the median age in Queens and NYC is between 35 to 39 years. However, the largest age-cohort in the Study Area is 30-34 for both male and female while the largest age-cohort for Queens and NYC is 25-29.

In 2012 the Study Area has a higher concentration of "tech-aged worker" population (25-35) than Queens and NYC. A Pew Research Center report from 2010 found that people 18-33 are the most active users of the Internet. For this analysis, we are modifying this result and defining the “tech-aged worker” population as 25-35 years old to exclude those below 24 years old, as they are likely to have recently graduated from college or graduate school. This age-cohort (25-35) makes up about 21% of the population in the Study Area in 2012 while the same age-cohort is just 16% and 17% of the population of Queens and NYC respectively. Furthermore, the population-share of older-age workers (35-64) tapers toward retirement age in the Study Area. Having a large share of “tech-aged workers” population who are
familiar with technology will be an important factor in transforming the Study Area into a tech-zone in the future.

Foreign-Born Population

Demographics Table 2: Change in The Foreign Born Population

<table>
<thead>
<tr>
<th></th>
<th>1990</th>
<th>2000</th>
<th>% Δ 90-00</th>
<th>2010</th>
<th>% Δ 00-10</th>
<th>% Δ 90-10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study Area</td>
<td>12,620</td>
<td>19,019</td>
<td>50.71%</td>
<td>16,676</td>
<td>-12.32%</td>
<td>32.14%</td>
</tr>
<tr>
<td>County</td>
<td>707,153</td>
<td>1,028,339</td>
<td>45.42%</td>
<td>1,057,271</td>
<td>2.81%</td>
<td>49.51%</td>
</tr>
<tr>
<td>NYC</td>
<td>2,082,931</td>
<td>2,871,032</td>
<td>37.84%</td>
<td>2,971,118</td>
<td>3.49%</td>
<td>42.64%</td>
</tr>
</tbody>
</table>

From 1990 to 2000, the foreign born population share in the Study Area grew from 31.53% to 42.93% of total population, reflecting an increase of 10.7%. In the following decade, however, this population declined by 12.32%, resulting in a 39% foreign-born population in the Study Area in 2010. In contrast, both the countywide and citywide populations demonstrated a gradual increase in percentage of foreign-born residents from 1990 to 2010. This decrease in the foreign-born population could be related to rising rents in the neighborhood as zoning changes continue to produce market rate residential towers. Data was retrieved from the 1990 and 2000 Decennial Census, and the American Community Survey (ACS) 2006-2010 5-Year Estimates.

A geographic breakdown of foreign-born New Yorkers shows a more detailed account of how the Study Area’s population has shifted in the last several decades. As chart 4.2.3 demonstrates, the Study Area has experienced a decline in the number of foreign-born from 2000 to 2010. Breaking down the foreign born population by regions of origin, the two dominant groups are from Latin America (which includes South and Central America, and the Caribbean) and Asia. These two groups account for over 70% of the foreign born population.
Examining the changes in housing unit volume and vacancy rates in the Study Area paints a telling picture of the rapid development the area has undergone since the 2001 rezoning. The Study Area had a residential construction boom from 2000 to 2010 – mainly in the special mixed use zoning district and by the waterfront – and vacancy rates were quite high by 2010; refer to chart 4.2.5. This is explained by the area’s previous character as M zoned land and primarily a business destination. This table portrays the dramatic effects of real estate speculation. As NYC’s population grows, demand for new affordable residential space increases and the profitability of residential over commercial development soars.
Average household size increased minimally countywide, and remained steady throughout the City from 1990 to 2010. In the Study Area, it increased slightly between 1990 and 2000 (from 2.43 persons per household to 2.49), but fell to 2.3 by 2010. Though modest, this decline in household size in the Study Area suggests a growing population of singles and professionals—a theory supported by real estate transactions in Long Island City and Astoria.

While total population in the Study Area declined between 2000 and 2010, the total number of housing units increased from 18,224 in 2000 to 22,853 in 2010. The Study Area vacancy rate, while remaining relatively unchanged between 1990 and 2000, increased sharply between 2000 and 2010, from 2.8% to 11.3%. Queens County and the City as a whole experienced the same trend, but the Study Area changed much more dramatically, particularly between 2000 and 2010. This phenomenon would appear to reflect a low market rate residential absorption rate in the Study Area, and serves as an illustration of the swift rise in residential development, a conclusion consistent with market data.

**Income and Poverty**

Median household income in the Study Area was consistently less than Queens and the City, however, between 2000 and 2010, the income gap began to close and the Study Area topped the City in 2010. In fact, while Queens and NYC both showed overall decreases in household income between 1990 and 2010, the Study Area showed modest but significant increases. Between 2000 and 2010, income in the Study Area grew by 22%. Currently, the median annual income is $52,500 per household, while the county and NYC as a whole have household incomes of $55,291 and $50,285, respectively.
Between 1990 and 2010, poverty rates in the Study Area were consistently higher than those in Queens County and New York City. All three areas followed the same trend, rising to their peaks during the first decade and falling again in the second. Topping out at 25.3% in 2000, the percentage of the Study Area’s total population with incomes below the poverty line fell to 23.2% in 2010, but still alarmingly higher than those of the borough and the city, which were 13% and 19%, respectively.

A disturbing picture is painted when looking at poverty rates by age. In 2010, the youngest and oldest age groups had the highest levels of poverty, with 35% of the Study Area’s resident under 18 years old and 27.6% aged 65 years living in poverty.
Poverty rates broken down by racial categories also showed a significant disparity between groups. The Study Area had the highest rates in almost every category, including 39.2% of Black or African Americans and 35.8% of “other” races living in poverty, while the white and non-Hispanic or Latino population, at 11%, was slightly below the City’s rate.

Educational Attainment
While the Study Area, Queens, and NYC show a general increase in educational attainment, the change in the Study Area was the most dramatic. Since 1990, the share of residents 25 years and over with a high school diploma or above increased by 15.84 percentage points. Despite the increase, the Study Area still lags behind Queens and NYC in educational attainment, but the level of increase suggests a demographic shift in the Study Area over the last twenty years.
Additionally, the Study Area showed a small but significant edge in 2010 in its share of residents 25 and over with Bachelor’s degrees when compared to Queens and NYC. The increased level of educational attainment in the Study Area will give the population increased earning potential and be a significant asset in planning for a technology hub.

Demographics Chart 11: Education Attainment in Study Area

Demographics Chart 12: Percent of people with Some College/Associate Degree or Higher of Population 25 Years and over

Employment

Economic and employment activities in the Study Area were evaluated using data from the US Census County Business Patterns data from 2003 and 2011, in zip codes 11101 and 11106. Zip code 11101 is within the Study Area and zip code 11106 was used as a proxy for the northern portion of the Study Area. Since the data only indicated the number of establishments by employment-size class, and not number of employees directly, the median number of the employment-size class was used to estimate the number of employees in each industry. For instance, if the Information sector (NAICS code 51) had 10 establishments with 1-4 employees, it was assumed that there were 2 employees in each establishment and a total of 20
employees in the industry. The Studio is aware of the distortion of the estimated employment data in establishments with 500 employees and over. Nevertheless, this method was used as there were only 11 establishments in these employment size classes in The Study Area.

According to this method, the Study Area employed an estimated 73,228 workers in all sectors in 2011. The largest industries in the Study Area, based on the estimated number of employees, were Construction (with 11,090 employees), Manufacturing (10,079 employees) and Wholesale Trade (6,756 employees). The following chart shows the largest industry sectors in the LIC Queens Tech Study Area according to the number of employees.

The largest industries in the study area were also the ones exhibiting the sharpest declines. Between 2003 and 2011, Construction, Manufacturing and Wholesale Trade in the Study Area had an estimated combined loss of 13,142 employees – some 18% of the area’s estimated total number of employees.

The fastest growing sectors in the area between 2003 and 2011 were Management of Companies and Enterprises, which grew by astonishing 368.76% (1,233 jobs), and the Finance and Insurance sector, which grew by 161% (3,742 jobs). Other growing sectors include Transportation and Warehousing with an increase of 45% (2,041 jobs) and Retail Trade with an increase of 43% (1,940 jobs).
These changes in the economic activity of the area are another indicator of LIC’s transformation. The trends indicate a shift from industrial toward service sector employment, as has occurred nationwide. The strong growth of the Management and Financial and Insurance sector demonstrates that the Study Area is becoming a more commercial district. More visibly, the Study Area includes such firms as Citigroup, Metlife, NYC Agencies, Songza, and JetBlue—all service sector employers.

The decline of industrial businesses noted above—while unfortunate for the loss of well-paying, middle-class jobs for less education —provides a great opportunity for the tech sector in the Study Area and the vicinity. Industrial spaces with large open floor plans are often preferred by tech companies. As industrial tenants move out, these types of spaces will be great opportunities to retrofit and repurpose for tech companies.

### Findings: Demographics

Overall, the demographic analysis of the Study Area is demonstrative of several key trends:

1. **The population is increasing.** Total population increased overall between 1990 and 2010, with a total overall increase of 19.1% - faster than both the City and county.

2. **The demographic makeup is changing, with fewer foreign-born residents and more natives.** There was a sharp decrease in foreign-born residents in the Study Area between 1990 and 2010, particularly when compared with gradual increases in foreign-born populations both county and citywide.

3. **The residential market is becoming increasingly conducive to young professionals and singles.** Compared with the city and county, household size in our Study Area is decreasing; meanwhile, the sharp increase in vacancy rate, to 11.3% in 2010, could reflect the rapid residential development, particularly in the mid-range luxury market, occurring in this neighborhood over the last several years.

4. **Though still lower than the City or countywide figures, household median income is on the rise.** The Study Area has shown significant increase in median income since 1990, surpassing the City and County’s figures in 2010.
5) **The population is becoming more educated.** The 2010 census showed a 15.84 percentage points increase in residents 25 and over in our Study Area who had achieved a high school diploma compared to the 1990 census. Additionally, our Study Area boasts a noteworthy percentage of residents 25 and over with bachelor’s degrees. LIC has a talented pool of educated residents which serves as a great incentive for companies to bring their business to the Study Area.

6) **Despite its industrial history, the Study Area shows a similar employment-by-percentages breakdown as the city and county, and follows the nationwide, citywide and countywide shift to a service economy.** The Study Area is well-represented in the education, social services, professional, scientific, managerial and administrative fields along with the arts, entertainment, recreation, accommodation and food service sectors; the county and city show similar employment breakdowns. As stated earlier, with the multifaceted definition of “Tech”, start-up companies may see the potential in moving in an area with a growing concentration of professional occupations.
**4.3 – ECONOMIC DEVELOPMENT**

The international Economic Development Council describes economic development as “processes that influence the growth and restructuring of an economy to enhance the economic well-being of a community.” In this report’s assessment of the human infrastructure of western Queens, this section investigates the various tools of economic development practitioners as they are used to support and enhance the community of players in the tech sector as well as the community of stakeholders in western Queens. What follows is a survey of best practices in notable tech industry centers throughout the world, as well as the current status of economic development programs available in New York City. The Studio will then offer its own recommendations for effective economic development strategies and programs for tech success in western Queens.

**Case Studies**

This Studio examined several cities which emphasized the importance of the tech sector to their growth and economic base. These successful case studies from the United States and from around the world differ in their culture, politics and more, but they all share some degree of success in understanding the importance of a wide economic base and the implementation of a tech-friendly environment which serve as a catalyst for growth. The Studio’s work is informed by these case studies. This section will describe seven relevant case studies, five national and two abroad, by providing a brief overview of each program’s general vision and implementation strategies, and listing the key findings the Studio can extract from these precedents.

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**Domestic Case Studies**

**The Las Vegas “Downtown Project”**

**Overview:** The Las Vegas Downtown Project is an innovative plan to help transform downtown Las Vegas into a “vibrant, connected urban core.” Tony Hsieh, CEO of the online retail company Zappos, set aside $350 million to revitalize downtown Las Vegas, allocating $200 million for real estate, $50 million for small businesses, $50 million for education, and $50 million for tech startups through a specially created investment fund. Hsieh envisions creating a more walkable, community-based, tech-centered downtown.

**Vision:** This project has three major components in achieving Hsieh’s vision: revitalization of area real estate, training for local college graduates focused on entrepreneurship and “real world” experience, and investment in qualified Las Vegas tech startups through a seed-stage investment fund called the VegasTech Fund. The real estate component relies heavily on Hsieh’s personal investment in various public spaces, as well as a new office headquarters for his company, an employer of over 1,200 Las Vegas residents. Hsieh’s education plan, however, broadens the project’s scope by sending graduates of the entrepreneurial program, called “Venture for America”, to other economically depressed cities throughout the country, including Detroit and New Orleans, as well as Las Vegas. Finally, the seed-stage investment fund selects and funds promising tech startups based on certain criteria, including a community evaluation, interviews with founders, and a product/business model evaluation.
Implementation: In order to encourage business development and general revitalization in downtown Las Vegas, the project’s team is capitalizing on public incentive programs within the city government’s existing repertoire; these include tax increment financing, foreign trade zones, business improvement districts and visual improvement programs.

Findings: The success and speed of this revitalization project is largely associated with the personal investment of Zappos CEO Tony Hsieh. However, some of the other findings for better implementation include:
1. Evaluate the utility of public buildings in the study area
2. Encourage workforce education and development in the tech field
3. Examine the possibility of a venture capitalist model to attract new startups
4. Exercise the city government’s existing incentives and financing mechanisms to spur revitalization and business development.

Silicon Alley

Overview: “Silicon Alley,” originally the nickname for the cluster of burgeoning tech companies in SoHo and TriBeCa, now refers to New York City’s dot com industry as a whole as company offices relocate throughout Manhattan, Brooklyn and other boroughs. According to a report prepared for the Bloomberg Technology Summit in the fall of 2013, there are roughly 262,000 workers in the New York tech and information sector, yielding a total annual payout of $30 billion in salaries. Brooklyn in particular has shown exceptionally rapid growth in the tech industry over the last decade, rivaled only by San Francisco’s Silicon Valley. Growth in this sector has not only affected economic diversity in the city; it has also increased demand for Class B office space, resulting in higher PSF prices in several commercial corridors.

Vision and Implementation: It is the much-publicized vision of the Bloomberg Administration to foster a blossoming tech sector in New York City. However, despite targeted efforts to accomplish this goal, many industry leaders argue that such an environment can’t be created. Instead, they cite New York’s inherent financial wealth and longstanding business diversity as the motivations behind tech companies’ move to the Big Apple.

Findings: Since the Studio’s mission is to create a tech-friendly, entrepreneurial environment in a designated area, it has learned a lot from Silicon Alley, and here are some concrete ingredients the Studio found which make Silicon Alley successful:
1. A history of wealth that complements seed-stage entrepreneurial investment.
2. A strong capitalist culture.

Boston Innovation District

Overview: In 2010, Mayor Thomas Menino of Boston began an initiative to transform an underutilized stretch of the city’s waterfront to create an “urban environment that fosters innovation, collaboration, and entrepreneurship.” The area selected was not only the largest tract of underdeveloped land in the city, but it was also easily accessible from major transportation hubs, including Logan International Airport, two major interstate highways and the Boston Harbor. The
vision for this district was to create an urban lab that would allow all Boston residents to benefit from shared innovation in a designated area.\textsuperscript{xix}

**Implementation:** Although this project was led by Mayor Menino, a large part of the planning and design of the District was managed by the Boston Redevelopment Authority. The BRA acts on the city’s behalf to buy and sell property, acquire property through eminent domain, and grant tax concessions for commercial and residential development.\textsuperscript{xxx} In 2010, a comprehensive plan titled “Seaport Square in Boston’s Innovation District” was released by the BRA, representing a vision of both the future built environment as well as the public/private partnership that would be necessary to make the district work.

The Boston Innovation District’s first three years of operation have been quite successful, adding 4,000 new jobs in 200 new companies. However, this development is not limited to tech companies, as 21% of the jobs are in advertising and design, and another 16% of the jobs working in the science sectors; in fact, jobs added in the tech sector represent only 30% of total growth. Many of these businesses are working in non-traditional workspaces, with 40% of the new companies operating out of co-working spaces and incubators.\textsuperscript{xxi}

**Findings:** Despite all of the early successes of the Innovation District, there are still many challenges that must be addressed. The primary issue is that the small businesses and startups for whom the District was intended are already being priced out of the district. As the construction of new office towers brings higher rents across the board, lawyers and corporate accountants are among the few who are able to afford the cost of housing their business in the Innovation District. In the past two years, rents in the District have increased by 40%.\textsuperscript{xxii}

One of the cornerstones of the District has been MassChallenge, one of the world’s largest startup accelerators. In the past, MassChallenge had been provided with office space rent-free, but they are being forced to move now that the building’s developer sees the potential for large profits from renting out offices to corporate businesses. This led Mayor Menino to expand the Innovation District boundary to include the new home of MassChallege in the Boston Marine Industrial Park. This case is likely the canary in the mine for affordability concerns of this district and others like it.\textsuperscript{xxiii}

Based on these trends, it seems that the Boston Innovation District has not only been successful, but perhaps too successful. As a major goal of our Studio is to encourage the creation of office space dedicated to tech startups, the current trajectory of the Boston Innovation District demonstrates several key considerations that will inform our planning:

1. The inaction of restrictive zoning and other regulations to discourage or limit rent prices that displace tech companies with low operational budgets
2. A careful review of current office supply and demand to accurately predict office rents per square foot in the study area.
3. The area is close to air, sea and land transit systems.
4. Nearby academic institutions (i.e. MIT and Harvard) feed the area with employees.
The Brooklyn Tech Triangle\textsuperscript{LXXIV}

Overview: The Brooklyn Tech Triangle (BTT) is a planning initiative championed by a partnership of three local development corporations: the Downtown Brooklyn Partnership, the DUMBO BID and the Brooklyn Navy Yard Industrial Park. Planners at WX+Y Studio were commissioned to create the Brooklyn Tech Triangle strategic plan, released in June 2013. The plan seeks to capitalize on and foster the growth of the tech sector in Brooklyn through real estate strategies and by creating the kinds of vibrant public spaces attractive to young tech entrepreneurs and smooth pedestrian, bike and transit linkages between the points of the triangle.

Vision: The BTT’s detailed master plan focuses on the existing strength of the tech sector in order to parlay its growth potential; it also emphasizes the importance of transportation linkages and public realm improvements that attract techies and creatives organically to an area. Some of the most impactful aspects of the plan will require mixed-use rezonings and significant public incentives for property owners to sell or convert their holdings into tech-friendly commercial space.

Many of the assumptions of strong tech sector growth in the area were drawn from a 2012 Urbanomics study of the economic impact of the tech and creative sectors within the triangle. The study found that there are 523 innovation companies in the triangle now, with over 9,600 employees utilizing 1.7 million SF of office space. Urbanomics attributed roughly 23,000 indirect jobs to those 9,600 direct tech triangle positions, giving the sector a combined $3.1 billion total economic output or impact on the city. The study projects that by 2015 there will be 639 firms headquartered in the triangle, employing over 17,900 tech workers using 3.1 million SF of office space and supporting 43,000 indirect jobs. This scenario yields a total projected economic output of $5.9 billion.\textsuperscript{LXXV}

Implementation: The master plan for the Brooklyn Tech Triangle involves five key tenets with a common goal of fostering a blooming tech environment. These include:

1. Create space within the BTT for tech companies to relocate and grow, using various real estate initiatives aimed to provide affordable commercial rentals
2. Form partnerships with various local universities and other educational agencies to generate a viable workforce for a blossoming tech sector
3. Improve both public transportation and pedestrian linkages within the BTT and the surrounding region
4. Develop attractive, innovative public spaces desirable for a community of young professionals
5. Brand the BTT as the city’s most tech-friendly locale, with free public WiFi, a Tech Test Kitchen for new inventions and innovations, and other related events and showcases.

Findings: The Brooklyn Tech Triangle is extremely significant in the Studio’s research. It is a timely effort with a similar directive of capitalizing on the city’s booming tech sector in a targeted area. The Studio’s findings are:

1. Monitor the success of the Brooklyn Tech Triangle’s five objectives.
2. Analyze the accuracy of the numbers behind the BTT, including the Urbanomics evaluation of current trends and projections for future economic output.
3. Compare the economic, political and social conditions in Brooklyn to those in our study area.
4. BTT is made of public, private and public-private stakeholders.

**Sf.citi**

**Overview:** Sf.citi, the San Francisco Citizens Initiative for Technology and Innovation, is a non-profit organization advocating for tech-friendly policies in city and state government on behalf of San Francisco tech companies. The organization, founded in 2012, has over 550 members, both small and large technology companies, and has garnered the support of San Francisco Mayor Ed Lee. Its major initiatives include public safety, payroll tax reform, transportation, job creation, training, placement and education innovation. The majority of their efforts are self-funded, and involve expanding the use of technology in city governance, as well as public advocacy to support tech businesses and their interests.

**Implementation:** Sf.citi has launched several initiatives in the fields of jobs creation, tech promotion, education innovation, and public safety, including:
1. A coalition to support Proposition E, a payroll tax reform bill designed to alleviate the tax burden on startups without a viable profit margin.
2. An internship program enabling high school students to gain valuable work experience in local tech companies.
3. A pilot program providing real-time data to the San Francisco Municipal Transportation Authority through an iPad-based platform.

**Findings:**
1. The program enjoyed direct political support from the mayor.
2. Existing tech scene and networking of small and big tech companies is a key factor.
3. Innovations in tech that can solve local day-to-day issues.
4. Partnerships with local high schools to develop internship programs help to foster a relationship with technology at an early age.
5. The area is being fed with graduates from academic institutions in close proximity.

**International Case Studies**

**MATAM: Haifa, Israel**

**Overview:** Established in 1970, MATAM is Israel’s oldest high-tech business park. Today, the secure campus covers over 2MM square feet, and boasts the office space of over 50 tech industry leaders, including Microsoft, Intel, Yahoo and Philips, together employing over 10,000 workers. The structure of MATAM’s ownership mirrors a public-private partnership, with combined investment from the Haifa Economic Corporation and the Gav Yam Land Corporation, a private company.

**Vision:** From the perspective of the Haifa Economic Corporation, a semi-public agency with objectives and responsibilities similar to those of the New York City Economic Development Corporation, the purpose of MATAM was to establish Haifa as a center of high-tech innovation, research and development, and to encourage the expansion of the technology industry in Israel. The park itself has accounted for
the limited expansion of its current commercial residents, allocating an additional 100,000 square feet for this purpose.

**Findings:** The success of this high-tech business park demonstrates the power of strong public-private partnerships, continued investment in a single vision, and the importance of location - the park is not only nearby the Mediterranean beaches, but also highly accessible through both private and public transportation. However, in order to fairly evaluate this example, we must keep in mind that MATAM is in its 43rd year of operation and is obviously quite well-established. Additionally, our Studio should take into account the following considerations:

1. The area's ownership model consists on a private-public partnership.
2. MATAM is a closed campus with highly restricted connectivity with the surrounding city, yet it is close to two shopping centers and includes amenities such as restaurants, banks, post office and a children daycare.
3. MATAM enjoys close proximity to transit as it is located near bus and train stations and the highway exit.
4. Many companies in MATAM use carpool service for their employees' commute.
5. MATAM has a strong link to Technion, the Israel Institute of Technology and Cornell's partner on Roosevelt Island - its students and scholars drive innovation in the park. The technicalities of this relationship could inform the one our tech zone could establish with New York’s new tech university.
6. Many companies employ interns from the Technion, which are later hired to work in the area.

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**Singapore Science Park**

**Overview:** Singapore, a small Southeastern Asian city-state roughly half the size of New York City, has had notorious difficulty competing with neighboring nations because of constraints in labor and land use laws, particularly in the low-skill and labor-intensive sectors. In order to circumvent these restrictions, the Singapore government enacted a plan in the 1970s to transform the city-state into a knowledge-based tertiary economy and establish a competitive advantage, with particular focus on research and development.

**Vision and Implementation:** A major part of the plan to develop Singapore’s high-tech economy was the Singapore Science Park (SSP), a business park with a close link to the nearby National University of Singapore and inspired by similar R&D complexes at Stanford University and the Massachusetts Institute of Technology. Because several other universities and R&D facilities are also located close to the park, the area has been nicknamed the “technology corridor”. Construction of the park was part of a 1980s master plan proposed and enacted by the Jurong Town Corporation, the city-state’s publicly owned industrial real estate developer.

Because of Singapore’s size, public transportation does not generally pose a problem in economic development endeavors; however, the SSP is near several subway and bus stations. The park also provides a shuttle service to key centers within the park, as well as the public transit stations and nearby universities.

While the SSP provides space for scientific and technology research, it has also created an environment for informal socializing and networking. Green spaces,
fitness and sport facilities, restaurants, childcare facilities, and other public facilities encourage interactions among members of the SSP community. In addition, the park’s manager organizes regular events for the park’s employees, many of which focus on business development and expansion in the tech industry.

As a complement to its targeted efforts in the SSP, Singapore’s government is very supportive of the research and development industry, and allocates public grants to qualified applicants looking to start new companies or develop new products in the tech industry.

Findings: The Singapore Science Park has succeeded through a combination of targeted government intervention, proximity to nearby academic institutions and the fostering of an environment conducive to tech. The Studio found the following:
1. SSP is within close proximity to several academic institutions.
2. The vision and implementation included targeted governmental intervention.
3. The park includes public and open spaces for people to socialize and network, through highlighting innovative ideas in urban design.

Findings
Although these above case studies differ from each other, the Studio found several themes that most if not all of them share. These are:
1. Proximity to academic institutions – colleges and universities generate graduates who are later employed in each area’s tech sector. Internships and other programs help to maintain the relationships between academic institutions and tech companies.
2. Involvement of the public sector – either through direct political support and designation of funds or through quasi-public agencies and public-private partnership, the local government is a key stakeholder in all case studies examined.
3. Proximity to different types of transit – from private vehicle to trains and busses, these means of transit transport employees and students on a daily basis.
4. Impacts on the host environment – especially in core urban areas, a growing tech sector impacts land value as it generates growth. Without proper regulation, displacement of small companies – including tech – is possible.
5. Proximity to capital and nurturing seed-stage companies – entrepreneurial spirit that encourages both innovation and investment is seen in most of the case studies. Venture capital is essential for these companies to operate at early stages.

Current Economic Development Programs in Westerns Queens
The defining economic incentive program of western Queens, and the one that most embraces its historical role as a center for manufacturing and distribution is the Long Island City Industrial Business Zone (IBZ), discussed in the land use section of this report. The program came out of the City’s 2005 industrial policy document that demonstrated an intention to ensure the attraction and retention of manufacturing and industrial businesses, which it accomplishes primarily through
tax credits in 21 identified zones, and guarantees to protect these zones from the encroachment of non-industrial use. This effort, managed by both NYCEDC and SBS, has been only marginally successful. This is mainly because of a) a lack of awareness of the program among the people whom it is meant for, and b) a lack of effective incentives. Currently, other than the promise of maintaining an M zoning designation, the only incentive provided by the IBZ policy is a one-year relocation tax credit for $1000 per employee for moving to an IBZ.

Thus, despite the fact that the study area sits within an Industrial Business Zone, the program has overlapping benefits with other more effective avenues for relocating to the city and supporting a growing workforce, and uses an antiquated definition of “industry,” ignoring the industrial aspects of 21st century tech-powered production and research and development. Also, the protective zoning policies are based on a mayoral promise with no legislative teeth to back these initiatives on a permanent basis. Additionally, as was shown in the employment statistics analysis previously, industrial and manufacturing sectors within the study area are declining rapidly. Other IBZs throughout the city are suffering a similar fate, and recently, under new mayor Bill De Blasio, the city administration cut $1.1MM from the IBZ program’s already negligible funding. Given the current condition of IBZs, they are arguably not an especially impactful solution for a growing tech sector.

The following is a survey of other current economic incentive programs at the federal, state and city levels available to tech firms in western Queens. These incentives, in the form of tax credits, grants and funding sources, serve as a potential resource for tech companies relocating to or expanding in western Queens. To account for the broad scope of “tech”, a wide range of incentive programs with varying criteria are included.

### Federal Programs

**Name:** HUBZone Program

**Description:** The Historically Underutilized Business Zone Program is sponsored from the US Small Business Administration. Since its enactment in 1997, this program has provided economic development by extending federal contract opportunities to businesses in economically distressed areas. The US SBA maintains a list of preferred vendors used for procurement officers for all Federal Agencies. The benefits to eligible businesses include competitive sole source contracting opportunities and 10% price evaluation preference in full and open contracting and subcontracting competitions. Criteria for eligibility include: domestically-owned (51% or greater share), small business (by SBA standards), principal office and at least 35% of employees reside within the HUBZone.

**Why It’s Important:** When western Queens is viewed on a map of HUBZone eligible census tracts (below) a large area of opportunity is evident just south of the Sunnyside Yards and near the Queensbridge and Ravenswood Houses. This is an attractive incentive for small and start-up tech firms who currently contract with or are interested in contracting with the Federal Government.
Economic Development Figure 1: Hub Zone districts in western Queens

**Name:** New Market Tax Credit Program

**Description:** Though the NMTCP is a federal program, issuing credits for Federal business taxes, NYCEDC has historically played a significant role in facilitating the approval and application of these tax credits for large-scale real estate projects in low-income areas. EDC also serves as an advisor during the financing process up until closing.

**Why It’s Important:** The NMTCP supports projects that construct or rehabilitate commercial, industrial and mixed-use residential projects in low-income communities. Given the demographic makeup in our study area, particularly considering the inclusion of two large public housing projects, Queensbridge and Ravenswood, it could be possible to utilize this program as a way to mitigate costs and encourage extensive development of the industrial, underused swaths of land in our study area. No eligible “Low-Income” census tracts are located in LIC, but many areas of opportunity can be found in neighboring Ravenswood, Astoria, Sunnyside and Dutch Kills.

Economic Development Figure 2: New Market qualifying census tracts

**State Programs**

**Incentive Name:** Qualified Emerging Tech Company Incentives

**Description:** The QETC Incentives offer State tax credits for companies in the tech sector achieving significant employment growth—$1,000 per employee hired after first tax year—and that have made significant investments to Facilities, Operations or Training Investments. This includes an 18% tax credit for capital investments in...
facilities used for research and development, 9% of qualified research expenses paid by the business, and 100% of expenses incurred for “high-technology” training for employees, with a maximum credit of $4,000 per employee. The QETC program also offers State tax credits for investors in technology companies, allowing 10% or 20% credits based on the life-span of the investment.

Why it’s important: These tax credit programs will be particularly important in encouraging growth in the tech sector in our study area while also demonstrating mitigated costs. Particularly useful is the 100% credit offered for employee training, which could play a significant role in setting up training workshops for community members supported by local tech startups and other QETCs. The investor tax credit could also be touted as an incentive for local community members to play a more active role in funding Queens-based startups.

Name: Excelsior Program

Description: The Excelsior Program was created to replace the Empire Zones program, which expired on June 30, 2010. The program was specifically designed to encourage the expansion in and location to New York of businesses in growth industries such as clean tech, broadband, information systems, renewable energy, and biotechnology. The program essentially contains four components: tax credits for employees, investments tax credits, R&D tax credit and real estate tax credit. Some of the sectors this program is aimed at are software development, new media and scientific research and development. Case Study: Concept Systems

Why it’s important: this state program provides a wide array of incentives, including one which focuses specifically on R&D. moreover, its criteria for eligibility mentions businesses in the fields of software development and new media and scientific research and development. Clearly, this program is aimed at tech, and can assist new startup establishments, as well as small companies who wish to relocate in NYC.

Name: Investment Tax Credit (ITC)

Description: The ITC is available to manufacturers. The employment incentive credit (EIC) is based on increases from base year employment and equals 1.5%, 2.0%, and 2.5% of the ITC amount if current year employment is 101%, 102%, or 103% of base year employment, respectively.

For research and development (R&D) property, taxpayers may use the regular ITC rate plus any applicable EIC or claim an optional 9% rate and not claim the EIC. R&D property is generally that used for experimental or laboratory work but not for testing, inspection or quality control.

Name: Start-Up New York

Description: The Start-Up program, recently created by the State, designates tax-free zones for businesses on college campuses; the criteria allows for these businesses to be housed in vacant campus space, vacant space owned by the college, land or building space within 1 mile of the campus, and within incubators affiliated with any SUNY campus.
Because this program was only launched last year, there is a lack of data that would indicate its effectiveness. Designed in large part for rural college towns elsewhere in New York State, the program has been little implemented in the five boroughs of New York City. However, it could serve as a potential model for implementation in the city. In this program, innovative companies partner with local schools and operate on their grounds or at nearby facilities. Given that this plan was created in part to support the expected runoff of graduates from the Cornell-Tech campus and the study area is home to a CUNY school (LaGuardia College), an implementation of a similar program might be feasible.

**City Programs**

**Name:** NYC Industrial Development Agency

**Description:** The NYCIDA was established in 2002 and has since been devoted to job retention and growth in the five boroughs. Its services are primarily designed to help companies relocate to NYC, undertake capital investments, and expand their operations. The incentives are designed to assist companies in acquiring real estate, capital equipment, or in financing facility construction or renovation. NYCIDA programs are discretionary and provide companies with access to triple tax-exempt bond financing and/or tax benefits, and also exemptions from sales and use taxes, real estate taxes, and mortgage recording taxes.

**Why It’s Important:** The incentive is discretionary, but has very broad eligibility criteria. Companies and projects are considered not by the nature of their business or the location of their headquarters and market base. Applicants simply must be planning to invest in capital equipment or property acquisition, or major construction or renovation that can be proven to sufficiently induce local employment and economic activity. This is a very flexible program fit for firms in the multi-disciplinary tech industry.

**Incentive Name:** NYC Entrepreneurial Fund

**Brief Description:** This $22M fund, established in 2010, is a partnership between EDC (investor of $3M) and majority stakeholder and prominent venture capital firm FirstMark Capital (investor of $19M) offering first-round investments to NYC tech startups with “viable commercial business models” and plans to headquarter the bulk of their business within the city. Businesses are eligible for an investment of up to $750,000.

**Why it’s important:** Despite the tech-friendliness of the past two Mayoral administrations, this is one of the few City incentive programs targeting Tech firms directly. Such a fund could be recreated at a smaller level for individual boroughs or identified areas with high concentrations of entrepreneurial activity with funding sources that are more tied to and knowledgeable of the immediate area.

**Name:** Industrial Business Zone Relocation Tax Credit

**Description:** This city tax credit, administered by Small Business Services, offers $1,000 per employee relocated for a maximum one-time credit of $100,000. Eligible businesses include industrial or manufacturing companies moving their offices to or within city-designated Industrial Business Zones. The credit may be applied
retroactively if the business was relocated after July 2005; additionally, no application is required—claims are simply made on standard City tax forms.

**Why It’s Important:** Considering the active support of tech communities demonstrated by both EDC, the creative originator of this incentive, and SBS, the program’s administrator, it is feasible to imagine a similar tax credit for companies in the tech industry relocating to or within a designated “Tech Zone” or “Tech Hub”. This would necessitate a policy document, perhaps framed similarly to the Industrial Business Zone policy documents, drawing boundaries for particular Tech Hubs. These could include areas that met certain criteria, for example a) already serving as headquarters for growing tech start-ups or established businesses in the tech industry, b) demographic makeup, including average median income and educational attainment rates, c) community approval or support.

**Name:** Commercial Expansion Program (CEP)

**Description:** Designed to help increase tenant occupancy in designated areas of the City, the CEP provides tax abatements to property owners of up to $2.50 per square foot. Tax abatements for up to ten years are available to property owners who offer New, Renewal, and Expansion Leases on commercial offices and industrial/manufacturing spaces, but retail businesses are ineligible. Benefits are only available for non-residential or mixed-use buildings built prior to 1999, and for leases begun before March 31st, 2014.

**Why It’s Important:** This is another of many incentive programs offered by the Department of Finance or The EDC that is directed toward property owners, instead of other classes of economic players. Programs directly benefiting business rental tenants and the workforce are far outweighed in the incentive mix. Though this does include benefits for commercial and industrial businesses, there are no provisions for retail businesses, which provide necessary services to neighborhood residents and workers. Retail is a sorely needed, but lagging community asset in western Queens neighborhoods currently transitioning from primarily industrial to new office and residential.

**Name:** Industrial and Commercial Abatement Program (ICAP)

**Description:** This program provides property tax abatements for up to 25 years for eligible, industrial and commercial buildings. The buildings must be built, modernized, expanded, or otherwise physically improved using 30% or more of the property’s taxable assessed value. Additional benefits are available for industrial construction projects with costs exceeding 40% of assessed value. This program is available throughout the City, excepting parts of Manhattan.

**Why It’s Important:** A good number of buildings in western Queens, including the majority of existing buildings in the area south of Sunnyside Yards will require major renovation or retrofitting to accept new, non-manufacturing tenants. This property tax abatement program is also natural complementary program for the liberal rezoning of Long Island City and beneficial for those property owners who are interested in taking advantage of the wide range of uses allowed in light manufacturing districts, including tech and creative firms interested in investing in creating dynamic office environments out of underutilized industrial structures. Unlike CEP, this program also includes smaller benefits for investing in retail development, a necessary neighborhood feature to support a thriving commercial office environment.
**Name:** Relocation Employment Assistance Program (REAP)

**Description:** An annual tax credit of up to $3,000 for up to 12 years for each qualified job, up to 100 jobs, for businesses relocating from Manhattan to an outer borough or north of 96th St. and making investments in property. The credit is a cash refund for the first five years and a credit against NYC income taxes for the remaining seven years.

**Why It’s Important:** This program grants employees long term tax incentives and encourages businesses to relocate in the city.

**Name:** Connect NYC Fiber Access

**Description:** This EDC program funds the installation of fiber optics for qualifying businesses. Participating companies must have an office location in NYC, have fewer than 500 employees, and explain the anticipated impact of fiber on their business. Up to $14 M in funding is available for construction through five participating Internet Service Providers (ISPs). Approved applicants will be required to sign a one-year service contract with a participating ISP at negotiated market rates to be eligible to receive the free construction.

**Why It’s Important:** This program is aimed at the type of businesses that utilize a lot of bandwidth in their internet connection, such as many businesses in the tech sector. One current drawback of this program is that the high operational costs still constrain businesses from applying and using this program.

**Name:** Business Express - Incentive Estimator

**Description:** This is one of various tools offered by the NYC Business Express website that determines a business’s eligibility for various Federal, State, and City incentive programs. Users answer questions about the nature and characteristics of their business and an output of available incentive programs is provided. If enough information is provided, the actual dollar amount in benefits can be calculated.

**Why It’s Important:** This is a relatively user-friendly tool where businesses can scan applicable economic development programs and come away with a basic level of information to start a decision-making process. This is a step in making the complex network of incentive programs more accessible to firms of all sizes and levels of economic policy literacy.

**Findings**

1. The majority of the economic incentive programs currently available to firms in western Queens are directed towards the industrial and manufacturing sectors, using the traditional definition of manufacturing. Many of them are one-time offerings for relocating and the benefits dictated by the number of employees, making them useless for emerging startup companies.

2. There is a large number of small incentive programs available for tech firms in western Queens. However, this landscape of incentive programs can be difficult to navigate, and the process of seeking out opportunities and following through with application requirements can be prohibitive, especially for small, capacity-starved startups.
3. Many of the various incentive programs available provide overlapping benefits and appeal to economic player types with high levels of redundancy. There is little evidence of coordination among the various incentive providers in the interest of a more efficient and effective economic development system with connections to local stakeholders.

**ECONOMIC DEVELOPMENT RECOMMENDATIONS**

**Tailor incentive programs to the unique characteristics of tech startups, and increase promotion and accessibility.**

Make incentive programs easier to identify and attain by shifting from an opt-in application structure to an opt-out. Establish a link between higher levels of government so when a company files incorporation papers with the State, or registers a new federal tax ID number, they are immediately presented with information on any qualifying incentive programs. Expand the functionality of the Business Express Incentive Estimator Tool, and create similar tool for local youth, working age population with tech or entrepreneurial aspirations to locate opportunities with local firms and educators.

Much progress can also be made by reshaping existing incentive programs. The IBZ program can be made more visionary and impactful if a broader and more modern definition of “industrial” were used, including the production of high tech products and services, and the industrial aspect of tech research and development. Start-Up New York provides tax breaks to firms relocating to public university land. This program, which has had success in rural NY State College towns, can be utilized at LaGuardia Community College in LIC, and even expanded to all suitable publically owned land in western Queens, to provide tax-free sites to new and expanding businesses.

Enhance financing opportunities for tech-focused innovation and local entrepreneurialism.

New York City ranks fourth in the nation in the total dollar amount of venture capital deals, but the local leadership must strive to link that capital to growth opportunities in western Queens. Create a western Queens tech fund, a financing pool funded by local leading tech firms and professionals and large local educational institutions to provide seed money for startups. Create subsidized “innovation loans,” business loans to fund capacity building, real estate, and research and development, with terms suited for tech and small innovative enterprises. The loans can be sourced from local lenders supported by a public subsidy to provide attractive terms. In this way local lenders are infused and a tech financing culture established for a more comprehensive local economic boost.

Strengthen and engage the human capital of western Queens.

It is imperative that an industry cluster establishing itself in an existing community engage with and build the local workforce and human capital base, not only for needed public support, but also for its basic economic viability. A tech district in western Queens must establish cooperative partnerships between the industry and local educators to provide robust internship programs, education awards for area high school graduates, and dual certification programs between Cornell Technion, LaGuardia Community College, and local high schools.
However, with poverty rates in western Queens consistently higher than both the borough and city average over the past two decades, it is also imperative that a tech district provide economic opportunities to the local working age population. Worker training programs can be funded and carried out jointly by community organizations, local educators, industry leaders, and city government to unlock the human potential and buying power in western Queens to stimulate area businesses and spur local demand.

The case studies analysis showed that the most successful tech districts are (1) fueled by thriving educational institutions and (2) have expressed public support. Such an environment requires high levels of coordination and broad coalition of supporters, which leads us to our final economic recommendation.

**Form a Local Development Corporation to champion tech and engage the local community.**

This final recommendation is the binding element required to realize not only many of the recommendations in this report, but also in steering the growth of the tech industry in western Queens. Using the knowledge gained and relationships built by the steering committee that is to kick-start our client’s vision of establishing a thriving tech industry in western Queens, the next step taken should be the formation of a mission-focused body to guide the growth and integration of the tech community in western Queens. Such an entity can take the form of a local development corporation (LDC), public benefit corporation, or other serviceable organization type, but must have the capacity to not only be a cheerleader and advocate for tech infusion, but also an actor with the capacity and resources to engage in the following roles on an ongoing basis:

1. **Steward, advocate, and coalition builder:** With a leadership structure that is broadly representative of and accountable to each of the three stakeholder groups—civic, private for-profit, and government—the LDC can legitimately function as a stewarding body that develops and administers an overall tech policy framework for Western Queens. This framework can, with a going concern, set local development and employment standards, create lasting connections between the stakeholder groups and guide their actions in the best interest of the industry and community at large.

   By tapping into funding resources such as government grants, its own bond issuance, or fundraising from private foundations, local firms, foundations, and individuals, the LDC can engage in advocacy campaigns, planning activities, shape and influence incentive programs and public policy, as well as conduct promotional and fundraising activities to attract public and private resources for local projects, firms, and public amenities.

2. **Non-profit developer and master lessee:** Using the models of non-profit developers, such as the Brooklyn Navy Yard Development Corporation or the Greenpoint Manufacturing & Design Center, the LDC can also act as a real estate player, acquiring, rehabilitating, and leasing or dispossessing properties, achieving the goals of the recommendations outlined in the land use section of this report. The LDC may target derelict or underutilized manufacturing buildings, warehouses, and publicly owned buildings in western Queens and retrofit them to increase the overall stock of flexible and affordable office space fitting the needs of tech industry tenants. In addition, as a mission-driven non-profit, the LDC can set an example with its own projects by providing the commercial space and neighborhood
enriching ground-floor retail that for-profit developers have so far been reluctant to do in the Special LIC Mixed Use district.

Or, without acquiring property, the LDC can act as a master lessee, an intermediary between property owners and commercial tenants to offer desirable lease terms, pricing, and amenities suited for new and rapidly growing tech firms; provide co-working spaces for entrepreneurs and startups; and serve as an information destination for would-be tenants looking for space. With either approach, the LDC can expand and re-purpose the existing built assets for the needs of Tech and the residents of western Queens simultaneously.

3. Managing a public/private partnership for fiber: Access to high speed internet is a non-negotiable requirement for many tech firms to inhabit an area. The relative dearth of fiber optic internet connection in western Queens is a serious concern that may potentially hinder the growth of the tech industry. The Connect NYC Fiber Challenge, which provides funding for “last mile” fiber hookups to small and medium-sized commercial and industrial businesses. Though this program was renewed for 2014 with $14 million approved, it is still only a piecemeal strategy and a solution for the “last mile” leg, which connects the end customer to the fiber backbone.

Our recommendation is to lay the fiber backbone itself. This can be accomplished through the use of a public/private partnership led by our LDC. The NYCEDC, the LDC, and a large internet service provider (ISP) may jointly fund the laying of new commercial and residential fiber, while reserving a portion of the overall bandwidth to be leased to smaller local ISPs. Tax-exempt bonds can be issued by the EDC and LDC to fund the remainder of the construction cost for the new fiber lines and a modest use tax may then be levied on new subscribers to pay down debt servicing costs. This would not only open up new neighborhoods to both commercial and residential fiber internet speeds, but also establish a competitive market, providing end users with lower prices and greater choice, such as what is available to users directly across the East River in Midtown Manhattan.

4. Connecting and activating the local human infrastructure: The most important function of the proposed LDC is to act as a convener between, subjective voice for, and resource to the tech industry and disadvantaged local populations and other community stakeholders. A successful and equitable tech district plan must engage and support the local human infrastructure and tap into the human capital and employability of the populations of western Queens.

The objective positioning of an LDC with equally representative leadership can build relationships between the public and private sectors with relative ease, allowing the LDC to acquire resources to provide among other things, worker training programs for local workforce population, and internship and educational opportunities for local youth through partnerships with leading tech firms in western Queens, the Cornell Campus on Roosevelt Island and other area colleges, and with the nearby Ravenswood and Queensbridge Houses, the latter of which is the largest public housing project in the country.

It is the belief of this Studio that the fostering of a tech district that is conscious of its setting in western Queens will require significant strategy, planning, and public input. Thoughtful economic development informed by the needs of all stakeholders is imperative for the establishment of a profitable, sustaining, and socially equitable tech district.
4.4 – PLACEMAKING AND OPEN SPACE

What is placemaking?
Placemaking is a planning and design approach that reimagines public space—parks, sidewalks, roadways or parking spaces—as community assets with both social and functional dimensions. Expanding the social function of public space involves using community engagement to develop a plan that leverages the communities’ assets to build the future that the community wants. Placemaking strategies develop a strong neighborhood identity by creating a unique environment reflecting the distinctive character and history of a place. Common strategies involve banners along commercial corridors, outdoor art installations, and redesigning public plazas. To summarize, placemaking means engaging communities to develop strategies to create a built environment that reflects the unique character of the neighborhood.

How do we make a place?
Community engagement forms the foundation of all placemaking efforts. Planners inform the engagement process by analyzing the existing built environment and infrastructure to identify existing opportunities and possible solutions to problems. Informed by planner’s work, the community then decides what to do and how the interventions will look like.

Why placemaking is important?
The placemaking process empowers communities to control their future. A public plaza built through a placemaking process reflects the character of the community, as defined as the community itself, through its design and programming. Furthermore, a community involved and invested in the design and construction of a plaza takes care and appreciates the plaza. The plaza becomes part of the community and both reflects and enhances neighborhood identity. In the end, places designed through a robust community engagement process are much different than those designed with a top down approach.

For the tech sector, unique and engaging public spaces, a strong neighborhood identity, and a responsive public design process are competitive advantages for attracting and keeping top talent. Young workers want more than a great office space but also a great neighborhood for activities during lunch and after work. Tech companies around the country have opened their offices in unique urban neighborhoods in cities such as San Francisco and New York.

Case Study:
DUMBO utilized placemaking in a number of ways. One example is the re-branding of the neighborhood from the once existing industrial character, to the current residential/tech-oriented/full-service community. This transition happened by branding the neighborhood with street banners, consistent logo usage, and analysis of the emerging residential and tech community. DUMBO understood the characteristics and demands of its new population. Therefore, new public spaces, taken from excess roadway, for meeting, eating and networking were created throughout the neighborhood.
**Methodology**

Before the placemaking process can occur, public spaces and the built environment must be observed to find opportunities and concerns. After broad review of current conditions found in the area, we visited the study area to observe the nature and intensity of public space usage. We walked every street in the study area to identify underutilized spaces, popular places or crowded places. When observing the area we tried to understand both the current dynamics and the possibilities for change. The following are the main opportunities and concerns following our observations.

**Findings**

**Isolated cultural institutions**

Schools, museums, and other cultural institutions are the underpinning of the community and building off of the assets they provide to the community is critical in placemaking initiatives. For example, MoMA PS 1, Socrates Sculpture Park, Museum of the Moving Image and educational institutions are places that draw the community to a specific location. These institutions are opportunities to attract people to the area. If the institution break down their walls and increase their presence in public spaces through programming, and events, street activity will increase and the neighborhood can develop a unique identity.

**Limited and Isolated Street Activity**

On a Sunday afternoon, the area north of 44th Drive is barren, the streets and sidewalks relatively empty, with negligible pedestrian, bicycle and vehicular activity in the north section of the area. Most of the traffic was found on Vernon Boulevard, Jackson Avenue, and 21st Street, the main corridors of the study area.

South of 44th Drive is more lively, with increased pedestrian and vehicular traffic, perhaps because of the commercial and recreational uses, including bars, nightclubs and other similar properties. The image above shows street activity at the intersection of Jackson Avenue and 11th Street, generally a livelier and more populated corner due to its proximity to a local coffee shop.
Inconsistent Access to Parks
Park space is mostly limited to waterfront parks leaving large parts of the study area far from parks. More open space in the interior of the neighborhoods, away from the waterfront, could help serve underserved communities, especially those north of the Queensboro Bridge.

Western Queens lacks a cohesive, identifiable sense of place. As a network of evolving neighborhoods, western Queens combines pockets of new residential buildings, existing manufacturing structures, and shifting populations. This new population may require more, or pose a different demand of the neighborhood compared to the preceding inhabitants.

STRATEGIES – RECOMMENDATIONS:

Connectivity through Placemaking
Planning for green space, constructing areas to meet and create, and establishing an identity are all key ingredients to a thriving community.

Capitalize on Existing commercial corridors
Western Queens has the infrastructural capacity, including open space and area prime for small-scale development, to execute a neighborhood-wide placemaking campaign and sporadic parklets. The goal is to provide creative seats, places to eat, and photos to tweet.

Quality of Life Initiatives
The goals through these initiatives are to improve quality of life, encourage creative activity, revitalize local economies, create attractive and engaging commercial corridors and develop a sense of civic pride. The objective is to create a network of spaces that present opportunities to build a collective sense of identity that supports tech.

Opportunities
Placemaking strategies can be applied throughout western Queens but through our analysis we identified specific areas that have transformative potential. The map below shows the specific locations we identified.
Placemaking Visions

The following section includes three different examples of different intervention types in the study area that would increase the quality of life for residents and transform the built environment. As part of a larger placemaking process, if the community supported the project, the community would take ownership and shape its implementation. The three types of interventions, transformative, park space and institution, are not a rigid prescriptions to an ailing community but examples of the ideas could be implemented in many places throughout western Queens.

**Transformative** – Surrounding the Dutch Kills Inlet with open space is a large transformative project that would alter the dominant characteristic of the area from a manufacturing area to a people oriented place populated by new residents and students from nearby schools.

**Park Space** – Extending 48th avenue and the parallel Hunter’s Point Park to 21st street would bring the waterfront green space to the interior of the neighborhood where there is greater need.

**Institutional** – Extending the reaches of MOMA PS1 and Socrates Sculpture Park outside their walls would allow premier cultural institutions to physically interact with the community as well as help define rapidly transforming areas.

**Dutch Kills Inlet**

The Dutch Kills Inlet is an opportunity to turn a barrier into a connective neighborhood asset. Currently Dutch Kills is one of the most desolate areas of the study areas. Dutch Kills lacks retail, transit and connectivity to western Queens. When Dutch is a home to tech Sub-District C the area will have a new group of tech-firms and creative professionals. The new creative class will have different expectations and intended uses of space in the area different than that of the former industrial tenants.

We propose stemming growth around a redeveloped Dutch Kills waterfront with new open space including: waterfront parks, unique parklets, pedestrian plazas and a waterfront esplanade. This will give Dutch Kills inlet a new life that transforms the area into an iconic neighborhood destination.
Creating access to the waterfront not only creates an attractive environment for future tech development and creates a destination in the neighborhood but it is representative of the lifeline that the river was to the pre-industrial neighborhood and greatly aided in its success. Therefore design features of the park should be draw inspiration from the areas industrial past while continuing innovative urban design aesthetics and features recently introduced in Hunter’s Point South Park and Gantry Plaza State Park. Continuing the urban style recently introduced elsewhere in Queens will create a more cohesive identity for western Queens.

Dutch Kills Inlet and the Long Island Rail Yards have created a physically isolated pocket surrounding Dutch Kills between Skillman Avenue, 49th Avenue and 27th Street. The intersection of Austell Place and Skillman Avenue is representative of many of the unique street convergences in the area which are currently underutilized in western Queens.
As seen is the rendering we envision this convergence of streets as a place to create improved open space including an active corner and pedestrian plaza that connects the unique street figuration and creates a space to insert a pro-tech identity. Austell Place already has a unique cobblestone street that adds a desirable character to add to a new identity with a nod to the areas industrial past. Austell Place like its surrounding streets in the isolated pocket is oriented towards Dutch Kills Inlet which will visually connect people to new open space surrounding the water. The goal is to create a place for people to meet, eat and tweet.
Placemaking Figure 9: Austell Place Re-envisioned.

48th Avenue Pedestrian Promenade
The width of 48th Avenue, 70 feet of roadway versus about 30 feet around the neighborhood, offers a unique opportunity to create a programmed pedestrian promenade in a neighborhood lacking amenities. Currently Hunter’s Point Park runs one block along 48th Avenue from 5th street to Vernon Boulevard. A small dog park occupies the other side of Vernon Boulevard. Trailers and a parking lot make up the rest of the block from Vernon Boulevard to 11th street. From 11th street to 21st Street, below street level uncovered train tracks create a block sized hole adjacent to retail along Jackson Avenue and 11th street.

Placemaking Figure 10: 48th Avenue from Waterfront to 21st Street

Our recommendation is to continue the street makeup of 48th Avenue between 5th Street and Vernon Boulevard, with a park along the south side of the avenue and a wide middle section closed to automobile traffic, two blocks east to 21st. This involves turning a parking lot and trailers into a park and covering below ground tracks. To recapture the infrastructure costs, we suggest allowing developers to capitalize on the value gained by covering the tracks by developing adjacent lots. Expanding the green space, road, and development to 21st street would increase the connectivity and remove a major barrier to development along Jackson and 49th Avenues. A new 48th Avenue Pedestrian Promenade would create a direct link from the new high rise development neighborhood developing along the waterfront to the lower density interior of the neighborhood.

Placemaking Figure 11: 48th Avenue Pedestrian Promenade Envisioned.
More than streetscape and open space improvements that create a visual and physical sense of connectivity and identity, placemaking must include place makers. Neighborhood anchors such as cultural and educational institutions need to involve in placemaking. It is important to remember that while Queens Tech is a vital part of the community’s future, Queens also has a rich history and a local population that should be part of the new tech growth.

Socrates Sculpture Park and MoMA PS1 are examples of community anchors that should be incorporated into the place making process. For MoMA PS1, expanding and programming a small plaza on Jackson Avenue would allow PS1 to reach out physically outside of its building and into the community. For Socrates Sculpture Park, programming small open spaces along 21rst Street would connect the park to the rest of the community as well as create unique open space.

Bringing cultural institutions out of their buildings would benefit by giving life and vibrancy to spaces throughout western Queens. Art commissioned with a tech-centric design part in mind positioned near the Tech Sub-districts would especially add to a new pro-tech identity. Going forward a future task should include input from creative urban planners, urban-designers, marketing professionals and community liaisons to handle placemaking initiatives such as these.
Placemaking Conclusions

Our placemaking recommendations aim to increase connectivity, and enhance unique spaces to help define the identity of the neighborhood. Much of western Queens needs these placemaking solutions. The recommendations in this section were identified because of their strategic locations as prime examples for potential placemaking interventions. The expansion of 48th Avenue and Hunter’s Point Park to 21st Avenue will connect new high rise development along the waterfront to the interior of the neighborhood. The transformation of the land surrounding the Dutch Kills inlet would create a unique open space for the community institutions and connect the East River waterfront renaissance further inland. Incorporating community anchors that add to a creative ethos and local sense of identity will be an important aspect of the taskforces work. Placemaking initiatives are crucial to western Queen’s success of attracting tech-startups by increasing the quality of life in the area, building people oriented places and allowing the community, including tech companies and its employees, creates its own built environment. A unique people oriented neighborhood will allow tech companies to attract top employees and to immerse themselves in a unique and creative environment.
### APPENDIX A: REAL ESTATE LISTINGS FOR LEASE

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<tr>
<th>Address</th>
<th>BBL</th>
<th>Lot SF</th>
<th>Total Building / Available SF</th>
<th>Zoning</th>
<th>Price/SF</th>
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<td>120,000</td>
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104
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**AVERAGE PSF** $26.69
## APPENDIX B: REAL ESTATE LISTINGS FOR SALE

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<td>16532</td>
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</tr>
<tr>
<td>11-05 44th Drive, LIC, NY 11101</td>
<td>4004470021</td>
<td>22,300</td>
<td>8,600 air</td>
<td>54,000</td>
<td>M1-4; M1-4/ R7A</td>
<td>$370.00</td>
<td>NOI: $963,017 (NNN)</td>
<td>$20,000,000.00</td>
<td>36,000 SF of residential conversion potential; Built 1931, 3 FL, 1 unit; Use Industrial-Manufacturing</td>
</tr>
<tr>
<td>11-11 44th Drive, LIC, NY 11101</td>
<td>4004470013</td>
<td>20,000</td>
<td>80000</td>
<td>40,000</td>
<td>M1-4; M1-4/ R7A</td>
<td>$500.00</td>
<td>$20,000,000.00</td>
<td>Class A Office; owned NYC IDA; Built 1920, 1FL, 1 unit; Use Ind-Manuf</td>
<td></td>
</tr>
<tr>
<td>21-01 4th Street, Astoria 11102</td>
<td>4009090017</td>
<td>20,249</td>
<td>154,479 (247,166*)</td>
<td>49,000</td>
<td>R6</td>
<td>$367.35</td>
<td>$18,000,000.00</td>
<td>*buildable SF w/community facility bonus</td>
<td></td>
</tr>
<tr>
<td>26-15 4th Street, Astoria 11102</td>
<td>4009090013</td>
<td>27,702</td>
<td>154,479 (247,166*)</td>
<td>49,000</td>
<td>R6</td>
<td>$367.35</td>
<td>$18,000,000.00</td>
<td>*buildable SF w/community facility bonus</td>
<td></td>
</tr>
<tr>
<td>27-08 40th Avenue, LIC, NY 11101</td>
<td>4004050023</td>
<td>10000</td>
<td></td>
<td>46,315</td>
<td>M1-2 / R5D</td>
<td>$306.60</td>
<td>$14,200,000.00</td>
<td>Class B Office; Built 2008; Mixed Use 4 floors; Verizon fiber-optic internet, Enviro specs, REAP, CEP, ECSP eligible</td>
<td></td>
</tr>
<tr>
<td>30-74 31st Street, Astoria, NY 11102</td>
<td>4005910011</td>
<td>2400</td>
<td>11,630 above grade/ 1,500 cellar storage</td>
<td>11,630</td>
<td>C4-3</td>
<td>$623.39</td>
<td>NOI: $13,625</td>
<td>$7,250,000.00</td>
<td>Medical/Office; built 2009, 6 floors; Tax abatement to 2028</td>
</tr>
<tr>
<td>Address</td>
<td>BBL</td>
<td>Lot SF</td>
<td>Buildable SF / Air Rights</td>
<td>Building Size SF / Available Division</td>
<td>Zoning</td>
<td>Price/SF</td>
<td>Lease/Yr</td>
<td>Asking Price</td>
<td>Notes</td>
</tr>
<tr>
<td>---------------------------------</td>
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<td>----------</td>
<td>--------------</td>
<td>------------------------------------------------------------------------</td>
</tr>
<tr>
<td>23-02 Jackson Avenue, LIC, NY 11101</td>
<td>4000850001</td>
<td>1,320</td>
<td>6,000 air</td>
<td>7,200</td>
<td>M1-5 / R7A</td>
<td>$652.78</td>
<td>NOI: $156,020 (potential $286,496)</td>
<td>$4,700,000.00</td>
<td>3 Commercial, 8 residential units</td>
</tr>
<tr>
<td>23-04 Jackson Avenue, LIC, NY 11101</td>
<td>4000850002</td>
<td>1,320</td>
<td>6,000 air</td>
<td>7,200</td>
<td>M1-5 / R7A</td>
<td>$652.78</td>
<td>NOI: $156,020 (potential $286,496)</td>
<td>$4,700,000.00</td>
<td>3 Commercial, 8 residential units</td>
</tr>
<tr>
<td>19-79 Steinway Street, Astoria NY 11105</td>
<td>4008010001</td>
<td>10,000</td>
<td>10,000</td>
<td>M1-1</td>
<td></td>
<td>$320.00</td>
<td>Projected Rent Roll: $161,460</td>
<td>$3,200,000.00</td>
<td>Raw Industrial/ Auto / Office</td>
</tr>
<tr>
<td>21-03 31st Avenue, Astoria, NY 11106</td>
<td>4005510013</td>
<td>2,333</td>
<td>16,452</td>
<td>VACANT</td>
<td>R7A; C2-3 overlay</td>
<td>$1,285.90</td>
<td></td>
<td>$3,000,000.00</td>
<td>FAR 4.0-R/ 2.0-C; built 1920, 2 FL, 3 unit; MF Resid walk up</td>
</tr>
<tr>
<td>21-01 31st Avenue, Astoria, NY 11106</td>
<td>4005510014</td>
<td>1,780</td>
<td>16,452</td>
<td>VACANT</td>
<td>R7A; C2-3 overlay</td>
<td>$1,285.90</td>
<td></td>
<td>$3,000,000.00</td>
<td>FAR 4.0-R/ 2.0-C</td>
</tr>
<tr>
<td>30-63 31st Street, 11102</td>
<td>40006150012</td>
<td>2,000</td>
<td>19,200</td>
<td>C4-3</td>
<td></td>
<td>$1,500.00</td>
<td></td>
<td>$3,000,000.00</td>
<td>FAR 3.4 as of right/ FAR 4.8 w/ community facility (Mixed use bldg); Parking Facilities</td>
</tr>
<tr>
<td>30-61 31st Street, 11102</td>
<td>4006150013</td>
<td>2,000</td>
<td></td>
<td>C4-3</td>
<td></td>
<td>$1,500.00</td>
<td></td>
<td>$3,000,000.00</td>
<td>FAR 3.4 as of right/ FAR 4.8 w/ community facility (Mixed use bldg); built 1899; 3 unit MF resid. walk up</td>
</tr>
<tr>
<td>39-31 29th Street, LIC, NY 11101</td>
<td>4003990007</td>
<td>4,950</td>
<td>8500</td>
<td>M1-2 / R5D</td>
<td>$323.53</td>
<td></td>
<td>$2,750,000.00</td>
<td>Office/ Office Condo / Flex Space / Light Manuf./ Artist Loft/ Showroom; Alma Publishing; 5,000 SF ground FL / 3,000 SF 2nd FL</td>
<td></td>
</tr>
<tr>
<td><strong>AVERAGE PSF</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>$670.37</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*NOTE: Peach box connotes property assemblage marketed as single development site.*

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Interview with Penny Lee, NYC Department of City Planning, March 14, 2014. As the author of the zoning text in both the 2001 LIC Special Purpose District rezoning and the 2008 Dutch Kills rezoning, Ms. Lee has gathered data on all new developments triggered by the rezonings.


Interview with NYC Department of City Planning, Queens office, March 14, 2014.

Interview with Evan Daniels, Director of Sales, Massey Knakal Realty Services, March 28, 2014.

Interview with Evan Daniels, Director of Sales, Massey Knakal Realty Services, March 28, 2014.


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