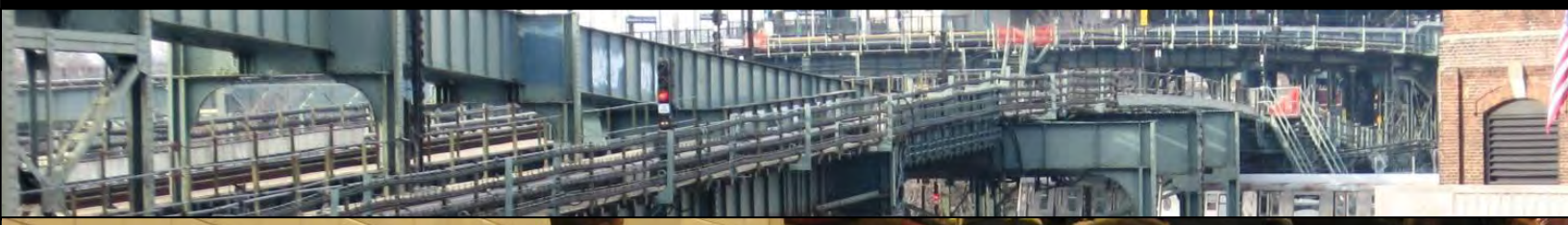
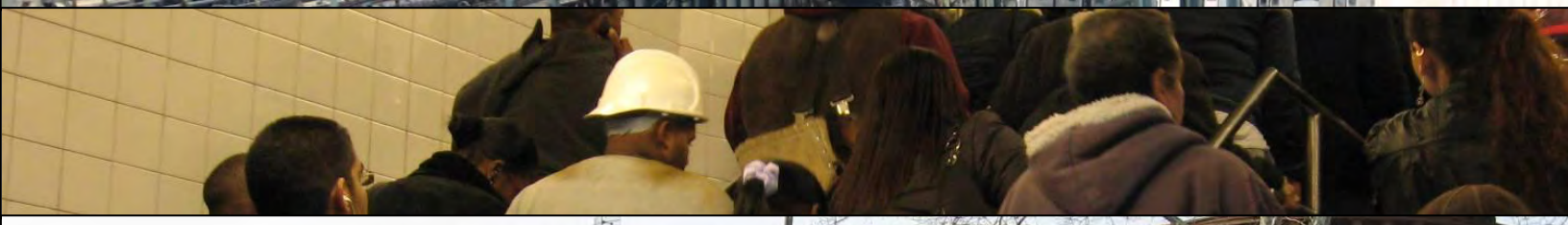
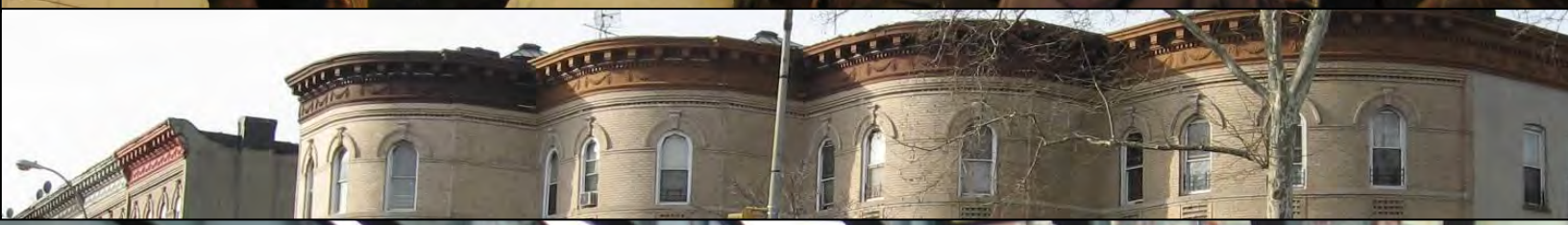
BROADWAY JUNCTION TRANSPORTATION STUDY







NYC DEPARTMENT OF CITY PLANNING
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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

page

EXECUTIVE SUMMARY

Introduction

The goal of the Broadway Junction Transit Capacity Study is to assess the unused existing and future transit capacity available on the five subway routes, six bus routes and one commuter rail line which serve the study area. These findings will be used to guide and inform any future discussions about land use and development in the Broadway Junction area.

Despite public transportation densities comparable to locations such as Fordham, Jamaica and the Queens Plaza/Court Square area, the heart of the study area lacks the kind of development often seen at a location so amply served by transit. Broadway Junction is specifically mentioned as an underutilized neighborhood with transit-oriented development potential in *PlaNYC: A Greener, Greater New York*, the City's comprehensive sustainable planning framework released in 2007.[1]

Although the study broadly outlines potential land uses, specific development scenarios and recommendations are beyond the scope of this study.

Existing Conditions

The study area is generally characterized by medium-density two-to four-story housing, and low- to medium density industrial uses. Automotive uses are also quite common, especially along Atlantic Avenue but also scattered elsewhere throughout the study area. To a large degree, existing zoning does not reflect current land use.

The vast majority of the study area's 4,377 residents (as of the 2000 Census) were located along its eastern and western edges. The northern and central parts of the area are dominated by East New York Yard (the primary storage and maintenance facility for the J/Z, L, and M lines) and the East New York Bus Depot and Central Maintenance Facility. The southern part of the study area contains part of the East New York Industrial Business Zone (IBZ). IBZs are areas where the City has specifically committed to not rezone land for residential use and to strengthen enforcement against illegally converted buildings. A residential enclave exists within the part of the IBZ in the study area, but manufacturing uses dominate.

Current subway service is provided by the A (Fulton-8th Avenue Express), C (Fulton-8th Avenue Local), J/Z (Broadway Brooklyn-Jamaica), and L (Canarsie) lines. Six local bus routes serve the study area: the B12, B20, B25, B83, Q24 and Q56. The LIRR Atlantic Division's East New York station is primarily served by trains to or from terminals in Nassau County and Far Rockaway. All trains on this route terminate to the west at Flatbush Avenue/Atlantic Terminal.

Internal passenger circulation counts within the Broadway Junction subway complex were conducted in September 2007. Analysis of the count data determined that passengers entering and exiting the station make up a relatively small portion of total internal activity within the complex – no more than one-fourth of all activity and often considerably less. The data also proved that the dominant passenger movement within the complex was from Manhattan-bound L Line trains to Manhattan-bound A and C trains in the AM peak, and from Euclid Avenue/Queens-bound A and C trains to Canarsie-bound L trains in the PM peak. In the AM peak, Manhattan-bound J/Z and L trains act as feeders to A and C trains, and in the PM peak the process is reversed: A and C trains to Euclid Avenue and Queens experience a large net loss and Queens- and Canarsie-bound J/Z and L trains gain passengers.

[1] *PlaNYC: A Greener Greater New York*. Mayor's Office for Long-Term Planning and Sustainability, April 2007. Housing Initiative 6, p. 24.

Numerous infrastructure, operational and equipment limitations exist on all subway lines serving Broadway Junction, though the A and C have them to a lesser degree. The A and C Lines are operating 25-26 trains per hour (tph) through the two-track stretch between Hoyt-Schermerhorn Streets and Canal Street – the maximum number of trains which can realistically be run over a single track in a single hour. However, these trains have room for thousands of additional passengers.

The J/Z Lines lack direct service to Midtown, must navigate a full at-grade crossover at Myrtle Avenue, travel along a route with several sharp curves which reduce operating speeds, and do not fully utilize potential express service, though doing so would create other operational issues.

The L Line operates at relatively low frequencies, though recent service upgrades in 2007 partially alleviated this condition. The line is also limited to eight car trains by platform lengths along the route, a more significant limitation than it is for J/Z trains, which are also limited to eight cars. Finding the yard space to accommodate a growing fleet is an ongoing need. Other technical limitations, discussed in the main body of the report, also prevent the L from operating at its maximum potential.

Findings

After taking peak hourly ridership, calculating systemwide ridership growth through September 2007, factoring in anticipated population growth along the A, C, J/Z and L subway routes in Brooklyn and Queens between 2007 and 2030, and considering potential and anticipated subway service improvements on these lines in the coming decades, an estimate was determined of available 2030 passenger capacity at peak hour for potential development at Broadway Junction.

Table E-A: Potential Available Peak Hour Subway Line Capacities, 2030

Line	*2030 estimated peak hour ridership*	*existing 2007 peak guideline capacity*	*peak guideline capacity with improvements*	*2030 volume/ capacity ratio with existing capacity*	*2030 volume/ capacity ratio with capacity improvements*	*estimated available 2030 capacity with improvements*
A	21,807	24,733	25,574-26,142	88.17%	83.42%-85.27%	3,767-4,335
C	7,610	9,087	11,358	83.75%	67.00%	3,748
J/Z	10,328	13,920	18,560	74.20%	55.65%	8,232
L	22,287	19,720	23,200-25,520	113.02%	87.33%-96.06%	913-3,233
	62,032	**67,460**	**78,692-81,580**	**91.95%**	**76.04%-78.83%**	**16,660-19,548**

If potential and anticipated capacity improvements are made, the subway routes serving Broadway Junction would be able to accommodate the possible population growth scenario for 2030, with substantial additional capacity remaining.

DCP estimates that up to 16,660 to 19,548 additional peak-hour, peak-direction subway users could be accommodated in 2030 by the subway routes serving the study area. Note that this figure represents estimated future available capacity not just for the Broadway Junction station, but for other stations on these lines as well. Future decisions regarding land use changes within the study area would require consideration of numerous factors that are outside the scope of this study, including land use, neighborhood character, and other infrastructure, and would entail outreach and consensus building with community stakeholders.

However, even with the capacity upgrades described in the body of this report, the L may be running at over 96 percent of capacity by 2030. Construction of more a more mixed-use or commercial nature

would also reduce the urgency of meeting any of these conditions, since a larger proportion of reverse commuters would be entering the study area.

Recommendations and Next Steps

The study makes several recommendations, split between those that can be implemented given existing conditions, longer-term transit capacity, service and facility enhancement, and next steps which would engage the community in planning for its own future. Among these recommendations are the following:

Recommendations Based Upon Existing Land Uses and Transit Capacity

- Working with community stakeholders, a further study should be undertaken which would determine the best way to utilize the land immediately surrounding this juncture of subway, bus and rail routes.
- To help balance platform loading, seating areas on all A/C and J/Z platforms should be more evenly distributed along their lengths. Signage encouraging passengers to move towards the center of the platforms should be installed. Additionally, the Eastern Parkway J/Z Line platform entrances should be rehabilitated and reopened. For the A/C platforms, stairways to Sackman Street (a short distance from Eastern Parkway) should be constructed at the west end of both platforms. Currently, the only entrances for these platforms are at their far eastern ends. Seating on the A/C and J/Z platforms also is more prevalent at their eastern ends.

Suggestions to Improve Transit Capacity, Facilities and Service

- If significant development is expected in or west of the study area along Broadway, NYCT should study whether reintroducing 6th Avenue K Line service via Chrystie Street and the Broadway-Brooklyn/Jamaica Line is viable, either as a stand-alone service or merged with another line. J/Z and M trains do not serve Midtown Manhattan, which has almost four times more annual station entries than Lower Manhattan does. K Line service would provide one-seat service from the study area to Midtown.
- NYCT should undertake detailed design, engineering and cost analyses for extending all L Line platforms and yard tracks to be used by 9- and 10-car trains. Although other, less costly improvements should be taken first to alleviate Canarsie Line overcrowding in the near term, platforms which can accommodate longer trains could offer lasting relief from overcrowding in the long term.
- Construction of additional yard space for L trains will ultimately be necessary, regardless of whether lengthier trains are ultimately needed. The City should work with and support NYCT efforts to find suitable locations for extra traincar storage.
- Significant amount of excess infrastructure has been removed along the L Line between Broadway Junction and Sutter Avenue, but large sections of elevated deck remain that currently serve no active purpose. These sections should be: a) reused for car storage, b) rehabilitated for use as a terminal for Midtown service, or c) demolished, once the active L Line tracks are retrofitted to make them structurally independent. By either making use of or removing this excess infrastructure, both the City and NYCT would be more effectively utilizing their resources.
- The L Line could ultimately be relocated into the Bay Ridge Line ROW from Wilson Avenue to New Lots Avenue. These two redundant and overbuilt alignments parallel each other through most of eastern Brooklyn, and sufficient space exists to consolidate the two – ultimately saving on maintenance costs and opening up additional land within the study area for reuse.
- Since the J/Z largely parallels the L Line's alignment through northern Brooklyn, it has the potential to partially relieve the overburdened L. However, several infrastructure deficiencies on the J/Z (and M) exist. These deficiencies should ultimately be addressed, to the extent that doing so is feasible. Doing so could increase line operating speeds and capacity.

To varying degrees, all of these recommendations will require financial commitments. Decisions about whether or how many of these recommendations should be implemented will have to be made after weighing the priorities of all relevant planning, transportation and community stakeholders, and will have to be cognizant of economic realities.

1. INTRODUCTION

The goal of the Broadway Junction Development Study is to obtain and assess the unused transit capacity available on the five subway routes, six bus routes and one commuter rail line which serve the study area.

This study seeks to determine the amount of available capacity to and from Broadway Junction on each relevant transit service, partly by using the **peak loading point** of each subway line to determine how much excess space is available to accommodate future growth within the study area. (Service increases on bus routes within the study area are dictated by other factors, such as depot space and operational costs.) However, the report also considers the impact that additional development, anticipated population growth, and rezonings may have on subway route ridership levels in coming years. Even after these elements are factored in, the study does not automatically assume that all remaining excess capacity will exist for the benefit of the study area alone.

"Available capacity" is not confined to a to-Manhattan-in-the-morning and a from-Manhattan-in-the-evening standard. The ultimate form, scale and land uses within the study area will largely dictate its commuting patterns.

The study will make broad assumptions about the level and type of development possible in the area given whatever excess transit capacity may exist, while remaining cognizant of the existing active industrial uses within the study area. However, specific development scenarios and recommendations are beyond the scope of this study.

*The **peak loading point** is the station or stations where each subway route is carrying the greatest amount of passengers in the peak direction during the peak hour. The peak loading point is the primary factor used by NYCT to determine whether service should be added on a particular route.*

The study's area's boundaries appear in Figure 1-A. Starting in the northwest, they are:

- NORTH: Bushwick Avenue; the southern border of Cemetery of the Evergreens; a line from the southern cemetery border to the Jackie Robinson Parkway service road located at the southern edge of Crosby Avenue.
- EAST: The Jackie Robinson Parkway service road, which becomes Vermont Avenue.
- SOUTH: Liberty Avenue.
- WEST: Mother Gaston Boulevard south of Eastern Parkway, a short jog west that the boulevard makes at East New York Avenue; Eastern Parkway; Mother Gaston Boulevard north of Eastern Parkway; Somers Street; Eastern Parkway Extension; Broadway, and De Sales Place.

The subways servicing the study area are:

- **A:** 8th Avenue-Fulton Street Express. Operates from 207th Street in Manhattan to Lefferts Boulevard or Mott Avenue-Far Rockaway in Queens, with limited peak-directional service to Beach 116th Street-Rockaway Park in Queens during rush hours. A Line trains run local when C Line service is not in operation.
- **C:** 8th Avenue-Fulton Street Local. Operates from 168th Street in Manhattan to Euclid Avenue in Brooklyn, from approximately 6:00am to 10:30pm seven days a week.
- **J/Z:** Nassau Street-Broadway-Jamaica. Operates from Broad Street in Manhattan to Jamaica Center-Parsons Archer in Queens. Service is truncated to Chambers Street in Manhattan late

nights and weekends. All J and Z trains run peak-directional express service between Marcy Avenue and Myrtle Avenue weekdays. Z service only operates for about an hour in the peak direction; J/Z services during these periods provide skip-stop service in the peak direction only.

- **L:** 14th Street-Canarsie Local. Makes all stops between 14th Street-8th Avenue in Manhattan and Rockaway Parkway in Brooklyn.

The six bus routes servicing the study area are:

- **B12:** Ocean Avenue and Parkside Avenue in Brooklyn to Sheridan Avenue and Liberty Avenue in Brooklyn. Some trips to and from Ocean Avenue begin and end at East New York Avenue and Alabama Avenue.
- **B20:** Putnam Avenue and Fairview Avenue in Queens to the Brooklyn General Mail Facility. Some trips to and from the General Mail Facility end at Broadway Junction.
- **B25:** Fulton Landing in Brooklyn to Broadway Junction in Brooklyn. From 7:00am to 7:00pm weekday, service is extended to One Main Street on the Brooklyn waterfront.
- **B83:** Broadway Junction in Brooklyn to Pennsylvania Avenue and Gateway Center Mall in Brooklyn.
- **Q24:** Lafayette Avenue and Patchen Avenue in Brooklyn to 168th Street and Jamaica Avenue in Queens. Some trips to and from Queens begin and end at Broadway Junction on weekends.
- **Q56:** Broadway Junction in Brooklyn to 170th Street and Jamaica Avenue in Queens.

The commuter rail line is the Long Island Rail Road's Atlantic Division, which runs exclusively under, over or adjacent to Atlantic Avenue from Flatbush Avenue in Brooklyn to Jamaica in Queens. An East New York station is located beneath Atlantic Avenue at Van Sinderen Avenue, and is primarily served by trains to or from Hempstead, West Hempstead and Long Beach in Nassau County, and Far Rockaway in Queens.

Despite public transportation densities comparable to locations such as Fordham, Jamaica and the Queens Plaza/Court Square area, the heart of the study area lacks the kind of development often seen at a location so amply served by transit. The assessment of available transit capacity contained in this report will be used to guide and inform any future discussions about land use development in the Broadway Junction area. Broadway Junction is specifically mentioned as an underutilized neighborhood with transit-oriented development potential in *PlaNYC: A Greener, Greater New York*, the City's comprehensive sustainable planning framework released in 2007. "The zoning capacity [of Broadway Junction] has never matched this area's potential. By recognizing this neighborhood's ability to absorb responsible growth, we could create capacity for thousands of new housing units." [2]

This study also inventories the existing roadway network within the study area, including on-street parking regulations. The study area is at the confluence of several major roads, including Broadway, Bushwick Avenue, Eastern Parkway Extension, East New York Avenue, Jamaica Avenue, Pennsylvania (Granville Payne) Avenue, and the Jackie Robinson Parkway. Traffic counts conducted in the fall of 2007 at three key intersections within the study area are discussed.

[2] *PlaNYC: A Greener Greater New York*. Mayor's Office for Long-Term Planning and Sustainability, April 2007. Housing Initiative 6, p. 24.

2. HISTORY

2.1 Development of the Project Area

The study area was originally largely located in the Dutch town of Flatbush, organized in 1652, though the northwestern part of the study area was in the Town of Bushwick (created 1660). Known as Jamaica Pass in the colonial era, Broadway Junction marked the convergence of the roads which became Fulton Street, Jamaica Avenue and Broadway. During the Battle of Long Island in August 1776, British troops passed through the study area on the way to Gowanus, where they defeated colonial forces.[3]

The area appears to have been largely undeveloped as late as the 1850s.[4] In 1854, Bushwick became part of the City of Brooklyn; the rest of the study area was in New Lots, which had seceded from the Town of Flatbush two years earlier.[5]

By 1865 or 1866, when railroad access to the study area began to expand, some development appeared to have taken place in the study area, which had by then become a de facto railroad town. The Howard House, a hotel, bar and restaurant at the corner of Atlantic and Alabama avenues, opened in 1861, and is in an 1865 photo of the area.[6] An 1873 map indicates that all streets within the study area had apparently been opened.[7]

New Lots became part of the City of Brooklyn in 1886, and in 1898 the City of Brooklyn became a borough of Greater New York.

Historical photos suggest that the study area developed gradually in the early 20th century – some locations near the LIRR East New York station were vacant as late as 1916.[8] However, almost the entire study area was developed by 1924.[9] The mixed-use character of the area is already evident, although there appears to have been a slightly higher proportion of residential buildings than there are today.

2.2 Rail and Transit

The study area was one of the first locations in what is now New York City to be served by a railroad. Construction of the initial segment of the LIRR between today's Downtown Brooklyn and Jamaica was completed by 1836. Some sort of service to a station in the study area appears to have been put in place by March 1843, if not earlier.[10]

In 1865 or 1866, the Brooklyn and Rockaway Beach Railroad was built from Jamaica Bay to Broadway Junction – a period when development in the study area seems to have begun in earnest.[11]

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[3] "Broadway Junction," *Encyclopedia of New York City,* Kenneth T. Jackson, editor (1995). P. 141; "Bushwick," ibid., p.171.
[4] The M. Dripps maps of 1855 and 1858 show developed areas as shaded in. http://www.bklyn-genealogy-info.com/Map/1855.botright.html, http://www.bklyn-genealogy-info.com/Map/1858.Dripps2.html.
[5] J.H. French, *Gazetteer of the State of New York* . Pearsall Smith, publisher. Pp. 367, 373.
[6] http://www.arrts-arrchives.com/enyeast.html
[7] http://www.bklyn-genealogy-info.com/Map/NewLots.html. Although these streets may have officially been open, this should not be interpreted as meaning that widespread development had occurred on all of these streets at the time.
[8] Rick Gomes's "The East New York Project" website has numerous historic photos of the study area and East New York. The LIRR photos can be found at http://www.tapeshare.com/LIRR.html.
[9] Fairchild citywide aerial photo survey, 1924.
[10] *Brooklyn Daily Eagle*, March 4, 1843. Advertisement on p. 3, towards the bottom of column 5. An exact opening date for the station is unknown at this time.
http://eagle.brooklynpubliclibrary.org/Default/Scripting/ArchiveView.asp?BaseHref=BEG/1843/03/04&Page=3&skin=BE
[11] Most of the following material comes from Joseph Cunningham and Leonard De Hart, *A History of the New York Subway System, Part II: Rapid Transit in Brooklyn* (self-published, 1977).

A second wave of transit expansion into the area occurred between 1885 and 1889, when elevated lines were built to and through Broadway Junction along three routes: 1) the Fulton Elevated, along western Fulton Street and Liberty Avenue from Downtown Brooklyn, 2) the Broadway Elevated, along Broadway and eastern Fulton Street from the Brooklyn waterfront, and 3) the Lexington Elevated, via Lexington Avenue and Broadway from Downtown Brooklyn. The Lexington-Broadway route was actually first; the Broadway line was eventually extended west from Gates Avenue to the East River. All service through the area was electrified in 1899 and 1900.

Between 1906 and 1919 a third wave of expansion took place. The Brooklyn and Rockaway Beach Railroad began to be transformed into today's Canarsie Line in 1906 when service was moved to the current elevated viaduct south of Broadway Junction. In 1908, Broadway Line service was extended over the Williamsburg Bridge to Essex Street; five years later it reached Chambers Street. Between 1914 and 1918 a third, reversible express track was added to the Fulton and Broadway elevateds and both were extended: the Fulton El to Lefferts Avenue (now Boulevard) and the Broadway El to 168th Street, both in Queens. Today's J Line Broadway Junction station (originally called Eastern Parkway) opened in 1919.

The era between the world wars arguably marked the peak of "elevated era" mobility to and from the study area. One-seat service to Jamaica Bay ended in 1920, but a 1928 extension of the 14th Street Line to Broadway Junction resulted in a virtually complete version of today's L Line to 6th Avenue in Manhattan. (A one-stop extension in Manhattan to 8th Avenue in 1931 completed the line.) In 1936, the City-run Independent (IND) system opened as far as Rockaway Avenue, one stop from Broadway Junction, prompting the Fulton El to be closed west of Rockaway Avenue in 1940.

The IND Broadway-East New York (now Broadway Junction) station was nearly complete when World War II resulted in a construction moratorium. The station finally opened in December 1946. Two years later, when the line was extended to Euclid Avenue, all currently existing subway alignments within the study area were in place. Demolition of the remaining non-subway elevated lines followed: the Lexington El in 1950 and the Fulton El within Brooklyn in 1956. (The eastern part of the Fulton El was "recaptured" by the A Line when it was extended to Ozone Park and the Rockaways that year.)

A major departure from previous service patterns existed from 1968 to 1976. With the opening of the Chrystie Street Connection, direct service between the 6th Avenue and Jamaica lines became possible. Rush hour-only KK trains ran between either 168th Street in Jamaica or Broadway Junction and 57th Street-6th Avenue in Manhattan. In 1973, the service was renamed K and truncated to Broadway Junction, only to be eliminated in 1976. While still technically possible, no such service now exists.

The transportation history of the study area is so complex that, in the 172 years since the LIRR first arrived in the area, approximately 50 different subway, elevated and railroad service changes have occurred. However, the pace of change has slowed over the past 30 years. Since 1977, the following subway service changes affecting the study area have taken place:

- September 1977: J (Jamaica) Line cut back to Queens Boulevard.
- April 1985: J (Jamaica) Line cut back to 121st Street.
- December 1988: 1) J Archer Avenue Extension opens, adding two new stops at Sutphin-Archer and Parsons-Archer. Peak-directional skip-stop service instituted on from Marcy Avenue to 121st Street with new companion Z Line service. 2) C Line local service begins running to Euclid Avenue middays. Midday A service becomes express.

- March 1998: C Line northern terminal switches from Bedford Park Boulevard, Bronx to 168th Street, Manhattan.
- April 1999: A Line express service and C Line local service begins running seven days a week from 6:00am to 10:00pm.[12]

Table 2-A summarizes the major service changes which have occurred since 1946, when the station complex had nearly assumed its present form. Discontinuance and demolition of the Fulton Elevated nearly a decade later left the rail transit network within the area essentially as it is today.

A significant streamlining of the L (Canarsie) Line infrastructure between Broadway Junction and Sutter Avenue in the early 2000s removed a section of elevated trackage above Snediker Avenue. Previously, northbound L trains had to navigate a sharp curve north of Sutter Avenue station, travel above Snediker Avenue and stop at Atlantic Avenue at a separate platform from southbound trains. L Line trains in both directions now share a single island platform at Atlantic Avenue, but some excess infrastructure remains. (Atlantic Avenue is the stop which provides connections with the LIRR East New York station.)[13]

[12] Numerous sources, including the line-by-line postwar service history at http://community-2.webtv.net/ajkristopans/MODERNURBANRAIL/index.html. This is a compendium of service histories for heavy rail systems throughout the United States, drawn from primary sources such as transit authority websites and the *Bulletin*, published by the New York Division of the Electric Railroaders' Association.

[13] The entire Atlantic Avenue complex once had six-tracks and three-platforms, which allowed Canarsie, Fulton Elevated, and short-turn Jamaica local trains to operate simultaneously. The western platform today serves L trains, and part of the abandoned middle platform remains. In recent years, ridership at this station has rebounded somewhat, but in 2007 it still ranked 410th out of 422 active station complexes in average weekday ridership, with 1,144.

Table 2-A: Major Transit Service Changes Affecting Broadway Junction Since 1946

year	*services*	*notes*
1946-1948	LIRR, A, Lexington Avenue-Lefferts Avenue (12), Fulton Street El (13), Broadway-Canarsie Line (14), Broad Street-168th Street via Broadway El (15), 14th Street-Canarsie Line (16), 14th Street-Fulton Line (17).	December 1946: A extended to Broadway-East New York (Broadway Junction). Local only.
1948-1951	LIRR, A, Lexington Avenue-Lefferts Avenue (12), Fulton Street El (13), Broadway-Canarsie Line (14), Broad Street-168th Street via Broadway El (15), 14th Street-Canarsie Line (16), 14th Street-Fulton Line (17).	November 1948: A extended to Euclid Avenue. Local only. October 1949: A begins express rush hour service from Hoyt-Schermerhorn to Broadway Junction. E local service extended to Broadway Junction rush hours. October 1950: Lexington El closes. Lexington Avenue-Lefferts Avenue service ends.
1951-1956	LIRR, A, E, Fulton Street El (13), Broadway-Canarsie Line (14), Broad Street-168th Street via Broadway El (15), 14th Street-Canarsie Line (16), 14th Street-Fulton Line (17).	1951-1952: Jamaica Line (14) non-rush hour express service to Broadway Junction phased out. Saturday Broadway-Canarsie (14) service also ends. June 1952: Rockaway Avenue station on Fulton Street El (13) open weekdays rush hours and middays only. Fulton El service ends at Broadway Junction all other times.
1956-1958	LIRR, A, E, Broadway-Canarsie Line (14), Broad Street-168th Street via Broadway El (15), 14th Street-Canarsie Line (16).	April 1956: Fulton El closed to 80th Street; remainder recaptured by A Line, which is extended to Lefferts Boulevard. August: 14th Street-Canarsie Line (16) express service ends. 1956-1958: Various service patterns send either A or E to Beach 25th Street-Wavecrest and Rockaway Park, depending on time of day.
1958-1959	LIRR, A, E, Broadway-Canarsie Line (14), Broad Street-168th Street via Broadway El (15), 14th Street-Canarsie Line (16).	January 1958: A/E Rockaways service extended to Mott Avenue-Far Rockaway. June 1959: Peak-directional Skip stop service begins on Jamaica El (15) service from Broadway Junction to 168th Street. Broadway-Canarsie (14) service scaled back further. September: E begins running express to Euclid Avenue rush hours.
1960-1967	LIRR, A, E, Broadway-Canarsie Line (14/JJ), Broad Street-168th Street via Broadway El (15/JJ), 14th Street-Canarsie Line (16/LL).	1960: BMT routes given letters, but system used haphazardly. July 1967: A runs to Far Rockaway, non-rush hours.
1967-1973	NOVEMBR 1967-JUNE 1968: LIRR, A, E, JJ (to 168th Street; some rush hour trains to Rockaway Parkway), LL, QJ, RJ. JULY 1968-JANUARY 1973: LIRR, A, E, KK, LL, QJ.	November 1967: All routes now identified by letter. New QJ (168th Street-Brighton Beach), RJ (168th Street-95th Street Brooklyn, rush hours) routes begin service. July 1968: Chrystie-6th Avenue connection opens. JJ, RJ discontinued. New KK rush hour service runs from 168th Street or Eastern Parkway to 57th Street-6th Avenue. KK/QJ skip stop peak directional rush hours. August 1968: QJ extended to Coney Island.
1973-1976	LIRR, A, E, J, K, LL.	January 1973: A rush hour express, E rush hour local. KK truncated to Broadway Junction, renamed K. QJ replaced with J to Broad Street. J runs skip stop east of Broadway Junction AM rush hours.
1976-1985	LIRR, A, CC, J, LL.	August 1976: J runs local between Myrtle Avenue and Broadway Junction. CC replaces E to Rockaway Park rush hours. K discontinued. September 1977: J cut back to Queens Boulevard. April 1985: J cut back to 121st Street.
1986-1998	LIRR, A, C, J (J/Z starting December 1988), L.	1986: All lines now identified by a single letter. December 1988: 1) Archer Avenue Extension opens. J/Z skip stop introduced; route extended to Jamaica Center. 2) C begins running to Euclid Avenue middays; A runs express AM rush, middays and PM rush.
1999-present	LIRR, A, C, J/Z, L.	March 1998: C's northern terminal switches from 145th Street or Bedford Park Boulevard to 168th Street. April 1999: A begins running express and C begins running local 6am-10am every day, including weekends.

Figure 2-A: Broadway Junction: Annual Station Entries, 1947-2007

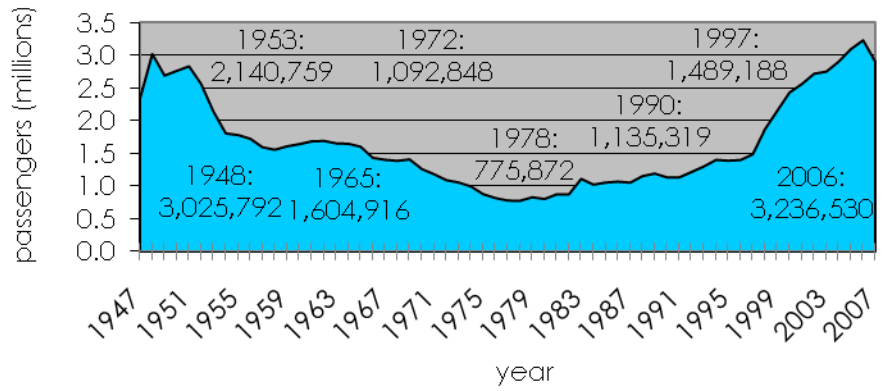


Figure 2-B: Annual Ridership Fluctuations, Broadway Junction and Entire System, 1947-2007

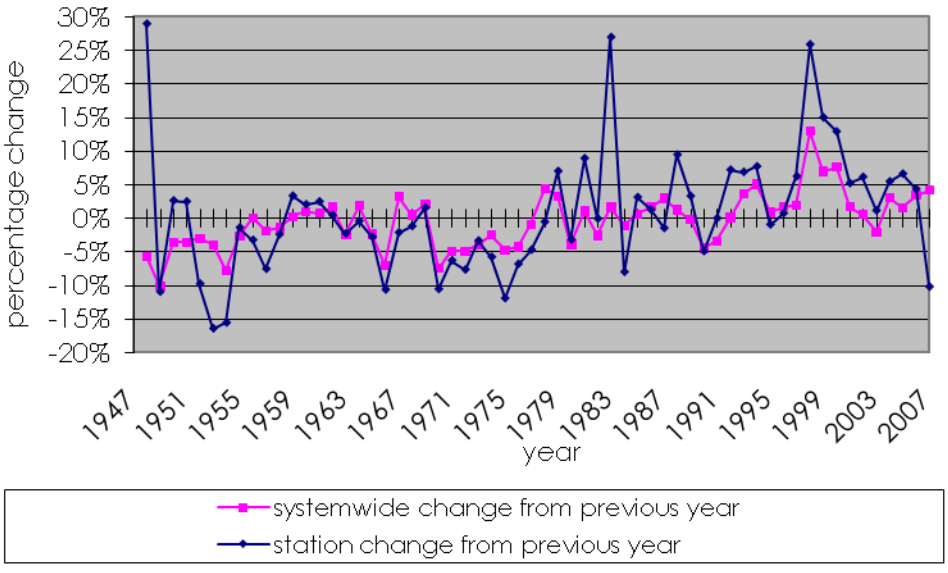


Figure 2-A displays annual subway fares paid at Broadway Junction since 1947, and Figure 2-B displays the annual ridership fluctuations, in percentage terms, of both Broadway Junction and the entire system. The long-term ridership trends from Broadway Junction are an exaggerated version of postwar systemwide ridership. After record usage in 1946-1947, system ridership plummeted by a third over the next eight years. Broadway Junction defied this trend through 1951 but then abruptly shed over a million entering passengers over three years. Between 1965 and 1978 Broadway Junction lost station entries at a higher rate than the rest of the system in every year but one. This resulted in a nadir of 775,872 entries in 1978. Since then, however, Broadway Junction has regularly exceeded systemwide ridership trends. Between 1979 and 2007, Broadway Junction has outperformed the rest of the system 22 out of 29 years (including a sudden spike in 1983 that saw entries jump by 27 percent). Growth has been especially rapid since 1997, when MetroCard discounts began. From 1997 to 2006, systemwide ridership grew by 41.2 percent; Broadway Junction's grew by 117.3 percent, outpacing the entire system every year. In 2005, the station broke its 1948 ridership record, and 2006 saw further gains. However, ridership dropped by over 10 percent in 2007. The reasons for this decrease were not known at the time this report was written.

2.3 Roads

The Jackie Robinson (formerly Interborough) Parkway opened in 1935. This was to be the only one of the three limited-access highways planned for the area which was actually built.

Interstate 78, the Bushwick Expressway, was intended to link the Williamsburg Bridge and Idlewild (JFK) Airport. Although one of the three proposed routes would have cut directly through Broadway Junction itself, an alignment just north of the study area, through the Cemetery of the Evergreens and Highland Park, was ultimately chosen. In 1966, Mayor Lindsay and the Regional Plan Association both agreed that the Cross-Brooklyn Expressway (I-695) was a higher priority, and in 1969, the Lindsay administration removed I-78 from the City map. Governor Rockefeller officially halted plans for I-78 in March 1971.

The Cross-Brooklyn Expressway would have originated at the junction of the Long Island and Brooklyn-Queens expressways in Maspeth, Queens, and continued to a junction with the Interborough Parkway in Highland Park before merging with the Bushwick Expressway in East New York at Atlantic Avenue and North/South Conduit Boulevard. Eventually it would have traversed southern Brooklyn and central Queens, largely along the right-of-way of today's LIRR/NY&A Bay Ridge Line and Fremont Secondary. The expressway would have ended at the Grand Central Parkway, providing access to the Triborough and Whitestone bridges. Repeatedly modified and enhanced throughout the 1960s – including one plan that would have realigned the LL (Canarsie) Line and the freight tracks into the expressway's median – the proposal ultimately was shelved due to community opposition in 1973.

Significant reconstruction of the Jackie Robinson parkway was initiated by NYSDOT between 1987 and 1992. A tight, nonstandard interchange at Metropolitan Avenue (Exit 6) was also replaced with a four-ramp diamond interchange. Speed limits were lowered through the winding section of parkway that passes through Cypress Hills Cemetery.

A detailed discussion of the major roads which pass through the study area appears in Section 3.7.2.

3. EXISTING CONDITIONS

3.1 Population, Demographics and Socioeconomic Conditions

Data from the 2000 United States Census provided block-by-block population figures for the study area. This section of the report relies both on "100 percent" Census data taken at the block level (which is sent to every household) and "sample" data (which is sent to one in every six or seven households) taken at the block group level. In cases where 100 percent data was used, this section will refer to the Broadway Junction study area. In cases where sample data was used, this section will refer to the Broadway Junction general area. Figure 3-A shows the boundaries of the study area versus the general area. The general area includes locations where block groups extend past the study area boundaries; this data should be used with caution since land use patterns within the study area are not necessarily identical to those immediately beyond it. No attempt was made to prorate the journey-to-work data to conform to the study area bounds.

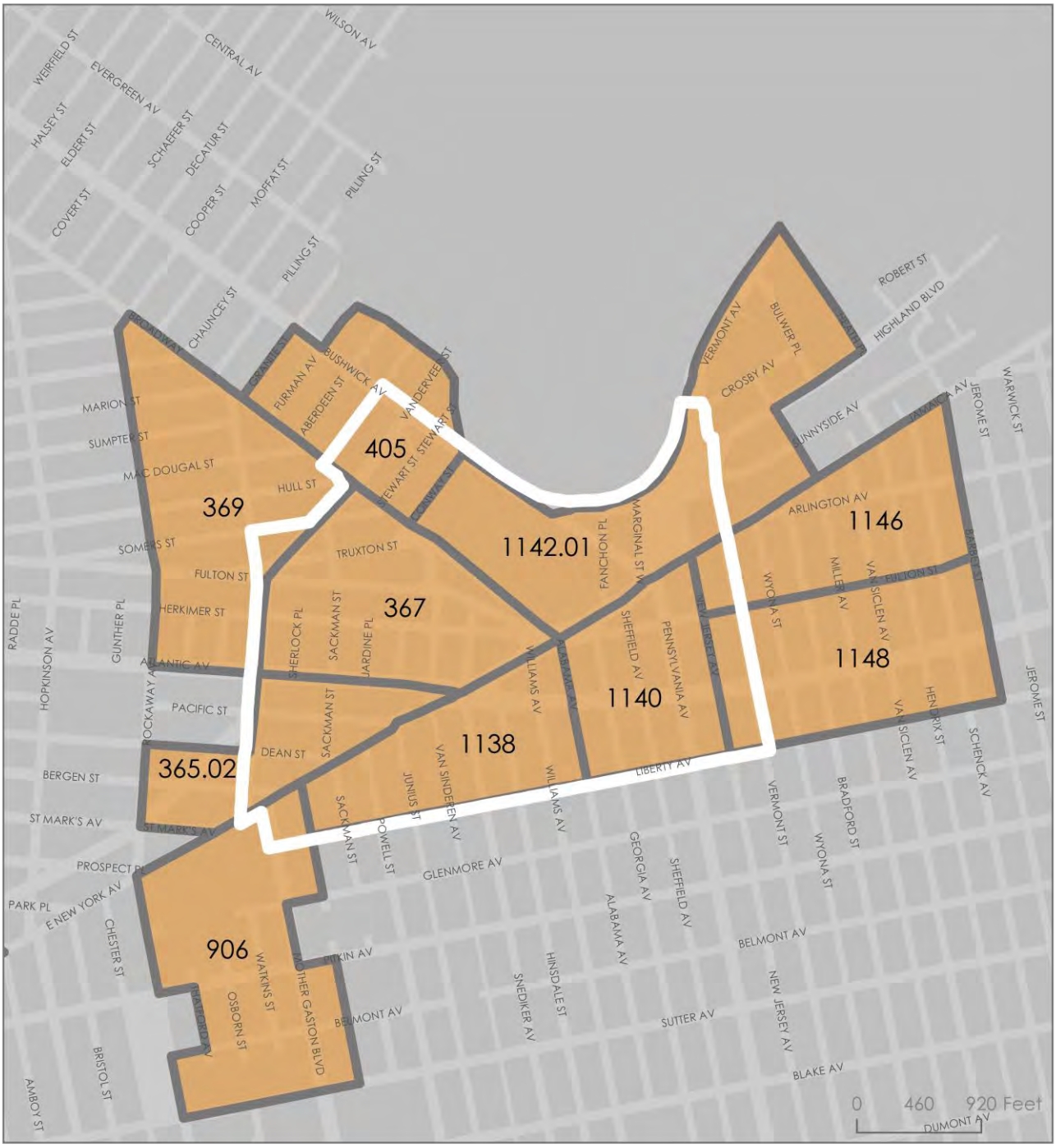
For example, while the Census counted 4,377 residents within the study area, the journey-to-work data is drawn from a total population of 9,520 – 2,631 of which were workers age 16 and over. While inclusion of these additional households is unavoidable, the data below still provides a reasonably accurate sample of journeys to work by mode.[14]

As of 2000, the Broadway Junction study area had 4,377 inhabitants, the majority of whom (74 percent) lived in rental units. The age profile of the study area was a fairly typical distribution, with about 20 percent of the population under the age of 17 years.

In the Broadway Junction general area, approximately half of the population (56 percent of men and 45 percent of women) over the age of 16 was in the labor force. Of those in the labor force, 75 percent of all men and 84 percent of all women were employed. Among study area residents other then the labor force, the total unemployment rate was 21 percent.

The majority of households in the Broadway Junction general area (78 percent) had an annual income of less than $50,000. Thirty-seven percent of the total population had an annual household income of less than $15,000 per year. Educational attainment underscores this. For about 50 percent of the Broadway Junction general area population, a high school degree or GED equivalency was the highest level of education attained. Less than 5 percent of men and less than 4 percent of women held Bachelor's degrees.

[14] United States 2000 Census, Summary File 3.
http://factfinder.census.gov/servlet/DatasetMainPageServlet?_program=DEC&_submenuId=&_lang=en&_ts=



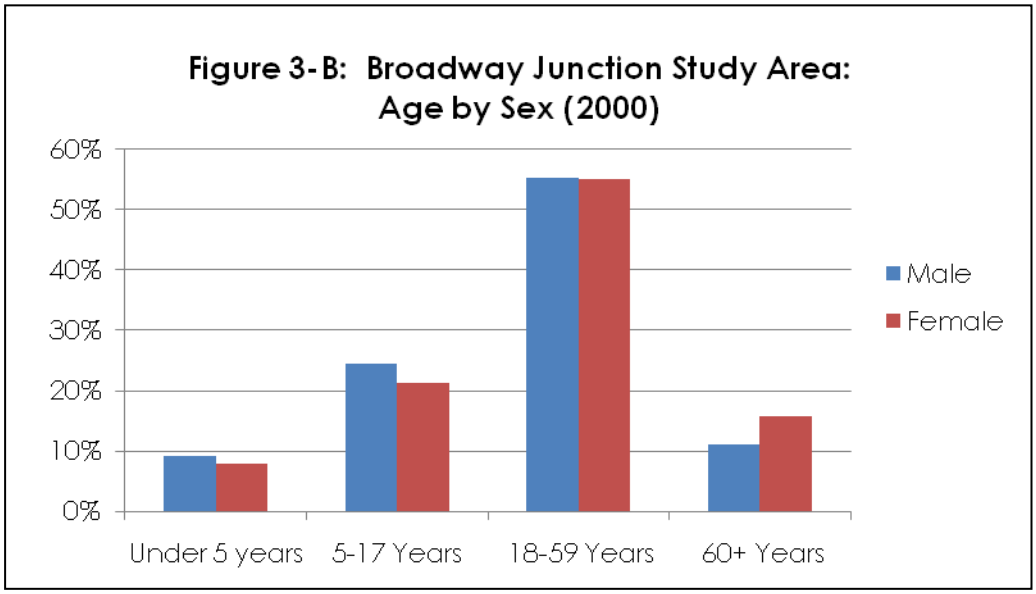
Broadway Junction Study Area

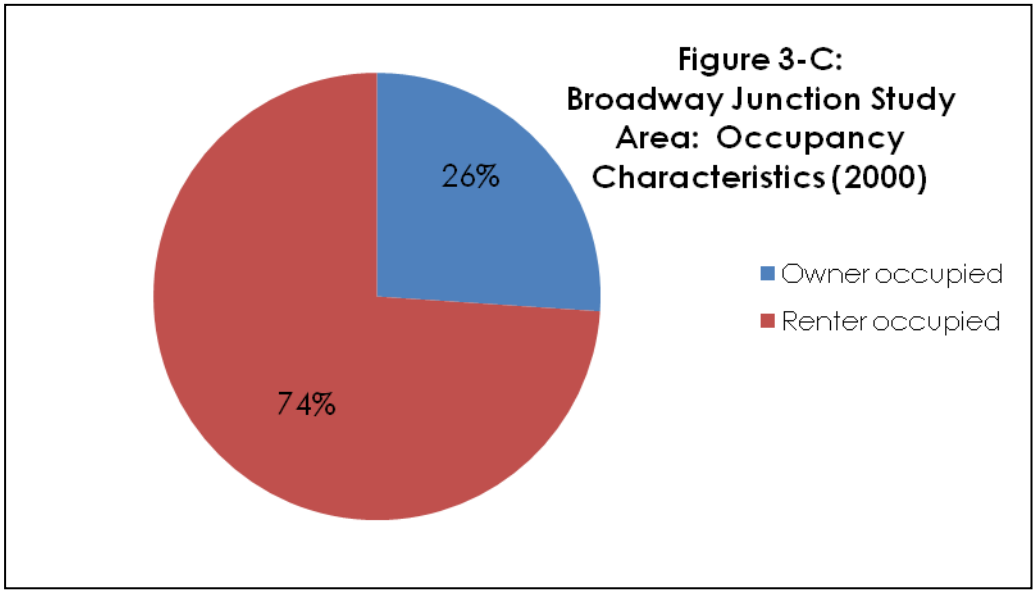
Broadway Junction General Area

Broadway Junction Development Study

STUDY AREA AND GENERAL AREA CENSUS TRACTS

FIGURE 3-A





Figures 3-B through 3-F illustrate the study area's and general area's characteristics described above. Figure 3-G shows concentrations of populations within the study area down to the block level.[15]

Journey-to-work general area data from the 2000 Census shows the percentages of workers age 16 and over that commute primarily by car (alone), carpool, bus, subway, railroad, bicycle, or on foot. Table 3-A shows the combined modal split amongst the workers within all block groups that enter the study area, excluding those that work from home. Journeys to work by subways predominate, but the combined total of buses, subway and rail equals 57.81 percent. Bicycle and pedestrian commuting equals 5.55 percent. The study area and vicinity utilizes public transportation somewhat more than the City as a whole, although bus ridership is lower than the citywide average. A sizeable gap also exists between the percentages of pedestrians walking to work in the Broadway Junction area and in the City as a whole.

[15] While largely accurate, the 2000 Census data are now 8 years old and cannot capture more recent development or changes in the population of existing housing. For example, on the western half of the block bounded by East New York Avenue, Van Sinderen Avenue, Liberty Avenue, and Junius Street, Women In Need, Inc.'s Junius Family Residence opened on this block after 2000. According to Women In Need, transitional housing residents stay at their facilities for an average of 6 months. The residence has enough units to house 216 families. See http://www.women-in-need.org/housing.html.

Figure 3-D: Broadway Junction General Area: Educational Attainment (2000)

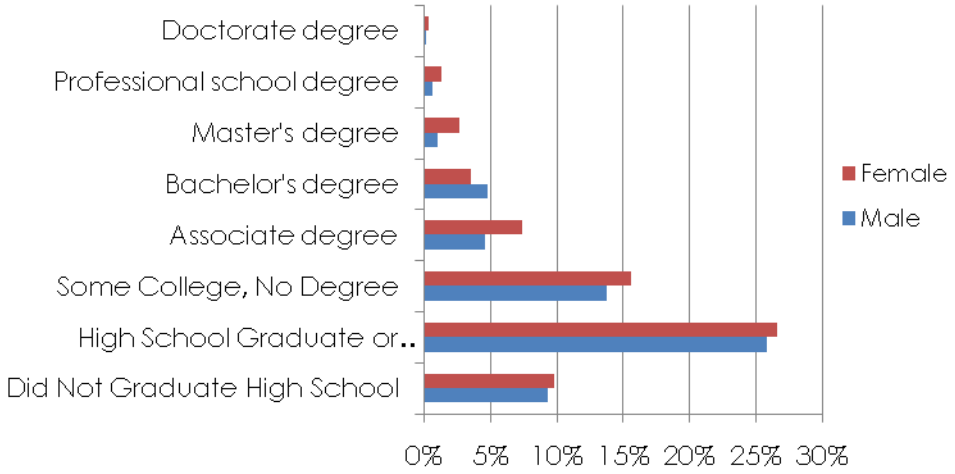


Figure 3-E: Broadway Junction General Area: Household Income (2000)

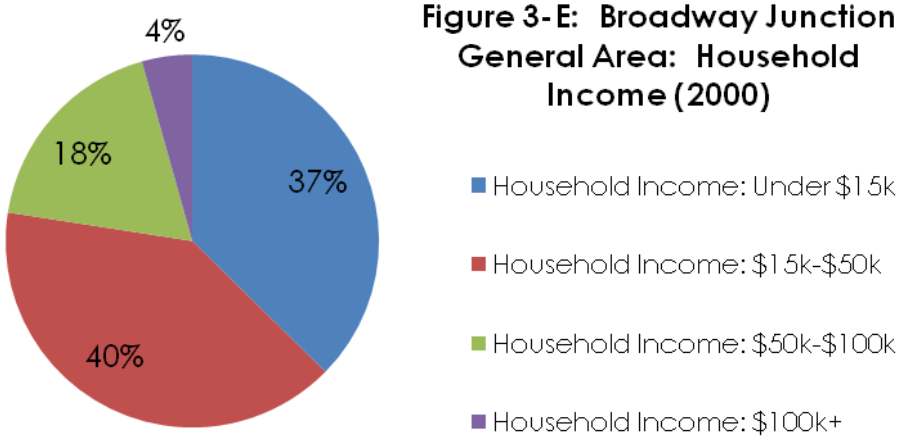
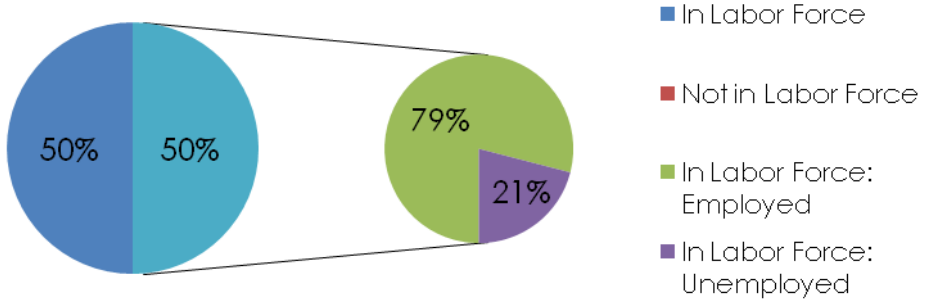
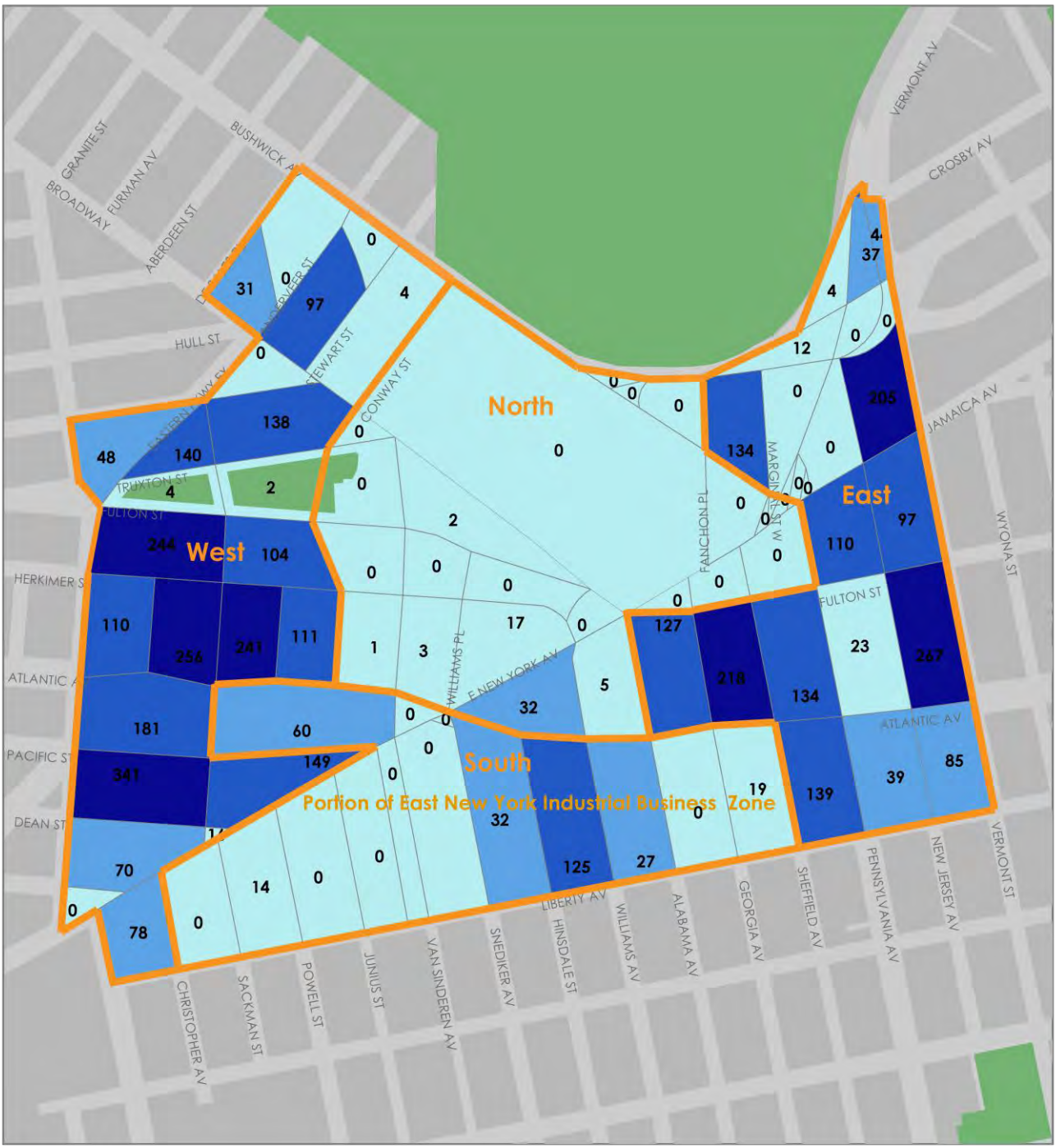


Figure 3-F: Broadway Junction General Area: Employment (2000)





Persons per block
- 0 - 23
- 24 - 85
- 86 - 181
- 182 - 341
- Subareas
- Open Space

Broadway Junction Transit Capacity Study

STUDY AREA SUBAREAS AND 2000 POPULATION BY CENSUS BLOCK
FIGURE 3-G

0 250 500 Feet

Table 3-A: Comparison of Primary Journey-to-Work Mode: Broadway Junction Area vs. Citywide			
mode	*Broadway Junction Area*	*citywide*	*difference in percentage points*
drive alone	21.66%	24.89%	-3.23%
carpool	9.65%	7.99%	1.66%
bus	6.65%	11.42%	-4.77%
subway	48.84%	37.57%	11.27%
railroad	2.32%	1.60%	.72%
bicycle	.34%	.47%	-.13%
walking	5.21%	10.41%	-5.20%
other	2.13%	2.61%	-.48%

*Figures do not add up to 100 percent due to rounding and excluding those that work from home.

3.2 Land Uses and Zoning

The study area is generally characterized by medium-density two-to four-story housing, and low- to medium density industrial uses. Automotive uses are also quite common, especially along Atlantic Avenue but also scattered elsewhere throughout the study area.

Much of the study area's land uses do not conform with existing zoning, especially in the neighborhood's western third. A zoning map of the study area appears in Figure 3-H. A map of all land uses within the study areas appears in Figure 3-I.

The study area was divided up into four subareas: North, West, South, and East. The boundaries of these subareas appear in Figure 3-G. These subareas were created purely to break up the study area into four easily-defined regions with roughly distinct land use and population characteristics. Overviews of each subarea appear in Sections 3.2.1 through 3.2.4 below.

3.2.1 North (NYCT Subway/Bus Facility Area)

Dominating the northern and central area of the study area are two NYCT properties. East New York Yard is the primary storage and maintenance facility for the over 500 cars needed on the J/Z, L, and M lines. The yard has an eight-track inspection shed. Adjacent to the yard lies the East New York Depot and Central Maintenance Facility, one of two bus facilities in the city where heavy maintenance and general overhauls take place. Bus components are also rebuilt here.

As of January 2008, 1,580 New York City Transit employees work at the combined bus and subway facilities.[16]

[16] Source: NYCT. The breakdown by employment is as follows:

Bus depot	734
Non Revenue Shop (Buses)	81
Administrative jobs related to ENY depot (Buses)	261
MTA NYCT Bus headquarters (Admin)	205
Subway yards and maintenance facility	299

Above: Composite image of the NYCT East New York Bus Depot. From this angle, NYCT's East New York Subway Yards are in back of the depot, to the northwest.

The L Line between Atlantic Avenue and Herkimer Street. Much of the north-central part of the study area is dominated by transit infrastructure and parking. The Herkimer Lot, which is used to store NYCT buses, is beneath the L viaduct, on the left side of the photo.

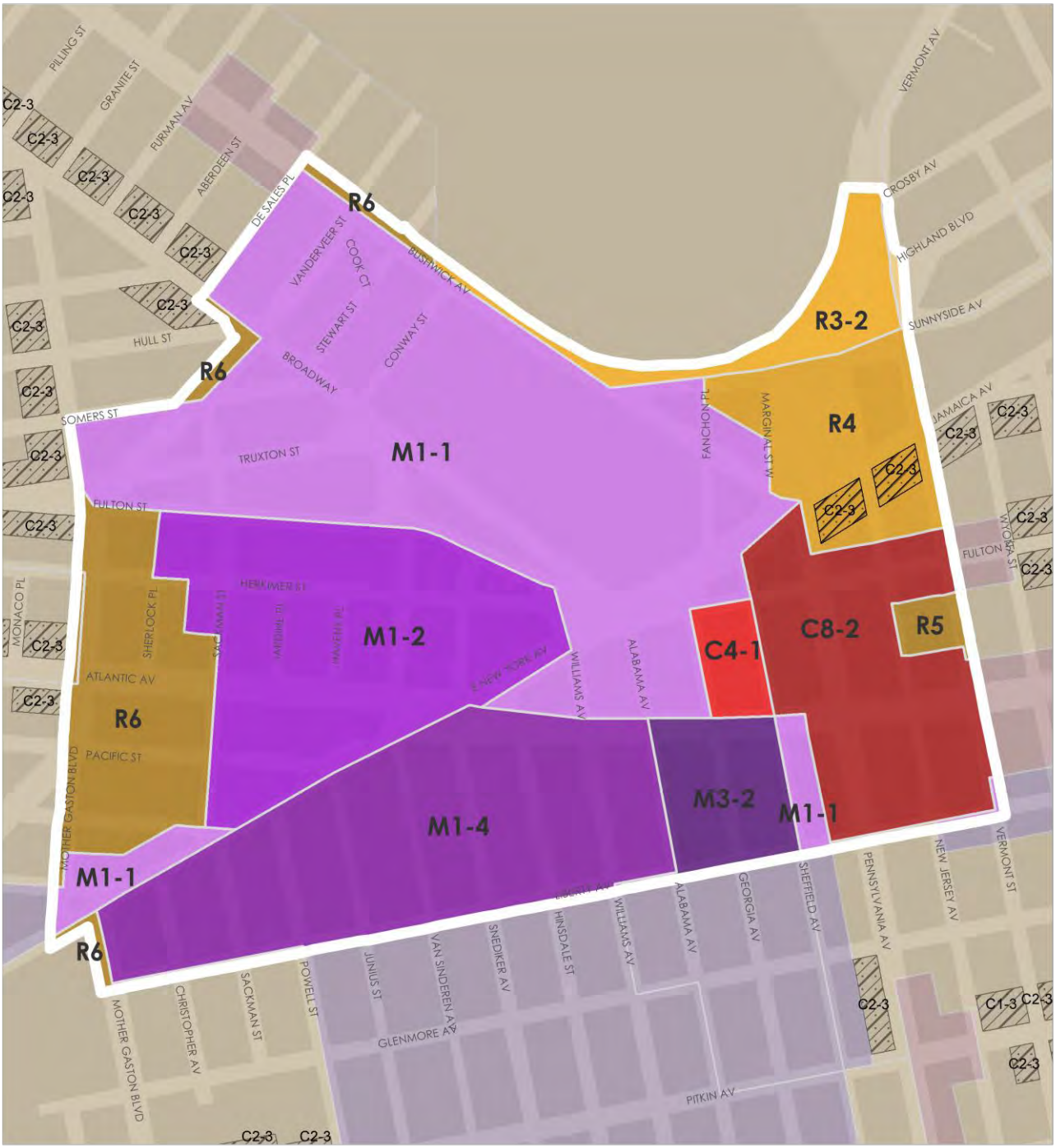
The area – bounded by Conway Street, Havens Place, Atlantic Avenue, Alabama Avenue, Fulton Street, Pennsylvania Avenue, Bushwick Avenue, Fanchon Place, Highland Boulevard, and Bushwick Avenue (again) – is predominantly zoned M1-1 and M1-2.[17] M1-1 zoning allows a maximum FAR of 1.0 and requires off-street parking, while M1-2 allows a maximum FAR of 2.0 and also requires off-street parking. Unlike much of the rest of the study area, land uses here generally conform with the zoning. One- to four-story manufacturing uses predominate. As of the 2000 Census, only 60 people were counted as living here, and 58 of them lived in the five blocks south of Herkimer Street and East New York Avenue. Residences tend to be one to three stories; some are detached.

Parking lots prevail south of the NYCT yards, and beneath the L Line viaduct, especially around Fulton Street and Williams Place. Some of this parking appears to be for NYCT employees, but two lots – the Herkimer Lot (see photo at right) and the Havens Lot (at Havens Place and Atlantic Avenue) are used for NYCT bus storage.

Two motels also exist within the subarea. Both of them received their certificates of occupancy in 2007.[18] A four-story motel is on East New York Avenue, west of Alabama Avenue; and a six-story motel is on Atlantic Avenue between Van Sinderen Avenue and Williams Place.

One block, bounded by Jamaica Avenue, Pennsylvania Avenue, Fulton Street, and Sheffield Avenue, falls within a C8-2-zoned area, which is meant for automobile-related uses and other commercial facilities. The maximum allowed FAR in a C8-2 district is 2.0. All commercial uses and some community facilities are allowed in a C8-2 district, but residential uses are not permitted. This block contains a two-story commercial structure and a parking facility.

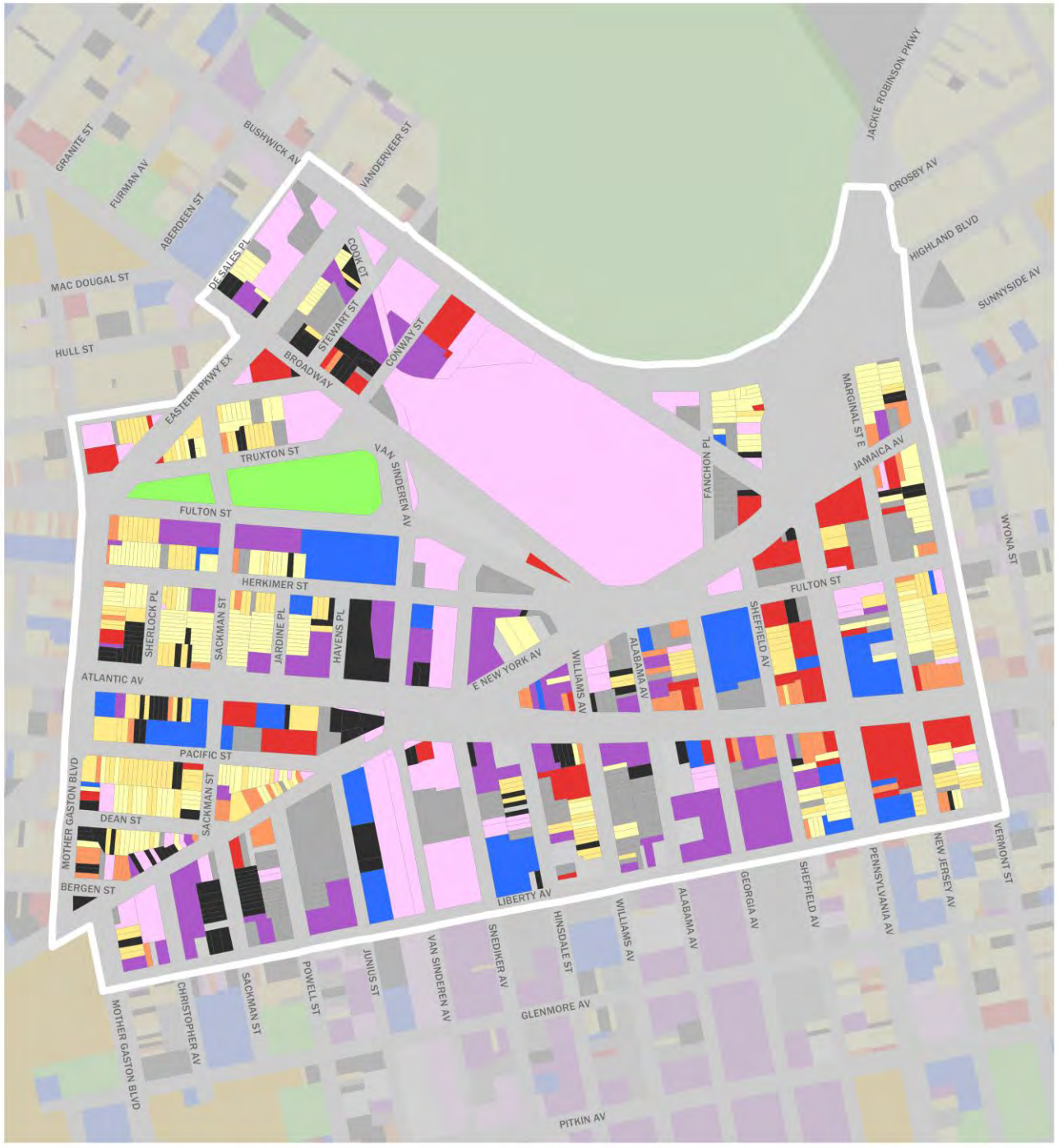
[17] A miniscule portion of this subarea, within the intersection of Pennsylvania Avenue, Bushwick Avenue, Jamaica Avenue, and the Jackie Robinson Parkway, is zoned R4. R4 zoning is covered in the discussion of the eastern part of the study area.
[18] Source: New York City Department of Buildings, Buildings Information System (BIS) http://a810-bisweb.nyc.gov/bisweb/bsqpm01.jsp



Broadway Junction Transit Capacity Study

ZONING & COMMERCIAL DESIGNATIONS
FIGURE 3-H

0 250 500 Feet



01 - One & Two Family Buildings
02 - Multi-Family Walkup Buildings
03 - Multi-Family Elevator Buildings
04 - Mixed Commercial/Residential Buildings
05 - Commercial/Office Buildings
06 - Industrial/Manufacturing
07 - Transportation/Utility
08 - Public Facilities & Institutions
09 - Open Space
10 - Parking Facilities
11 - Vacant Land
All Others or No Data

Broadway Junction Transit Capacity Study

LAND USE

FIGURE 3-I

0 255 510 Feet

3.2.2 West (west of Havens Place, the NY&A East New York Tunnel, and Conway Street)

The largest and densest concentration of housing within the study area is along its western flank. The 2000 Census counted 2,262 inhabitants within this cluster of blocks, or more than half of the study area population. Four different zoning classifications exist within this part of the study area:

- Three entire blocks and portions of three additional blocks, roughly bounded by Eastern Parkway, Fulton Street, Sackman Street, and Dean Street are zoned R6. Allowed FARs range from .78-2.43, or 2.20-3.00 if the higher lot coverage for Quality Housing is chosen. (Quality Housing maximum building heights are either 55 or 70 feet, depending on how wide the facing street is.) Off-street parking is generally required for 70 percent of conventional R6 dwelling units or 50 percent for Quality Housing R6 dwelling units. Although this is the lowest residential classification which allows "tower-in-the-park" style housing, none exist here.[19] Two-to four-story residential uses predominate (there is one five-story building), with some ground-floor retail along Eastern Parkway. A few small pockets of vacant land were also observed. A well-delineated, six-block residential community which continues into the M1-2 zone described below, has its western half in this zone.
- East of Sackman Street and south of Fulton Street lies an M1-2-designated area. M1-2 zoning allows a maximum FAR of 2.0; off-street parking is required. However, while manufacturing uses predominate along these sections of Atlantic Avenue and Fulton Street, Herkimer Street and the streets immediately to the north and south are surrounded by a community of two-to four-story residential structures which do not conform to manufacturing zoning.
- North of Fulton Street and west of Conway Street (bisecting Callahan-Kelly Playground), the area is zoned M1-1, which allows a maximum FAR of 1.0 and requires off-street parking. A hodgepodge of land uses exist here – cemetery-related businesses, automotive, and a strip of retail along Bushwick Avenue. Light industrial uses alternate with two- to four-story residential enclaves such as the two blocks bracketed by Somers Street, Conway Street, Truxton Street and Eastern Parkway. A small, irregular wedge to the north of East New York Avenue is also designated M1-1. One small, triangular block within the study area is vacant; to the north, along Dean Street and East New York Avenue, lie one-story manufacturing-use buildings, a three-story attached group of residences with ground-floor retail, and two detached two-story residential buildings.
- The southernmost block of this area, bounded by East New York Avenue, Christopher Avenue, Liberty Avenue, and Mother Gaston Boulevard, is designated M1-4. This zoning allows a maximum FAR of 2.0; off-street parking is not required. Three-and four-story residences line Mother Gaston Boulevard; 78 residents were counted on this block in the last Census. The rest of the block is industrial, including an approximately six-story building under construction as of December 2007.

[19] Tower-style public housing lies immediately southwest of the study area.

Eastern Parkway and Somers Street.

Callahan & Kelly Park.

Looking east on Herkimer Street from Eastern Parkway.

Jardine Place.

New housing on Mother Gaston Boulevard.

The pale blue and white three-story buildings are examples of abandoned housing on East New York Avenue.

3.2.3 South (Industrial Business Zone)

Eleven blocks in the southern portion of the study area (shown in Figure 3-G) are part of the East New York Industrial Business Zone (IBZ). IBZs are areas where the City has specifically made a commitment not to rezone land for residential use and to strengthen enforcement against illegally converted buildings. Businesses which have relocated to within an IBZ since July 2005 can receive a one-time tax credit of $1,000 per relocated employee, up to the lesser of actual relocation costs or $100,000. IBZ businesses also have access to Industrial Business Service Providers, which provide a range of services and assistance with regulatory requirements and assistance programs. There are 16 IBZs within the City.[20]

Most of the East New York IBZ is south of the study area's border. An eight-block-wide section continues for four blocks south of the study area, to Sutter Avenue, and a block-long protrusion continues for six blocks farther south, to New Lots Avenue.

According to *Making It In New York: The Manufacturing Land Use and Zoning Initiative*, a document prepared by the Pratt Institute Center for Community and Environmental Development for the Municipal Art Society of New York in June 2001, manufacturing within ZIP Code 11207 (which overlaps most of the study area and IBZ) accounted for 2,108 jobs. Milk and juice manufacturing, signmaking, household wood furniture, and plastics were some of the major industries within the ZIP code.[21]

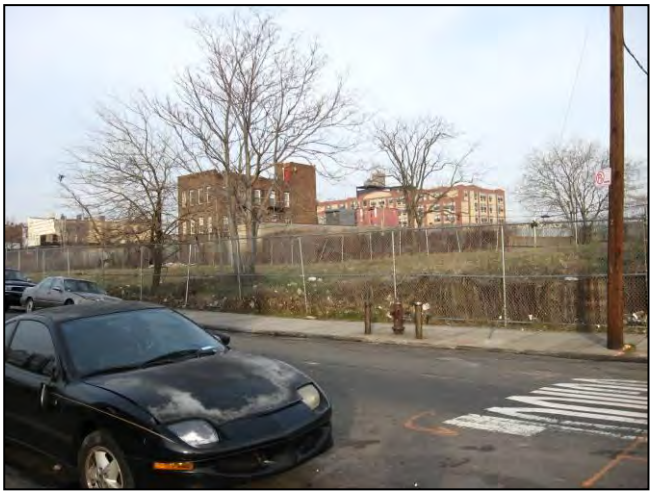
The area is primarily zoned M1-4, with one block of M1-2 and two blocks of M3-2 zoning also existing. M1-4 zoning allows a maximum FAR of 2.0; off-street parking is not required. (M1-2 zoning is identical except that off-street parking is required.) Houses of worship are allowed in M1 districts as-of-right. M3-2 zoning, which is meant for heavy industry, allows a maximum FAR of 2.0 and does not require off-street parking.

Residential uses can be found within the IBZ, especially along Hinsdale and Williams streets between Atlantic and Liberty avenues, where a pocket of 184 people were counted in 2000. (Thirty-three additional residents resided on two other blocks, giving the IBZ a total population of 217.) These are generally one- to three story buildings – a mix of attached, semidetached and detached houses, similar to R4- or R5-level zoning. Other pockets of housing can be found at Atlantic and Sheffield avenues, and along the south side of East New York Avenue, between Powell and Sackman streets. A five-story school also exists on Hinsdale Street.

Pockets of vacant land were observed, especially within the more westerly blocks of Powell Street, Sackman Street and Christopher Avenue, and along Pacific Street just west of East New York Avenue.

[20] The Mayor's Office for Industrial and Manufacturing Business: IBZ Benefits and Incentives. http://www.nyc.gov/html/imb/html/ibz/ibz_benefits.shtml

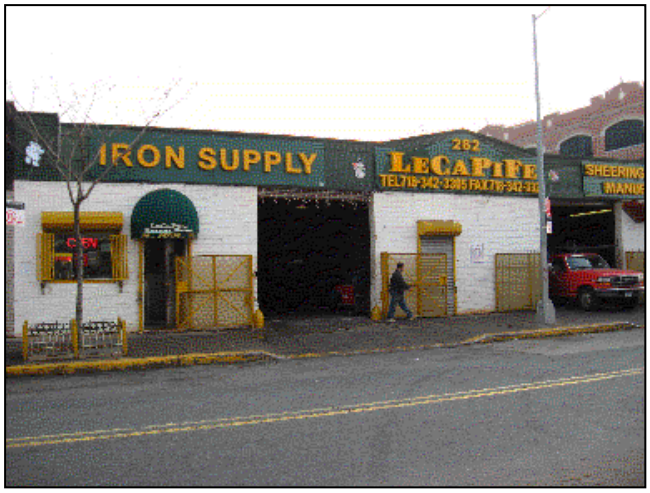
[21] Appendix E-Study Area 6: East New York. http://www.prattcenter.net/advocacy/mluzi/12-APPENDIX%20E-06-ENY-REC.PDF



Vacant lot on Sackman Street.

Atlantic Avenue L Line station, over East New York LIRR station. Though streamlined earlier in the decade, the L Line station is still overbuilt.

A residential enclave on Williams Avenue, within the East New York Industrial Business Zone.



On Liberty Avenue, a typical business within the IBZ.

The former LIRR Substation No. 2, on Snediker Avenue, just south of Atlantic Avenue.

Georgia Avenue, north of Liberty Avenue.

3.2.4 East (Residential and Automotive)

The eastern portion of the study area is bounded by Cemetery of the Evergreens, Vermont Street, Liberty Avenue, Sheffield Avenue, Atlantic Avenue, Alabama Avenue, Fulton Street, Bushwick Avenue, and Fanchon Place. A total of 1,622 people were counted in this area during the 2000 Census. No one focal point exists for this concentration of residents – three discontinuous blocks had populations over 200.

Six different zoning designations overlay this part of the study area:

- One of them, R3-2, only affects the northeastern tip of the area, at Vermont Street, north of Highland Boulevard. Two-story detached houses exist here.
- An area roughly bounded by eastbound Highland Boulevard, Marginal Street West, a line north of Fulton Street, and the project boundary is designated R4. Areas zoned R4 have a maximum allowable FAR of .90 (or 1.25 if the site qualifies under "infill rules"), and allow attached, semidetached and detached housing. Building heights are limited to 35 feet, with a 25-foot perimeter wall maximum. Parking for one vehicle per dwelling unit is the required minimum. Land use generally conforms or is below the maximum build-out allowed by the zoning, but some four-story buildings were observed, along with what appeared to be light manufacturing or commercial uses. A C2-3 overlay exists on the south side of Jamaica Avenue, east of Pennsylvania Avenue. C2-3 districts allow a maximum commercial FAR of 1.0.
- A small pocket of R5 zoning is mapped on the midblocks of New Jersey Avenue and Vermont Avenue between Fulton and Atlantic Avenues. Areas zoned R5 have a maximum allowable FAR of 1.25, and tend to result in more attached housing than in R4 districts. Building heights are limited to 40 feet, with a 30-foot street wall maximum. A minimum of 85 percent of all dwelling units must have parking for one vehicle per dwelling unit. Two- to three-story attached and semidetached houses exist within this R5 district.
- The majority of the area south of Fulton Street and east of Sheffield Avenue is zoned C8-2. This designation is meant for automobile-related uses and other large commercial facilities which require a lot of land. The maximum allowed FAR in a C8-2 district is 2.0. All commercial uses and some community facilities are allowed in a C8-2 district, but residential uses are not permitted. Although automotive uses were evident, numerous two- to four-story attached and semidetached residences also exist here, some with ground floor retail. Atlantic Avenue, Fulton Street and Pennsylvania (Granville Payne) Avenue are the main commercial corridors in the part of the C8-2 district within the study area.
- One block, bounded by Fulton Street, Sheffield Avenue, Atlantic Avenue, and Georgia Avenue is zoned C4-1. With a residential district equivalent of R5, C4-1 zones have a maximum commercial FAR of 1.00 and a maximum residential FAR of 1.25. This is generally the lowest-density designation associated with regional commercial centers. An automotive use along Atlantic Avenue shares the block with a two- to four-story attached residential use.
- The block bounded by Fulton Street, Georgia Avenue, Atlantic Avenue and Alabama Avenue is designated M1-1, as is east side of Sheffield Avenue between Atlantic Avenue and Liberty Avenue. M1-1 zoning allows a maximum FAR of 1.0 and requires off-street parking. While the sliver along Sheffield Avenue contains a mix of one- to three-story commercial and manufacturing uses, the M1-1 block within this subarea contains low-rise residential buildings, along with manufacturing uses, plus commercial space along Atlantic Avenue and Fulton Street.

Right: Sheffield Avenue, looking south from the J Line Alabama Avenue platform.

Far right: Pennsylvania Avenue, looking south from Fulton Street.

Below: Vermont Avenue, looking north from Fulton Street.

Below right: Vermont Avenue north of Highland Boulevard, in the northeast corner of the study area.

Typical automotive uses along Atlantic Avenue.

Looking east along Atlantic Avenue towards Pennsylvania Avenue.