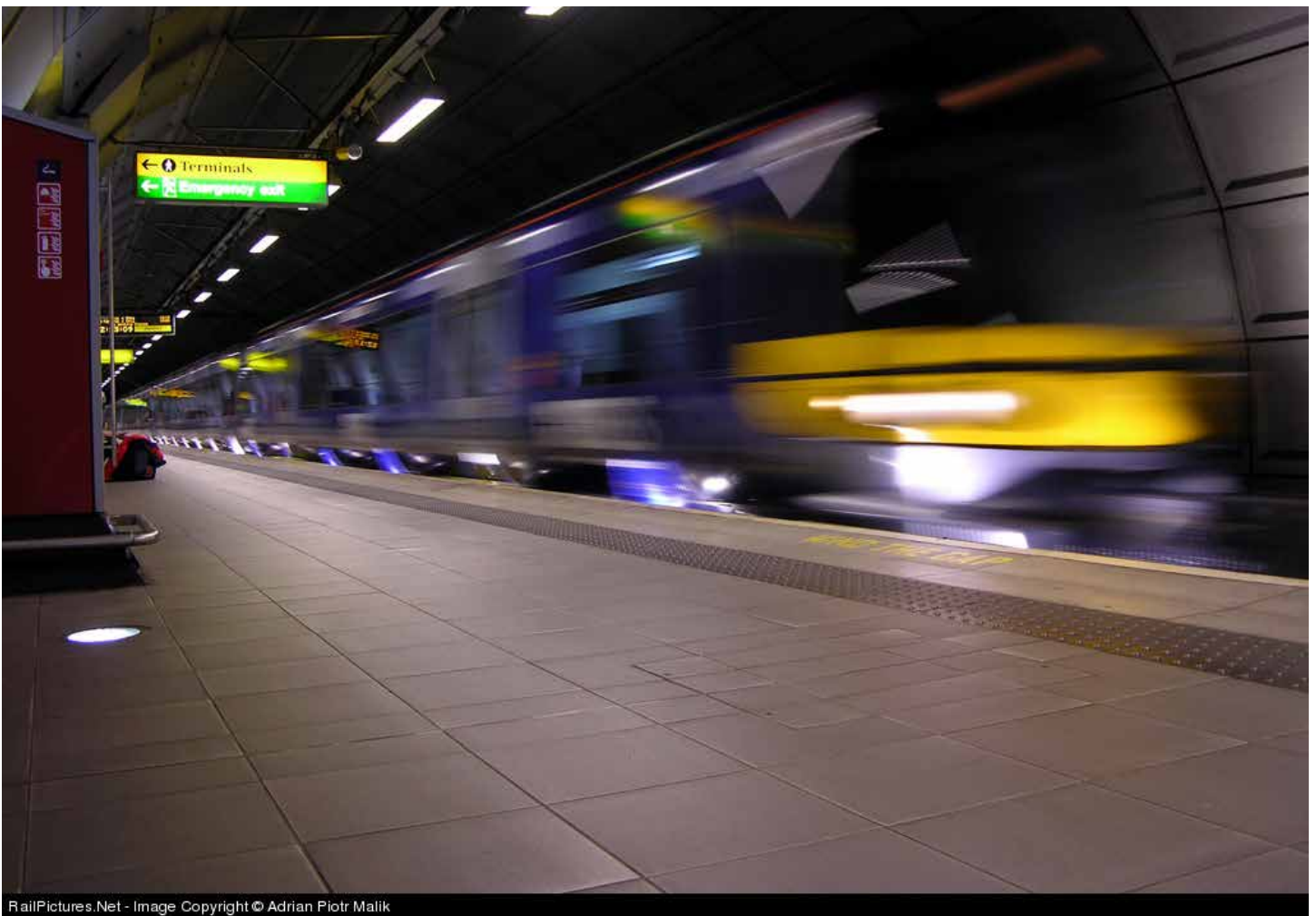


JFK Airport *Express*

Building World Class Airport Ground Access for New York City



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A Study of the Reactivation of Long Island Railroad Rockaway Beach Branch

NYUWagner

Robert F. Wagner Graduate School of Public Service

Prepared by the Queens Transit Advocates for
Institute for Rational Urban Mobility, Inc.



JFK Airport *Express*

A Study of the Reactivation of Long Island Railroad Rockaway Beach Branch

Institute for Rational Urban Mobility, Inc.
www.irum.org

NYUWagner

Robert F. Wagner Graduate School of Public Service

Foreword

This report, prepared by the Queens Transit Advocates – a group of four very capable Capstone students at NYU's Wagner School of Public Service, makes a compelling case for restoring the 4.2 mile disused Rego Park-Ozone Park segment of the LIRR Rockaway Beach Branch in Central Queens. Restoring this link will permit operation of a high quality one-seat ride rail service between the Manhattan Central Business District and the six air terminals at JFK Airport. This will make the New York Region more competitive with other global financial centers that already enjoy the benefits of similar links. This report also summarizes findings of two earlier MTA engineering studies, not previously widely circulated, that demonstrate the feasibility of bringing the line back to life and designing rail cars capable of operating on both AirTrain and LIRR tracks. The MTA studies reveal that by using existing infrastructure New York can create a world-class one-seat ride rail service for less than \$700 million in today's dollars.

This Capstone study explores in greater detail the land use and demographic characteristics of the impacted corridor and reviews state-of-the-art noise mitigation measures that would reduce adverse impacts of the rail line. The study outlines several design options for incorporating a bike/pedestrian path within the right of way.

The study also explores design options for a cross-platform transfer station at Aqueduct between the A train and the new one-seat ride airport service, cutting travel time in half between the Rockaway Peninsula and Midtown Manhattan, while providing an easier connection between the airport and Downtown Brooklyn and Lower Manhattan. Restoring this rail link would also reconnect the Rockaways with Central Queens and would provide new travel options in this corridor for motorists to avoid the legendary traffic jams on the Van Wyck Expressway and Woodhaven Boulevard. Restoring this missing rail link is critical as part of the recovery effort after last fall's devastating storm.

The Institute for Rational Urban Mobility, Inc. (IRUM) expresses its gratitude to the Wagner Capstone students for the fine work carried out in the study and wishes them great success as they begin their professional careers.

George Haikalis, President, IRUM, May 8, 2013

This report was prepared by the Queens Transit Advocates Capstone Team:

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I. Executive Summary

This report studies the creation of a one-seat (no-transfer) connection from John F. Kennedy International Airport to Midtown Manhattan via the disused portion of the Long Island Railroad Rockaway Beach Branch. The Queens Transit Advocates propose two scenarios. The first option provides the fastest service between the airport and midtown with only one stop along the reactivated tracks. The second option enhances transit access to the surrounding communities, with a modest decrease in travel time for passengers traveling to and from the airport and Midtown Manhattan. Both options include extensive noise reducing barriers and the creation of a two-way bicycle route along the line.

For the creation of a one-seat airport connection, we recommend:

- Reactivate commuter transit service on the Rockaway Beach Branch for a connection from JFK to Midtown Manhattan
- Establish a bicycle-way along the right-of-way
- Reconstruct Aqueduct station to provide greater connectivity
- Conduct further research into the economic and social benefits of multiple stations along the right-of-way
- Explore a longer-term plan to expand rail service once transit line is restored
- Study the creation of a public-private partnership for financing reactivation

II. Introduction to the Project

The Capstone Program at New York University's Wagner Graduate School of Public Service offers Master of Urban Planning candidates the opportunity to work as consultants for client organizations in their final year of study. Students apply their academic training to real-world planning challenges, and clients receive objective analysis and recommendations.

In 2012, the Institute for Rational Urban Mobility, Inc. (IRUM) applied to the Capstone Program. IRUM is a not-for-profit transit advocacy organization that, through transportation policy, promotes the enhanced livability and increased economic competitiveness of New York City and other dense urban areas. The organization identified the need for a world-class, one-seat (no transfer) train connection from John F. Kennedy International Airport (JFK) to midtown Manhattan, the United States' largest central business district. IRUM identified the disused right-of-way from the former northern half of the Long Island Railroad's Rockaway Beach Branch as an opportunity to bring this service to New York City.

Beginning in October 2012, the NYU Capstone team met with IRUM. Together the group set out to study the line and its existing conditions, interview community stakeholders, analyze neighborhood transportation trends and develop recommendations for a one-seat airport connection. This report envisions the reactivation of the 4.2-mile stretch of railway for transit use.



III. Brief History of the Rockaway Beach Branch

The Rockaway Beach Branch began service in 1877 as part of the New York, Woodhaven, and Rockaway Railroad. The branch began from the railroad's main line at White Pot Junction (located in the Rego Park neighborhood) and continued south towards Woodhaven and Ozone Park, terminating on the Rockaway Peninsula. In 1904, the Long Island Railroad merged with the Rockaway Railway and the line was electrified, allowing the Rockaway Beach Branch to connect with other Long Island Railroad branches.



While electrification of the line brought new connections, it also added significant maintenance costs. Fires on the rail bridge across Jamaica Bay in 1940s and 50s made operation of the rail line untenable. As a result, the Long Island Railroad sold the line in 1955. The southern portion was incorporated in the City's Independent Subway System (IND line) where, to this day, the line operates as part of the 'A' subway line to the Rockaway Peninsula. The northern portion was leased back to the Long Island Railroad, where service continued on the truncated branch, terminating at Ozone Park. Persistent low ridership made service infeasible. Service to this portion of the line finally ended in 1962 when it was deemed to no longer be financially viable. Today, this section of the branch is the property of the City of New York, but has not been utilized or maintained since service ended.



Source: David Krulewicz

Long Island Rail Road's Rockaway Beach Branch - Truncated service in 1955



Source: www.secondavesagas.com

Figure 1: Proposed Airport Rail Connections



IV. Putting NYC at the Center of the World

All major cities are established at major transportation hubs that connect them with other cities around the world. New York City gained dominance in the 19th century with its seaport and connection to the nation's interior via the Erie Canal. Later, the railroads were the source of economic dominance. NYC then grew around the hubs of the Pennsylvania Railroad at Penn Station and the New York Central Railroad at Grand Central Terminal. In today's aviation age, New York City is falling behind other cities. The rise of e-commerce through the internet has only magnified the importance of airports with more cargo orders being flown to consumers. As aviation plays an ever-increasing role in its economic health, New York City must continue to invest in aviation infrastructure in order to maintain its standing among other major cities across the globe.

The JFK Airport Express would provide a one-seat (no transfer) connection from JFK Airport to midtown Manhattan (see Figure 1). The proposed

line runs to the airport along the right-of-way of the former northern section of the Rockaway Beach Branch, now disused. This new transit connection would reduce travel time between JFK Airport and midtown Manhattan, and would provide significant transportation improvements to communities in southern Queens while helping to lower congestion on local roadways. Consequently, reduced congestion will have a positive impact on the airports cargo industry, and produce even greater economic benefits to New York City and the region.

Many of the world's leading cities already offer a one-seat ride to their business districts. In order to stay competitive and continue to attract leading firms in a global economy, New York City must improve rail access from the airports to the heart of the city. The JFK Express offers an investment in providing essential infrastructure to meet current and future travel demands.

V. Existing Airport Connections

Grand Central Terminal

6 Train to E Train to Jamaica to JFK



7 Train to Long Island Railroad to Jamaica to JFK



Taxi to JFK



91 Minutes
49 Minutes Off Peak

Source: hopstop.com



Existing Airport Connections

From Penn Station

LIRR to Jamaica to JFK



LIRR Ticket
AirTrain Pass



46 Minutes
62 Minutes Off Peak



E Train to Jamaica to JFK



Metrocard
AirTrain Pass



56 Minutes
77 Minutes Off Peak



A Train to Howard Beach to JFK



Metrocard
AirTrain Pass



99 Minutes
88 Minutes Off Peak



Taxi to JFK



85 Minutes
52 Minutes Off Peak

Source: hopstop.com



VI. Study Area & Existing Conditions

The original Rockaway Beach Branch of the Long Island Railroad ran from the Main Line to the Rockaway Peninsula. The study area comprises of a subsection of this line, from the Aqueduct Raceway and Casino to the Main Line connection. Below this section, the rail is still active with the New York City Transit Authority's A train to the Rockaways. The study area runs through several neighborhoods and community districts: Community District 6, which includes the neighborhoods of Rego Park and Forest Hills; Community District 9, which includes the neighborhoods of Woodhaven, Richmond Hill, and Kew Gardens; and Community District 10, which includes the neighborhoods of Ozone Park, Lindenwood, and Howard Beach. Approximately 250,000 people live within one-mile of the right-of-way.¹

Figure 2



Existing Right-of-Way Through Forest Park



Figure 3
Existing Conditions Along the
Rockaway Beach Branch

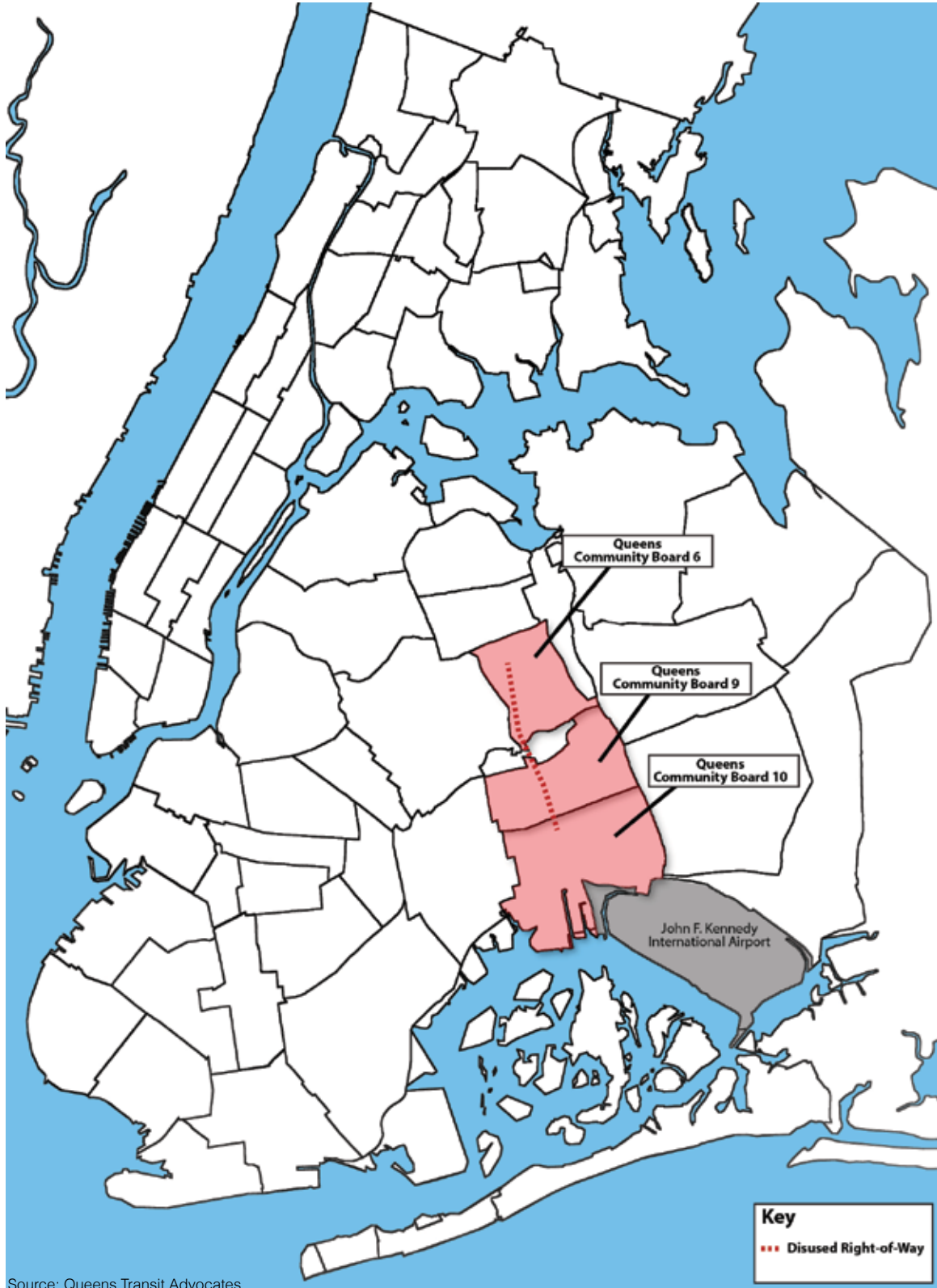


Figure 3 (above) shows existing conditions at various points along the disused portion of the Rockaway Beach Branch. While the right-of-way remains intact, the infrastructure itself remains in various states of disrepair.

a. Study Area Overview

The disused Rockaway Beach Branch right-of-way passes directly through Community Boards 6, 9, and 10. In Community Board 6, the line travels very close to the Community 5 border (see figure 4). These boards are home to 212,986 residents. The demographics of each community vary greatly, as seen in tables 1, 4, and 7.

Figure 4

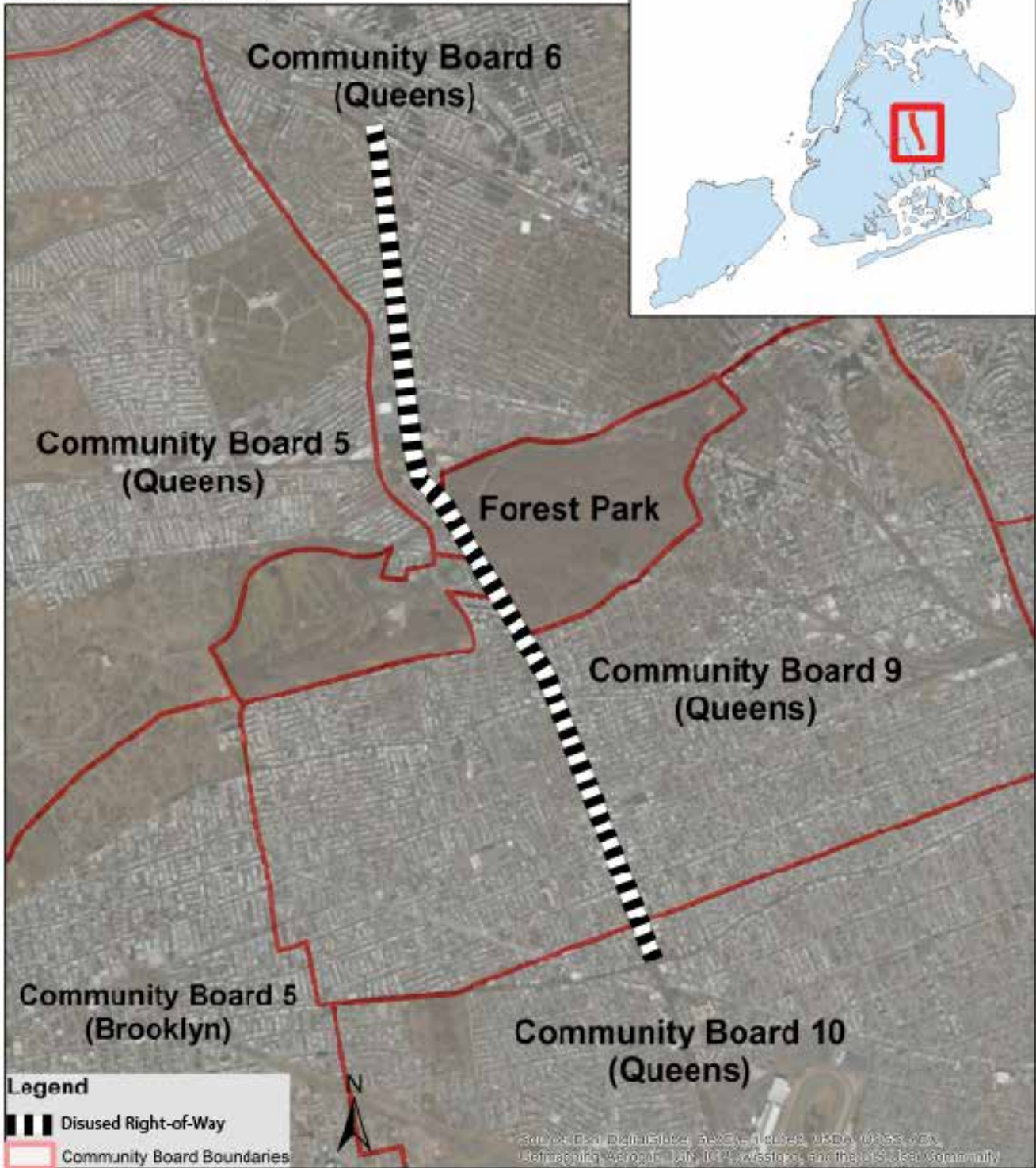


Source: Queens Transit Advocates

b. Community Boards Around Study Area

Figure 5

Community Boards
Around Study Area



NYU Wagner

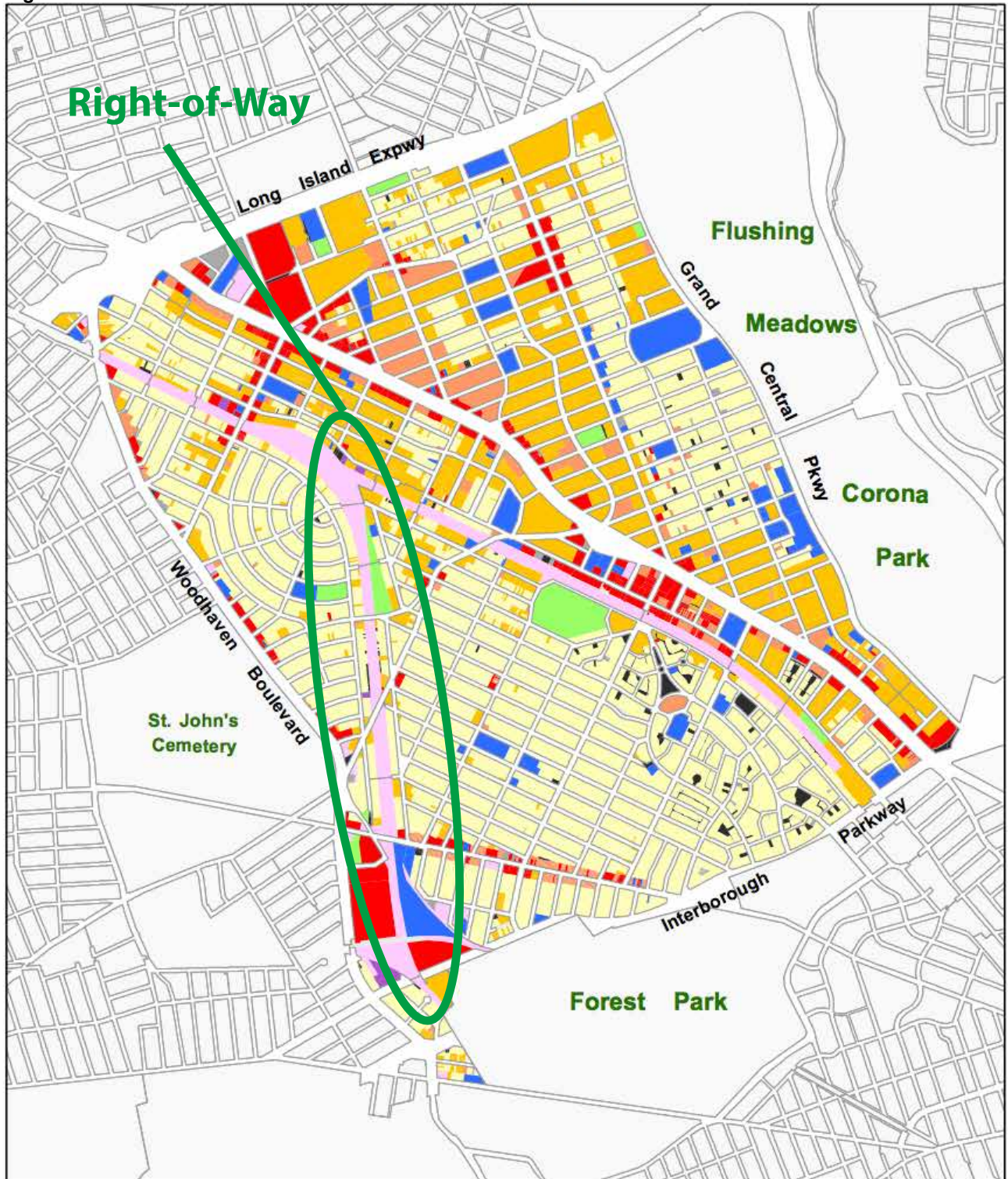
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Prepared by Queens Transit Advocates

0 0.5 0.5 0.6 0.9 1.2 Miles

Date:
New York City Department of City Planning

Queens Community District 6

Figure 6



© Copyright 2011
 NYC Department of City Planning

Source: MapPLUTO™ Release 11v1

Residential Land Uses

- One & Two Family Buildings
- Multi-Family Buildings
- Mixed Residential and Commercial Buildings

Non-Residential Land Uses

- Commercial / Office Buildings
- Industrial / Manufacturing
- Open Space and Outdoor Recreation
- Public Facilities and Institutions
- Transportation and Utility
- Parking Facilities
- Vacant Land
- All Others or No Data

Table 1

Community Board 6: Population Demographics				
	Rego Park		Forest Hills	
Population	42,888		69,266	
Sex				
Male	20,185	47.1%	31,485	45.5%
Female	22,703	52.9%	37,781	54.5%
Race/Ethnicity				
White	25,422	59.3%	39,349	56.8%
Black or African American	1,164	2.7%	1,696	2.4%
American Indian and Alaska Native	263	0.6%	163	0.2%
Asian	11,040	25.7%	18,416	26.6%
Native Hawaiian and Other Pacific Islander	0	0.0%	114	0.2%
Hispanic or Latino	6,676	15.6%	7,985	11.5%
Other Race Not Listed	310	0.7%	194	0.3%
Two or More Races	918	2.1%	1,349	1.9%
Age				
Under 19 years	8,160	19.0%	12,157	17.6%
20-44 years	15,828	36.9%	24,785	35.6%
45-64 years	12,122	28.3%	19,447	28.1%
65-85 years	6,778	15.8%	12,877	18.6%
Median Age	40.2		42.6	

Source: American Community Survey 2011

Table 2

Community Board 6: Economic Characteristics				
	Rego Park		Forest Hills	
Median Income	\$54,339		\$72,394	
Unemployment Rate	8.85%		6.41%	
Population In Poverty	7.80%		5.40%	
Less than 9th grade	1,213	3.7%	2,078	3.8%
9th to 12th grade, no diploma	1,405	4.3%	1,966	3.6%
High school graduate (includes equivalency)	6,556	20.0%	9,545	17.6%
Some college, no degree	4,477	13.6%	6,633	12.2%
Associate's degree	2,916	8.9%	3,355	6.2%
Bachelor's degree	10,062	30.7%	16,171	29.8%
Graduate or professional degree	6,198	18.9%	14,429	26.6%
Population 25 years and over	32,827		54,177	

Source: American Community Survey 2011

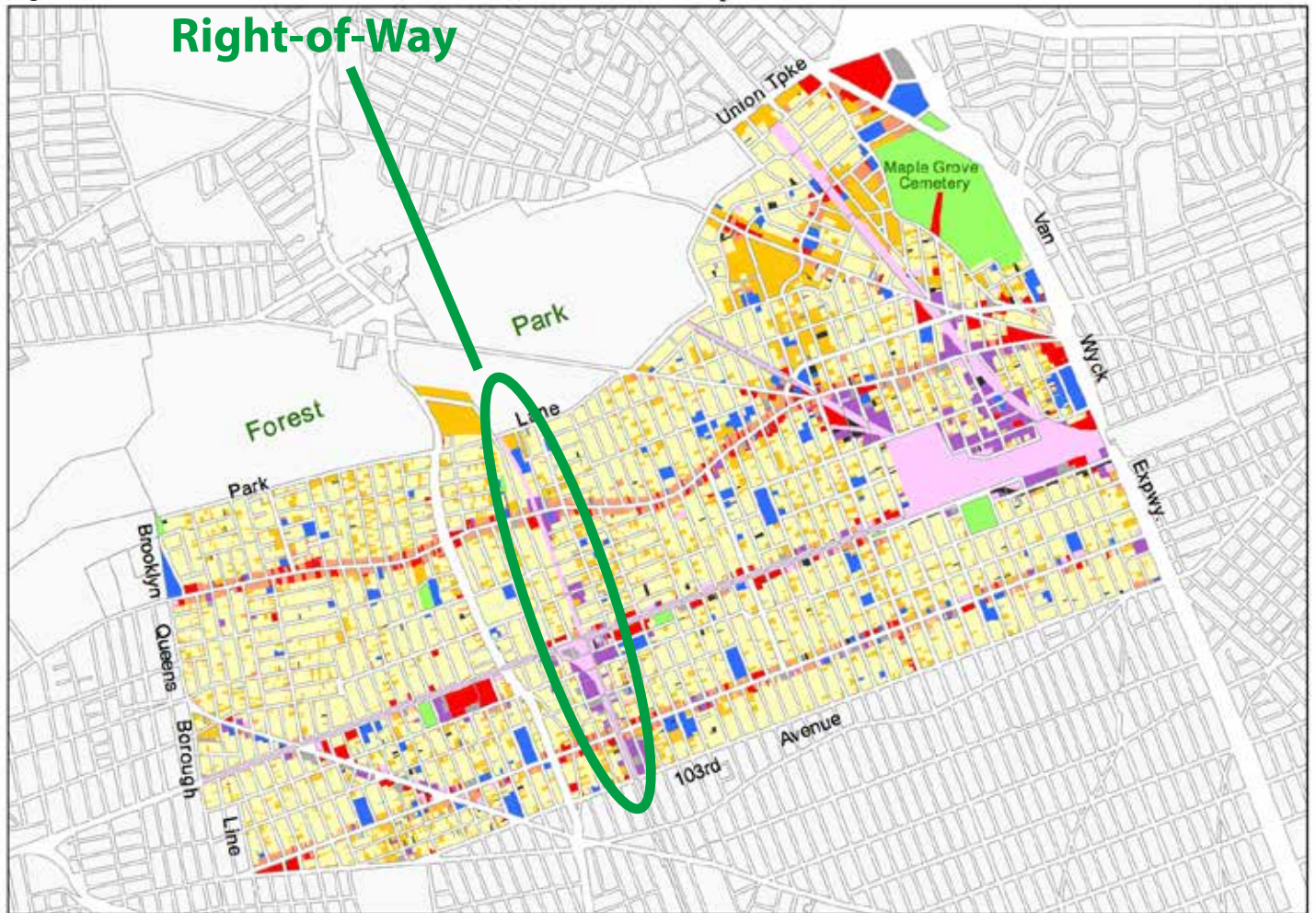
Table 3

Community Board 6: Housing Characteristics				
	Rego Park		Forest Hills	
Vacancy	4.57%		7.02%	
Median (dollars) Owner Occupied Value	\$314,800		\$368,300	
Median (dollars) Units paying rent	\$1,288		\$1,410	
1-unit, detached	1,452	7.2%	3,808	11.1%
1-unit, attached	1,578	7.8%	2,706	7.9%
2 units	1,205	5.9%	1,636	4.7%
3 or 4 units	621	3.1%	513	1.5%
5 to 9 units	366	1.8%	795	2.3%
10 to 19 units	463	2.3%	345	1.0%
20 or more units	14,576	71.9%	24,596	71.4%
Total Housing Units	20,277		34,452	

Source: American Community Survey 2011

Figure 7

Queens Community District 9



© Copyright 2011 NYC Department of City Planning
Source: MapPLUTO Release 11v1

Residential Land Uses		Non-Residential Land Uses	
One & Two Family Buildings	Commercial / Office Buildings	Transportation and Utility	Parking Facilities
Multi-Family Buildings	Industrial / Manufacturing	Open Space and Outdoor Recreation	Vacant Land
Mixed Residential and Commercial Buildings	Public Facilities and Institutions	All Others or No Data	

Table 4

Community Board 9: Population Demographics				
	Richmond Hill		Woodhaven	
Population	36,005		40,975	
Sex				
Male	18,380	51.0%	20,315	49.6%
Female	17,625	49.0%	20,660	50.4%
Race/Ethnicity				
White	6,942	19.3%	7,675	18.7%
Black or African American	3,599	10.0%	2,168	5.3%
American Indian and Alaska Native	207	0.6%	7	0.0%
Asian	7,447	20.7%	6,998	17.1%
Native Hawaiian and Other Pacific Islander	0	0.0%	24	0.1%
Hispanic or Latino	15,613	43.4%	23,450	57.2%
Other Race Not Listed	1,566	4.3%	142	0.3%
Two or More Races	631	1.8%	511	1.2%
Age				
Under 19 years	9,290	25.8%	11,687	28.5%
20-44 years	14,009	38.9%	15,935	38.9%
45-64 years	9,410	26.1%	9,975	24.3%
65-85 years	3,296	9.2%	3,378	8.2%
Median Age	34.7		33.7	

Source: American Community Survey 2011

Table 5

Community Board 9: Economic Characteristics				
	Richmond Hill		Woodhaven	
Median Income	\$57,899		\$55,120	
Unemployment Rate	10.77%		12.70%	
Population In Poverty	9.90%		13.30%	
Less than 9th grade	2,784	11.6%	2,929	11.3%
9th to 12th grade, no diploma	2,940	12.3%	3,072	11.8%
High school graduate (includes equivalency)	7,268	30.3%	7,981	30.7%
Some college, no degree	3,232	13.5%	4,208	16.2%
Associate's degree	1,580	6.6%	2,018	7.8%
Bachelor's degree	3,912	16.3%	4,088	15.7%
Graduate or professional degree	2,237	9.3%	1,708	6.6%
Population 25 years and over	23,953		26,004	

Source: American Community Survey 2011

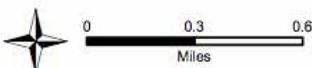
Table 6

Community Board 9: Housing Characteristics				
	Richmond Hill		Woodhaven	
Vacancy	6.66%		6.54%	
Median (dollars) Owner Occupied Value	\$467,300		\$443,900	
Median (dollars) Units paying rent	\$1,207		\$1,254	
1-unit, detached	2,157	18.4%	2,861	22.0%
1-unit, attached	808	6.9%	1,927	14.8%
2 units	4,340	36.9%	4,601	35.3%
3 or 4 units	1,385	11.8%	1,509	11.6%
5 to 9 units	389	3.3%	234	1.8%
10 to 19 units	166	1.4%	303	2.3%
20 or more units	2,499	21.3%	1,538	11.8%
Total Housing Units	11,750		13,034	

Source: American Community Survey 2011

Figure 8

Queens Community District 10



© Copyright 2011
NYC Department of City Planning

Source: MapPLUTO™ Release 11v1

Residential Land Uses

- One & Two Family Buildings
- Multi-Family Buildings
- Mixed Residential and Commercial Buildings

Non-Residential Land Uses

- Commercial / Office Buildings
- Industrial / Manufacturing
- Open Space and Outdoor Recreation
- Public Facilities and Institutions
- Transportation and Utility
- Parking Facilities
- Vacant Land
- All Others or No Data

Table 7

Community Board 10: Population Demographics		
	Ozone Park	
Population	23,852	
Sex		
Male	11,490	48.2%
Female	12,362	51.8%
Race/Ethnicity		
White	3,566	15.0%
Black or African American	1,354	5.7%
American Indian and Alaska Native	0	0.0%
Asian	7,587	31.8%
Native Hawaiian and Other Pacific Islander	0	0.0%
Hispanic or Latino	10,490	44.0%
Other Race Not Listed	457	1.9%
Two or More Races	398	1.7%
Age		
Under 19 years	7,170	30.1%
20-44 years	9,291	39.0%
45-64 years	5,466	22.9%
65-85 years	1,925	8.1%
Median Age	32.0	

Source: American Community Survey 2011

Table 8

Community Board 10: Economic Characteristics		
	Ozone Park	
Median Income	\$53,821	
Unemployment Rate	13.10%	
Population In Poverty	11.70%	
Less than 9th grade	1,711	11.6%
9th to 12th grade, no diploma	1,768	12.0%
High school graduate (includes equivalency)	5,100	34.7%
Some college, no degree	2,178	14.8%
Associate's degree	1,333	9.1%
Bachelor's degree	1,857	12.6%
Graduate or professional degree	757	5.1%
Population 25 years and over	14,704	

Source: American Community Survey 2011

Table 9

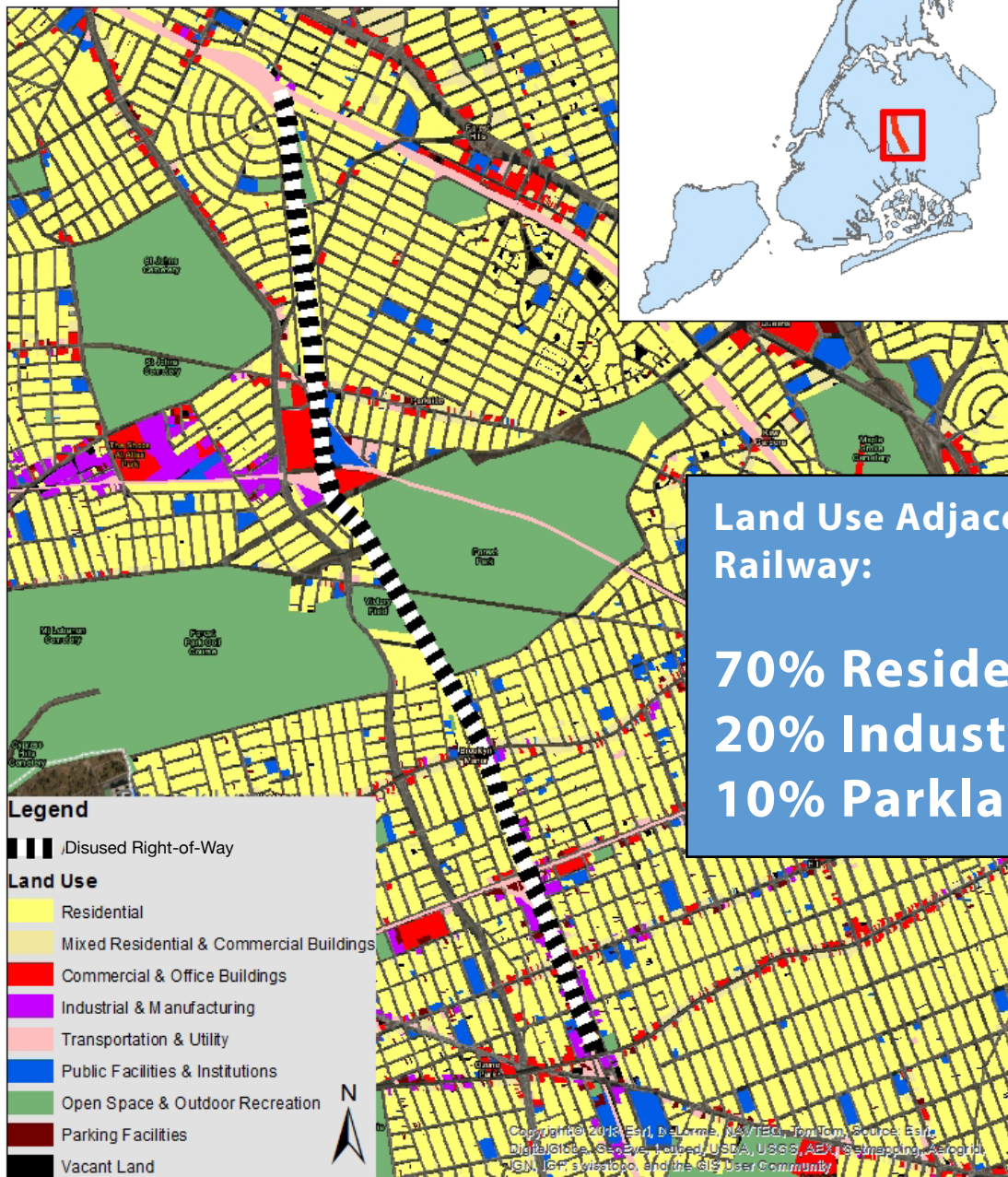
Community Board 10: Housing Characteristics		
	Ozone Park	
Vacancy	13.83%	
Median (dollars) Owner Occupied Value	\$477,700	
Median (dollars) Units paying rent	\$1,337	
1-unit, detached	1,157	14.9%
1-unit, attached	820	10.6%
2 units	3,976	51.3%
3 or 4 units	1,278	16.5%
5 to 9 units	209	2.7%
10 to 19 units	18	0.2%
20 or more units	294	3.8%
Total Housing Units	7,752	

Source: American Community Survey 2011

c. Land Use

The disused right-of-way is under ownership of the City of New York. The rail also runs through Forest Park. Forest Park is over 500 acres and includes hiking trails, a golf course, two private stables for horseback riding, as well as playing fields and courts for softball, baseball, tennis, bocce, and handball.² Additionally, the right-of-way is surrounded by two major cemeteries.

Figure 10
Land Use Along Rockaway Beach Line



Land Use Adjacent to Railway:

70% Residential
20% Industrial
10% Parkland

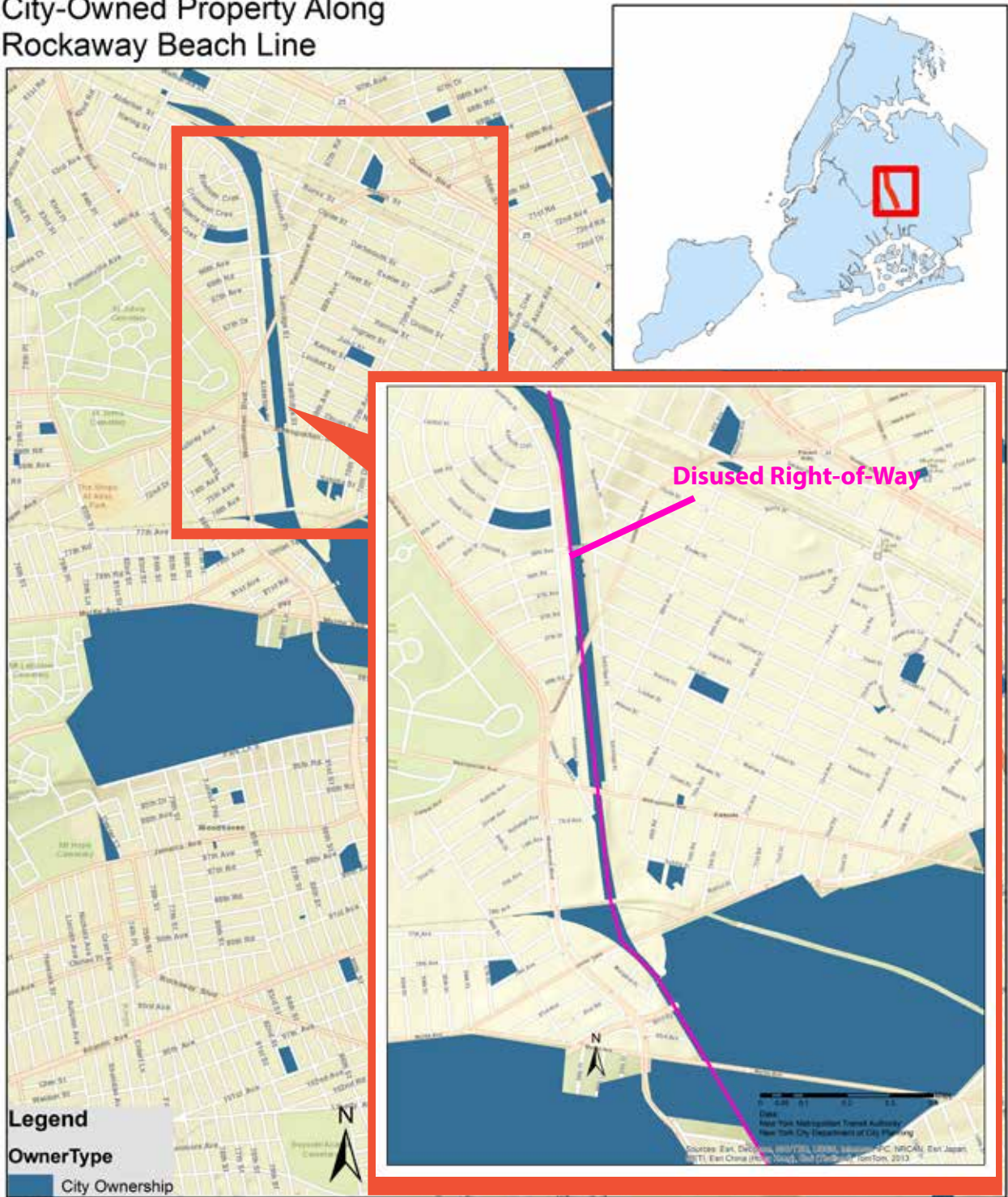
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0 0.125 0.25 0.5 0.75 1 Miles
Data:
New York City Department of City Planning

Right-of-Way is City Owned

Figure 9
City-Owned Property Along
Rockaway Beach Line



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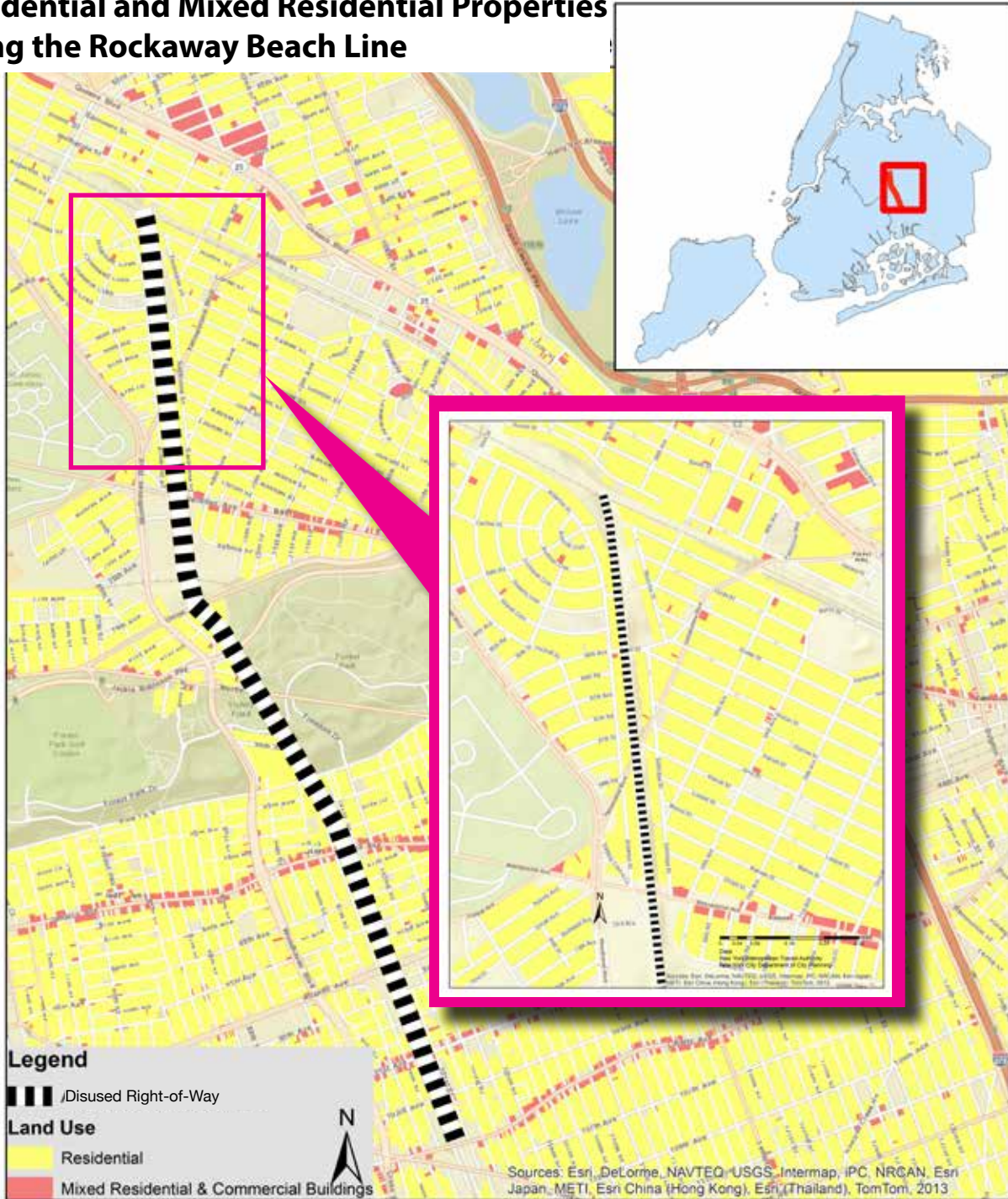
0 0.125 0.25 0.5 0.75 1 Miles

Data:
New York City Department of City Planning

Residential Land Use

The majority of the land surrounding the disused right-of-way is residential. Approximately 250,000 people live within one mile of the line. There are approximately 400 homes directly adjacent to the line.³ The study area is characterized by low-density residential development with over 80% of the residences used for one- to two- family home, no larger than two stories in height.⁴

Figure 11
Residential and Mixed Residential Properties along the Rockaway Beach Line



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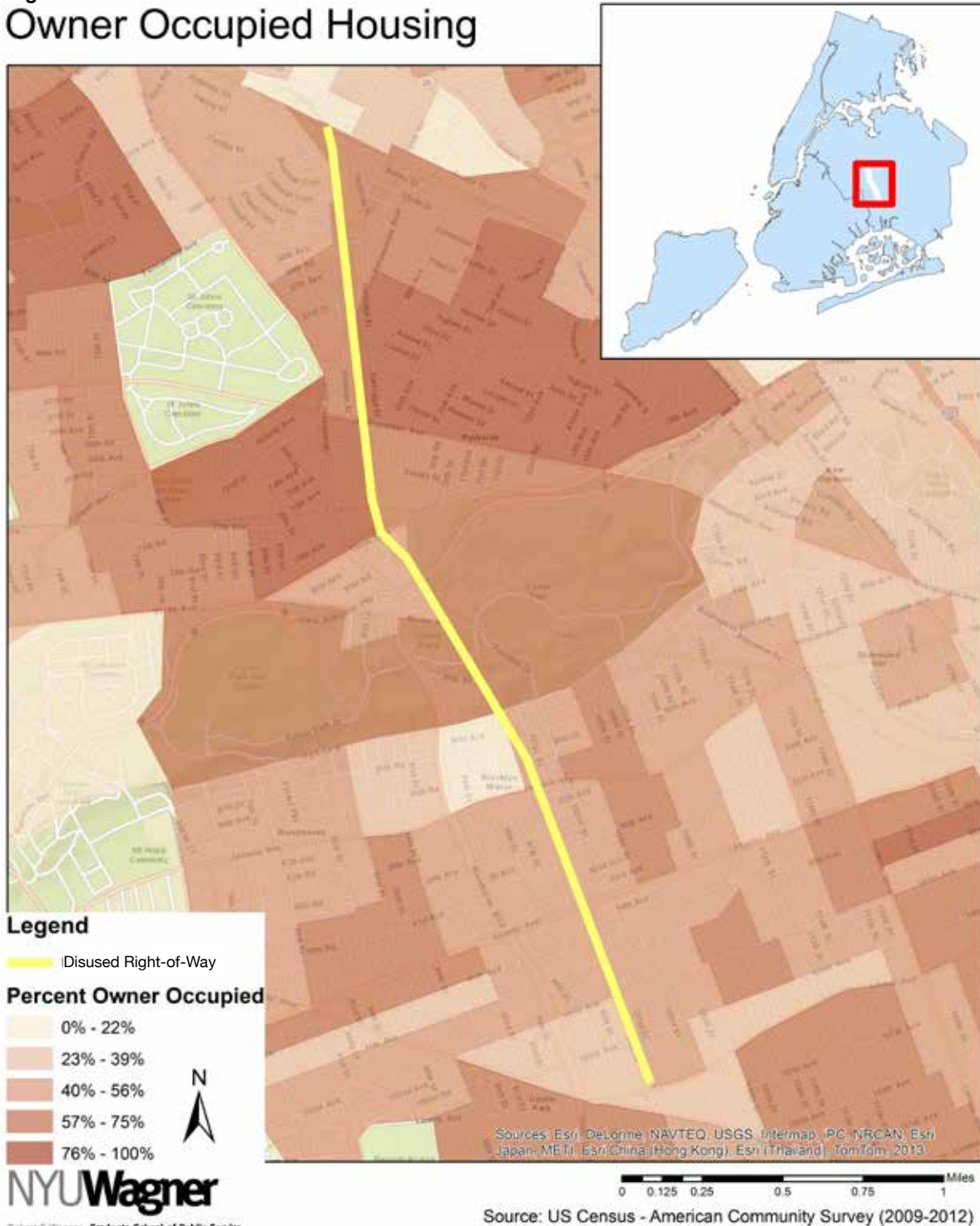
0 0.125 0.25 0.5 0.75 1 Miles
Data:

New York City Department of City Planning

Housing Characteristics

Slightly less than half of the housing in the surrounding neighborhood is owner occupied. The study area contains more owner-occupied housing at 40%, compared with the city average of 34%.⁵ These rates are even higher when looking at specific communities within the study area. Forest Hills and Ozone Park have close to half of all residents living in property they own. Further south, Woodhaven has a higher percentage of renters with only 30% of housing occupied by property owners.⁶

Figure 12
Owner Occupied Housing



Neighborhoods in the study area have various types of housing from large apartment blocks to single-family detached homes. The homes directly surrounding the right-of-way consist almost exclusively of one- and two-family attached and detached homes. The one large building immediately adjacent to the right-of-way is the Crestview Housing Complex south of Union Turnpike. The Crestview Housing Complex is one of the only encroachments on the right of way, paving over a portion of the line for parking to the facility.



Homes in Ozone Park along the right-of-way.

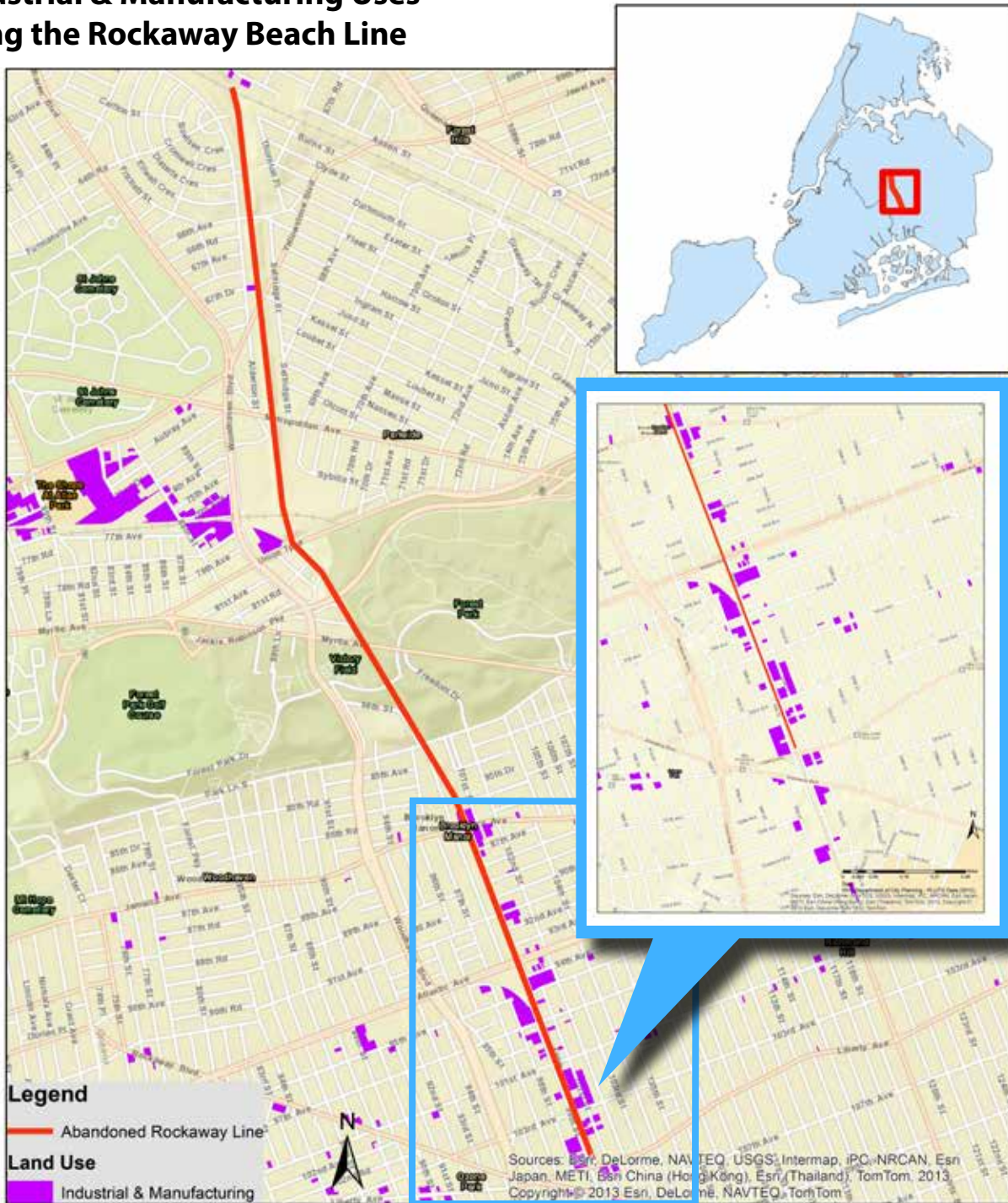


Houses along the right-of-way. Crestview Housing Complex in the background.

Industrial & Manufacturing Use

The southern portion of the disused railway is characterized by industrial use, concentrating between Atlantic and Liberty Avenues. Much of the rail line is elevated with industrial use beneath at grade. These spaces are occupied by automobile shops with leases with the City's Department of Administrative Services.⁷

Figure 13
**Industrial & Manufacturing Uses
 along the Rockaway Beach Line**



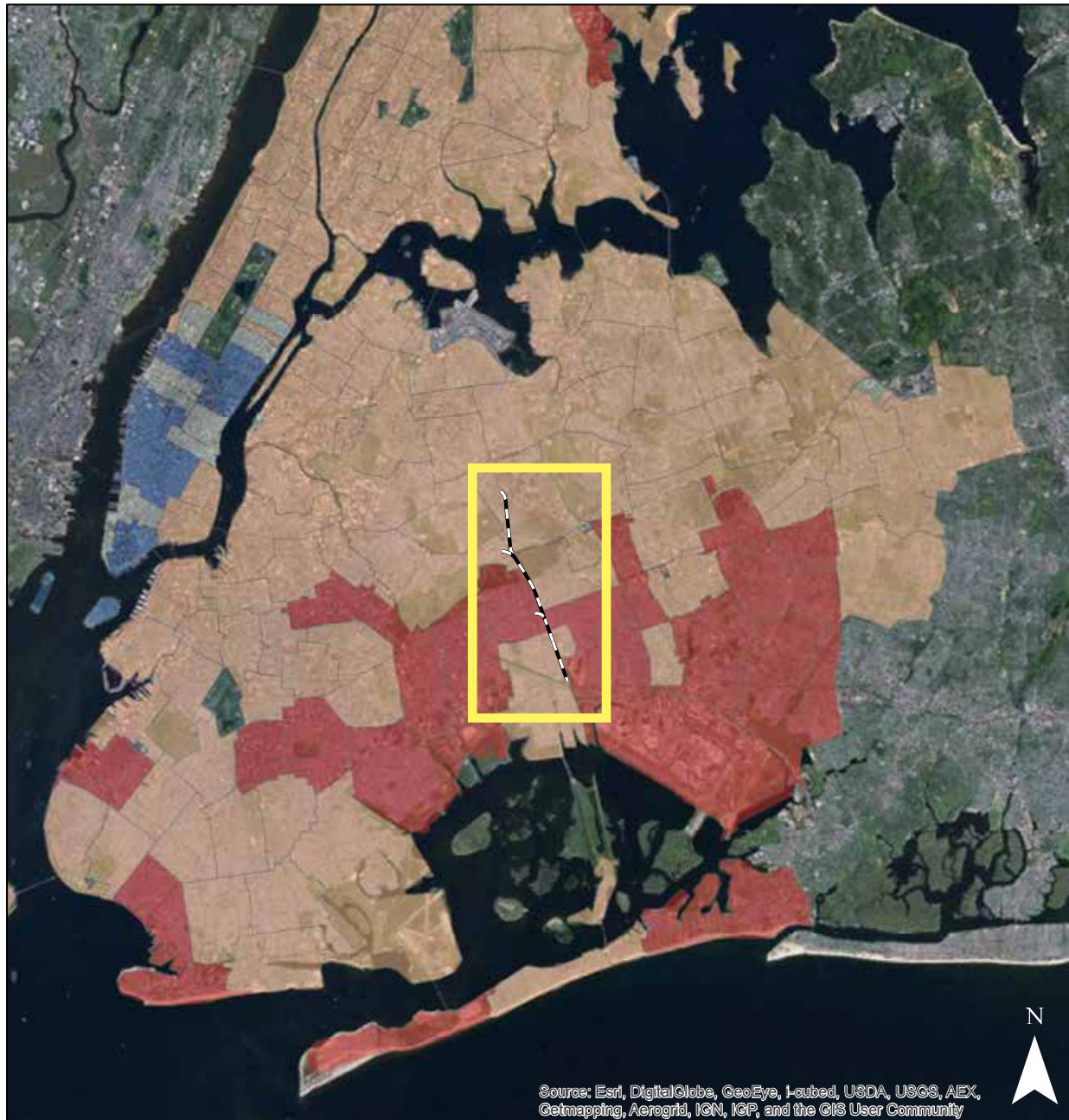
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Prepared by the Queens Transit Advocates

d. Transportation Usage and Conditions

The disused right-of-way (pictured below) runs through neighborhoods with the longest average commute times in New York City.

Figure 14
Average Commute Time in New York City by ZIP Code



0 1.25 2.5 5 7.5 10
Miles

Legend

--- Disused Right-of-Way

Average Commute Time (in minutes)

< 25 Minutes

26 - 30

31 - 45

46 - 60

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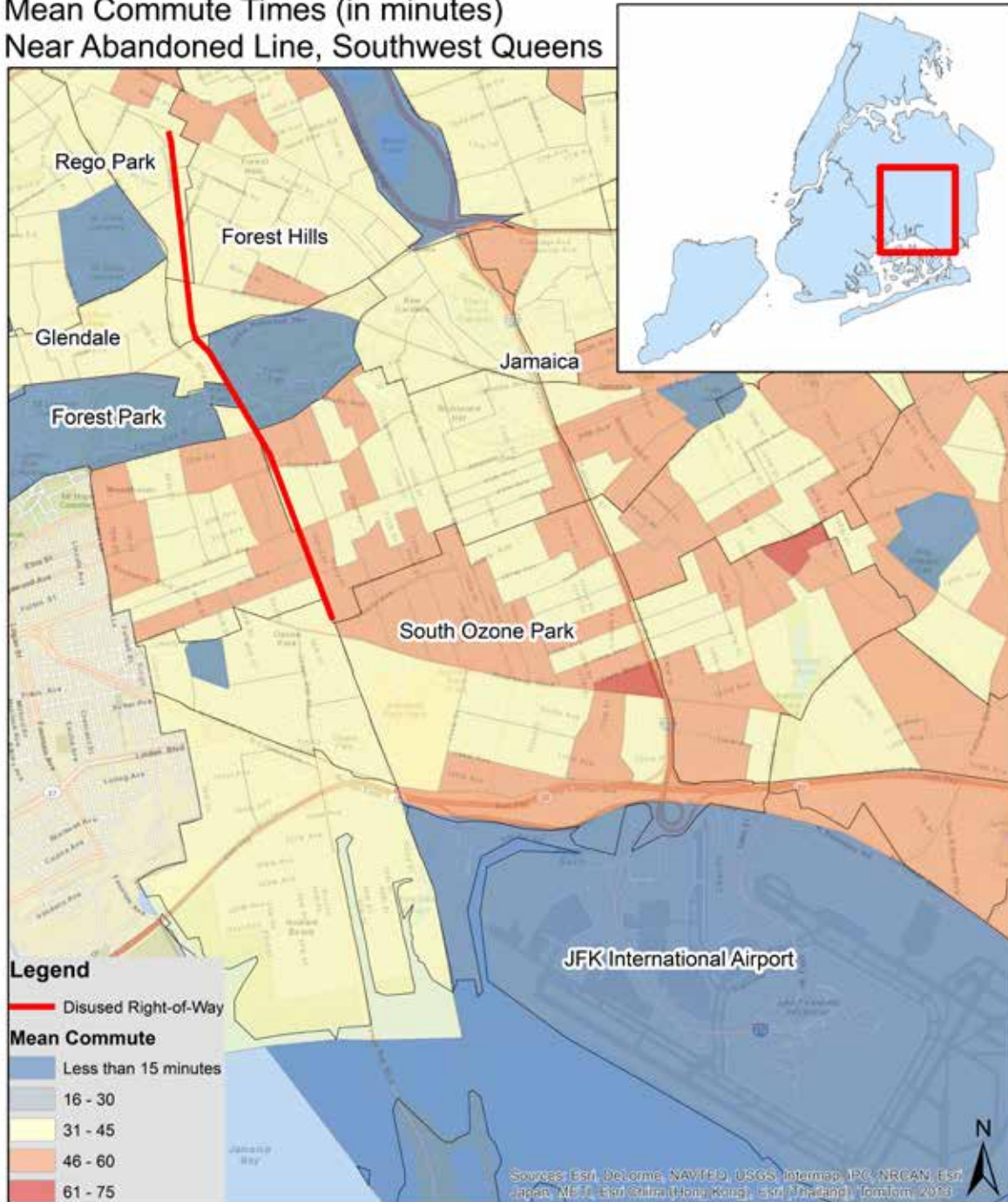
Source: US Census Bureau
American Community Survey - 2007-2011 (5 Year Estimates)

Prepared by the Queens Transit Advocates

Average Commute by Neighborhood

In the neighborhoods that surround the disused transit line (Rego Park, Forest Hills, Woodhaven, Ozone Park, and Richmond Hill), the average commute recorded in the 2010 census was greater than the City's average of 39.2 minutes.⁸ The Woodhaven neighborhood averages the longest commute times at 45.7 minutes.⁹ Longer commute time is likely due to the lack of transit serving the area.

Figure 15
Mean Commute Times (in minutes)
Near Abandoned Line, Southwest Queens



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Prepared by the Queens Transit Advocates

0 0.25 0.5 1 1.5 2 Miles

Data:
 US Census 2010 American Community Survey (3-Year)

Port Authority of New York and New Jersey
 New York City Department of City Planning

Commuting Trends

Commuters in the neighborhoods along the disused railway overwhelmingly use mass transit. The percentage of those utilizing public transportation is comparable to New York City's overall rate of 55.4 percent.¹⁰ Richmond Hill uses public transportation at the lowest rate, 52.8 percent, followed by Woodhaven (53.6), and Ozone Park (54.4).¹¹ The two neighborhoods with the greatest proportion of mass transit riders actually exceed the City's rate: Forest Hills and Rego Park, at 59.1 percent each.¹²



Woodhaven Boulevard, Woodhaven, Queens

Figure 16

Commute Patterns

Drive Alone

Woodhaven	31.22%
Ozone Park	28.13%
Richmond Hill	22.85%
Forest Hills	22.75%
Rego Park	22.75%

New York City Average: 26.91%

Take Mass Transit

Rego Park	59.1%
Forest Hills	59.1%
Ozone Park	54.4%
Woodhaven	53.6%
Richmond Hill	52.8%

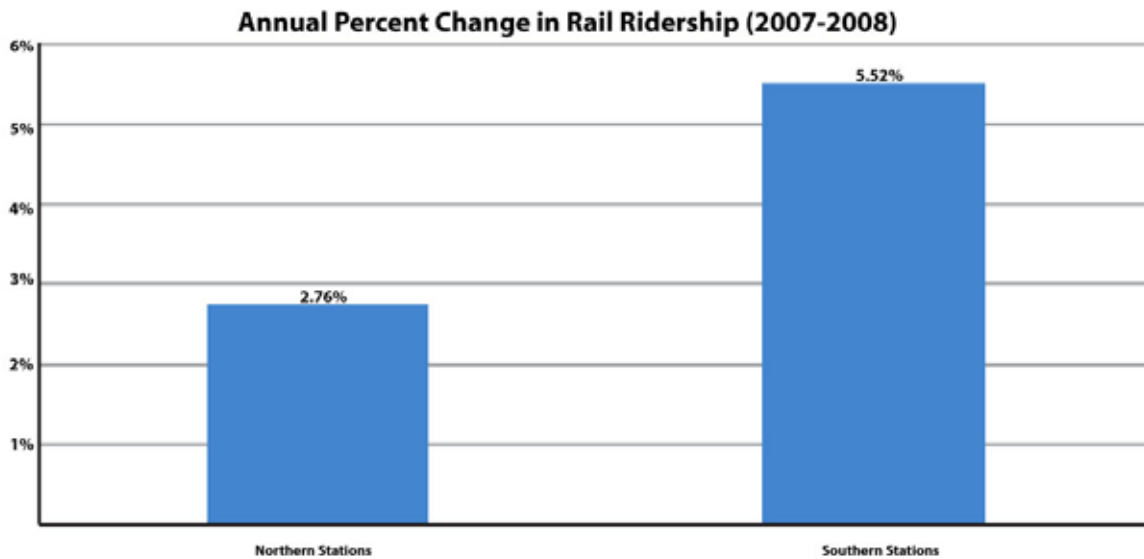
New York City Average: 55.4%

Source: 2009-2011 American Community Survey

Ridership Trends in Study Area

Despite recent cutbacks in service, mass transit ridership has continued to grow within the study area. Even before the opening of the Resorts World Casino in 2011, growth in transit ridership among the southern transit stations was already out-pacing on the northern transit stations around the study area. As seen in table 17, growth was approximately 50% higher for the southern stations than the northern stations. The northern stations along the study area are comprised of the 104th Street J and Z subway lines, the 63rd Drive M and R subway lines, and the Woodhaven Boulevard J, Z, M, and R subway lines. The southern stations are comprised of the 104th Street, Rockaway Boulevard, Aqueduct Racetrack, North Conduit Avenue, and Howard Beach A subway line stations.

Figure 17



Source: Metropolitan Transportation Authority

Northern Stations

- J Z** 104 Street
- M R** 63rd Drive - Rego Park
- J Z** Woodhaven Blvd
- M R** Woodhaven Blvd

Southern Stations

- A** 104 Street
- A** Rockaway Blvd
- A** Aqueduct Racetrack
- A** North Conduit Ave
- A** Howard Beach

VII. JFK International Airport as a Regional Economic Engine

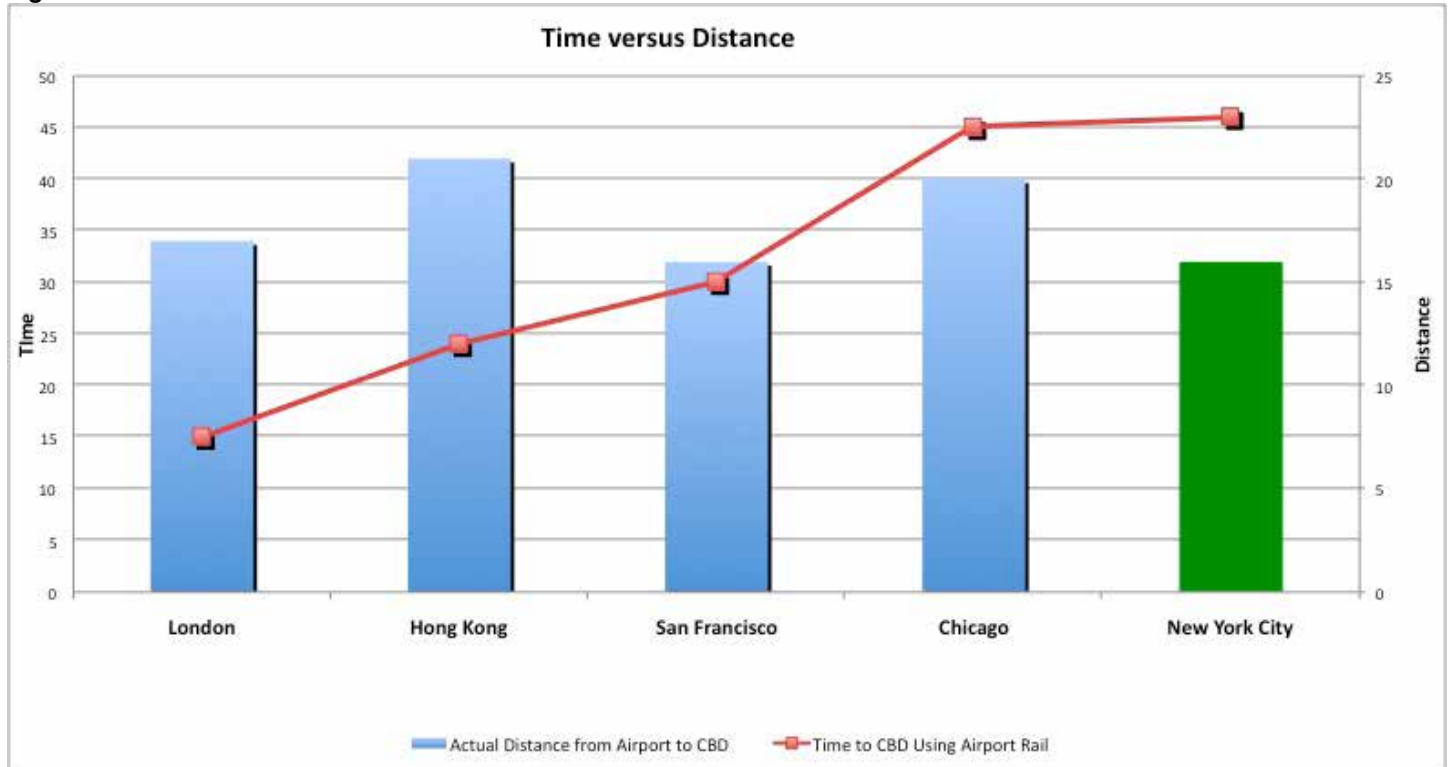
According to the Port Authority of New York and New Jersey, John F. Kennedy International Airport creates \$31.5 billion in economic activity for the region, generating approximately 224,000 jobs.¹³ The airport is a critical economic force in the borough of Queens. As the second largest employer in the borough, JFK employs 69,000 people directly, contributing \$4.1 billion in wages and salaries to the Queens economy.¹⁴ The airport also serves as a gateway to New York City for businesses and tourists alike. The tourism is a significant sector of the New York City economy, generating \$55.3 billion in 2012 alone, with \$36.9 billion as a result of direct spending from tourists.¹⁵

a. Keeping New York City Competitive

New York City is falling behind other global and domestic cities that have superior airport ground access (see figure 18). Currently, New York City relies on a two-seat train connection to Manhattan from JFK while other cities have invested in faster and more convenient one seat airport ground access. Global centers of finance and culture, such as Hong Kong and London, now offer direct connections from their central business districts (CBD) to the airports. Domestically, Chicago and San Francisco have also made sizable investments, connecting airports directly with no transfers to their CBDs. New York has partially addressed this issue through the Port Authority (PA) of New York and New Jersey's AirTrain. The current connection relies on transfers that are cumbersome for business and tourist travelers and require a good knowledge of the New York City transit system with frequent service changes due to construction operations. A direct airport connection would bring NYC in line with other global cities to provide easy access and boost the city's lagging competitiveness for labor, business, and visitors, with other global destinations.



Figure 18



Sources: Chicago: Chicago Transit Authority, 2013; San Francisco: Bay Area Rapid Transit, 2013; New York City: The Port Authority of New York & New Jersey, 2013; Hong Kong: MTR, 2011; London: Heathrow Express, 2013

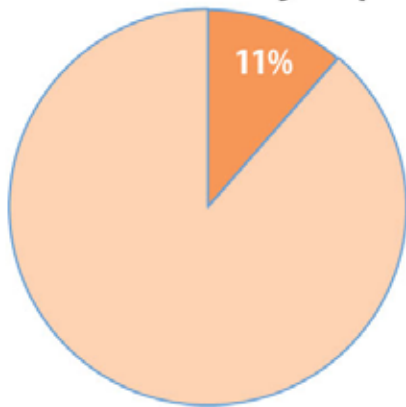


b. Train Airport Access as a Share of Airport Passenger Volumes

New York City lags behind other global finance centers with airport access by rail. Below is a chart that compares the number of people using rail to airports as a percentage of total airport volume in London, Hong Kong, Tokyo and New York. When compared with these cities, New York places last – with approximately half the ratio of passengers using rail of the next lowest city, Hong Kong.¹⁶ This is the equivalent to an additional 2.3 million people each year using the roadways around JFK Airport.¹⁷ We estimate this to amount to roughly 14,761 additional metric tons of CO₂ emitted into New York.¹⁸ When compared with Tokyo and Heathrow, the numbers are even more telling. Heathrow has over a quarter of its airport volume using its rail connections and almost half of Haneda Airport’s volume is using Tokyo’s rail connection.

Figure 19

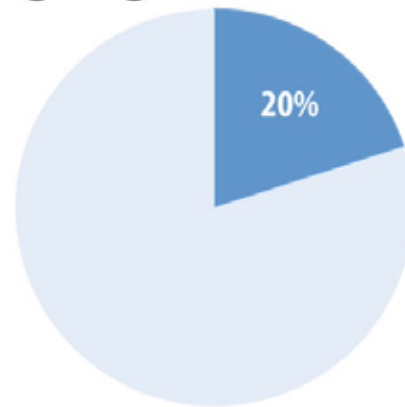
**New York City
John F. Kennedy Airport**



Total Airport Passengers (2012): 49.3 Million
Airtrain (2011): 5.5 Million

Source: Port Authority of New York and New Jersey

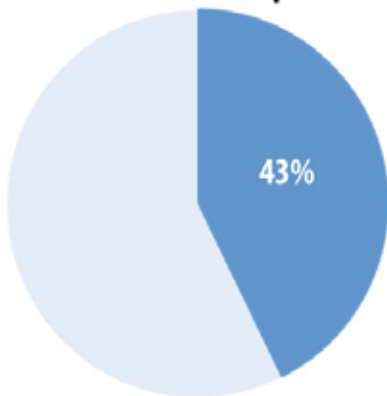
**Hong Kong
Hong Kong International Airport**



Total Airport Passengers (2011): 41.9 Million
MTR Airport Express (2011): 8.4 Million

Sources: Hong Kong International Airport Authority, Mass Transit Railway Corporation

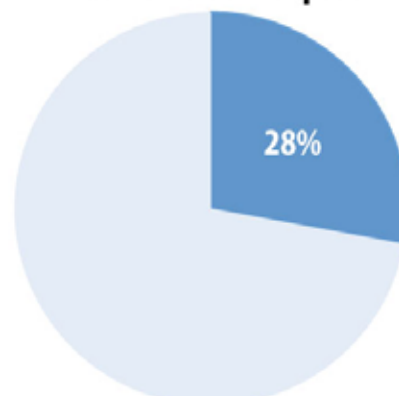
**Tokyo
Haneda Airport**



Total Airport Passengers (2012): 66.8 Million
Haneda Express (2010): 28.5 Million

Sources: Tokyo International Air Terminal Corporation, Keikyu Corporation

**London
Heathrow Airport**

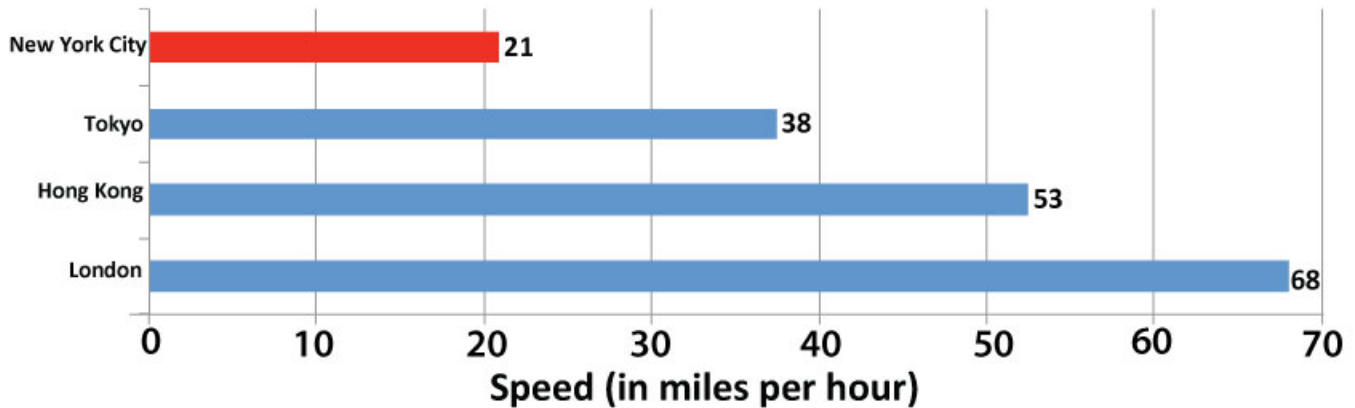


Total Airport Passengers (2012): 69 Million
Underground (2012): 13.4 Million
Heathrow Express (2012): 5.8 Million
Airport Train Passengers: 19.2 Million

Sources: Transport for London, Heathrow Express, Heathrow Airport Holdings Limited

Figure 20

Average Speed Using Rail from Airport to the Central Business District



New York



John F. Kennedy Airport is connected to New York City's central business district by a 46-minute, two-seat ride train ride. The full trip covers only 16 miles, averaging 21 miles per hour for the entire trip and at cost of \$14.50.¹⁹

Hong Kong



Hong Kong's MTR Airport Express offers 24 minute service to the city's center. Traveling a distance of 21 miles, the train averages speeds of 53 miles per hour for \$12.90.²⁰

Tokyo



Tokyo's Haneda Express offers 16 minute service to Haneda International. Traveling a distance of 10 miles, this connection averages speeds of 38 miles per hours for \$5.06.²¹

London



London has currently operated two rail connections to Heathrow - the Jubilee line of the Underground and the Heathrow Express. The Heathrow Express offers 15 minute service to the airport from Central London. Traveling a distance of 17 miles, the train averages speeds of 68 miles per hour for \$30.28.²² A third airport connection is currently under construction called Crossrail.

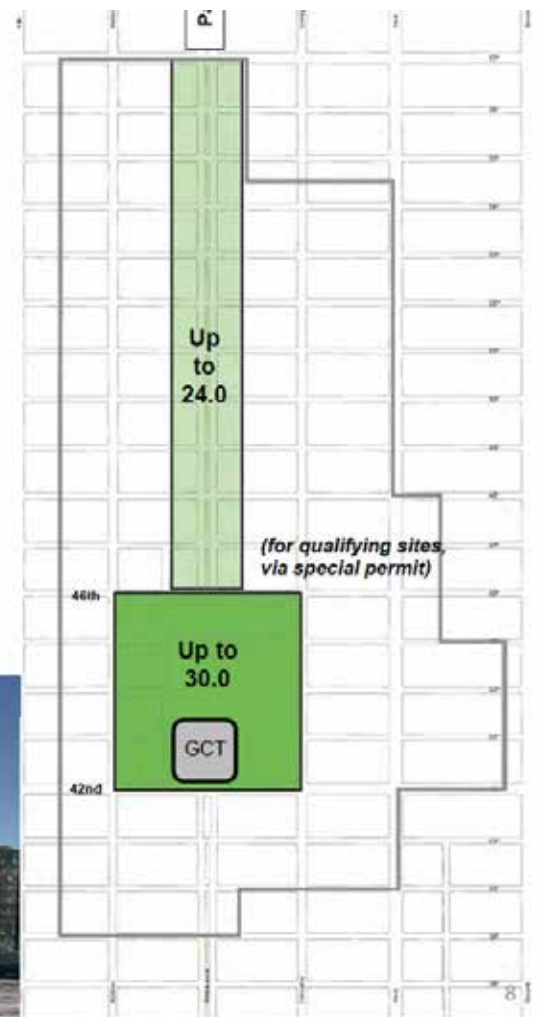
c. Airport's Role in the Proposed Midtown East Rezoning

The city has recently recognized the need to stay competitive with finance centers around the world with a proposed major upzoning of Midtown East. The goal of the rezoning is to increase the density of Manhattan's core in order to bring the city in line with development in cities such as London and Tokyo. Despite the city's efforts to make New York City more attractive to international firms and developers, the plan does not address the direct transportation link to its airport, which many of these cities already possess. The JFK Express provides a critical component that can support the city's efforts and will go further to bring New York City in line with cities of similar size and economic magnitude around the globe.

Figure 21

Superior Development Special Permit

- New special permit (full ULURP) to permit greater FAR for extraordinary buildings at key sites
- Proposal must demonstrate: significant contribution to the pedestrian network and skyline; superior relationship to other buildings; superior site plan, massing, and sustainability
- Requires on-site public amenity – including public space, and direct and generous connections to the underground transit network (around Grand Central)
- Minimum site size: 40K sf in Grand Central Core, 25K sf along Park Avenue
- Requires District Improvement Bonus contribution or landmark transfer (around Grand Central)



Courtesy of the New York City Department of City Planning

d. Industry Concern Over Inadequate Airport Access

New York’s Hometown Airline, JetBlue Airways - headquartered in Long Island City, Queens, is one of several air carriers to express concern for New York’s inadequate airport access. Jeffrey Goodell, VP of Government Affairs for JetBlue, conveyed concern that a failure for New York to address and improve the current state of access will result in a loss of business to NYC. Goodell explained, “If transportation is cumbersome to get to where people want to go, they will go somewhere else.”²³

**“If transportation is cumbersome to get to where people want to go, they will go somewhere else.”
- Jetblue Airways**

e. Access to Goods Affected by Automobile Congestion Around Airports

Inadequate transit access spills onto the road infrastructure as more travelers take automobiles on the already stressed road networks in Queens. Congestion is one of the major contributing factors that the New York City Economic Development Corporation attributes to the declining cargo volumes at JFK Airport. Over the past decade, cargo traffic to JFK has declined 26%.²⁴ The plummeting cargo volumes have pushed JFK’s cargo volumes below Miami and Louisville. With half a million fewer tons to ship, the decline has caused the loss of 20,000 jobs, \$3.3 billion in sales, and \$1.25 billion in wages.²⁵ Although the primary intent of reactivating the right-of-way is to benefit travelers, cargo industry will also benefit from less road congestion surrounding JFK Airport.

Figure 22

Freight Flight

JFK Airport’s cargo traffic dropped 26% to 1.3 metric tons between 2000 and 2010. How it compares with other top U.S. airports:

	Cargo traffic, in millions of metric tons, and rank among U.S. airports				Pct. change in total cargo
	2000	Rank	Rank	2010	
Memphis (MEM)	2.5	1	1	3.9	57.4%
Los Angeles (LAX)	2.0	2	2	2.6	46.7
John F. Kennedy (JFK)	1.8	3	3	2.2	42.6
Ted Stevens Anchorage (ANC)	1.8	4	4	1.8	11.8
Miami (MIA)	1.6	5	5	1.7	-14.3
Louisville (SDF)	1.5	6	6	1.4	-6.3
Chicago O’Hare (ORD)	1.5	7	7	1.3	-26.1
Indianapolis (IND)	1.2	8	8	1.0	-13.1
Newark Liberty (EWR)	1.1	9	9	0.9	-21.0

Source: Airports Council International

The Wall Street Journal

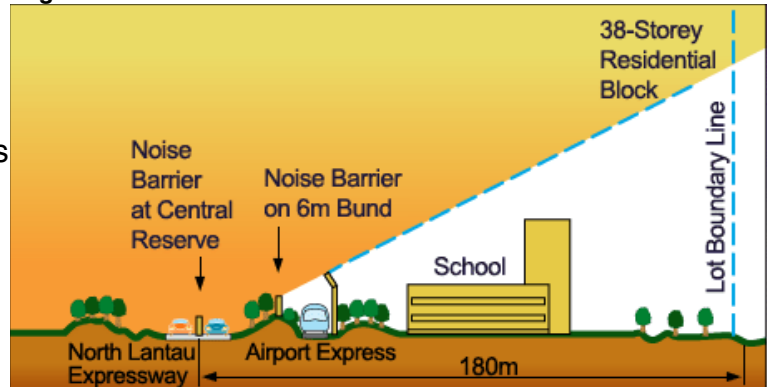
VIII. Challenges for JFK Express

Reactivation faces challenges of noise and line capacity. Both will need to be resolved before any successful construction occurs. Each contains potential solutions for consideration.

a. Mitigating Noise

Noise presents the single largest problem throughout construction and into operation. Noise mitigation, however, is not uncommon for rail operations around the world. As the reactivated right-of-way stretches only 4.2 miles, merging at a sharp angle to the main line, trains will be forced to travel at reduced speeds. This will work to curtail its impact on the surrounding area. Any residual noise, however, can be marginalized through installation of noise barriers. With a smaller physical footprint to embankments, they offer an inexpensive solution.

Figure 23



Noise barriers deflect sound and protect residents from road and rail noise.

Source: Environmental Protection Department
The Government of Hong Kong Special Administrative Region

Similar to the majority of properties along existing LIRR branches, homes adjacent to the right-of-way are one-to-two stories tall. Even a minor addition can yield positive effects to residents. A search of barriers along rail lines in other cities provides an array of examples for potential adoption.



Noise barrier along the A13 motorway in the Overschie neighborhood of Rotterdam, the Netherlands. Source: www.arjorozendaal.com

b. Line Capacity

In order to successfully operate the JFK Express given existing conditions, capacity along the main line and in the terminals will either need to be expanded, or existing service will need to be reduced. As ridership continues to grow along the LIRR, the latter is unlikely to occur. Expanding service, however, comes with a host of issues that need to be addressed before reactivation. A study by the Federal Transit Administration in a grant agreement with the LIRR for East Side Access cites lack of available rights-of-way, high costs, and potentially adverse environmental impacts as constraints, projecting over-capacity even at current service levels.²⁶ Without properly addressing these issues, the JFK Express will have difficulty competing for track space.

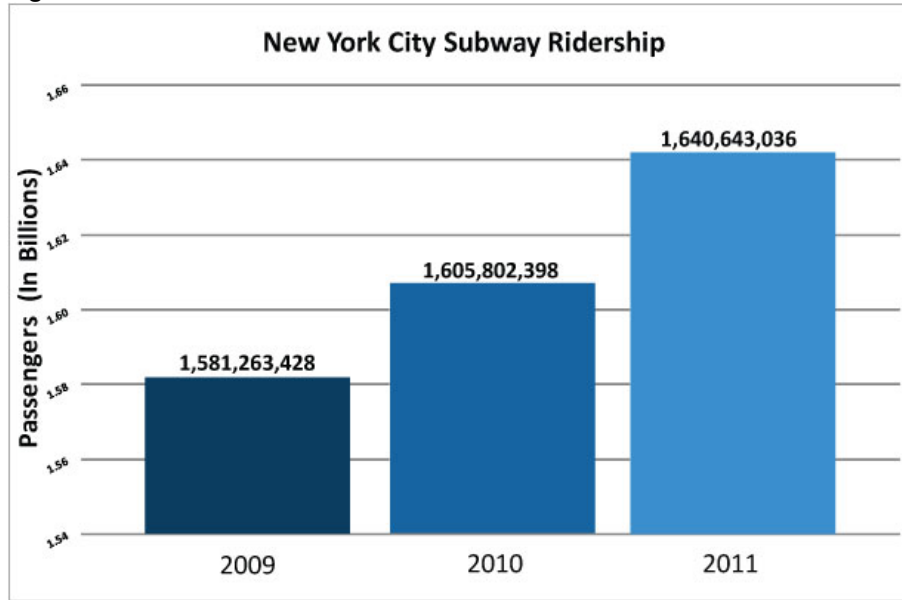
A study of the main line right-of-way itself shows that additional track capacity is possible. Limitation arises, however, in providing tunnel access to Manhattan. East Side Access will service up to 24 trains per hour to Grand Central.²⁷ While this alleviates strain on Penn Station, it does not increase rail capacity where right-of-way meets the Main Line. Planning for future ridership needs involves not only expanding service with new offerings, such as the JFK Express, but growing the capacity to support additional trains. As NYC has not initiated construction on new tunnel access since 1969, consideration must be given to current and projected ridership demands. Developments, such as the recent midtown rezoning must be complemented with equally expanded access and capacity.



Above: Google map image of LIRR Main Line grade crossing at 57th Avenue and 85th Street in Elmhurst, Queens. The existing right-of-way has land for a potential expansion.

IX. The Cost of Failing to Reactivate the Right-of-Way

Figure 24



Source: Metropolitan Transportation Authority

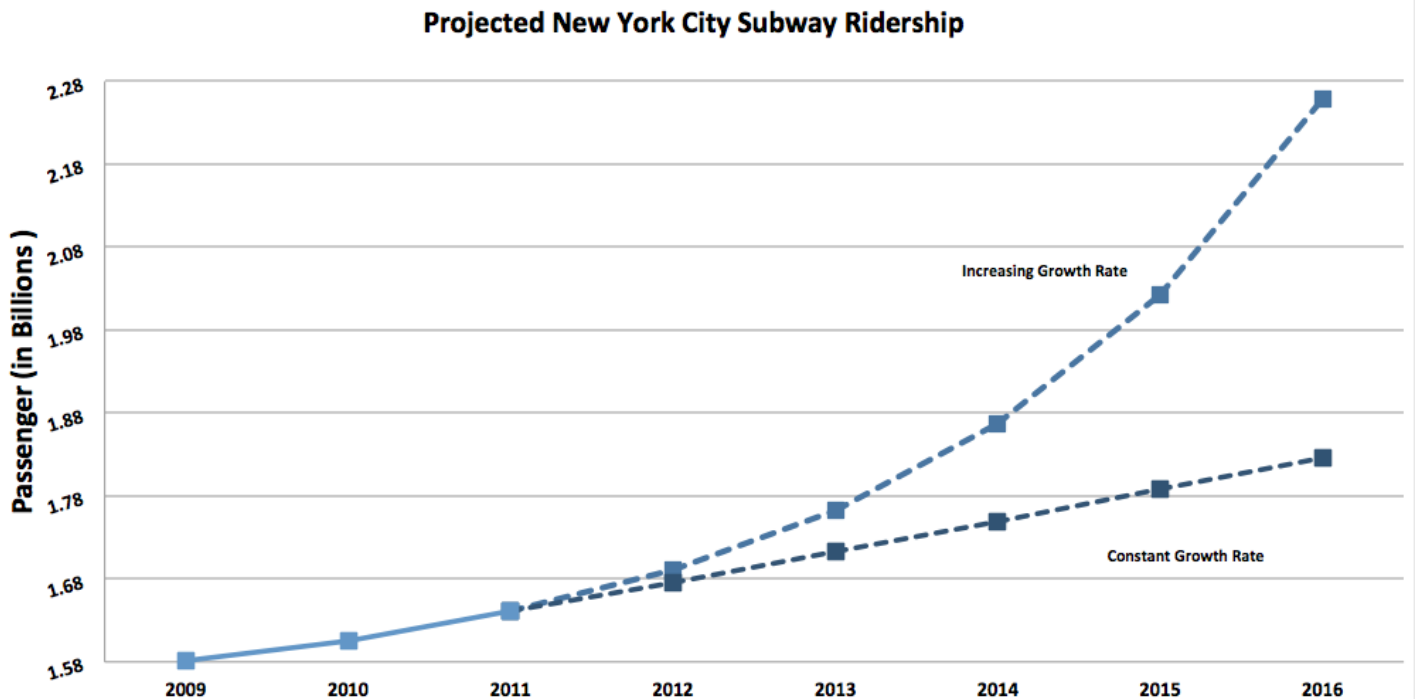
a. Strain on the Transit System

Subway ridership continues to grow, and is expected to continue, placing further strain on the 109 year-old system (see figure 24). The MTA has responded to the increased demand through introducing technological efficiencies, implementing greater station activity, and expanding upon existing service. Unprecedented capital has been channeled into the construction of the decades-old Second Avenue Subway, and East Side Access project which aims to bring Long Island Railroad to Grand Central Terminal. A disproportionate amount of these efforts, however, do not directly address the growing outer-borough ridership, much less the congestion traveling north/south in Queens. There is currently no subway or train line that links northern and southern communities along the Rockaway Beach Branch right-of-way.



The graph below shows, not only is rail ridership growing, but it is doing so at an increasing rate. A growth rate of 2.17% might not appear high at first glance, however, this equates to an additional 74 million passengers in the first year.²⁸ Keeping the growth rate constant that equates to another 186 million commutes in just five years (see figure 25). If the growth rate remains unchanged, ridership is likely to approach an additional 618 million riders by 2016.²⁹

Figure 25



Source: Queens Transit Advocates

Local politicians are also beginning to see the importance of this valuable transportation infrastructure. New York State Assemblyman Phillip Goldfeder and US Representatives Gregory Meeks and Hakeem Jefferies are seeking to alleviate congestion with the reactivation of the Rockaway Beach Branch.³⁰

Evident in crowded train cars, buses, and roadways, a 16-mile commute from JFK to Midtown East that should take about a half-hour is easily doubled if not nearly tripled. With proximity not an issue. Given the current growth of ridership as a whole this strain is likely not only to continue, but worsen.



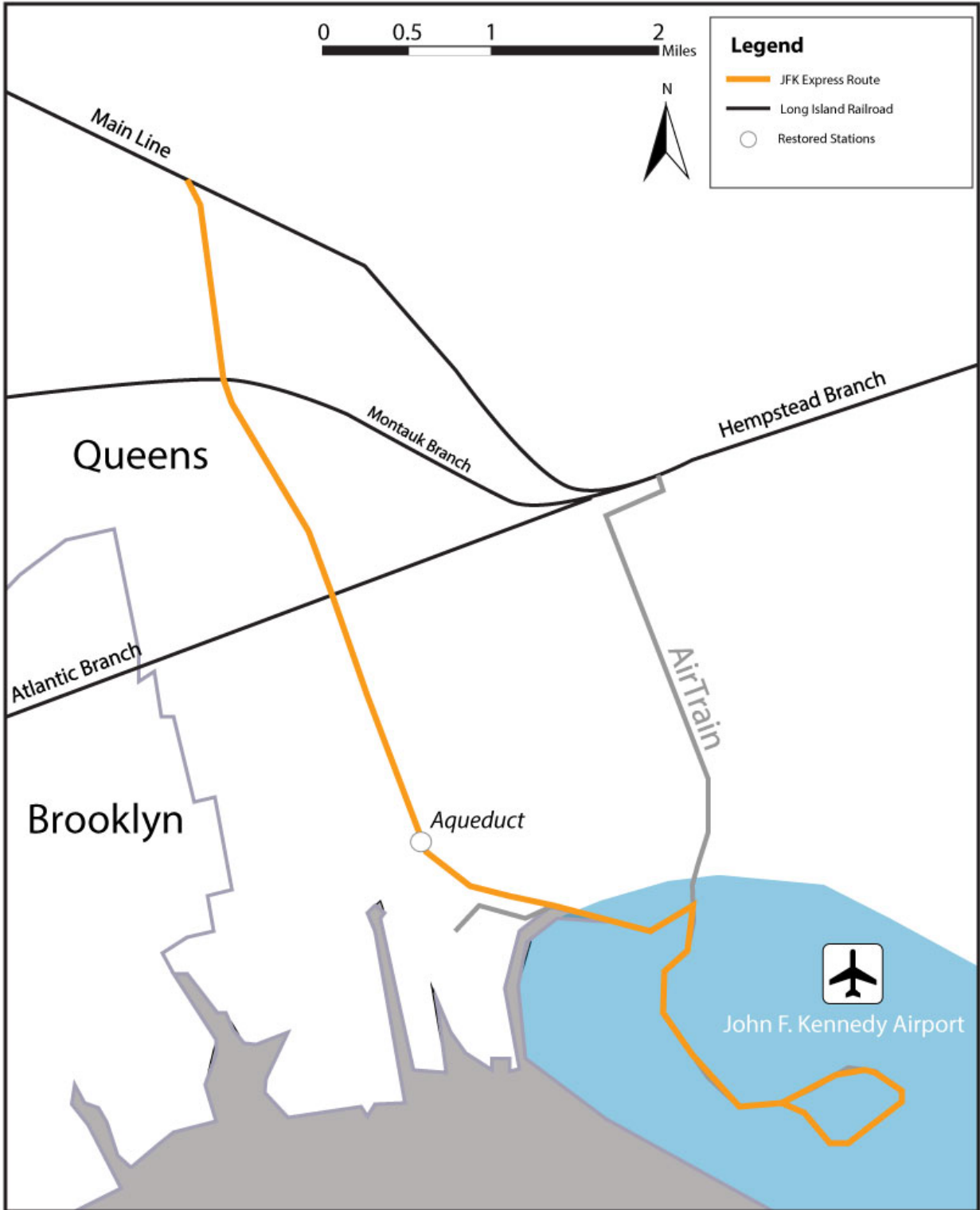
Assemblyman Goldfeder of the 23rd District in Queens calling for the reactivation of the disused Rockaway Beach right-of-way. (March 2013)

X. Design of the JFK Express

a. Design Option A - Direct Airport Connection

Option A establishes a new 26-minute, one-seat ride to midtown Manhattan from JFK Airport (seen in figure 26 below). In this configuration, the disused right-of-way will be reactivated with only one local stop south of the Main line in Queens – Aqueduct station. This station will feature cross platform transfers between the existing A subway train and the JFK Express.

Figure 26
JFK Express Line with Direct Access to Manhattan



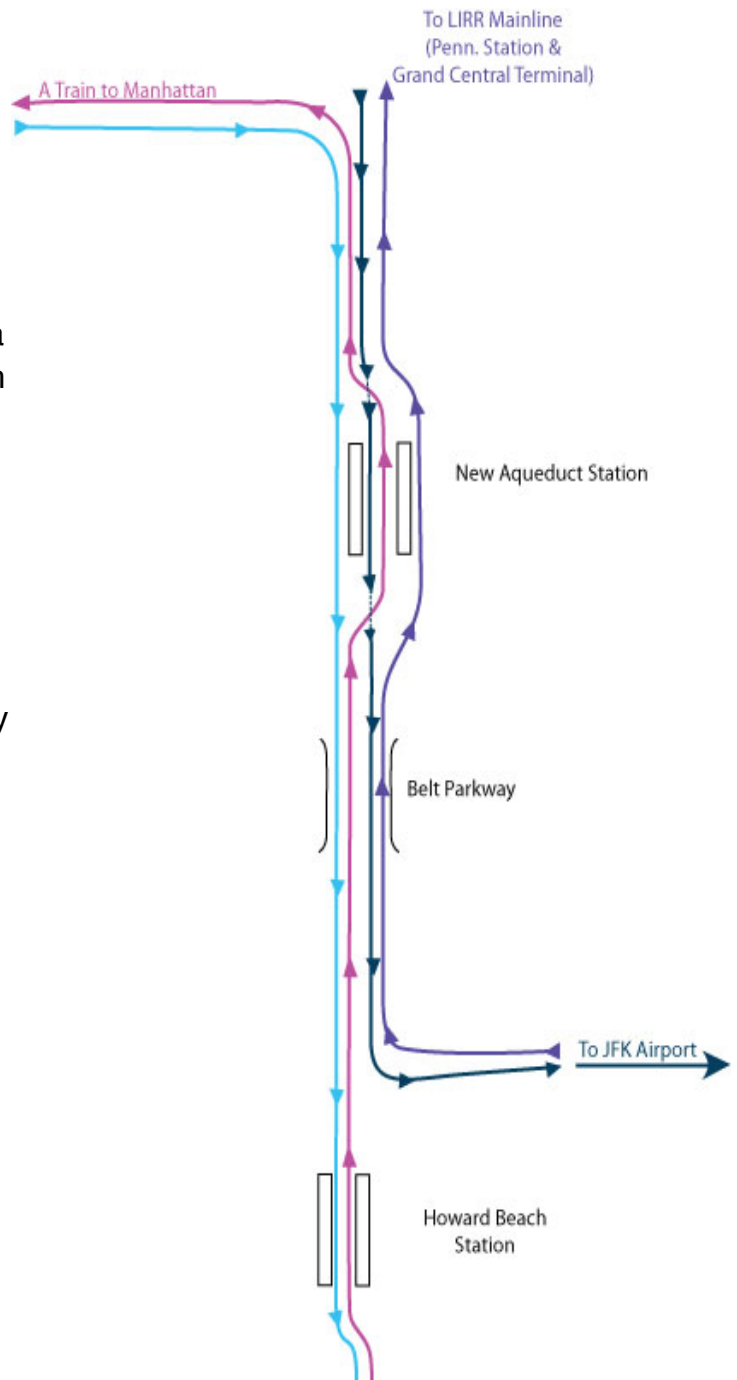
The rail configuration pictured in Figure 27, depicts the movement and interaction between the A subway train and the new JFK Express. Trains from Penn Station (and, with the completion of the MTA's East Side Access plan, Grand Central Terminal) will cross the north-bound A subway train before entering the new Aqueduct station. At the station, local residents will have the option of a cross platform transfer to a Rockaway Peninsula bound A train. The JFK Express will continue from Aqueduct on new rail that will join with the existing AirTrain to JFK airport's various terminals.

To reduce the impact of train operations to the surrounding community, the railway will feature cantilevered sound barriers that will reduce noise impacts on the surrounding residential communities. These barriers are highly effective and widely used around the world.

b. The New Aqueduct Station

The new station will feature transfers between the A subway train and the JFK Express. A well-lit, modern train station will feature open air spaces along the platforms, but offer shelter from the elements with a floating canopy suspended by steel cables (see figure 28 & 29). The mezzanine above the tracks will allow for a climate controlled waiting area that will have elevator, escalator, and stairwell access to the train platforms.

Figure 27



Source: Apple Corridor Study

Table 10

Penn Station to JFK - Off-Peak Hours		
Mode	Average Time (Min)	Transfers
JFK Express	26	0
E Train to AirTrain	77	1
LIRR to AirTrain	67	1
A Train to AirTrain	99	1
NYC Airporter Bus	70	0
Taxi	52	0

Table 11

Penn Station to JFK - Peak Hours		
Mode	Average Time (Min)	Transfers
JFK Express	26	0
E Train to AirTrain	66	1
LIRR to AirTrain	46	1
A Train to AirTrain	88	1
NYC Airporter Bus	95	0
Taxi	95	0

New Aqueduct Station Design

Figure 28
New Aqueduct Station Promoting Cross Transfer to Subway System

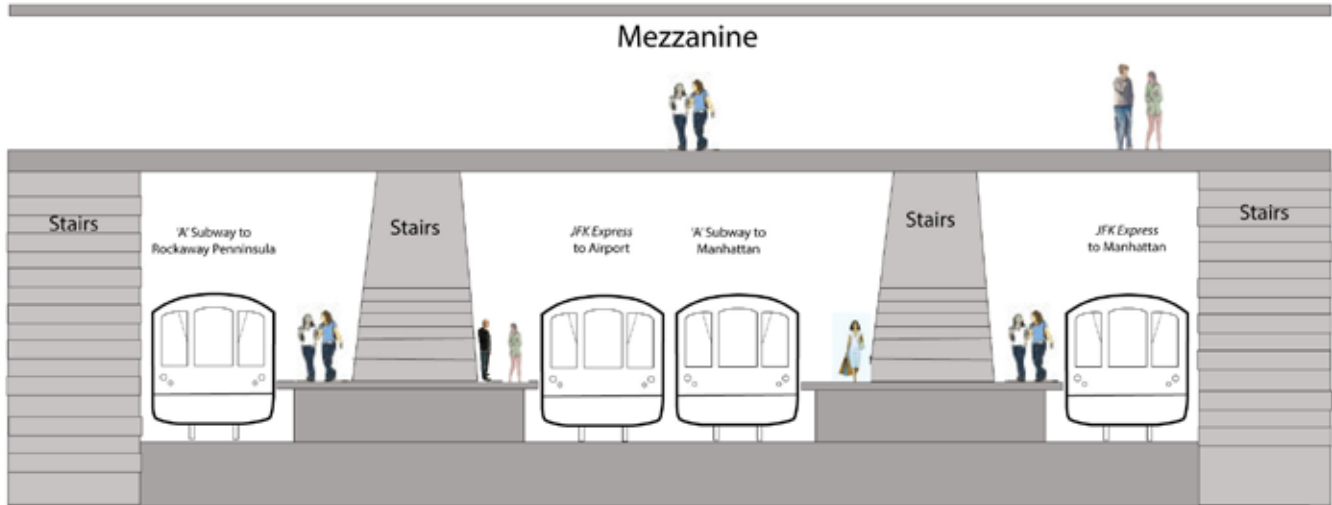
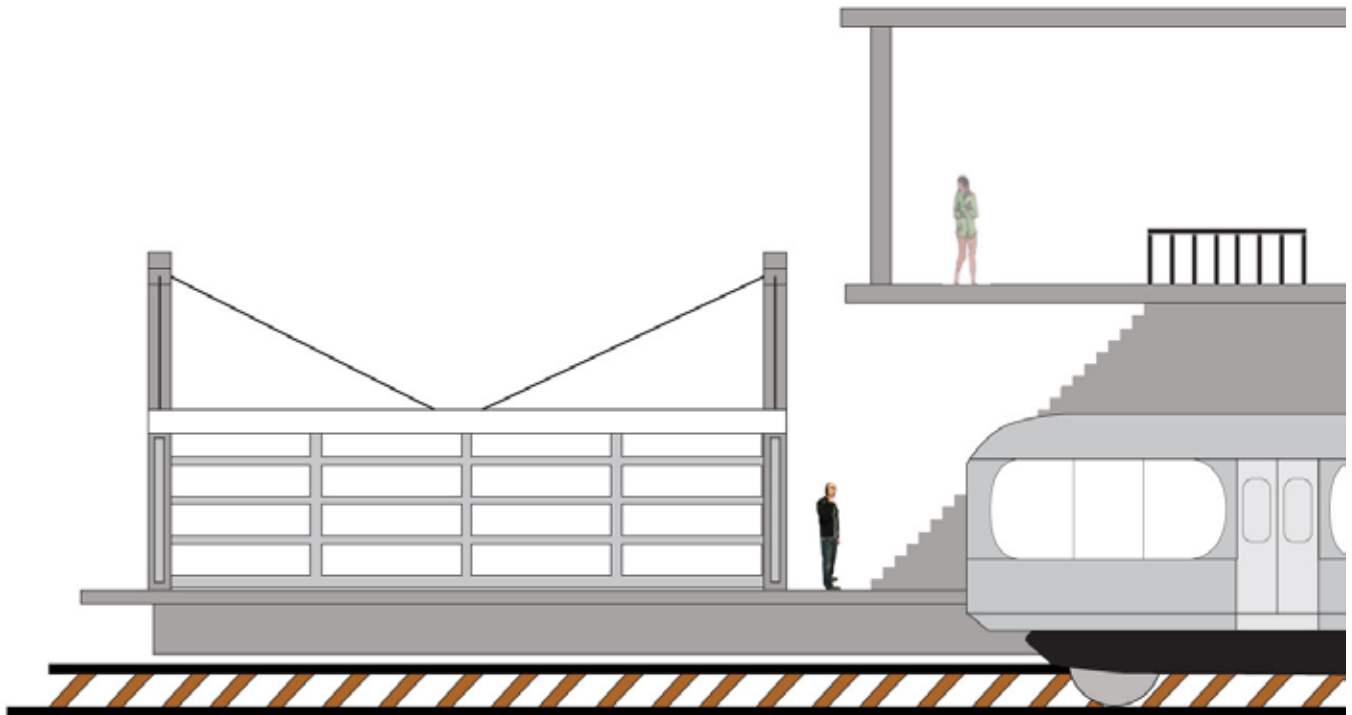


Figure 29
New Aqueduct Station Longitudinal Section



b. Design Option B - Greater Neighborhood Transit Access

Figure 30 depicts a new 36-minute, one-seat ride to midtown Manhattan from JFK while restoring the original stops of the Rockaway Beach Branch. Option B will have a newly rebuilt Aqueduct Station as described in Option A.

Figure 30
JFK Express Line with Original LIRR Rockaway Beach Branch Station Restored

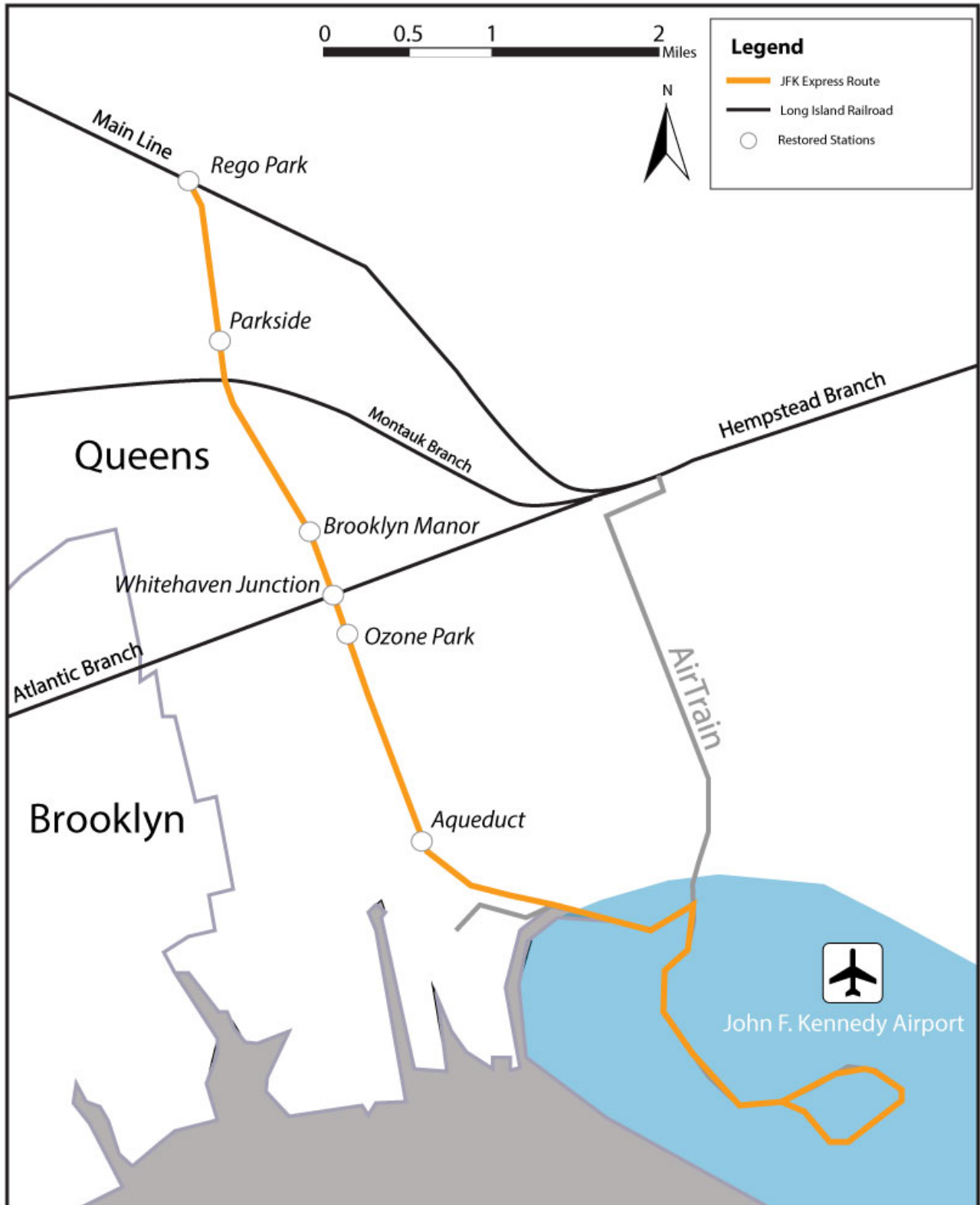


Figure 31 & 32 are a depiction of a restored local stop. Like Aqueduct, these stations will feature floating canopies over the platforms suspended by steel cables, creating a clean, modern look for the future of Queens rail. The original Rockaway Beach stations will also allow for future connections with the Montauk and Atlantic Branches of the Long Island Railroad.

Figure 31

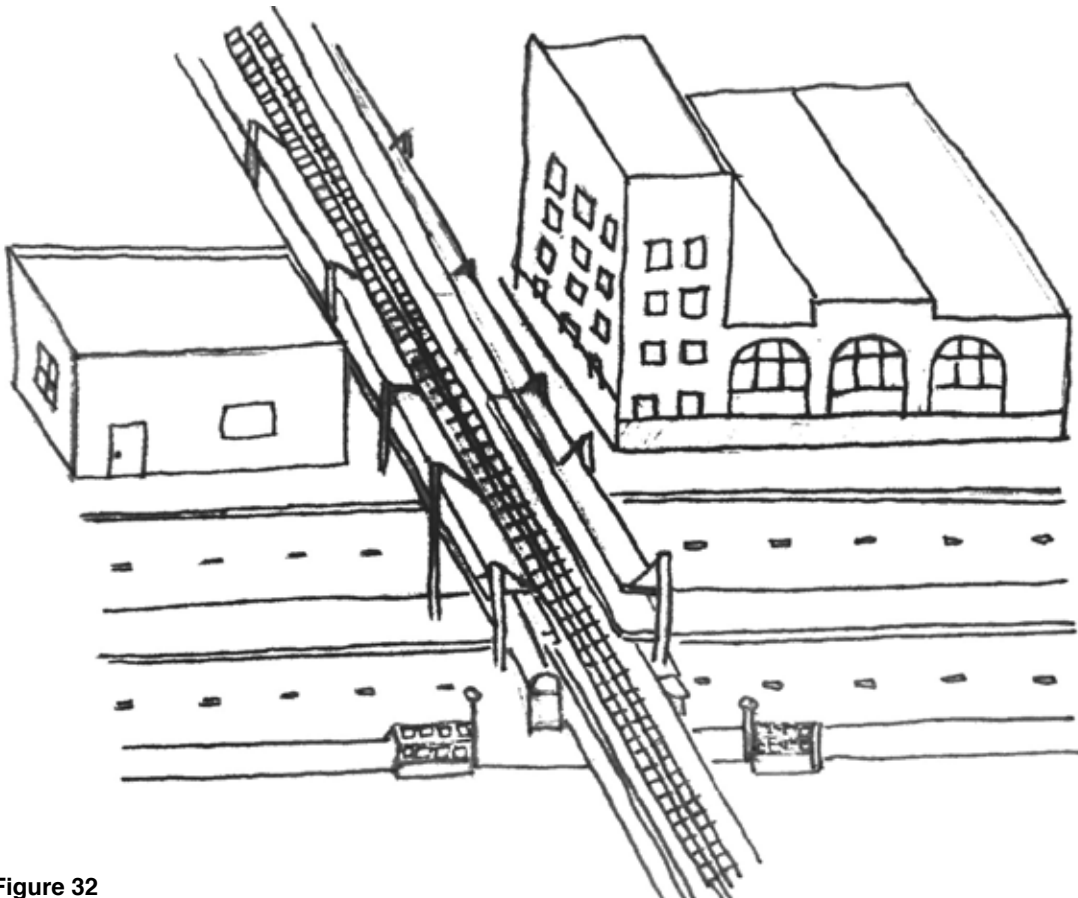


Figure 32



Table 12

Penn Station to JFK - Off-Peak Hours		
Mode	Average Time (Min)	Transfers
JFK Express	36	0
E Train to AirTrain	77	1
LIRR to AirTrain	67	1
A Train to AirTrain	99	1
NYC Airporter Bus	70	0
Taxi	52	0

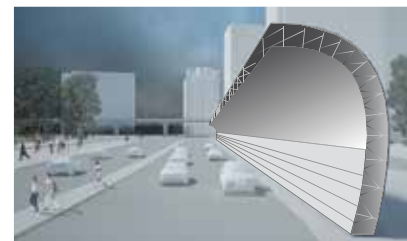
Table 13

Penn Station to JFK - Peak Hours		
Mode	Average Time (Min)	Transfers
JFK Express	36	0
E Train to AirTrain	66	1
LIRR to AirTrain	46	1
A Train to AirTrain	88	1
NYC Airporter Bus	95	0
Taxi	95	0

d. Sound Barriers

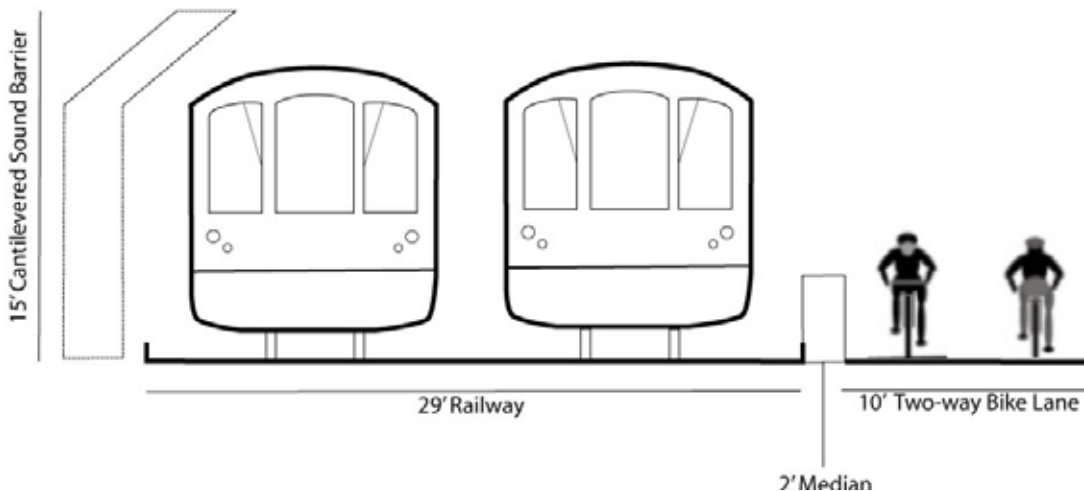
The reactivated railway will run through existing communities that have not experienced train traffic in more than 50 years. Approximately 70% of the line is surrounded by adjacent residential properties.³¹ Sound remains a large and legitimate concern. Rail noise mitigations, however, are common and proven successful, having been implemented globally.

The JFK Express was conceived with a cantilever sound barrier (see figure 33). The barrier is built to curve at the top toward the rail, which deflects sound back toward the tracks. This type of barrier is commonly used in dense sections of Hong Kong where active rail runs through residential neighborhoods.³² The curved design allows the barriers to be shorter and less aesthetically intrusive to the landscape. To further decrease the visual impact, landscaping along the new barriers may help conceal the rails presence and further reduce sound.³³ As noted in the challenges section of this report, the right-of-way is only 4.2 miles long and connects to the Long Island Railroad’s Mainline at a sharp curve. This will help prevent trains from traveling at excessive speeds and will curb the amount of sound generated operation of the JFK Express.



‘Hong Kong Noise Barrier’ Proposal By Architect Francesco Lipari

Figure 33



The majority of the disused right-of-way is found on an elevated embankment (see figure 35). As the line passes through Forest Park, the line moves to a sunken embankment (see figure 34). Below is a depiction of the rail with cantilevered barriers for two segments of line.

Figure 34
Sound Barrier on Rail Running within an Embankment

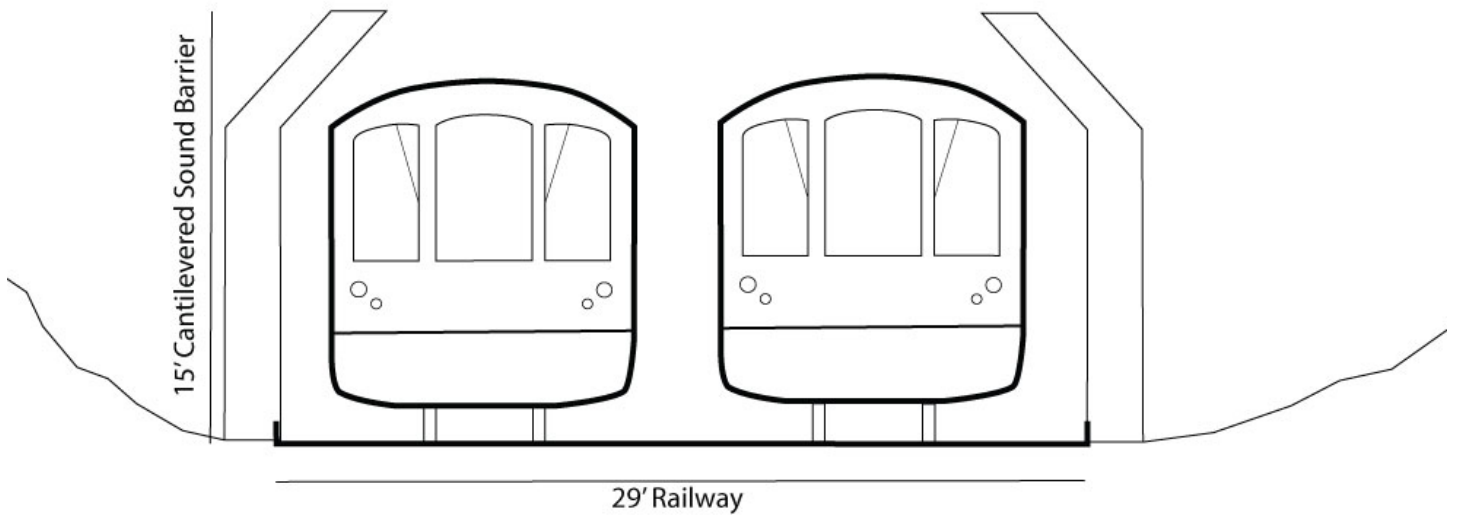
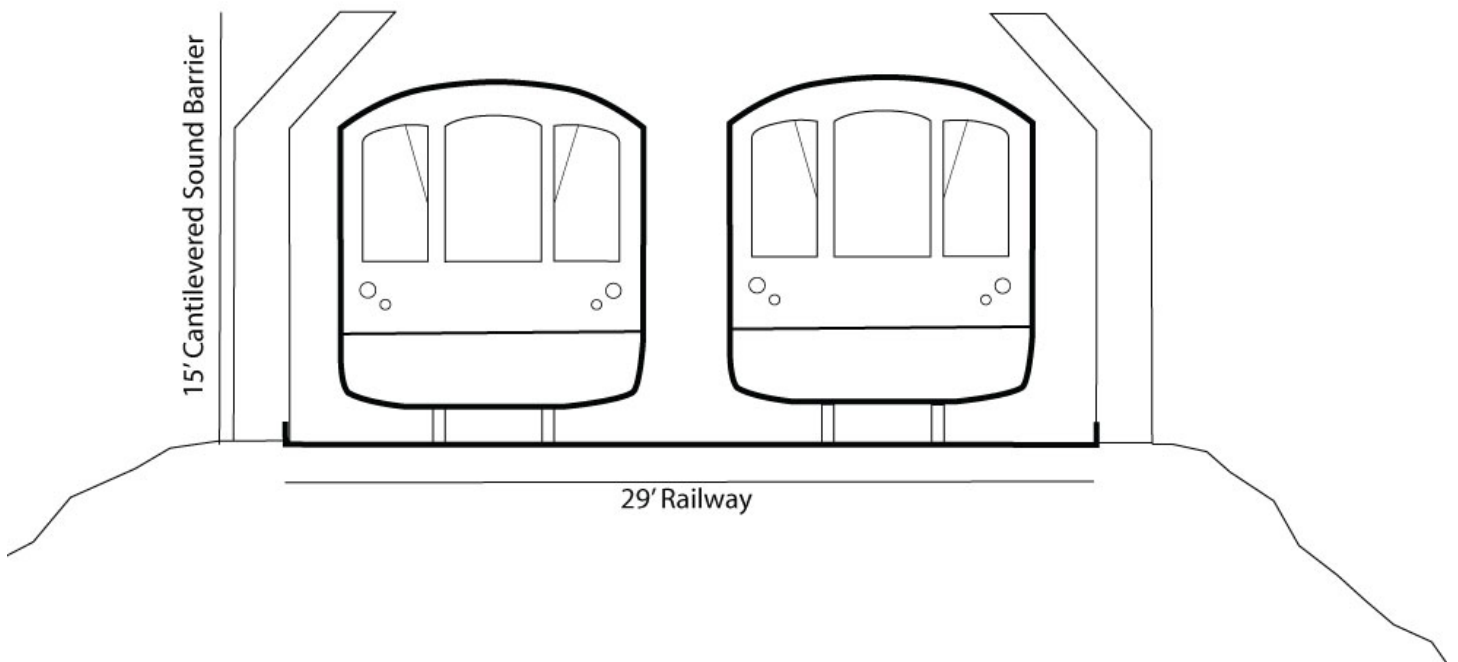
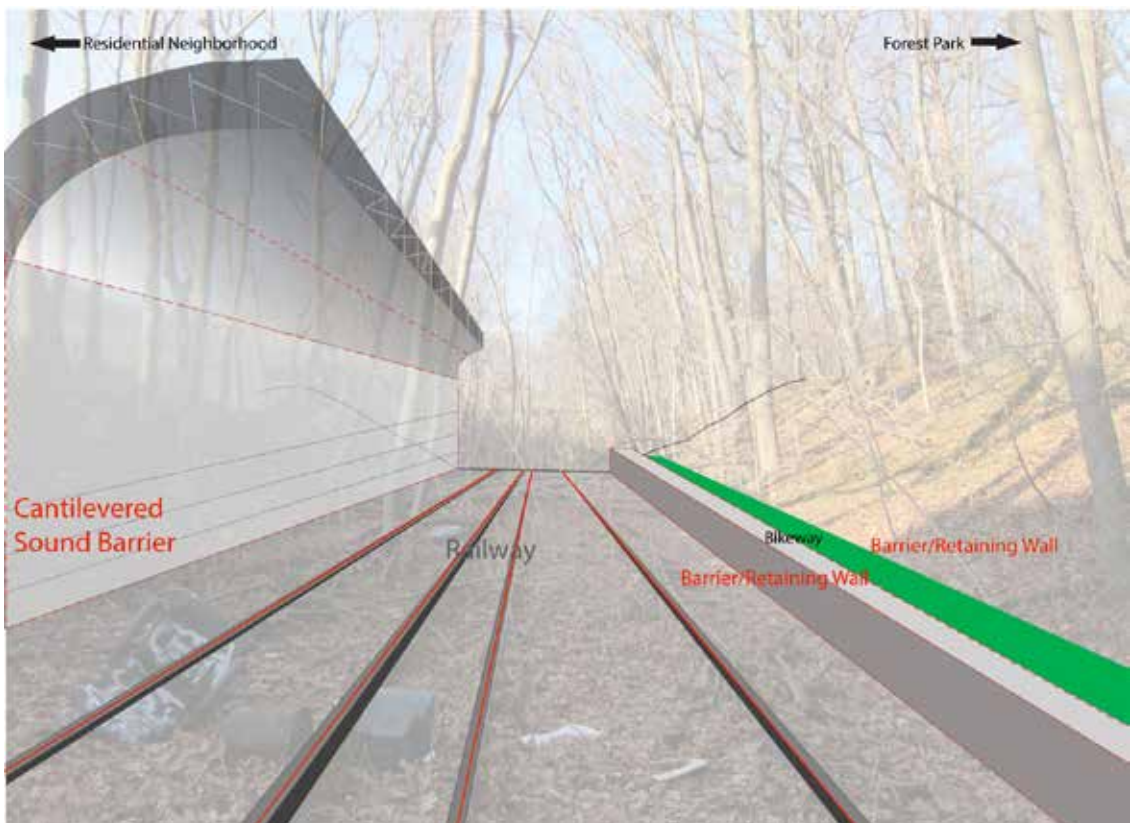


Figure 35
Sound Barrier on Rail Running on an Elevated Embankment





Above the right-of-way's existing conditions in an embankment at the northern section of the disused branch. Residences can be seen to the left with Forest Park to the right. Below is the same image with the proposed design.



e. Incorporation of Pedestrian or Bicycle Path



Stairwells are compact and can occupy sidewalk space at grade crossings.



Rendering from Ross Barney Architects of access for planned Bloomingdale Trail in Chicago. The 3-mile embankment will feature 8 access points from adjacent pocket parks, and a mile and a half of the line will have separated pedestrian and multi-use paths (for bike riders and roller-blades).

One of the greatest characteristics of the Rockaway Rail Branch is the lack of grade crossings as almost all of the line's grade separation remains intact. However, since the right-of-way was designed exclusively for trains, modifications must be made to accommodate pedestrian and/or bicycle uses.

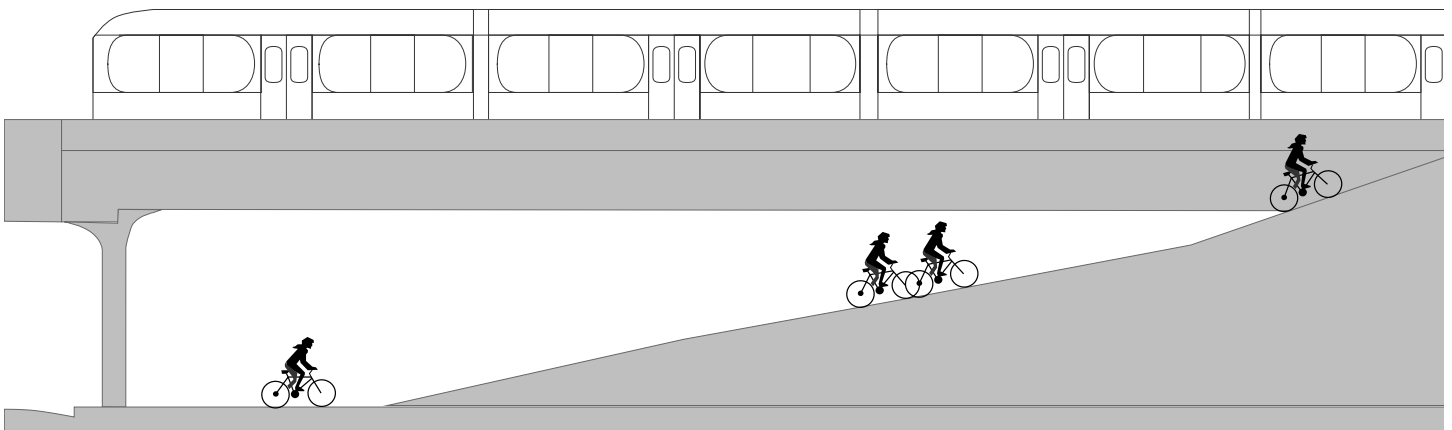
North of Park Lane South, the right-of-way runs at grade and wide enough for two tracks as well as a pedestrian trail or a two-way bicycle lane. Figure 37 depicts approximately 1.5 miles of track which may be ideally suited to accommodate pedestrian or bicycle access (in green). The right-of-way does not appear to be large enough to incorporate both pedestrians and bicycles unless they share a path.

Pedestrian Grade Crossing

Grade crossings for cyclists and pedestrians permit entry and exit points to the right-of-way for pedestrian and/or bicycle paths. Each side of the intersection can feature up to four entry points for these users.

There is only one-separated grade crossing identified for pedestrians at the approximate center of the 1.5 mile pathway. This grade-crossing runs over the Long Island Railroad Montauk freight line (see purple in figure 37).

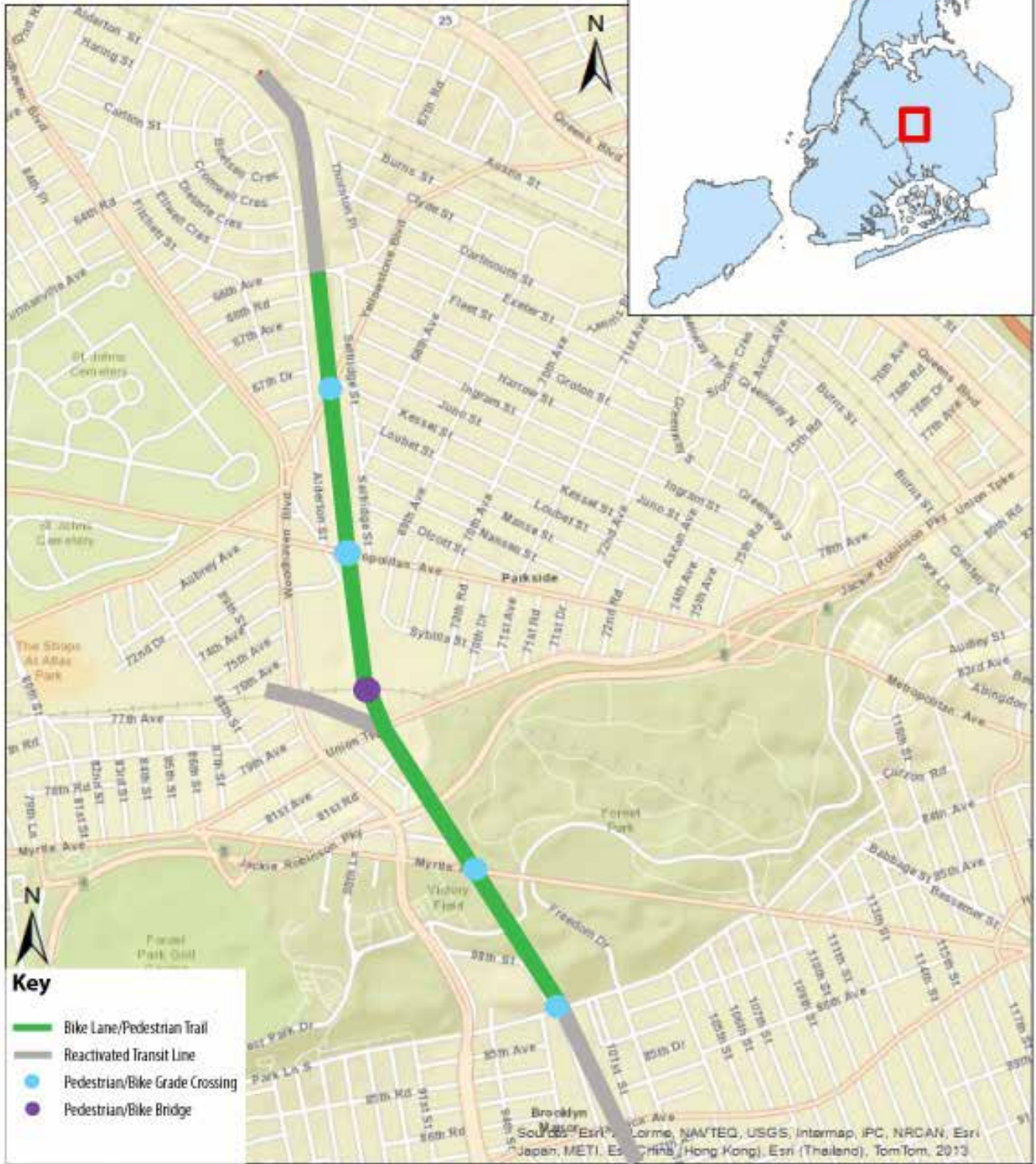
Figure 36



Cycle entry requires a gradual slope along the transit way.

Figure 37

Proposed pedestrian/bicycle greenway along the reactivated rail branch.



NYU Wagner

Robert F. Wagner School of Public Service

Prepared by the Queens Transit Advocates

IX. Cost Benefit Analysis of the JFK Express

Costs

Determining an exact cost of reactivation will require a study beyond the scope of this report. Depending on the type of transit implemented prices range drastically. While many studies have provided estimates in cost, the 2001 line study by MTA conducted offers a reasonable basis for comparison. In their study, the MTA projected a cost of \$443 million to use the right-of-way to connect with Grand Central Terminal. Adjusting for inflation, the amount to \$580 million in 2013 dollars.³⁴

Table 14

Reactivation Cost (in millions)

Description	To Grand Central	To Penn Station
Construction	\$327	\$327
Communications-Based Train Control	\$ 62	\$109
Vehicles	\$191	\$191
Total	\$580	\$627

Source: February 2001 'JFK One-Seat Ride Study' - Metropolitan Transportation Authority

Using this cost as a barometer, outside of development benefits and increased tax receipts we expect from this infrastructure investment, we estimate fares to pay off construction costs in as few as nine years. If citywide ridership trends act as any indicator, volume is likely to increase over time, allowing for faster cash flow and payoff.

Taking a macro perspective, the GDP of NYC was about \$1.28 trillion dollars in 2010 according the US Department of Commerce Bureau of Economic Analysis.³⁵ The cost associated with reactivation of the right-of-way represents only 0.04% one year's GDP.³⁶ For a rail line likely to last decades if not a century or more, this is a small outlay of capital that will pay dividends in its future economic benefit to the city.

Investing \$580 million dollars to construct the JFK Express to Grand Central represents only 0.04% of NYC's 2010 GDP.

Benefits

Increase NYC's Competitiveness in Global Business

As our economy becomes more globalized, businesses require more access to a global network of companies, suppliers and facilities. Having a world-class connection to the airport puts New York City in line with other global finance and economic centers, such as Hong Kong and London, ensuring the city's preeminent position at the top of these sectors.

Decrease Cargo Costs

Reducing private automobile traffic surrounding JFK Airport is paramount to alleviating the sharp decline in cargo volumes at the airport. According to a study by the New York City Economic Development Corporation, congestion of the roadways was a major impediment to the cargo industry in New York. Incentivizing more people to take mass transit to the airport, by offering faster and more convenient service, will help reduce congestion on these roadways.

Greater Transportation Options for Residents in the Rockaways

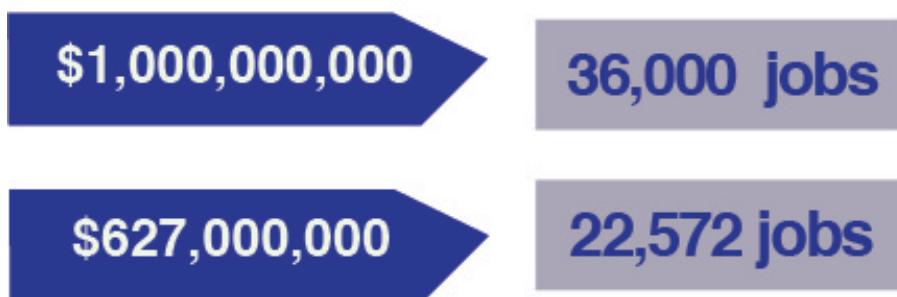
A free transfer from the 'A' subway train to the JFK Express will greatly access for residents and visitors of the Rockaways. The new line will sharply reduce travel to and from Manhattan.

Job Creation and Growth

True value in reactivating the right-of-way lies in a faster and more efficient commute, but it is far from the only benefit. With reactivation, a variety of new opportunities present themselves to commuters, residents, and businesses.

Construction of the rail will yield a windfall of new jobs both in the short- and long-term. The American Public Transportation Association found that each for billion dollar investment spent, 36,000 jobs are created.³⁷ Given the estimated costs, reactivation could potentially produce upwards of over 22 thousand jobs with a median salary of \$32,100 in May 2011 according to the BLS.³⁸ A closer look at the top industries of employ suggests that many of these positions can be filled by local workers. The Bureau of Labor Statistics ranks 'Trade, Transportation, and Utilities' among the largest sector by payroll volume, showing that there is a large resource of labor with this skill set.

INVESTMENT IN TRANSPORTATION = JOBS



Source: American Public Transportation Association, 2013

Corresponding to the rise in employment will be payroll tax revenues. Given the additional jobs and expected salary, NYC can expect an additional \$38.6 million and \$23.4 million in city revenues annually.³⁹ The fare revenue coupled with taxes collected would equal that of the expense of reactivation in just over four years.

XII. Recommendations

The following recommendations are based on the preceding existing conditions analysis, examining problems and opportunities within the right-of-way. These recommendations should be interpreted as areas to be explored with further quantitative and qualitative research, stakeholder input, and open discussion. They do not represent as steadfast recommendations, rather concepts and ideas discovered through this analysis and that therefore should be further examined.

Reactivate commuter transit service on the Rockaway Beach Branch for a connection from JFK to midtown Manhattan.

MTA and the PANYNJ should immediately resume planning for a one-seat ride Manhattan-JFK Express regional rail service that focuses on reactivating the 4.2-mile disused segment of LIRR Rockaway Beach in Queens. This planning study should build on the MTA's One-Seat Ride study completed in 2001 which considered a track connection just north of the Howard Beach station that would permit a through-routed rail service using hybrid rail cars that can operate on the LIRR and on existing on AirTrain tracks at JFK Airport. That study found that a one-seat ride service could begin with an investment of \$580 million in today's dollars.⁴⁰

Establish a bicycle-way along the right-of-way.

This new JFK Express study should be initiated quickly so that it can be coordinated with a related study, now underway, of a bicycle-pedestrian greenway on this same right of way. The combined rail-plus-trail study should include careful consideration of state-of-the-art noise and vibration mitigation measures for the rail service as part of a design effort for this corridor. Critical for the success of this study is adequate public participation, with all affected players at the table.

Reconstruct Aqueduct station to provide greater connectivity.

While this study is underway MTA should modify plans for a new subway station at the Aqueduct Casino to allow development of a cross-platform transfer station that would permit JFK Airport passengers to use A train service to reach Downtown Brooklyn and Lower Manhattan and allow passengers from the Rockaway Peninsula passengers to have a speedy ride to Midtown Manhattan using the JFK Airport Express.

Conduct further research into the economic and social benefits of multiple stations along the right-of-way.

Key tasks in this corridor study should include assessment of track capacity at Penn Station and Grand Central Terminal, updating surveys of airport passenger and employee travel patterns and consideration of a range of pricing options for the JFK and Rockaway Peninsula rail services, as well as for motor vehicular access to the airports. The corridor study should also consider the consequences of adding on-line stations on the LIRR segment, in consultation with the affected communities.

Explore a longer-term plan to expand rail service once transit line is restored.

The urgency of the recovery from Superstorm Sandy's devastation last fall, the expected 2013 completion of the LIRR East River capacity expansion and ongoing need to maintain the economic competitiveness of Manhattan Central Business District, coupled with the relatively modest cost of imple-

menting a world-class airport access link to JFK Airport on this corridor suggest that this study should quickly begin in earnest. Planning for other long-term strategies, like extending the LIRR Brooklyn line to Lower Manhattan and adding subway connection options, though important, should not delay beginning this study.

Study the creation of a public-private partnership for financing reactivation.

An important component of this study should be consideration of an equitable allocation of cost among those who benefit from this investment including rail users, motorists, private entities in the aviation and hospitality industries and nearby property owners including the Aqueduct Casino and Racetrack. The study should craft a public-private partnership package that captures the substantial benefits generated by the project, while not putting added pressure on existing over-committed MTA and PANYNJ budgets.

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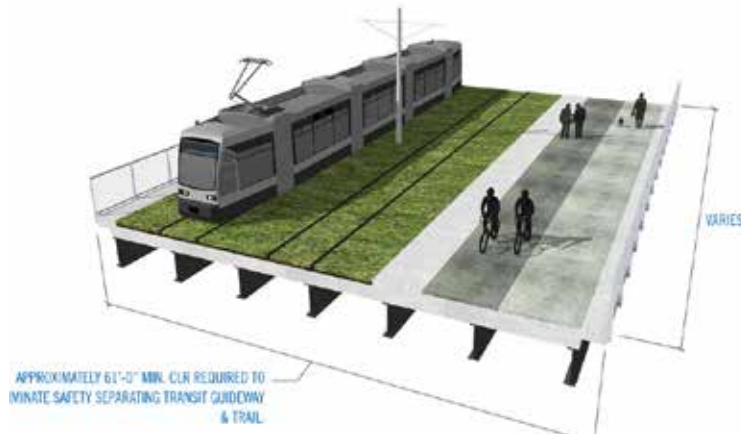
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XIV. Appendix

Best Practices



Source: Beltline.org

The Atlanta Beltline Project

Atlanta’s Beltline project began construction in 2005 and will reactivate 22 miles of former freight railway that surrounds Atlanta’s downtown with light rail. The project reconnects Atlanta’s original streetcar suburbs with mass transit options while simultaneously providing desperately needed public space. The rail will be run by Atlanta Beltline Incorporated, an entity that will collect fares and utilize increment financing, collecting taxes on the increased property values of a surrounding 6500 acre area. The levy will last for a period of 20 years at which time continued proceeds will instead be used to fund local schools.



Source: parleytrail.org

Salt Lake City: Going Green(way)

Salt Lake City recently embarked on the creation of the Sugar House Streetcar Project, a new light-rail that will connect the Sugar House central business district with the existing regional Transit Express (TRAX) light rail. During community forums and public meetings, support for the line was pivoted on the inclusion of recreational areas and the joining with other parks. Simultaneously, Parley’s Trail - an eight-mile pedestrian and bicycle way through the Parley Canyon is being developed to run alongside two miles of the proposed light rail. With trains planned to run every 20 minutes, the new rail has not been deemed incompatible with overlapping recreational uses. Construction on the new rail line is expected to be completed by the end of 2013. Currently in Phase 4, Parley’s Trail is currently lacks enough funding to complete all of the six phases of the project. When completed, the light rail is estimated to carry 4,000 people a day and the park will provide a valuable public amenity to the surrounding communities.



Source: BordersRailway.co.uk

Scotland: A Government Project Realized

The Waverley Line/Borders Railway Project is a 35 mile, 7 station activation of a section of rail line running from Tweedbank to Edinburgh in the Scottish Borders. The original rail line was opened in 1849 and closed in 1969 as a result of the Beeching Report recommending its closing as part of greater British rail cuts. The Scottish Parliament began studying its re-commissioning in 1999 and passed the 2006 Railway Act to cement its future reactivation. Construction will be completed within 5 years of beginning in 2015.

Previous Studies

Long Island Rail Road Connection to John F. Kennedy International Airport: Parsons Brinkerhoff, Gibbs & Hill, 1969.

A Parsons Brinkerhoff study in 1969 explored the Rockaway Beach Branch as a means for connecting the Long Island Railroad to JFK. It found that reactivating the line would “meet the present and future demand for ground transportation facilities at the airport”, as well as reduce congestion, and maintain the airport as a center of activity. The study specifically made note of the Branch’s potential faster and direct connection to Penn Station over other options. The greatest application of this study is its themes of phased construction, temporary measures, and provisions for future construction. The City did not have the ability to undertake this massive project at once, so the paper laid out several phases for implementing these measures. This is an invaluable philosophy that promotes the flexibility necessary to plan this reactivation.

Transit Access to JFK: Robert Olmsted, 1989

Robert Olmsted’s paper Transit Access to JFK shows how the airport’s physical characteristics have hindered adequate transit access. Built over remote land previously used as a golf course for those looking to escape the city, it remains situated in an area far from subway service. In the 1970’s, organizations explored ways of expanding access to JFK. They settled on expansion to the Van Wyck Expressway, leaving little room left for subway facilities. Operational and labor concerns defeated a busway proposal, which involved running on dedicated “tracks” as a cheaper alternative to trains. The Kennedy Airport Access Project using Jamaica Station as a hub and running trains from Penn Station via Jamaica using the Rockaway Beach Branch. The idea of satellite terminals, in which airport functions were set up at regional neighborhood centers to streamline and expedite service, were to be enacted to transport passengers from these centers to the airport using high occupancy vehicles. A similar plan called JFK 2000, intended to upgrade the airport for the new millennium, proposed the

idea of completely remodeling the airport to have one central terminal and have passengers travel via spoke hub transportation to their respective terminals. This paper is relevant to our project because it illustrates resourcefulness needed to remedy this situation and properly connect JFK to the City. With all these proposals, there remains an untouched rail line that could be the solution.

An Assessment of the Transit Service Potential of Inactive Railroad Rights-of-Way and Yards: Department of City Planning, 1991

The Department of City Planning (DCP) published a study in 1991, An Assessment of the Transit Service Potential of Inactive Railroad Rights-of-Way and Yards, looking at the potential for revitalizing defunct right-of-ways in the City. One right-of-way that was recommended for further action was the Rockaway Beach Branch's. The study found that reactivating this right-of-way with rail would significantly benefit the surrounding communities and airport employees needing fast, reliable access to the airport. In evaluating potential options, DCP concluded that mass rail transit would be the most attractive option because it provides transit access to the greatest segment of users, would be cost efficient, and would offer a quick one seat ride to Midtown. They predicted growing airport use by 2000 and that existing private bus line serving the area, also with growing ridership, would not be able to accommodate the new riders. The new capacity on the Queens Boulevard subway would mean an influx of passengers and other options merit discussion. The study concludes with a statement to the importance of the Rockaway Beach Branch to the region's vitality: "Mass transit coupled with much needed airports access will help the future economy of the region." This paper helps inform our study by providing important context on the right of way and the effects its reactivation may have.

Public Transportation for Airport Employees: Q3 Extension into John F. Kennedy International Airport: Daniel K. Boyle and Paul R. Gawkowski, 1993

The MTA, as the chief transportation provider in the City, undertook a study and enacted a change to one of its bus routes, extending the Q3 line to JFK in 1987. The study focused on an oft-forgotten but lucrative segment of airport users, airport employees. Most airport improvement projects are aimed with travelers in mind, yet employees use the airport on a far more frequent basis. The airport itself is also an employment center and after implementing this change, the MTA surveyed the ridership and found that most were employees and that the extension proved popular. Further research found that the Q3 had attracted more riders than previous years, increased employment opportunities in Queens, encouraged airport hires to relocate Queens, and helped reduce road congestion. This simple maneuver was meticulously researched and showed the demand for better airport access, leading to the success of the Q3 in filling this role. Because of greater demand for airport access today, the need for Rockaway Beach Branch is evident. The Q3 study and extension provides a guide for how to improve public transit to the airport.

Apple Corridor: An Affordable High Speed Rail Link between Grand Central Terminal and Kennedy International Airport: The Committee for Better Transit, 1996

The Big Apple Corridor Study compiled by the Committee for Better Transit provides the most comprehensive plan to reactivate the line as a means of better connection the airport with the region through rail. While a portion of the report was addressed with the implementation of AirTrain, the main focus is on a single seat ride that connects with regional rail. This is an ambitious proposal and details the financing, design, and engineering concerns associated with the mega project. The most import-

ant element of this plan is the dedication to the concept of a one seat ride, one without transfers. Many of the themes and ideas presented in this paper are still pertinent to current conditions and can be integrated in our project, and will be discussed further.

Trust for Public Land Study (on-going), 2013

The Trust for Public Land, an organization dedicated to preserving and establishing open spaces, recently received a grant to study the feasibility of converting the abandoned right of way into a park space. The organization joins Friends of the Queensway, an organization with roots in the northern neighborhoods of Rego Park and Forest Hills in calling for the removal of a expensive right-of-way, already in government hands, and envision the line as a High Line for Queens. While this is an exciting proposal, there are several issues that need to be addressed: Eastern Queens does not have the allure of Manhattan that the High Line enjoys and from which it benefits immensely; the funding in Queens is much more difficult to attain than in Manhattan because of the different demographic makeup of residents and donors; and the most pressing concern of conversion to parkland, the relinquishing of the transportation potential of a right-of-way. Rights-of-way are extremely difficult to acquire, and can take years of political and legal battles to gain ownership. Using the right-of-way for transit is the most prudent use of this valuable land, and is what this paper will advocate.

Apple Corridor Report Estimates

Table 1 - Distance and Estimated Travel Time

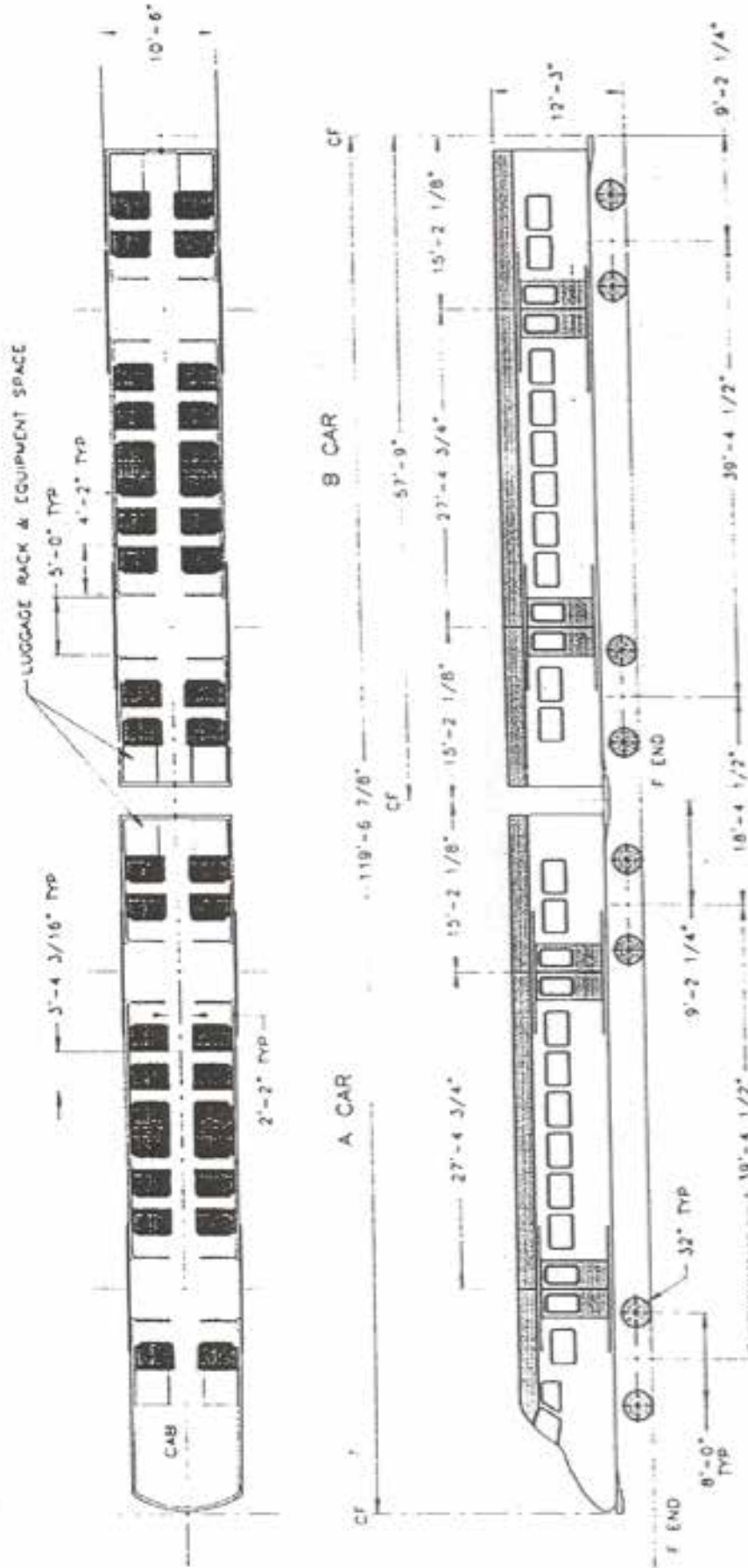
Grand Central - Kennedy International Airport

	Miles	Minutes
Grand Central Terminal	0.0	0
Woodside Station	5.0	7
Aqueduct Station	11.8	15
Federal Circle Station	13.3	18
Terminal One Station	15.2	21
Delta Station	15.4	23
International Station	15.7	25
TWA Station	16.1	27
British/United Station	16.2	28
American Station	16.6	30
Federal Circle Station	18.6	33
Aqueduct Station	20.1	36
Woodside Station	26.9	44
Grand Central Terminal	31.7	51

Jamaica (LIRR) Station - Kennedy International Airport

	Miles	Minutes
Jamaica (LIRR) Station	0.0	0
Aqueduct Station	4.3	7
Federal Circle Station	5.8	10
Terminal One Station	7.7	13
Delta Station	7.9	15
International Station	8.2	17
TWA Station	8.6	19
British/United Station	8.7	20
American Station	9.1	22
Federal Circle Station	11.1	25
Aqueduct Station	12.6	28
Jamaica (LIRR) Station	16.9	35

JFK One-Seat Ride Vehicle Concept



Each One-Seat Ride train would consist of 2 "A" cars and 2 "B" cars

2/6/01

Rockaway Beach Branch Timetable (1951)

48

NEW YORK, BROOKLYN to OZONE PARK, HOWARD BEACH and HAMILTON BEACH												
WEEKDAYS except July 4 and September 3, 1951.												
Table E		2210	2212	2214	2218	2226	2232	2234	2238	2242	2246	2204
		N.B.	N.B.	N.B.	N.B.	N.B.	N.B.	N.B.	N.B.	N.B.	N.B.	N.B.
0	Lv NEW YORK (Pennsylvania Station)	5.57	7.04	7.59	9.09	1.22	4.11	5.17	6.07	7.09	10.19	12.54
5.1	" Woodside	6.07	7.14	8.09	9.19	1.32	4.21	5.27	6.17	7.19	10.29	1.04
7.5	" Rego Park	6.12	7.19	8.14	9.24	1.37	4.26	5.34	6.22	7.24	10.34	1.09
8.8	" Parkside	6.15	7.22	8.17	9.27	1.40	4.29	5.37	6.25	7.27	10.37	1.12
10.1	" Brooklyn Manor	6.18	7.25	8.20	9.30	1.43	4.32	5.40	6.28	7.30	10.40	1.15
	Lv BROOKLYN, Flatbush Avenue	5.58										
	" " Nostrand Avenue	6.03										
	" East New York	6.08										
	Ar Woodhaven	6.14										
10.5	Lv Woodhaven	6.19	7.26	8.21	9.31	1.44	4.34	5.42	6.30	7.32	10.41	1.16
10.8	Ar Ozone Park	6.21	7.28	8.23	9.33	1.46	4.36	5.44	6.32	7.34	10.43	1.18
12.1	" Aqueduct	6.23	7.30	8.25	9.35		4.38	5.46	6.34	7.36	10.45	1.20
12.6	" Howard Beach	6.25	7.32	8.27	9.37	1.50	4.40	5.48	6.36	7.38	10.47	1.22
13.2	Ar Hamilton Beach	6.27	7.34	8.29	9.39	1.52	4.42	5.50	6.38	7.40	10.49	1.24
		AM	AM	AM	AM	PM	PM	PM	PM	PM	PM	AM

SUNDAYS and July 4 and September 3, 1951.												
Table E		2212	2214	2226	2232	2242	2246	2204				
		N.B.	N.B.	N.B.	N.B.	N.B.	N.B.	N.B.				
	Lv NEW YORK (Pennsylvania Station)	7.04	7.59	1.22	4.11	7.09	10.19	12.54				
	" Woodside	7.14	8.09	1.32	4.21	7.19	10.29	1.04				
	" Rego Park	7.19	8.14	1.37	4.26	7.24	10.34	1.09				
	" Parkside	7.22	8.17	1.40	4.29	7.27	10.37	1.12				
	" Brooklyn Manor	7.25	8.20	1.43	4.32	7.30	10.40	1.15				
	Lv BROOKLYN, Flatbush Avenue											
	" " Nostrand Avenue											
	" East New York											
	Ar Woodhaven											
	Lv Woodhaven	7.26	8.21	1.44	4.34	7.32	10.41	1.16				
	Ar Ozone Park	7.28	8.23	1.46	4.36	7.34	10.43	1.18				
	" Aqueduct	7.30	8.25		4.38	7.36	10.45	1.20				
	" Howard Beach	7.32	8.27	1.50	4.40	7.38	10.47	1.22				
	Ar Hamilton Beach	7.34	8.29	1.52	4.42	7.40	10.49	1.24				
		AM	AM	PM	PM	PM	PM	AM				

HAMILTON BEACH, HOWARD BEACH and OZONE PARK to BROOKLYN, NEW YORK

Support and Interviews

Atlanta BeltLine, Inc.

Patrick Sweeney, AICP, LEED A.P., PLA

Claire Shulman

Former Queens Borough President

David Krulewitch, MUP

Institute for Rational Urban Mobility

George Haikalis, ASCE, President

Anthony Callendar

JetBlue Airways

Jeffrey Goodell, Vice President, Government Affairs

New York State Assemblyman Phillip Goldfeder

Peter Derrick, PhD

Regional Planning Association

Jeffrey M. Zupan

Richard E. Barone

The Trust for Public Land

Andy Stone, Director, NYC Program

Examples of two-way bicycle lanes



Williamsburg Bridge Bicycle Lane



Manhattan Bridge Bicycle Lane



Downtown Brooklyn Bicycle Lane



Edward Koch Queensboro Bridge
Shared Pedestrian/Bicycle Lane

End Notes

1. Interview with Andy Stone, Trust for Public Land. March 7, 2013
2. NYC Department of City Planning, Community District Profile
3. Ibid.
4. Interview with Andy Stone, Trust for Public Land. March 7, 2013
5. NYC Department of City Planning, Community District Profile
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14. JFK Air Cargo Study. NYC Economic Development Corporation. January 2013.
15. Ibid.
16. Comparison between total airport passenger volume and the total rail ridership for lines serving the airport as indicated.
17. Half the passenger count of additional riders taking the AirTrain as estimate that each cars would transport an average of two people.
18. Compiled using 2011 EPA Office of Transportation and Air Quality emissions estimates based on average fuel efficiency of 22 multiplied by the figure determined in 17.
19. Time and cost calculated using hopstop LIRR to AirTrain. Distance determined using Google Maps. Average speed is quotient of distance over time.
20. Time and price adapted from MTR Airport Express web site with cost converted into US dollars. Distance taken from worldtravelguide.net.
21. Time and price adapted from tokyo-monorail.co.jp with cost converted into US dollars. Distance taken from kayak.co.in.
22. Time, price, and distance adapted from milesfaster.co.uk with cost converted into US dollars.
23. Interview with Jeffrey Goodell, March 5, 2013.
24. New York City Economic Development Corporation air cargo study, January 2013.
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29. Ibid
30. From Kern-Jedrychowska, Ewa. "Queens Pols Want to Use Sandy Funds to Rebuild Derelict Rail Line" *DNAInfo.com*. (March 25, 2013)
31. Calculated using GIS maps to measure distance of residential properties along the right-of-way and dividing by the total distance of the disused line.
32. Noise barrier guidelines from Environmental Protection Department, Highways Department, Government of Hong Kong SAR. Guidelines on Designs of Noise Barriers. Hong Kong, 2003.
33. Ibid.

End Notes Continued

34. Figure taken from Metropolitan Transportation Authority. *JFK - One Seat Ride Study: Summary*. New York, 2001.
35. Figure taken from US Department of Commerce. Bureau of Economic Analysis. *Economic Growth Widespread Across Widespread Areas in 2010*. 2011.
36. Ibid.
37. Figure taken from American Public Transportation Association. *Public Transportation Benefits. Public Transportation Provides Economic Opportunities*. 2013.
38. Figure taken from Bureau of Labor Statistics. *New York Area Employment*. November 2012.
39. Ibid.
40. Figure taken from Metropolitan Transportation Authority. *JFK - One Seat Ride Study: Summary*. New York, 2001.