

Executive Summary



Lower Montauk Branch Rail Study

EXECUTIVE SUMMARY

Introduction

This study, conducted by the engineering firm AECOM on behalf of New York City Department of Transportation (NYCDOT) and sponsored by New York City District 30 Council Member Elizabeth Crowley, examines the feasibility of returning passenger service to the Lower Montauk Branch rail corridor (“the Branch”). With the City of New York’s population having grown 4.4% and the Borough of Queens’ population having grown 4.6% since 2010,¹ city leaders and planners must begin to plan for the city’s next generation of residents and how they will travel to work, to school, and to the city’s vast cultural destinations. As outlined in *OneNYC: The Plan for a Strong and Just City*, the expansion of the city’s transit through network expansion and the introduction of new modes helps build an equitable and sustainable city that ensures, “New York City will continue to be the world’s most dynamic urban economy, where families, businesses, and neighborhoods thrive.”²

From Greenpoint, Williamsburg, and Bushwick in Brooklyn to Long Island City, Ridgewood, and Jamaica in Queens, many neighborhoods adjacent to the Branch have seen tremendous growth in recent years. At the same time, most of the areas along this former rail passenger line have yet to see significant new development and remains at a low-to-moderate density. Overall, it is important to consider infrastructure changes that would be needed to support growth if and when that time comes.

It is also important to recognize that the Branch carries an active rail freight line that serves Long Island and provides support to many Queens-based industries along the line. These businesses are located in some of the few remaining industrial areas left in the city, and are a critical component to the city and region’s growth. As such, the Branch has been identified as an important component of the Cross Harbor Freight Program.³

This report has been developed with these competing interests for the Branch in mind. AECOM and NYC DOT have developed a passenger service concept that would maintain freight access while also developing a new, modern passenger rail service along the Branch. The ridership and other development findings, as well as capital costs to upgrade the Branch’s infrastructure, mostly reflect this shared corridor approach. This report adds substance to the vision of returning passenger service to the Branch. It is ultimately the job of policy makers, the MTA Long Island Rail Road (LIRR – which owns the Branch), neighborhood residents, business owners and other stakeholders to collectively determine how the Branch may be best utilized in the future. As it was not part of this study’s scope, any effort to reintroduce passenger service and eliminate freight from the Branch would require additional refinement and analysis beyond what is presented in this study.

¹ <http://www1.nyc.gov/site/planning/data-maps/nyc-population/current-future-populations.page>

² <https://onenyc.cityofnewyork.us/visions/growth/goal-6-growth/>

³ <https://www.panynj.gov/port/cross-harbor.html>

Lower Montauk Branch Rail Study

History

The Branch is a two-track, nine-mile, non-electrified rail line running through the borough of Queens from Jamaica to the east, terminating in Long Island City in the west. Opened in the mid-19th century, the Branch once served as one of the main rail line through Queens from Long Island City to Jamaica , providing passenger service to the neighborhoods of Maspeth, Ridgewood, Middle Village, Glendale and Richmond Hill.

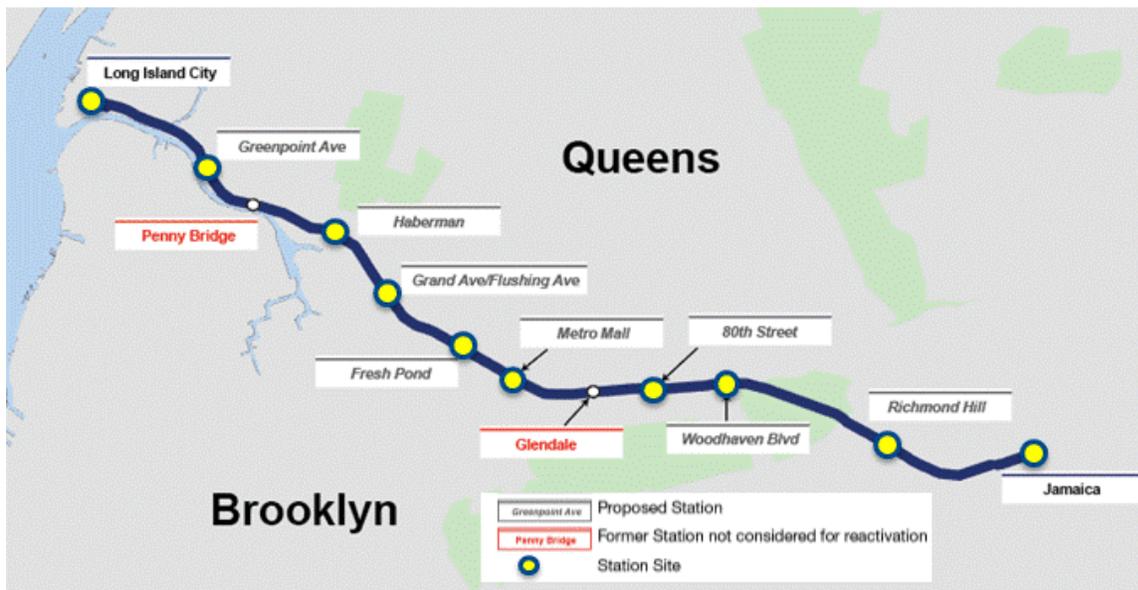
The frequency of the passenger service on the Branch rapidly declined after World War II and as a result ridership plummeted. Service to stations between Jamaica and Long Island City ceased in 1998, passenger service was discontinued altogether in 2012, and the line has subsequently been leased out to the New York and Atlantic (NY&A) Railway, which provides rail freight service to Long Island and to industrial customers along the Branch in Queens.

Transit Service Concept

While the existing subway network serves Long Island City, Jamaica and Richmond Hill, many of the residential, commercial, and industrial areas within the 9-square-mile study area along the Branch currently lack rail transit service. Connecting those areas to the rest of the transit network would improve accessibility, support economic development, and potentially reduce pressure on existing rail transit lines in Queens. This study explores the potential feasibility of rail transit operating on the Branch’s existing right-of-way (ROW), with relatively frequent service similar to what is provided on subway lines within the City.

Starting with the original locations of the Branch’s former passenger stations, a screening process analyzed surrounding land use densities, potential connections to other rail and bus transit, and other factors, and recommended 10 station locations: the two termini stations at Long Island City and Jamaica and eight intermediate stations located an average of one mile apart, as shown below.

Proposed Lower Montauk Branch Stations



Lower Montauk Branch Rail Study

Several service concepts were examined, from less frequent, commuter rail-like service to frequent, 24/7 service similar to most of the City’s subway lines. Commuter rail-like frequency was too sparse to attract significant ridership, while 24/7 subway-like frequency would preempt freight operations without a highly disruptive and expensive expansion of rail infrastructure, while providing only marginal benefit in ridership demand.

Providing passenger service during daytime/evening hours was considered the most feasible option. A passenger service plan from 5:00am to 10:00pm, providing 6-minute peak and 15-minute off-peak headways, would capture the bulk of potential ridership while leaving open the overnight hours. The overnight hours could allow: (1) the service operator to conduct maintenance on the fleet and/or ROW, while also limiting operational expenses when ridership demand is low; (2) a significant enough window to maintain freight operations at current levels. Additionally, the proposed hours offer some flexibility as either passenger or freight demand rise or fall.

Proposed Service Span

	Weekdays							Saturday	Sunday
	Early AM (5:00AM-6:00AM)	AM Peak (6:00AM-10:00AM)	Midday (10:00AM-4:00PM)	PM Peak (4:00PM-8:00PM)	Early Evening (8:00PM-9:00PM)	Evening (9:00PM-10:00PM)	Overnight (10:00PM-5:00AM)		
Passenger Service (Headway)	20 minute	6 minute	15 minute	6 minute	10 minute	15 minute	NO PASSNGR SERVICE	15 minutes- 5:00AM-10:00PM NO SERVICE OTHER TIMES	15 minute - 5:00AM-10:00PM NO SERVICE OTHER TIMES
Freight	Partially restricted freight service [1]	Restricted freight service[1]	Partially restricted freight service [1]	Restricted freight service[1]	Partially restricted freight service [1]	Partially restricted freight service [1]		Unrestricted service - 10:00PM-5:00AM Partially restricted service at other times	Unrestricted service - 10:00PM-5:00AM Partially restricted service at other times

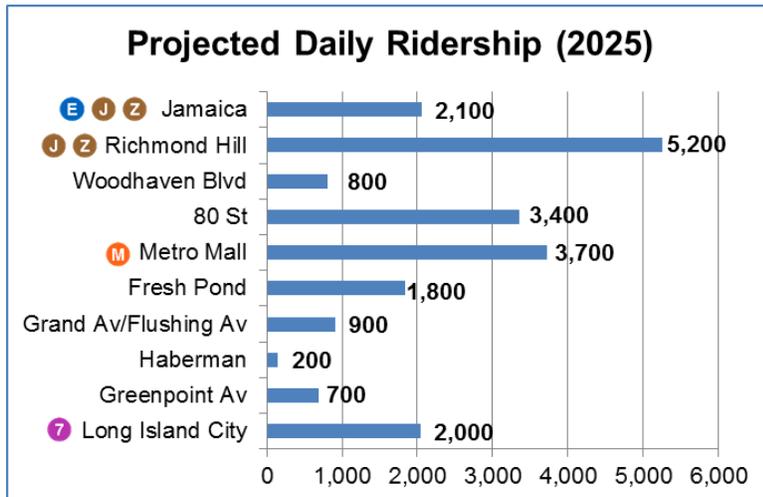
Choice of Rail Equipment

Under Federal Railway Administration (FRA) regulations, any passenger rail service jointly running with freight rail operating on the same or adjacent tracks must use rail equipment that meets FRA’s crashworthiness standards in order to protect riders in the event of a collision. Non-complying passenger equipment would have to be separated from freight traffic, either temporally (operating at different times than freight service) or physically (operate on its own tracks separated by space or barriers). Given the space constraints of the Branch, with tight clearances and many close-up adjacent land uses, it was concluded that only FRA-compliant rail cars should be considered. In addition, the Branch is presently non-electrified, and use of electric transit vehicles would require new third-rail and other transmission-related equipment at considerable additional costs. After reviewing presently available rail equipment, this study recommended FRA-compliant, diesel-powered Diesel Multiple Unit (DMU) equipment, which is currently in use in numerous cities around the world.

Lower Montauk Branch Rail Study

Projected Ridership and Revenue

Estimated ridership for the Branch is 21,000 weekday and 13,000 weekend daily riders, based on a modeled build year of 2025 under current area growth. Per-station ridership is mixed, with some higher but most lower than the average City subway station.



Weekday	21,000
Weekend	13,000
Annual	5,820,000

Annual fare revenues are estimated at approximately \$15 million (in 2017 dollars). This is an initial high-end estimate that assumes a subway-level fare (\$2.75). The free transfer for Branch riders to or from MTA Subway or Bus, ridership shifts to the Branch from other transit lines and various fare discounts would result in a decline in the net increase in overall transit ridership and revenue, and would need to be addressed further in future feasibility studies.

Capital and Operating and Maintenance (O&M) Costs

Passenger rail service would require substantial investments to bring existing rail infrastructure, signals and communication, and other systems to current design and safety standards, along with 10 new stations, a storage and maintenance facility, grade crossing elimination at three intersections, and a 15-car fleet. In total, the capital costs for these upgrades would total \$1.1B (2017 dollars).

Projected Capital Costs for Transit Infrastructure (Millions 2017\$)

Transit Infrastructure	\$914
Fleet Costs	\$150
Maintenance Equipment	\$15
Yard/Maintenance Facility	\$32
Total Capital Costs	\$1,111

Freight Considerations:

Should freight service be maintained along the Branch for operation outside of passenger service hours, additional substantial investments would be necessary. This scenario would require additional running track in some areas and new freight rail yards, and would require an additional \$1.0B in upgrades.

These costs are further outlined in section 3.3.

Lower Montauk Branch Rail Study

Recommended Rolling Stock: Diesel Multiple Unit (DMU)



(Image: Union Pearson Express, Ontario, Canada; source: Nippon Sharyo USA)

Operations & Maintenance (O&M) costs are based on costs for similar transit operations across the country. Cost drivers include the number of rail cars needed to handle passenger loads, length of route, and total hours of service provided. As shown below, the projected annual O&M costs are approximately \$55 million:

Projected Annual O&M Costs: 1- and 2-Car Trains: Lower Montauk Branch Stations (Millions 2017\$)

Cost Driver	Annual Operating Cost	
	Average of Peers	Highest of Peers
ONE-CAR TRAINS		
Vehicle Hours	\$ 33.9	\$ 37.4
Car Miles	\$ 12.6	\$ 19.5
Directional Route Miles	\$ 1.5	\$ 0.6
Total	\$ 48.0	\$ 57.5
VARIABLE-CONSIST TRAINS		
Vehicle Hours	\$ 33.9	\$ 37.4
Car Miles	\$ 19.1	\$ 29.6
Directional Route Miles	\$ 1.5	\$ 0.6
Total	\$ 54.6	\$ 67.5

Potential of Value Capture Financing to Support Required Capital Costs

Value Capture financing directs a portion of the increase in property values attributable to a proposed transit service to fund a portion of the initial capital costs. This commonly involves the sale of bonds, which support project construction and are repaid with future revenues that would not have accrued had transit not been built. Some recent North American streetcar and light rail projects have used value capture to fund 10-50% of their capital costs.

Lower Montauk Branch Rail Study

An initial analysis of total assessed real estate value surrounding five key stations with strong development potential indicated that this mechanism could potentially support approximately \$309 million in bonds, or about 14% of total projected capital costs required to maintain shared transit and freight rail service on the Branch:

Preliminary Estimate: Projected Bond Support from 5 Key Station Areas (\$2017)

Station Area	Projected Bond Support
Grand Ave./Flushing Ave.	\$50,000,000
Fresh Pond/Metro Ave.	\$39,000,000
Metro Mall	\$59,000,000
80th Street	\$61,000,000
Woodhaven Blvd.	\$100,000,000
	\$309,000,000

This level of value capture would require changes in overall property values and higher development densities in certain areas, especially close to stations. Zoning changes and other potential incentives would generally be required to support such economic growth.

Another option is the transfer of development rights⁴ (often referred to as “air rights”), where unused buildable floor area from one zoning lot can be sold off and added to the development potential of an adjacent lot. This approach to development has previously been used to raise revenue for the MTA. In 2015, the MTA sold several small parcels and air rights to the developer of an adjacent property⁵. The sale allowed an additional 39 stories to the high rise building, while also generating an additional \$56M for the Transit Authority.

Such changes and land use controls and development densities were met with skepticism in public meetings about this study, and should be more fully studied and publicly vetted as part of any future studies of passenger service reactivation that would be financed through value capture means.

Summary of Findings:

- Initial analysis shows that it would be feasible to develop joint passenger-freight operations on the Branch, allowing for robust transit service while maintaining and upgrading freight operations if desired.
- Approximately 21,000 riders per weekday and 5.8 million riders annually would use the service, assuming a \$2.75 fare, a free transfer to MTA Bus or Subway, and relatively frequent service throughout the day. Fare revenues are estimated at \$15 million annually, while annual operations and maintenance costs are estimated at \$55 million.
- Capital costs while maintaining freight service on the Branch are estimated at \$2.2 billion, including substantial upgrades to rail infrastructure (track, signals, communications), new running track in key areas, new freight yard space to clear track for transit operations, transit vehicles, a storage and

⁴ http://www1.nyc.gov/site/planning/zoning/glossary.page#development_rights

⁵ <http://www.nydailynews.com/new-york/queens/mta-sells-56m-lot-developer-eyeing-queens-highrise-article-1.2162400>

Lower Montauk Branch Rail Study

maintenance yard for transit vehicles, and property acquisition. Eliminating freight service altogether on the Branch – an option not analyzed in this study – would reduce total capital costs to about \$1.1 billion. Value Capture financing, using a portion of the increase in property values induced by this new transit service, could potentially fund \$300 million in bonds, or roughly 27% of total projected capital costs for passenger-only rail operations on the Branch and 14% of such costs under the analyzed option of both passenger and freight rail operations.