

TOWARD A FIVE-BOROUGH FERRY NETWORK: ENSURING SUCCESS AND
SUSTAINABILITY FOR CITYWIDE EXPANSION OF WATER MASS TRANSIT

by

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CHAPTER I – INTRODUCTION AND STRUCTURE

New York City boasts 520 miles of shoreline, more than any municipality in North America. Thirty-nine of its Community Boards have a coastline with some degree of waterfront access. An estimated 600,000 residents live in flood zones, bolstered by land use policies of the Bloomberg administration. After September 11, the mayor, in partnership with private interests, spearheaded a waterfront redevelopment movement, targeting housing and recreation. In 2005, the City Planning Commission rezoned Greenpoint-Williamsburg to permit residential construction. Under the 2011 Waterfront Action Agenda, the city undertook a major open space program with miles of parkland and greenways. Today, luxury high-rises dot North Brooklyn, while vibrant parks hug the East River. Future projects in Stapleton, Sunset Park, and Manhattan's west side will create mixed-use districts in former port/industrial areas.

Growing density on the waterfront translates into demand for ferry service; in 2011, the New York City Economic Development Corporation initiated the East River Ferry, which links Brooklyn/Queens to Manhattan. With a strong user base, the highly successful service drew calls for expansion across the five boroughs. However, this has been slow in coming; commuter ferries are concentrated in New York Harbor and access for far-flung neighborhoods like the Rockaways remains unviable. Citywide ferry policy, it seems, has not kept pace with growing need. One problem is that most communities lack the market to support ferry service; in New York City, ferries are more expensive and less extensive than public transit. As supplemental transportation, ferries serve a niche user base, i.e. high-earning commuters to the Manhattan CBD.¹ Ferry economics do not favor low-income or

¹ The Manhattan Central Business District, which extends to 96th Street, is further broken down into the Lower Manhattan and Midtown Manhattan CBDs.

long-distance localities, which often require operating subsidies. Moreover, government studies and ferry pilots have found limited potential beyond existing East River stops.

In recent years, public interest in ferries has coalesced around disaster resiliency. In October 2012, Superstorm Sandy struck New York City, destroying property and infrastructure in vulnerable areas. With fixed-link connections severed, the city became reliant on ferries for inter-borough transport. In the ensuing weeks, ferry campaigns sprang up in affected neighborhoods where elected officials marshalled pent-up demand to advocate citywide service. NYCEDC subsequently agreed to promulgate new routes to Red Hook and the Rockaways, and explore potential landing sites across the city.

Mayor de Blasio's ferry expansion plan, unveiled in February 2015, is a product of this changing climate. Whereas the East River Ferry followed years of real estate development, the Mayor's plan extends ferry access to emerging markets. The new routes (described in Chapter IV), are expected to draw 4.6 million annual trips, backed by low fares and high subsidies.² With a short timetable and committed funding, the plan will fill persistent gaps in ferry service and unmet demand in waterfront communities. It will also restore the municipal ferry system, which met its demise in the Wagner era and is all but forgotten today.

The 1980s trans-Hudson ferry revival sparked renewed interest in citywide ferry service. During the Koch administration, private operators decided to test the New York market by building a patchwork of routes to Manhattan. Though unconnected, these point-to-point services created the appearance of a ferry system, centered on the Financial District. Operators attempted short-term links to Brooklyn, Queens and the Upper East Side, with

² Matt Flegenheimer, "Mayor de Blasio Moves to Expand Ferry Service in New York City" *The New York Times*, February 3, 2015.

LaGuardia Airport as a key demand generator. While the trans-Hudson market stabilized in the 2000s, this period of experimentation continued on the East River, led by New York Water Taxi, an operator established in 2002. Early on, the company argued that ferries were essential to waterfront redevelopment, and called on the city to establish a partnership for a greater ferry system. New York Water Taxi believed that full-scale participation by a range of stakeholders was necessary to realize this vision.³ At a 2008 City Council hearing on congestion pricing, the operator presented a “comprehensive waterborne mass transportation system” plan to channel projected revenues toward ferry demand.⁴ Figure 1 shows a portion of the proposal that clearly anticipates both the 2011 East River Ferry and the Mayor’s expansion plan. In essence, New York Water Taxi provided a roadmap for future service and long-term viability.

The Metropolitan Waterfront Alliance, founded in 2000, is another significant advocate. In 2001, MWA proposed a ferry loop to connect 25 destinations in New York Harbor. Though largely recreational in nature, the service was seen “as a way to jump-start development in places...shunned by investors...because they lack public transportation.”⁵ Like New York Water Taxi, MWA foresaw the redevelopment of New York’s waterfront for mixed-use and open space in the 2000s. Both organizations articulated the need for subsidies, to guarantee affordability and stimulate ridership. Transit agencies, recognizing the outsize investment of a ferry network, have taken a conservative approach; the Port Authority of New York and New Jersey believes that “the expansion of ferry service in the region [is best] served through the continued development of niche routes that can generate significant farebox

³ New York Water Taxi, “Strengthening and Improving New York City’s Water Mass Transit Service,” December 14, 2005.

⁴ New York Water Taxi, “Creating a Regional and Intra-City Waterborne Transportation System Financed by Revenues from Congestion Pricing,” January 16, 2008.

⁵ Andrew Jacobs, “A Ferry Loop Plan to Connect the Dots for New York Bay” *The New York Times*, February 10, 2001.

Fig 1. New York Water Taxi Proposal – 2008. Source: New York City Council.

Attachment B

East River Routes



- Upper East River Service**
 East 90th St
 Astoria
 Roosevelt Island North
 East 75th St
 Roosevelt Island South
 East 62nd St
 East 34th St

- Lower East River Service**
 Long Island City North
 Anable Basin
 East 34th St
 Greenpoint North
 Greenpoint Ave
 North 6th St
 South 3rd St
 South 10th St
 Fulton Ferry Landing
 Pier 11

- East River Express Service**
 East 90th St
 Hunters Point
 East 34th St
 East 23rd St
 Grand St
 Pier 11
 Battery Maritime

LEGEND

- Upper East River Service
- Lower East River Service
- East River Express Service
- South Brooklyn Service
- New Waterfront Development Project
- New Stop



revenues, [due to] densities of residential settlement near the waterfront or poor transit alternatives.”⁶ This rationale promotes ferries as a tool of real estate development, which in turn, creates a market for water mass transit. However, the benefits thus achieved and the interests served, do not, ipso facto, justify public expenditure. Critics argue that “trading ferry service for waterfront construction [does not constitute] a transportation policy.”⁷ With their luxury image, ferries can be vehicle for gentrification (which helps expand their geography). Despite these concerns, coastal communities from Soundview to Sunset Park are tying ferry service to transit equity. For these neighborhoods, ferries hold the promise of equity and accessibility, which is crucially lacking beyond Lower Manhattan. A ferry network must balance these competing perspectives, while generating benefits for all stakeholders.

After three decades, a citywide ferry system is taking shape on the East River, with an ambitious scope and egalitarian spirit. However, political will and municipal support may not guarantee its success. The city’s mixed experience with commuter service has made expansion a perennial challenge; the Mayor’s rationale will be tested against ferry economics, with potentially adverse consequences. While several outlets have offered critiques of the plan, there has been to date, no comprehensive analysis of its strategy. To that end, this thesis examines water mass transit in New York City and formulates best practices for implementation. The document proceeds from a historical overview in Chapter II to economic considerations in Chapter III, to final recommendations in Chapter IV. The author advocates a holistic approach, designed to maximize both community participation and returns on investment.

⁶ Pierre B. Vilain, Janet Cox, and Vincente Mantero, “Public Policy Objectives and Urban Transit: Case of Passenger Ferries in the New York Region,” *Transportation Research Record* no. 2274 (2012): 191.

⁷ Henry Grabar, “Don’t Believe in Ferries,” *Slate*, March 6, 2015.

Goals and Objectives

The overarching purpose of this research is to develop strategies for affordable, integrated, and permanent citywide ferry service. This document may also serve as a useful tool for policymakers in planning and managing ferry expansion. The ultimate goal is to maximize the benefits of water mass transit for all stakeholders. In addition, this study is guided by five interrelated objectives, set out below:

- 1) **Elucidate the structure of New York ferry markets;** trace the development of east and west-of Hudson services, with important distinctions and implications.
- 2) **Clarify policy rationales for water mass transit.** Define the public and private interest in commuter ferries and examine policy agendas.
- 3) **Identify barriers to system growth in New York City;** explore the multi-dimensional constraints and challenges of regional ferry service.
- 4) **Isolate sources of failure and determinants of success;** hone in on critical components of viable service and extrapolate key principles.
- 5) **Outline targeted recommendations for future expansion;** propose steps to foster long-term sustainability of operations.

Methodology

To achieve its stated goals and objectives, this thesis employs a multi-step approach. Chapter I reviews literature on transit subsidies and transportation equity, as regards urban ferry systems. Chapter II introduces the New York ferry context, and charts its history from 1800s to the present, including private and municipal operations. This chapter also identifies major trends and developments in the last three decades, which are further discussed in Chapter III. Chapter III examines municipal objectives of water mass transit, with a focus on waterfront development, and the East River Ferry as an example. The chapter also delves into the economics of fares and subsidies with a brief exploration of Washington State Ferries, the largest system in the United States. A short case study of Sunset Park is provided to spotlight grassroots ferry advocacy and illustrate the complexities of expansion beyond established markets. Finally, Chapter IV lays out existing constraints and best practices, culminating in an evaluation of the Mayor's plan. The in-depth critique proceeds from a SWOT analysis, to identification of feasibility issues and finally, targeted recommendations to address potential risks. The research and analysis presented are informed throughout by interviews with NYCEDC, PANYNJ, MWA, Brooklyn Community Board 7 and private operators, as well as system ridership data from the 1980s to the present. The thesis strives to synthesize multiple sources and viewpoints for a balanced examination of ferry expansion and its prospects in New York City.

Literature Review

This document is grounded in policy research on ferry service in the New York region. As such, government publications comprise a large proportion of its sources and are referenced widely throughout its chapters. Outside this domain, there is scant literature on water mass transit; ferries are generally seen as a special type of transportation (or overlooked entirely) by planners and economists alike. However, there is a well-developed body of research on two central topics of this thesis: transportation equity and transit subsidies, which have been linked in numerous studies since the 1980s. Historical conflicts between public transportation and automobile ridership figure prominently in these discussions. However, motor fuel taxes generate the majority of revenues for transit systems in the United States.

Transportation Equity

Transportation equity is best understood in the context of the economic justice movement, and its principles of participative, distributive, and social justice.⁸ Transportation equity lies at the nexus of these tenets, because it “seek[s] fairness in mobility and accessibility levels across race, class, gender, and disability [with] the ultimate objective of [providing] equal access to social and economic opportunity.”⁹ The interrelationship of transportation and land use gives rise to accessibility, as a dimension of transit equity. Accessibility refers to the distributional impacts of spatial proximity and modal choice, as well as their interaction with ability, which are discussed in this section. Figure 2 below, compiled by an external source, summarizes important terms and distinctions in recent literature concerning transportation equity.

⁸ “Defining Economic Justice and Social Justice,” Center for Economic and Social Justice.

⁹ Thomas W. Sanchez, Rich Stolz and Jacinta S. Ma, “Moving to Equity: Addressing Inequitable Impacts of Transportation Policies on Minorities,” *The Civil Rights Project at Harvard University* (2003): 10.

Fig 2. Transportation Equity Terms and Definitions. Source: Ecoscribble blog.

Paper	Author	Term	Definition
Distributive impacts of demand based modeling	Martens & Hurvitz (2011)	Social/Distributive Justice	"The morally proper distribution of benefits and burdens among members of a society ... how a specific set of benefits and burdens is and should be distributed over men and women, rich and poor, white and black, and so on."
Justice in Transport: Applying Walzer's 'Spheres of Justice' to the transport sector	Martens (2011)	Potential Mobility Access	"... ease with which a person can move through space" "... an attribute of a person: a person has access (or does not have access) to a certain set of locations" (not to be confused with "accessibility" which is: "an attribute of an (activity) location: a location is accessible for a certain set of people or from a certain set of other locations")
Moving from trip-based to activity-based measures of accessibility	Dong et al. (2006)	Accessibility	"The ease and convenience of access to spatially distributed opportunities with a choice of travel
Discussing Equity and Social Exclusion in Accessibility Evaluations	Van Wee & Geurs (2011)	Accessibility	"... as far as persons are concerned – as the extent to which land-use and transport systems enable individuals to reach activities or destinations by means of a combination of transport modes."
		Vertical Equity - income and social class	"... (also called social justice, environmental justice, and social inclusion) ... concerned with the distribution of impacts between individuals and groups that differ in abilities and needs"
		Vertical Equity - mobility need and ability	"... concerned with the distribution of impacts between individuals and groups that different in transportation ability and need, and therefore the degree to which the transportation system meets the needs of travelers with special constraints."
Measuring the impact of efficient household travel decisions on potential travel time savings and accessibility gains	Reeker et al. (2001)	Equity	"... can be equated to 'fairness' or 'justice'. It implies moral judgment." (not to be confused with "equality" which, "... refers to the distribution of a particular good (income, accessibility, etc.), irrespective of moral judgment. A situation can be equitable, yet unequal."
		Social Exclusion	"... the fact that some people or population groups are excluded from a certain minimum level of participation in location based activities, in which they wish to participate."
Evaluating the environmental justice impacts of transportation improvement projects in the US	Chakraborty (2006)	Personal Accessibility Environmental Justice (in terms of transportation)	"... potential ability of individuals within a household not only to reach activity opportunities but to do so with sufficient time available for participation in those activities, subject to the spatial-temporal constraints imposed by their daily obligations and transportation supply environment." "Equal distribution of goods, in terms of transportation: accessibility, travel opportunity, and safety."

According to Yago, “consumers rationally choose a form of transportation [based] to their social and spatial position within the urban market.” However, “individual choice [is] the product of market forces [and] the institutions and processes that constrain such choice.”¹⁰ In the United States, low-income individuals are much more likely to utilize public transit than commute by private vehicle. However, public transportation ridership is highly stratified; the U.S. Census reveals a modal split by income nationwide. In 2003, Sanchez, Stolz, & Ma found that households earning less than \$20,000 tend to use buses rather than subways and commuter rail, while the reverse is true for households earning more than \$100,000.¹¹

Low-wage workers tend to have longer commutes, regardless of transit mode; an analysis by the Pratt Center for Community Development revealed that two-thirds of New York’s “extreme commuters” earn less than \$35,000.¹² This phenomenon was documented in the 1970s by Greytak and Feldman, who found that “work trip length varies with an individual’s position in the social structure...regardless of residential location.”¹³ The researchers noted both economic and racial disparities in travel time, which persist today. Pratt Center found substantial differences in commuting time between black and Hispanic residents and their white counterparts. The effect (up to 25%), appears to be statistically significant.

Transit equity studies typically focus on subsidized bus and rail links, with little attention to ferries. The omission stems partly from the fact that ferries serve limited markets in coastal areas. However, the availability of waterborne transport, even in cities like New York, may not equalize access to job centers. The remoteness of ferry landings, coupled with premium fares makes ferry service unattractive or irrelevant for low-income commuters. Yet, as a type

¹⁰ Glenn Yago, “The Sociology of Transportation,” *Annual Review of Sociology*, 9 (1983): 176.

¹¹ Sanchez, Stolz, & Ma, 15.

¹² Defined as those who travel more than one hour to work each way; “Transportation Equity Atlas.” Pratt Center for Community Development, 2010.

¹³ Yago, 184.

of public transportation, ferries offer a distinct advantage over cars. According to Kamen & Barry, “a ferry can be legitimately argued as being more equitable than the automobile, provided there is reasonably effective public transport access to the ferry terminal.”¹⁴ Ferries can also boost accessibility for the disabled; in fact, the “inclusion of user groups not served well by other transit modes...is one of the more valid arguments” for ferry service and expansion.¹⁵ In contrast to MTA subways, modern ferryboats are fully ADA-compliant, and designed to accommodate both wheelchairs and bicycles. They also provide better Brooklyn/Manhattan connections and faster service than express buses.

Transit Funding

The relationship between mobility and affordability in urban areas is a pressing concern for policymakers. In New York City, the burdens of inefficient and high-cost transit fall disproportionately on the working poor and are exacerbated by the growing wage gap and funding deficiencies in public transportation. Sanchez, Stolz, & Ma argue that “policies that restrict allocation of public funds to public transit contribute to increasing household transportation expenses, particularly for low-income families.”¹⁶ Federal subsidies thus promote transportation equity by redirecting highway taxes to mass transit. In return, public transit generates positive externalities such as “[increased] property values, congestion relief, environmental quality and economic development [that should] be reflected in its financing and management.”¹⁷ These indirect benefits, which accrue to the public at-large, provide broad justification for transit subsidies.

¹⁴ Paul Kamen and Christopher D. Barry, “Urban Passenger-Only Ferry Systems: Issues, Opportunities and Technologies,” in *Sustainability in the Maritime Industry, A Collection of Papers*, ed. Rich Delpizzo (New York: SNAME, 2011): 5.

¹⁵ Kamen & Barry, 11.

¹⁶ Sanchez, Stolz, & Ma, 12.

¹⁷ Louise Nelson Dyble, “Reconstructing Transportation: Linking Tolls and Transit for Place-Based Mobility,” *Technology and Culture*, 50 no. 3 (2009): 636.

Economic rationales for subsidizing public transportation are much more concrete. There are three traditional arguments in defense of public funding: the Mohring Effect, the “second-best” argument, and distribution equity. The Mohring Effect, advanced in 1972, demonstrates that “users waiting or access costs decline as service frequency or route density is increased.”¹⁸ Transit subsidies tend to increase ridership, and thus perpetuate the Mohring Effect (e.g. greater ridership leads to higher frequencies). By enabling economies of scale, transit subsidies maximize revenues and reliability for public transportation.

The second-best argument posits that transit subsidies mitigate the impacts of automobile use by diverting drivers to public transit. The implicit assumption is that social costs cannot be addressed through efficient road pricing. The second-best argument also ignores the negative externalities of public transit, such as congestion and overcrowding, that can reverse this effect.¹⁹ Finally, distribution equity implies that services patronized by low-income commuters should receive higher subsidies than those used by wealthier riders.²⁰ Distribution equity dictates that public funding should flow to bus rapid transit, rather than ferry transport. However, utilization does not necessarily merit subsidization. In the 1980s, studies found that with federal assistance, “urban areas...initiated or maintained highly unprofitable...services that local officials would not have supported [otherwise].”²¹ When offered *carte blanche*, subsidies contribute to wasteful spending and inefficient operations. To curb this phenomenon, federal transit monies should be tied to performance targets such as farebox recovery ratios, for a merit-based system of public funding.

¹⁸ Ian W. H. Parry and Kenneth A. Small, “Should Urban Transit Subsidies be Reduced?” *The American Economic Review*, 99 No. 3 (2009): 700.

¹⁹ *Ibid.*

²⁰ Parry & Small, 722.

²¹ John Pucher, Anders Markstedt, and Ira Hirschman, “Impacts of Subsidies on the Cost of Urban Public Transit,” *Journal of Transport Economics and Policy*, 17 No. 2 (1983): 157.

Ferry Subsidies

Where ferries are municipally operated or treated as public goods (e.g. Sweden), subsidies are often viewed as necessary and beneficial. This is especially true when ferries are the primary travel mode and convey a large proportion of commuters who lack access to other transport. According to Roueche, “ferry subsidies are generally justified on the grounds that they provide people in isolated regions...mobility and access to services and opportunities...and encourage industry and employment in regions with geographical disadvantages.”²² In far-flung neighborhoods where ferries achieve substantial time savings, subsidies compensate for inefficient transit to the CBD. However, determining the optimal subsidy for ferry service is difficult, because ferry networks operate unlike municipal transit systems. Ferries tend to spring up in response to need; as a result, they are more flexible and scalable than fixed links. They also boast lower marginal costs; as explained by Kamen & Barry, “buses and trains have to attract that last passenger, who comes at a high price, but ferries on new routes can go after their first customers” [who] come relatively cheap.”²³

It is important to distinguish between ferry routes and ferry systems; Washington State Ferries, a municipal agency operates a unified network of subsidized routes; by contrast, New York City’s trans-Hudson service is a constellation of disparate routes that only constitute a system insofar as they are owned by one private operator. Ferry subsidies should be structured to accommodate both configurations. However, as Rouche attests, “no formula can deal with the evolution of individual ferry routes from a developmental stage to a fully developed, commercially viable stage...the level of subsidy must be determined individually for each route, and the level of assistance must be re-evaluated periodically.”²⁴

²² Leonard Roueche “Government Subsidization of Ferry Transport,” *Journal of Transport Economics and Policy*, 15 No. 3 (1981): 233.

²³ Kamen & Barry, 13.

²⁴ Roueche, 241.

While private ferry transport is typically self-sustaining, operators are highly sensitive to economic conditions. Public subsidies can stabilize the farebox and incentivize expansion by mitigating financial risk. However, most ferry studies advocate high fares and low subsidies; Kamen & Barry argue that “well-targeted” service should not require support – in a true ferry market, users who derive great benefits also exhibit a high willingness to pay.²⁵ Since ferries provide niche transportation, per-rider subsidies are generally high and difficult to justify. According to PANYNJ, “relatively inelastic demand overall suggests that the impacts of fare subsidies may have somewhat limited effects on ridership, at least for the existing routes in the region.”²⁶

As vehicles of economic development, ferries bely the notion of public funding, though they compete for it with other forms of transit. However, there are valid arguments for subsidizing private services, such as transit redundancy. PANYNJ concedes that “given the costs involved in increasing capacity on the cross-Hudson rail system, consideration of operating subsidies as overall demand increases makes sense on efficiency grounds.”²⁷ Van Reeven argues that for “low-frequency public transportation systems, private operation needs to be complemented by subsidization of those services that are socially desirable but not provided by the operator.”²⁸ Water mass transit thus provides a public benefit, which may merit government intervention. However, like all public transportation, a ferry system must serve a broader public interest, including taxpayers who do not utilize water mass transit. The burden of proof lies with ferry operators and municipalities that promote ferry transport. These issues are explored throughout this thesis, which begins by tracing the development of ferry service in New York City from the era of steam power to the 21st century.

²⁵ Kamen & Barry, 11.

²⁶ Vilain, Cox, & Mantero, 185.

²⁷ Vilain, Cox, & Mantero, 191.

²⁸ Peran van Reeven, “Subsidization of Urban Public Transport and the Mohring Effect,” *Journal of Transport Economics and Policy*, 42 No. 2 (2008): 358.

CHAPTER II – FERRY SERVICE IN NEW YORK CITY

History: Decline and Revival

A. Ferry Service to 1960s

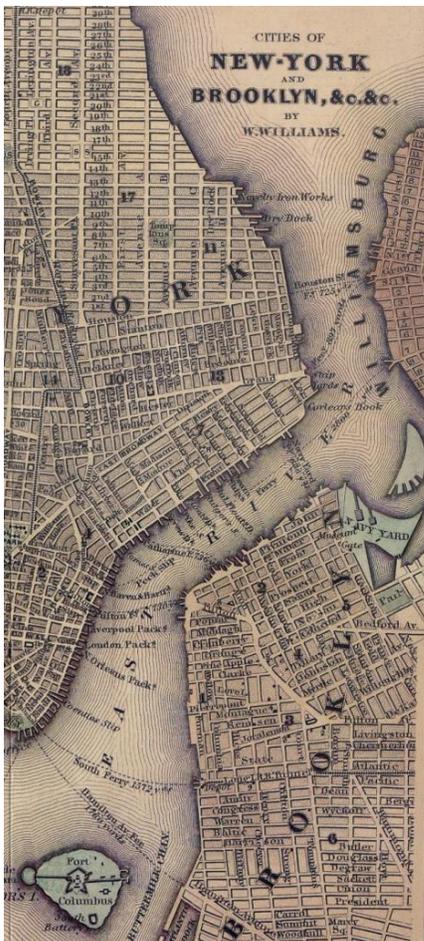
Ferry transport in New York has been intertwined with the city's development for nearly four hundred years. However, New York's modern ferry system including trans-Hudson and East River service, originates with Robert Fulton, who established the first steam-powered ferry routes in New York Harbor: Paulus Hook to Cortlandt Street via the *Jersey* (1812) and Ferry Street to Beekman Slip via the *Nassau* (1814). A third route, which ran from Hoboken to Vesey Street was opened at the same time by Colonel John Stevens.²⁹ These initial services helped define future routes and landings in New York Harbor and are now owned and operated by New York Waterway and the Billybey Ferry Co. By the mid-19th century, three clusters of routes emerged in the system, which are clearly distinguished today: trans-Hudson ferries, East River ferries and Staten Island ferries, all connected to Lower Manhattan. They remained in private hands until the 1900s, when the City of New York became a ferry operator in its own right.

Prior to 1860, trans-Hudson crossings were operated by small ferry companies in New Jersey. Eventually, the routes were purchased by railroads, who also absorbed the ferry companies and built depots in Weehawken, Hoboken and New Jersey to integrate water-mass transit with passenger rail service. The terminals and their dedicated routes were owned by five railroad companies: The Jersey Central, the Pennsylvania, the Erie, the Delaware, Lackawanna and Western, and the New York Central until the 1960s.³⁰

²⁹ Brian J. Cudahy, *Over & Back: The History of Ferryboats in New York Harbor* (New York: Fordham University Press, 1990), 35.

³⁰ Cudahy, 311.

The Staten Island Ferry was launched as the Richmond Turnpike Ferry by future railroad magnate Cornelius Vanderbilt in 1817, when Robert Fulton held a monopoly on steam-powered navigation in New York State.³¹ The route operated from Whitehall Street and is in fact the earliest precursor to the current DOT-owned service. Additional routes to Lower Manhattan were serviced by two competitors, who were also based on Staten Island's east shore. However, in 1853 the operators consolidated services and established Whitehall Street as the landing for all Manhattan routes.³²



Traditionally, the most heavily trafficked ferry corridors in New York City were located along the East River, primarily between Williamsburg and Lower Manhattan. This was the case even before steam power, during the Colonial Era. Population growth in neighborhoods on the upper East River drove the ferry system's and Brooklyn's rapid expansion from the 1820s to the 1860s. The sheer number and density of crossings between Brooklyn and Manhattan depicted in the 1847 map at left and have not been matched at any time since the 19th century.³³

Credit: NYPL Map Division

³¹ See *Gibbons v. Ogden* (1824).

³² Cudahy, 68.

³³ A closer look reveals a former route between Grand Street in Williamsburg and Grand Street on the Lower East Side, which may be the reason for the common naming.

By 1860 most ferry routes on the East River were controlled by one private operator: the Union Ferry Company, organized in 1839. In 1853, the Union Ferry Company bought out independent operators in South Brooklyn and became the largest ferry company in the world, with seven routes to Lower Manhattan.³⁴ The other east-of-Hudson operator was the Long Island Rail Road, which organized the East River Ferry Co. in 1859. Through this company, the LIRR established service at its terminal in Hunters Point with two principal routes to Manhattan, via East 34th Street and South Street Seaport.³⁵ These connections were revived in the nineties and formalized in the East River Ferry loop in 2011.

The decline of New York's ferry system is often traced to the Brooklyn Bridge, which opened in 1883, followed by the Williamsburg Bridge (1903) and the Manhattan Bridge (1910). By the late 19th century, the East River was choked with vessel traffic. As a solution, the bridges were built at the most congested junctures in the river with long spans that terminated several miles inland. Over time, the bridges helped establish central business districts in Downtown Brooklyn, shifting commerce away from the waterfront. In fact, the Williamsburg Bridge catalyzed the failure of four Williamsburg ferries, their terminal, and operator in 1908.³⁶ In the 20th century, operators faced additional competition from subways and later, the trans-Hudson tunnels. The demise of New York City's streetcar system in the 1930s severed crucial land links for ferries; bus companies, which purchased the routes but concentrated service inland, did not provide the same degree of transit connectivity.

³⁴ Bridge St – Gouverneur St, Bridge St – Roosevelt St, Main St – Catharine St, Fulton St – Fulton St, Montague St – Wall St, Atlantic Ave – Whitehall St, and Hamilton Ave – Whitehall St.

³⁵ Cudahy, 79.

³⁶ Cudahy, 173. This was the first operator to go out of business.

In 1904, there were a record 147 ferryboats in New York, operated entirely by railroads and related transportation companies. By 1975, there were only 9, all run by the City of New York.³⁷ The shift began in 1903, when New York City won the right to acquire and operate ferry services and by extension, ferryboats and terminals. Starting with the Staten Island Ferry in 1905, the City initiated a progressive takeover of the ferry system, as legacy companies curtailed operations after World War I.³⁸ The City's efforts were focused primarily on the East River with major acquisitions under Mayor John Hylan, who led the growth of the municipal ferry system from 1918 to 1925.³⁹ Between 1906 and 1954, New York operated a dozen East River routes; however, they proved short-lived and the City abandoned Manhattan service in 1942.⁴⁰ In 1964, the City opened the Verazzano Narrows Bridge and discontinued a decade-long service between St. George and Bay Ridge-69th Street. New York's 150-year old citywide ferry system effectively ended in the 1960s.⁴¹

The construction of the Holland (1927) and Lincoln (1941) Tunnels sharply reduced trans-Hudson ferry ridership.⁴² While New Jersey railroad companies controlled Hudson River crossings through WWII, at the end of the decade the railroads began divesting ferry assets to stem growing losses. In the next twenty years, the companies phased out or abandoned their routes until trans-Hudson service went dark in 1967. The last operational service was the Erie Lackawanna ferry, which was acquired by the Port Authority of New York and New Jersey in 1962.⁴³ Apart from temporary crossings, ferries were largely absent from New York City waterways until real estate development revived the trans-Hudson system in the 1980s.

³⁷ Cudahy, 349.

³⁸ Cudahy, 166.

³⁹ Cudahy, 222.

⁴⁰ Cudahy, 353.

⁴¹ The Staten Island Ferry operated continuously during the 20th century.

⁴² Regional Plan Association, *Ferries in the Region: Challenges and Opportunities*. (New York, 2006), 3.

⁴³ Cudahy, 312.

Figure 3. New York Ferryboat Operators, 1866-1975. Source: Cudahy.

Year	1866	1904	1919	1936	1945	1955	1975
No. boats	70	147	100	117	88	57	9
Railroads or railroad related	30%	39%	48%	47%	49%	47%	-
Independent companies	70%	61%	42%	17%	21%	10%	-
City of New York	-	-	10%	36%	30%	43%	100%

Figure 4. The Municipal Ferry System, 1905-1964. Source: Cudahy.

Route	Municipal Service Began	Service Abandoned
Whitehall St – St. George	1905	-
Whitehall St – 39 St/Brooklyn	1906	1938
Whitehall St – Stapleton	1909	1913
Roosevelt St – Broadway/Brooklyn ⁴⁴	1911	1918
E 23 St – Broadway/Brooklyn	1911	1918
E 92 St – Astoria	1920	1936
College Point – Clason’s Point	1921	1939
E 23 St – Greenpoint	1921	1933
Grand St – Broadway/Brooklyn	1921	1931
Whitehall St – Hamilton Ave	1922	1942
Whitehall St – Atlantic Ave	1922	1933
Fulton St – Fulton St	1922	1924
Flatbush Ave – Beach 169 St	1925	1937
69 St/Brooklyn – St. George	1954	1964

⁴⁴ Roosevelt Street no longer exists on Staten Island.

B. 1980s System Revival

New York City's ferry revival began in 1986 with new, privately-owned trans-Hudson service between Weehawken and West 38th Street. The operator, Apcorp (now New York Waterway) was founded by Arthur Imperatore, who controlled waterfront property on both sides of the Hudson. Imperatore planned to redevelop the Weehawken waterfront for residential and commercial use, geared toward Manhattan commuters. Recognizing ferry service as essential to new development, Apcorp built a new Weehawken terminal with improved roadside access and transit connectivity via shuttle at both Port Imperial and Pier 79. Apcorp then revived the Weehawken route to Lower Manhattan, using an underutilized terminal at Whitehall Street.⁴⁵ Apcorp's investments also helped revitalize service on the lower Hudson, where New York Waterway and Billybey now operate Manhattan routes spanning Weehawken to Paulus Hook.

In 1988, the Port Authority, which owned property on the Hoboken waterfront, issued an RFP for ferry transportation services to Lower Manhattan. By the 1980s, the World Trade Center and World Financial Center buildings had begun to reach full occupancy. The increased number of workers strained service on the PATH, then the sole commuter service from New Jersey to Lower Manhattan. The following year, Apcorp was awarded the contract to operate the route and extended its reach to Hoboken. As part of the contract, the Port Authority made limited infrastructure investments in Hoboken and Battery Park City to accommodate the new service. This was the second time Apcorp successfully persuaded a transit agency to support its routes: New Jersey Transit provided vital bus service at

⁴⁵ Cudahy, 318.

Weehawken in the 1980s.⁴⁶ These public-private arrangements remain in effect, as part of trans-Hudson ferry operations.

Apcorp's operations sparked a ferry boom in New York; dozens of new routes sprang up on the Hudson, anchored at Pier 11 and the World Financial Center. The initial revival period (1987-1990) was perhaps the most prolific since the 1920s, with 27 new crossings established in New York City. In the nineties, Imperatore began making inroads into the East River ferry market; in 1994, New York Waterway opened service from Hunters Point to East 34th Street, linking Queens to the east-of-Hudson ferry network, which comprised multiple Pier 11/East 34th Street routes.⁴⁷ The service was maintained continuously through December 2005 and peaked with 236 daily passengers that summer.⁴⁸

Ferry ridership in New York grew steadily in the late eighties, reaching a daily average of 10,000 customers on all trans-Hudson and east-of Hudson routes in 1990.⁴⁹ By 1996, combined peak daily ridership breached 20,000, which the system sustained year-round in the late nineties.⁵⁰ A complete list of routes established 1986-2006, compiled by the Regional Plan Association appears in figure 5 below. The new trans-Hudson routes achieved two short-term goals: they filled gaps in municipal transit service and boosted the value of Imperatore's Weehawken properties. In a broader sense, they marked the resurgence of private operators in the New York region and tied ferry service to waterfront development, a model that would later prove successful on the East River.

⁴⁶ Regional Plan Association, 4.

⁴⁷ Early East river routes include Brooklyn Army Terminal/East 69th St – Pier 11, Glen Cove – Pier 11, and several LGA services (1987-2000). Other were begun and terminated in the eighties.

⁴⁸ Regional Plan Association, 6.

⁴⁹ The New York Times reported peak daily ridership of 16,000 in July 1992 and 20,000 on New York Waterway routes in 1994.

⁵⁰ DOT figures, 1986-1999; All Services ridership numbers.

Figure 5. 2006 status of New York/New Jersey ferries established since 1986.

A. Opened Before 9/11 and Still in Operation - 15 Routes				Highest Month		July 2006 Weekday Average
Service	Opening Date	Open Now or Close Date	Continuous?	Month	Daily Riders	
Weehawken - W. 38	Dec. 1986	Yes	Yes	Oct. 2001	13,164	6,506
Port Liberte - Pier 11 / Slip 5	Aug. 1987	Yes	No	Sept. 2003	917	569
Highlands - Pier 11	Jan. 1987	Yes	Yes	June, 2002	1,901	1,449
Bkln Army Term./ 69th St. - Pier 11	Feb. 1988	Yes	No	Sept. 2002	2,015	247
Liberty Harbor - Pier 11	May, 1988	Yes	No	Sept. 2003	1,878	917
Lincoln Harbor - W. 38	Oct. 1988	Yes	Yes	July, 2006	3,080	3,080
Hoboken - WFC	Oct. 1989	Yes	No	June, 2001	10,921	4,018
Atlantic Highlands - Pier 11	June, 1990	Yes	Yes	July, 2004	1,043	908
Colgate - WFC	June, 1994	Yes	Yes	Oct. 2001	4,620	2,469
Highlands - E. 34	Oct. 1994	Yes	No	June, 2002	1024	780
Liberty Landing - WFC	March, 1999	Yes	Yes	July, 2003	948	690
Atlantic Highlands - E. 34	Jan. 1999	Yes	Yes	July, 2004	561	488
Weehawken - Pier 11	Jan. 2000	Yes	Yes	Oct. 2001	2,029	1,243
Haverstraw - Ossining	Sept. 2000	Yes	Yes	June, 2006	524	512
Hoboken No. - W. 38	April, 2001	Yes	Yes	Sept. 2003	2,235	2,016
B. Opened Before 9/11 and Closed Since 9/11 - Four Routes						
Keyport - Pier 11	Feb. 1987	Nov. 2002	Yes	Feb, 2002	629	0
Glen Cove - Pier 11	March, 1989	Oct. 2002	No	July, 2001	353	0
Hunters Pt. - E. 34	Oct. 1994	Dec. 2005	No	Aug. 2005	236	0
Harborside - Battery (Pier A)	June, 1998	Nov. 2003	Yes	Sept. 2003	3769	0
C. Opened Before 9/11 and Closed Before 9/11 - 27 Routes						
Rockaway - Pier 11	March, 1987	Oct. 1989	Yes	Aug. 1988	321	0
Elizabeth - Pier 11	April, 1987	April, 1988	Yes	Aug. 1987	71	0
Fulton Landing - Pier 11	May, 1987	Sept. 1989	Yes	Sept. 1987	199	0
Bayonne - Pier 11	June, 1987	May, 1998	No	Nov. 1987	387	0
Keansburg - Pier 11	July, 1987	Sept. 1987	Yes	Aug. 1987	115	0
LaGuardia - Pier 11	Aug. 1987	Dec. 2000	Yes	June, 1988	165	0
Weehawken - Battery (Slip 6)	Sept. 1987	Nov. 1999	Yes	Sept. 1998	90	0
Pavonia - Pier 11	Dec. 1987	Oct. 1988	Yes	Dec. 1987	59	0
Williamsburg - Pier 11	June, 1988	June, 1988	Yes	June, 1988	9	0
Sheepshead Bay - Pier 11	June, 1988	Oct. 1988	Yes	June, 1988	15	0
Lincoln Harbor - Battery	July, 1988	Dec. 1997	Yes	Oct. 1988	681	0
LaGuardia - E. 34	July, 1988	Dec. 2000	Yes	Sept. 1988	101	0
Port Liberte - E. 34	March, 1989	Oct. 1989	Yes	June, 1989	24	0
Manhattan Shuttle - 4 stops	March, 1989	Oct. 1989	Yes	May, 1989	74	0
Glen Cove - E. 34	April, 1989	May, 1989	Yes	May, 1989	3	0
Inwood, LI - Pier 11	April, 1990	Aug. 1990	Yes	July, 1990	195	0
Inwood, LI - E. 34	April, 1990	Aug. 1990	Yes	Aug. 1990	49	0
Lincoln Harbor - Pier 84	Jan. 1991	March, 1991	Yes	March, 1991	41	0
LaGuardia - WFC	Oct. 1992	Dec. 1992	Yes	Nov. 1992	17	0
South Street Seaport - WFC	May, 1996	Sept. 1996	Yes	Aug. 1996	159	0
Mariner's Harbor - Pier 11	May, 1996	May, 1998	Yes	May, 1996	54	0
Manhattan Shuttle II - 3 stops	Sept. 1996	Oct. 1996	Yes	Sept. 1996	584	0
St. George - E. 34	Jan. 1997	Aug. 1998	Yes	March, 1997	1,605	0
Liberty State Park - WFC	Oct. 1997	Dec. 1999	Yes	July, 1998	1,017	0
LaGuardia - 62nd St.	May, 1998	Nov. 2000	Yes	June, 1998	62	0
LaGuardia - 90th St.	May, 1998	Dec. 1999	Yes	June, 1998	5	0
Pavonia - WFC	Aug. 1998	Dec. 1999	Yes	July, 1999	303	0
Riders on These Routes =						25,892

Source: Regional Plan Association.

C. Emergency Management

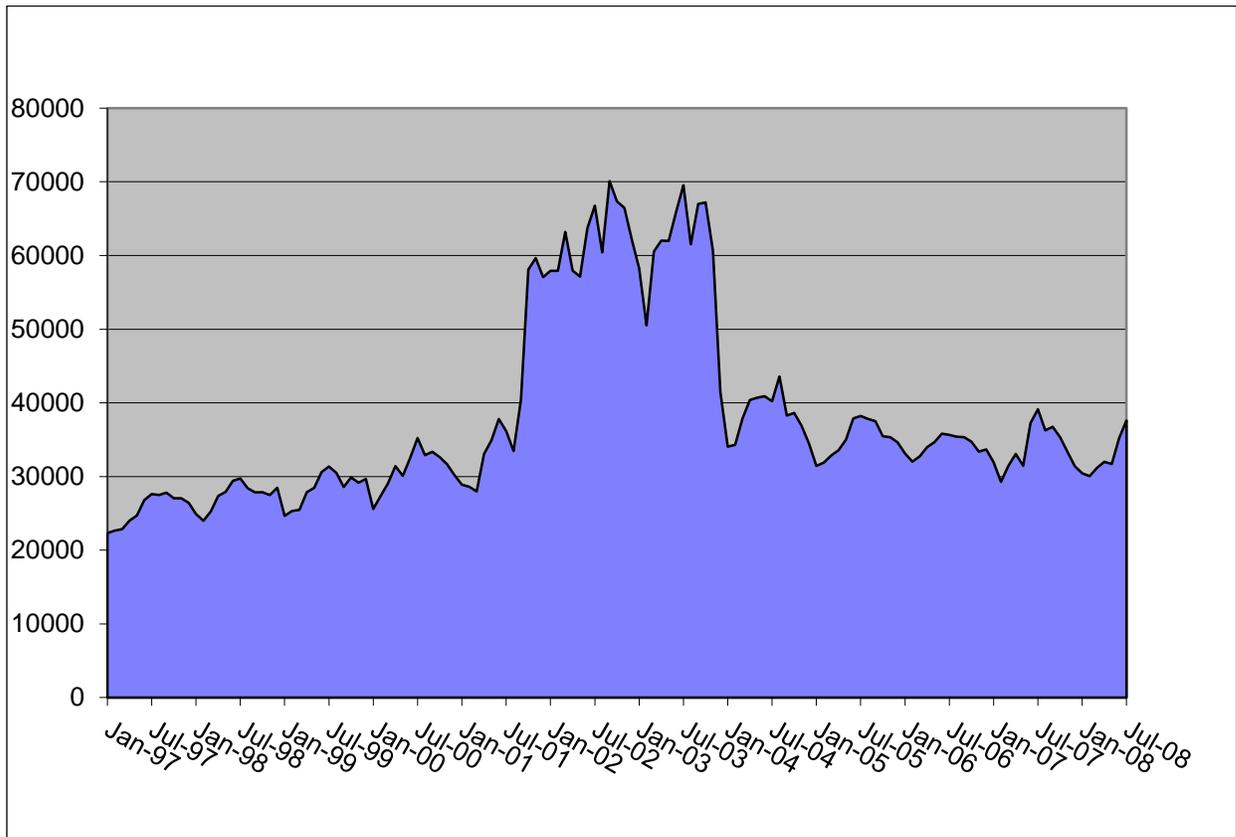
In the last fifteen years, New York City has been struck by several man-made and natural disasters necessitating waterborne response and recovery. This discussion will focus primarily on the effects of September 11, 2001 and Superstorm Sandy on New York City's ferry system. On September 11, all land-based connections to Lower Manhattan, including subways, bridges and tunnels were temporarily shut down after the attacks. The Coast Guard radiodded boats in New York Harbor, mobilizing passenger and freight vessels into the largest maritime evacuation in American history. The so-called "9/11 Boatlift" was in made possible by strong relationships in the maritime community, and operators' deep knowledge of each other's fleets.⁵¹ A subsequent analysis by the Wagner School of Public Service found that 17% of evacuees used ferries as a means of transport from Lower Manhattan that day.⁵² Unlike other modes, however, ferries' role in 9/11 recovery continued years after the initial response period. As indicated in the chart below, 9/11 had a pronounced effect on ferry service in New York City. Over a dozen trans-Hudson lines, largely operated by New York Waterway sprang up to address service gaps resulting from damage to PATH and NYCT subways. With federal funding for emergency management, New York Waterway also provided service between Lower Manhattan and Sunset Park, which was discontinued in 2003. Overall, system ridership maintained record daily averages of 60,000 – 70,000 passengers for nearly two and a half years, returning to pre-9/11 levels in 2004, following the restoration of PATH service.⁵³ The last major spike in ridership occurred in August 2003, when ferry operators reprised their 9/11 evacuation role in the Northeast Blackout.

⁵¹ James Kendra, Director, University of Delaware Disaster Research Center at the 2013 Metropolitan Waterfront Alliance Conference ferry panel.

⁵² Metropolitan Waterfront Alliance, *Maximizing Ferries in New York City's Emergency Management Planning*. (New York, 2013), 9.

⁵³ Applesseed, Inc., *Comprehensive Citywide Ferry Study*, (New York: 2011), 157.

Figure 6. Average Weekday Ferry Ridership, 1997-2008. Credit: NYC DOT.⁵⁴



The events of 9/11, and the 2003 blackout followed by transit strikes, subway floods and the 2009 “Miracle on the Hudson” established ferryboats as auxiliary rescue and recovery assets in New York City. Since 2003, New York’s ferry system has played an increasingly central role in the municipal emergency management framework.⁵⁵ This means that when unexpected disruptions affect the regional transportation network, the city relies on ferry operators to carry out certain response and redundancy functions. These actions include:

- Mobilizing fleets/redeploying vessels to affected sites, which may require adding boats and tapping fuel supplies to provide both commuter and emergency service.

⁵⁴ Numbers do not include Staten Island Ferry ridership.

⁵⁵ In the 2003 Taskforce Report to the Mayor, the 2005 Transit Contingency Plan, and other documents.

- Providing coordinated rescue/relief services in New York’s waterways and waterfront zones, which often means incurring the upfront costs of disaster assistance.⁵⁶
- Partnering with NYC DOT and NYCEDC to establish new routes and landings and address service gaps throughout New York Harbor.
- Operating free short-term routes and providing steeply subsidized continuous service during multi-year infrastructure repair projects.

In the 2000s, private operators’ ability to provide emergency services was constrained by capacity. New York’s ferry revival occurred largely on the Hudson River while much of Lower Manhattan and the East River remained poorly equipped for maritime use. Since 9/11, the maritime community has advocated increased access, including landings, tie-up sites, and berthing space throughout the city. Organizations like the Metropolitan Waterfront Alliance and the Rudin Center for Transportation Policy & Management have consistently linked disaster response and ferry system expansion.⁵⁷ These calls intensified after Superstorm Sandy, which dealt extensive damage to public transit and infrastructure. New York City ferries quickly resumed operations and helped bridge long-term gaps in subway service, from immediate outages in Lower Manhattan to prolonged repairs in the R and G train tunnels. Unlike 9/11, when ferry service was limited to trans-Hudson routes, Sandy led to mobilization on the East River. Within days, new routes and landings were improvised in Queens and Staten Island through effective collaboration between DOT, NYCEDC and private operators. The 2012 response was remarkable for its scale and efficiency, which was made possible by the East River Ferry. Superstorm Sandy thus confirmed for New York what the Port Authority learned on the Hudson in 2001: that ferry expansion is a worthwhile investment in disaster resiliency.

⁵⁶ Typically reimbursed by the city with federal funding.

⁵⁷ Metropolitan Waterfront Alliance, 11.

D. Present-Day Context

The New York City ferry system is segmented into three markets: the trans-Hudson crossings, the East River routes, and the Staten Island Ferry. These divisions arose in the 19th century due to different modes of operation and ownership. Today all ferry service east and west-of-Hudson, with the exception of the Staten Island Ferry is provided by private operators, including the East River Ferry. Recreational service is concentrated largely in New York Harbor, where all commuter routes intersect. The following section will compare and contrast the Hudson and East River markets, as they are currently structured to provide commuter ferry service. The Staten Island Ferry is discussed in footnotes below.⁵⁸

The Hudson River Market

Much like the PATH and New Jersey Transit, Hudson River ferries are designed to serve Manhattan commuters in northern New Jersey. Accordingly, the trans-Hudson market is defined by point-to-point, premium service to Lower Manhattan and the west side. Trans-Hudson operators follow a formula for optimal revenues: premium fares (\$7-10 one way) and short-distance routes (under 4 miles or ~12 minutes), with the former sustained by the latter.⁵⁹ Long-distance commuter service is offered at higher rates to offset greater operating costs. The routes are operated by New York Waterway and Billybey Ferry Co., which are actually one company. [This relationship is explained in the following section on ferry operators.] The New York Waterway/Billybey model concentrates service in the trans-

⁵⁸ The Staten Island ferry is the sole municipal ferry service in New York City. It has been owned and operated continuously by the Department of Transportation and its predecessors since 1905. It is the single largest route in North America, with the annual ridership of Washington State Ferries. The Staten Island Ferry has been free since 1997 (under Mayor Giuliani's "One City, One Fare" plan). Since Staten Island is a major park-and-sail market, DOT makes money by charging commuters for parking. After 9/11, the agency banned vehicles on the Ferry and there are no automobile ferries in the New York region. The DOT fleet boasts five classes of boats, which carry thousands of daily passengers.

⁵⁹ Patrick McCandless, *Understanding the Challenges of Regional Ferry Service in NYC*. (New York, 2010), 64.

Hudson market, where it holds a virtual monopoly on ridership. In addition to its Hudson County routes, New York Waterway operates Manhattan service to Monmouth County, and two upper Hudson crossings with connections to Metro-North, i.e. feeder service (see Figure 7 below). These northern routes are offered at lower fares than trans-Hudson service, but do not operate outside peak hours. The New Jersey terminals are owned by New York Waterway and Billybey Ferry, except for the historic Erie Lackawanna New Jersey Transit terminal in Hoboken, which they serve under contract with the Port Authority. The Port Authority also owns the World Financial Center ferry terminal/barge in Battery Park City.

Trans-Hudson schedules are structured differently, based on route demand and ridership. For example, the Hoboken/14th St – Midtown/West 39th St service operates on one schedule in both directions, with peak headways of 20 minutes. Since the trip takes about 8 minutes, this service is continuous throughout the day i.e. the same boat makes pick ups and drop offs at both landings. This ferry also terminates later than others to accommodate evening demand in Manhattan and Hoboken. By contrast, the Edgewater Ferry Landing – Midtown/West 38th St service operates at rush hour only, with 30-minute headways. This schedule is typical of New York Waterway/Billybey routes that only serve commuters and weekday riders. Fares vary with trip duration, ranging from \$7 - \$11 one way for Hudson County. The longest and most expensive route is Belford/Harbor Way – Pier 11/Wall St (40-55 minutes, \$21.50 one-way).⁶⁰

⁶⁰ New York Waterway, *Fares, Routes, & Schedules*.
www.nywaterway.com/ferryrouteschedules.aspx.

The East River Market

The current East River market is dominated by the East River Ferry. In contrast to trans-Hudson service, the East River Ferry operates in a loop, from Pier 11 to East 34th Street, and primarily serves North Brooklyn, with 3 stops.⁶¹ The service is operated by Billybey for the New York City Economic Development Corporation, and carries over 3,000 daily riders.⁶² The East River Ferry was piloted in June 2011 for a period of three years, with an operating subsidy of \$9 million. After ridership surpassed initial projections, the service was extended through 2019. While East River ridership continues to grow, it varies widely across the corridor. The most popular stop is Fulton Ferry at the head of Brooklyn Bridge Park, the biggest demand generator on the Brooklyn waterfront. The Hunters Point stop at the other end of the loop draws the fewest customers, likely due to its remoteness and weak transit connectivity.⁶³ In the last three years, two important sub-routes have emerged within the East River Ferry loop: Fulton Ferry – Pier 11 and, more generally, DUMBO and Williamsburg.⁶⁴ The ERF thus provides both loop corridor and point-to-point service simulatenously One-way fares were set at \$4 in 2011, and are currently \$4.50 weekdays and \$6 on weekends.

The maps in Figure 7 reflect changes to East River service between 2008 and 2011. Seasonal service to Yankee and Shea stadiums is now provided only by Seastreak and New York Water Taxi service from Hunters Point and Fulton Ferry has been replaced by the East River Ferry. However, a number of changes have taken place since 2011, due to rising demand and the effects of Superstorm Sandy. A supplemental list of new and temporary services is provided below.

⁶¹ The 2011 Comprehensive Citywide Ferry Study determined that point-to-point service would quickly reach saturation on the East River and recommended a loop corridor structure.

⁶² Port Authority of New York and New Jersey 2014 system ridership figures.

⁶³ However, this may change with the completion of Hunters Point South.

⁶⁴ Hopkins, David. Interview with Inna Guzenfeld. NYCEDC Offices, January 9, 2015.

- *Summer service to Governors Island via Pier 6/Atlantic Avenue (East River Ferry).*

This route was started in June 2011 as part of New York Waterway's Lower Harbor Loop between Governors Island, Brooklyn Bridge Park and Pier 11. The service runs on weekends in addition to the Governors Island ferry at the Battery Maritime Building (operated by Billybey for The Governors Island Trust).

- *Post-Sandy service to Pier 11 from the Rockaways and R-train replacement service to Brooklyn Army Terminal via Rockaway ferry (Seastreak).*

This service started November 2012 and was extended four times before its termination in October 2014. The ferry was heavily subsidized with federal funding to offer \$2 fares to Rockaway residents. In August 2013, Seastreak added service along this route to Brooklyn Army Terminal to alleviate a fourteen-month shutdown of the Montague Tunnel for Sandy-related repairs.

- *Service to Fairway Dock via Pier 11/Wall Street (New York Water Taxi).*

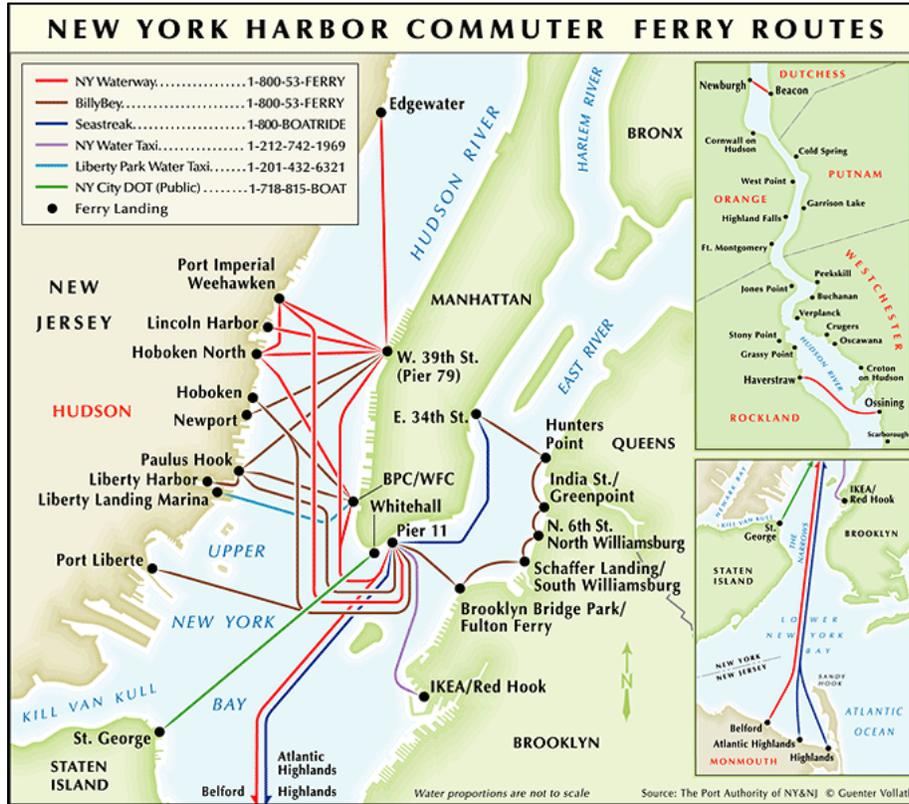
This service was initiated in summer 2013 to revitalize Red Hook's commercial district and boost local businesses after Superstorm Sandy. It was offered for free and promoted in Lower Manhattan. The ferry proved popular and returned in 2014. In December, New York Water Taxi announced permanent, year-round service to Fairway Dock, with 90-minute headways and one-way fares of \$9.⁶⁵

- *Rush hour service from Pier 84 to the World Financial Center (New York Water Taxi).*

This route began in May 2014, with \$8 round-trip fares. It is the only intra-Manhattan commuter service on the west side. The ferry operates between West 44th Street and Brookfield Place in Battery Park City. This service was discontinued in 2015 due to severe winter weather, but may return in the future.

⁶⁵ Noah Hurowitz, "Fairway Ho! Year-Round Ferry Service Comes to Red Hook's Other Big Store," *The Brooklyn Paper*, December 18, 2014.

Figure 7. Commuter Ferry Routes in New York City, 2011 and 2008. Credit: PANYNJ.



Private Operators

Excluding the Staten Island Ferry, New York City's ferry system is jointly provisioned by four private operators: New York Waterway, Billybey Ferry Co., New York Water Taxi, and Seastreak. While these companies cross paths in New York Harbor, they serve different ferry markets in the New York region. Distinguishing the private operators and their niche markets is essential to public discourse about citywide ferry service.

New York Waterway and Billybey Ferry Co.

New York Waterway was established in 1986 as Apcorp Ferries by Arthur Imperatore. In 1987, Apcorp built a terminal in Weekhawken and began service to West 39th Street. New York Waterway was instrumental in reviving trans-Hudson commuter ferries in the 1980s and 90s. After September 11, the company expanded service for two years to accommodate New Jersey customers diverted from PATH. To provide greater capacity, New York Waterway grew both its network and its vessel fleet, compromising its finances. By 2004, the company was insolvent and struggling to maintain its operations. New York Waterway survived after a partial takeover by Billybey Ferry Co. in 2005, brokered by the Port Authority. The deal was controversial because Billybey, with no prior experience in ferry operations, was chosen over New York Water Taxi and Circle Line Harbor Cruises, which had both bid for New York Waterway's routes. Billybey acquired 50% of Imperatore's Hudson operations, and paid off his debts to the Federal Maritime Administration. The Port Authority in turn agreed to restructure its fees and lease terms at Hoboken.⁶⁶ Today, New York Waterway operates as a subsidiary of Billybey Ferry Co., though they are treated as different operators by PANYNJ and the City of New York.

⁶⁶ Patrick McGeehan, "Port Authority Picks Lawyer to Run Ferries on Hudson," *The New York Times*, February 15, 2005.

New York Water Taxi

New York Water Taxi was founded in 2002, as a joint venture between Tom Fox and Douglas Durst. Durst is president of the Durst Corporation, a real estate developer in Manhattan. Tom Fox is a longtime advocate for ferry operators, citywide ferry service and maritime emergency management in New York City. Since its inception, New York Water Taxi has taken an experimental approach to ferry service, jump-starting routes in underserved markets; from May 2008 to June 2010, it ran subsidized rush-hour service from the Rockaways that was terminated due to low ridership.⁶⁷ Today, New York Water Taxi mostly provides recreational service, i.e. premium harbor tours geared toward visitors. Outside this niche, the company operates shuttle service to IKEA (since 2008), and the Fairway Dock in Red Hook. From November 2014 to March 2015, New York Water Taxi also served the East River Ferry route, to allow maintenance on New York Waterway's vessel fleet. New York Water Taxi has in the past, accused NYCEDC and Billybey of undercutting its tourism market with subsidized fares on the East River Ferry.⁶⁸

SeaStreak

SeaStreak began in 1986 as Express Navigation and a competitor to New York Waterway. With a limited share of the trans-Hudson market, SeaStreak provided Manhattan service for Monmouth County and Sunset Park. The company was purchased by an Australian operator in 1994 and sold to a British shipping company in 1999.⁶⁹ In the early 2000s, SeaStreak focused on high-speed service between New York and New Jersey. Today, its market is concentrated outside New York City, with long-distance service and sightseeing cruises. SeaStreak also provides seasonal service to Yankee Stadium and Shea Stadium.

⁶⁷ McCandless, 45.

⁶⁸ New York Water Taxi president Helena Durst at the 2013 Metropolitan Waterfront Alliance conference.

⁶⁹ Thomas J. Lueck, "Big Ferry Operator to Enter New York Market," *The New York Times*, January 30, 1999.

Its commuter service is anchored at Atlantic Highlands in Monmouth County. Overall, SeaStreak is the most expensive ferry in the New York Region, with premium pricing on all routes. However, SeaStreak has been willing to provide free and subsidized service in New York City, as with the post-Sandy Rockaway ferry and a 2013 trial run to Coney Island.

Statue Cruises

The other ferry operator in New York Harbor is Statue Cruises, owned by Hornblower Cruises and Events. Statue Cruises offers Statue of Liberty and Ellis Island tours, via Battery Park and Liberty State Park in Jersey City. Its sole commuter route, Liberty Landing Ferry operates between Liberty Landing Marina, Warren Street and the World Financial Center. This trans-Hudson service runs with 30 minute headways from 6:00 am to 8:30 pm on weekdays, at one-way fares of \$7. In 2014, Statue Cruises accounted for approximately 3% of interstate and total system ridership.⁷⁰

This chapter sought to explicate the history, structure, and ownership of New York's current ferry system which despite profound changes, retains the basic patterns of the 19th century. Though new modes of transit and transportation infrastructure overtook ferries 100 years ago, they largely bypassed the water's edge. With waterfront redevelopment and economic shifts in the eighties, ferries returned to provide efficient connections across the Hudson. The following chapter will show that real estate remains the catalyst for service provision and expansion in New York City. Chapter III explores economic and policy rationales for water mass transit and its costs and benefits to operators, outer-borough communities and the City of New York.

⁷⁰ Port Authority of New York and New Jersey 2014 system ridership figures.

CHAPTER III – THE ECONOMICS OF FERRY SERVICE

Financial Considerations

In its 2006 report, *Ferries in the Region: Challenges and Opportunities*, the Regional Plan Association cites a sobering statistic: “From 1987 to August 2001, a total of 47 ferry services were started up. By the end of this period, only 20 were still in place, carrying 35,700 passengers on an average weekday.”⁷¹ In hindsight, the New York/New Jersey ferry network appears to have stabilized in the months before 9/11; even with the East River Ferry, the most significant system expansion in the last ten years, fewer than two dozen routes are in operation at any time. All ferry service is experimental at the outset so what characteristics determine sustained success? A 2012 Port Authority study of the regional ferry system provides some insight into this question: “The routes that continue operating almost all have critical ridership of at least 500 passengers per day, generally as a result of reliable schedules, a proximate density of potential users, and for some routes, relatively low operating costs due to modest travel distances”⁷²

The key variables are therefore reliability, demand, and cost efficiency. However, ridership supersedes all other factors as a precursor to long-term viability. Whereas Chapter II charts the historical development of trans-Hudson and East River markets, Chapter III elucidates ferry economics and objectives in the New York region. Section one presents a discussion of fares and subsidies, and a summary of recent trends. Section two examines the interaction of ferries and waterfront development with an overview of the East River Ferry. The chapter concludes with borough advocacy highlights and a case study of Sunset Park.

⁷¹ Regional Plan Association, 6.

⁷² Vilain, Cox, & Mantero, 189.

A. Ridership

Ridership is the single most important indicator of success; this is true for all ferry service, whether commuter or recreational, seasonal or year-round. Ferry ridership varies naturally throughout the year; New York Harbor routes hit peak capacity in summer months, and not just due to tourism. In winter months, ridership tapers off and operators see lower revenues. In addition to weather conditions, ridership is affected by market forces and landside factors. User preferences are influenced by service reliability, travel time, fare prices, convenience, and connectivity, among other concerns. Another important distinction is between choice and captive riders. Choice riders have access to reliable transportation, and evaluate ferries against other modes; they tend to have stringent criteria for service, and are less forgiving of delays. Captive riders rely on water-mass transit because they lack efficient commuter options; they are willing to accept fluctuations, and pay premium fares for direct service.⁷³

The Port Authority estimates that New York/New Jersey ferries carry 33,000 daily passengers. Average weekday ridership remains fairly constant year to year. Due to service changes and a harsh winter, the 2014 figure (33,796) was slightly below 2012 (35,353).⁷⁴ However, summer ridership exceeded previous years, largely due to the East River Ferry. In 2014, commuter ridership totaled 8,618,663 (one-way) trips; interstate routes comprised 82% of system ridership (7,093,692).⁷⁵ As indicated in Figure 8 below, New York Waterway and Billybey control 84% of the New York ferry market, which is based primarily on the Hudson; East River ridership constitutes 26% of Billybey's total share. While PANYNJ only collects data for commuter ferries, the agency also tracks weekend trips on those routes, which totaled 1,891,006 passengers in 2014.

⁷³ Though expectations vary between choice and captive riders, service quality should not.

⁷⁴ Port Authority of New York and New Jersey 2014 system ridership figures.

⁷⁵ Seastreak's share includes the now defunct 2012 Rockaway ferry.

Figure 8. New York Harbor Weekday Ridership – 2014.⁷⁶

Source: PANYNJ.

Ferry Operator	Annual Ridership	Share of Total
Billybey Ferry Co.	3,471,585	40%
New York Waterway	3,740,968	44%
SeaStreak	955,587	11%
New York Water Taxi	282,077	3%
Statue Cruises	168,446	2%

Figure 8a. The Five Biggest Routes in the Regional Ferry System. Source: PANYNJ.

Route	Annual Ridership	Share of Total
Weehawken – Pier 79	1,402,070	16%
East River Ferry	911,249	11%
Paulus Hook – WFC	695,428	8%
Hoboken – Pier 11	638,633	7%
Hoboken North – Pier 79	605,393	7%

TOTAL: ~50%

In the trans-Hudson market, the strongest routes are also the most established. New York Waterway’s Weehawken service, which dates back to 1986, is the busiest route in the entire system, after the Staten Island Ferry. Weehawken – Pier 79 accounts for ~50% of New York Waterway’s ridership, and typically exceeds 100,000 monthly weekday trips.⁷⁷ It is the only route with over 1,000,000 annual passengers, a stronger market than the East River Ferry.⁷⁸ Other key services include Hoboken – Pier 11, Hoboken North – Pier 79 and Paulus Hook – WFC. At this point, the trans-Hudson market is fairly static; most viable routes have been explored, though Port Authority demand analysis indicates growth potential in Bayonne, Englewood Cliffs and South Amboy.⁷⁹ However, East River service is much more likely to drive future expansion with waterfront development in Brooklyn/Queens.

⁷⁶ Figures represent aggregate one-way weekday trips.

⁷⁷ Port Authority of New York and New Jersey 2014 system ridership figures.

⁷⁸ This is significant because the Weehawken route provides point-to-point service.

⁷⁹ Vilain, Cox, & Mantero, 189.

B. Fares and Subsidies

Passenger fares are a category of user fees, charged by transit authorities to fund operating costs. While various fare structures are possible, they rarely cover 100% of system expenses, which are ever increasing in metro areas – subsidies are often needed to close the gap. Most public transportation in the U.S. is not self-sustaining; for example, despite its massive ridership, MTA/NYCT recoups only 66.3% of operating costs via fares, behind WMATA/Metro and BART.⁸⁰ A system's farebox recovery ratio, the amount of revenue generated through fares as a proportion of operating expenses, is a measure of profitability; a low ratio (< 0.25) indicates underuse and must be counterbalanced by steep subsidies. Strong systems tend toward higher ratios and reduced reliance on operating funds. When farebox recovery ratios exceed 100%, transit becomes both self-sustaining and profitable.

To stem wasteful spending, some states set baseline targets for system performance. For example, California mandates a 15% minimum ratio for Monterey-Salinas Transit, a municipal bus operator, through a 2004 resolution by the county's transportation agency (TAMC).⁸¹ However, very high target ratios can jeopardize the viability of subsidized transit. The Washington State Department of Transportation sets a "short-term ratio" of 80% for Washington State Ferries, the nation's largest ferry operator (and over 90% in its long-range plan). This standard was established in 2001, when WSF lost \$52M in operating funds from the recently eliminated Motor Vehicle Excise Tax (MVET).⁸² The aggregate annual shortfall was estimated at \$1.2B in 2011.⁸³ The agency, which serves 22 million customers, has raised fares several times to make up the loss in revenue; overall, fares increased 11%

⁸⁰ Andrew Tangel, "Funding Battle Looms for New York's Subway, Buses, Bridges," *The Wall Street Journal*, November 19, 2014.

⁸¹ http://tamcmonterey.org/programs/transit/pdf/TDA_Guidelines.pdf; (2004 provision).

⁸² Michael D. Bennon, *A Comparison of Operational Performance: Washington State Ferries to Ferry Operators Worldwide*. (Seattle, 2010), 18.

⁸³ Bennon, 31.

between 2009 and 2014.⁸⁴ WSF's financial woes were exacerbated by "volatility in gasoline prices and the economic downturn" in the mid-2000s. Between 2004 and 2009, the agency's operating costs grew by ~\$62M, while its farebox recovery ratio shrank from 80% to a 2000 low of 65%.⁸⁵ WSF is currently operating at a loss, with a 16% reduction in ridership since 1999.⁸⁶ However, the system appears to be recovering; WSF has added 636,000 riders since 2011, with a 4% ratio increase in FY2014.⁸⁷

The New York ferry system has faced similar issues; since 2006, the industry "has been buffeted by steeply rising fuel prices that caused ferry operators to raise their fares [and] by the decline in the national and local economy, which has lowered the number of [ferry] commuters available" in the region.⁸⁸ Average trans-Hudson fares increased 7% annually from 2004 to 2009, with a corresponding drop in ridership (see Figure 9 below).⁸⁹ The Lower Manhattan market was particularly affected, losing 7,000 weekly daily commuters. In 2012 PANYNJ found that "the passenger ferry market, [while] essentially stable, is declining with poor economic growth and fare increases." Port Authority modeling shows that raising fares by $\leq 10\%$ does not undermine ferry ridership (i.e. the elasticity of fares is comparable to other transit modes).⁹⁰ However, successive increases, coupled with other factors such as wait time and reliability that are known to influence user preferences, can jeopardize the viability of commuter service. A surge in fare prices indicates a declining farebox recovery ratio and a need for subsidies, which calls into question the public interest in ferry service.

⁸⁴ Washington State Department of Transportation, *Washington State Ferries FY2014 Route Statements*, (Olympia, und.), 3.

⁸⁵ Bennon, 31.

⁸⁶ Jessica Gao, *Staying Afloat: Challenges Facing Washington State Ferries*. The Capital Record. Washington State. <http://www.capitolrecord.org/staying-afloat>

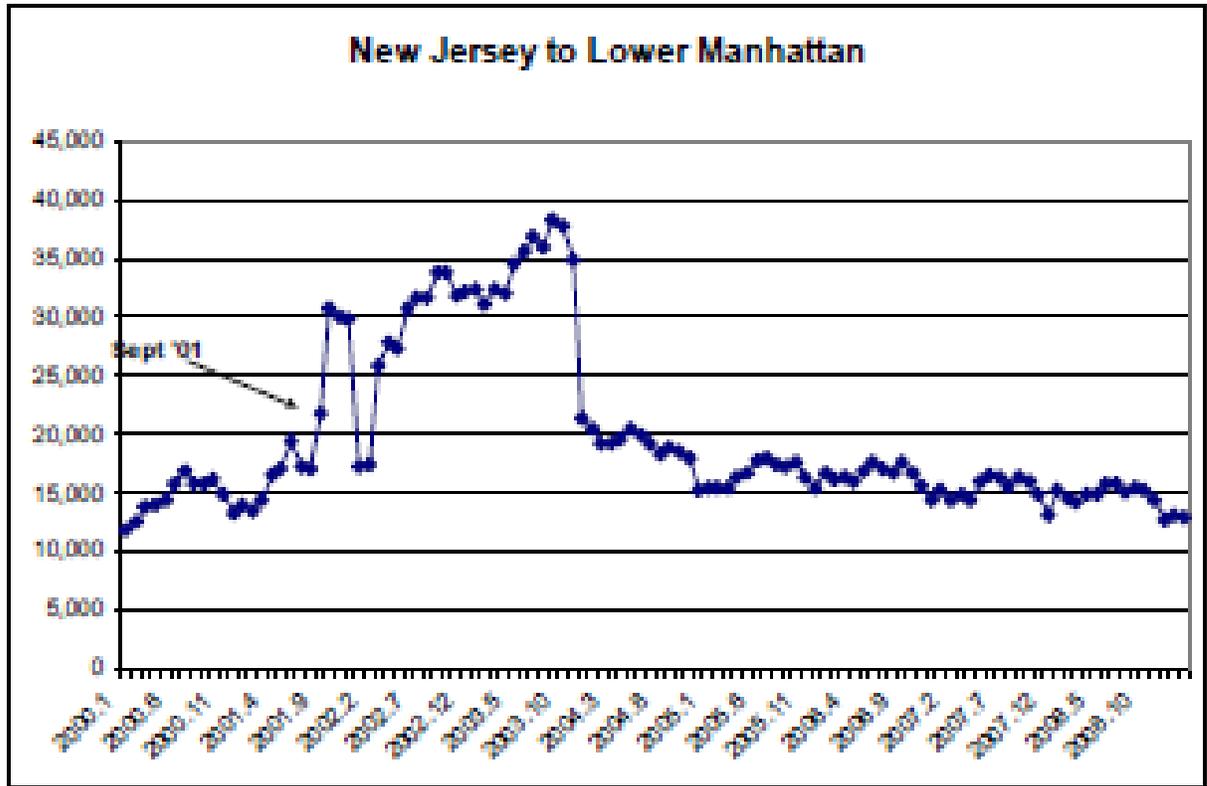
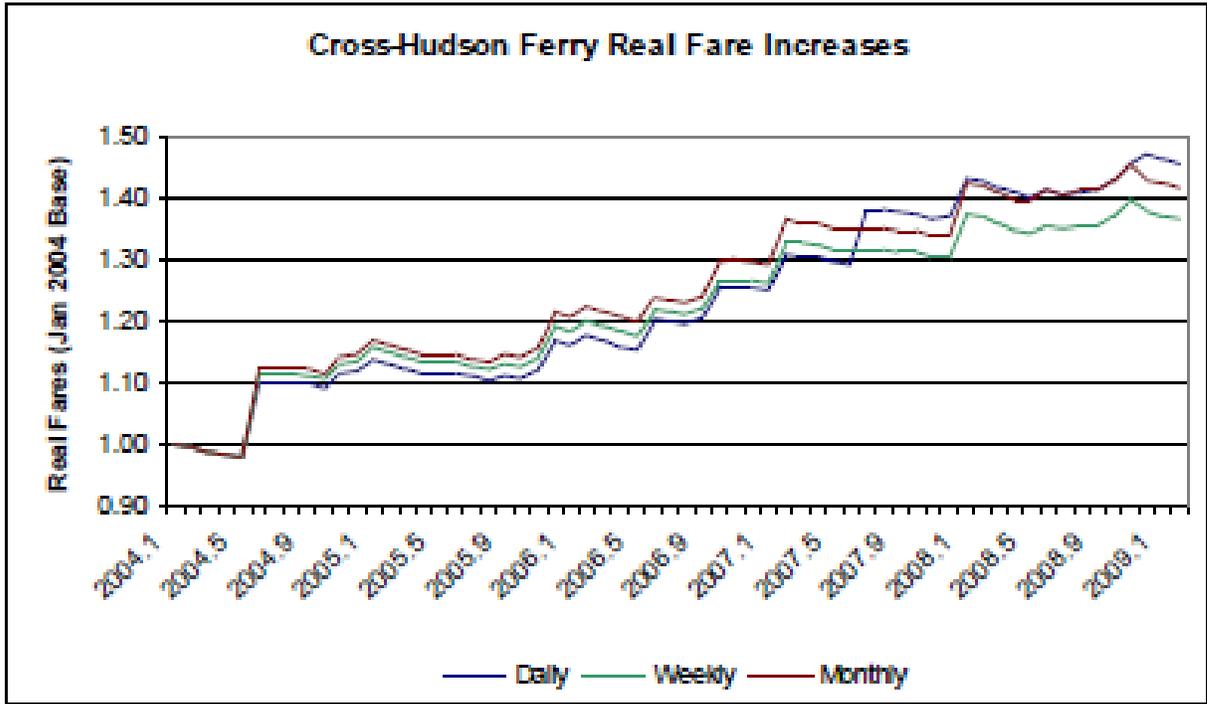
⁸⁷ Washington State Department of Transportation, 9.

⁸⁸ Halcrow, Inc., *Study of Regional Private Ferry Services in the New York Metropolitan Area*, (New York: 2011), 2.

⁸⁹ Halcrow, Inc., 23.

⁹⁰ Vilain, Cox, & Mantero, 185.

Figure 9. Cross-Hudson Fare Increases and Ridership in the 2000s. Credit: Halcrow.



A compelling public interest provides the best justification for government support. This is especially important in the New York, where ferry service is supplied by private operators. Despite their growing role in the regional transportation system, the economic benefits of ferries remain contested and poorly understood. Access is the primary advantage of waterborne transport; therefore, its direct beneficiaries are Manhattan commuters and recreational riders.⁹¹ Ferries also confer indirect gains to PANYNJ and MTA by diverting users from automobiles and overburdened railways. Finally, ferry service facilitates the city's development goals by bolstering waterfront use, residential construction, and property values. Since system expansion extends the benefits of ferry service while increasing operating costs, it follows that public subsidies should be provided to balance the risks.⁹²

Municipal funding for ferry service, though relatively small, has recently come under scrutiny by transit advocates. The major point of contention is the per-rider subsidy of ferries relative to their passenger load. Figure 10 below shows a comparison of public costs per trip across transit modes. While the East River Ferry subsidy is comparable to NYCT Local Bus, the bus system exceeds the ferry's annual ridership on an *average weekday*.⁹³ Proponents argue that unlike fixed links, "ferries require much less infrastructure investment, have flexible routing topology...and near infinite scalability."⁹⁴ Detractors counter that ferry funding should be used to expand Bus Rapid Transit (BRT) and enhance transportation access for low-wage workers.⁹⁵ The Mayor's ambitious plan has brought this debate into sharp focus; it remains to be seen whether ridership will justify annual subsidies or produce permanent service.

⁹¹ And emergency management agencies, which rely on ferry operators to provide disaster response and recovery services.

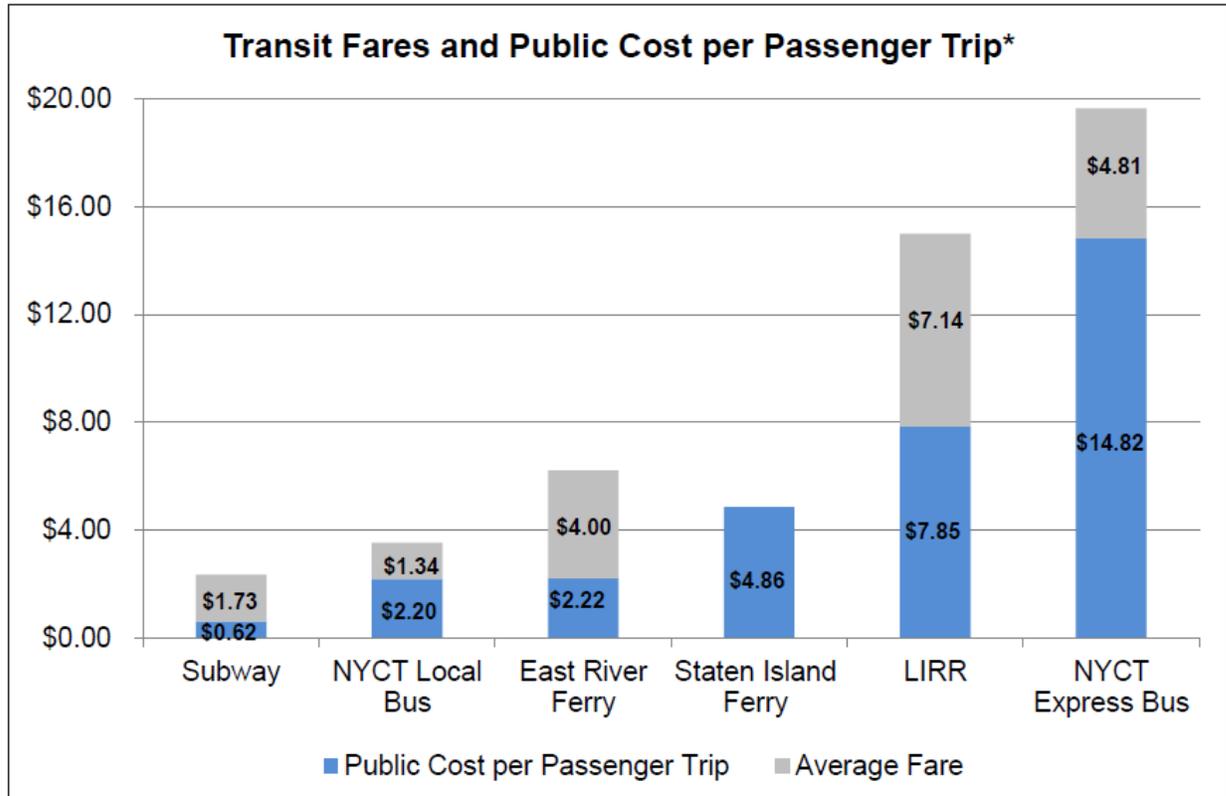
⁹² This applies primarily to the East River market; the Hudson River market has little growth potential due to the limited economies of scale with point-to-point service.

⁹³ "MTA New York City Transit Bus Ridership at a Glance," MTA New York City Transit. http://web.mta.info/nyc/facts/ridership/#intro_b

⁹⁴ Kamen and Barry, "Urban Passenger-Only Ferry Systems," 2. See footnote 24.

⁹⁵ Stephen Miller, "Bus Rapid Transit, Not Ferry Subsidies, Would Help Struggling New Yorkers," *Streetsblog*, February 3, 2015.

Figure 10. Comparison of subsidies for ferries, rail and buses. Credit:NYCEDC.



*Public Cost per Passenger Trip = Total Operating Cost per Passenger Trip – Average Fare per Trip

In theory, routes should become less dependent on subsidies i.e. self-sustaining over time. Effectively, as a ferry market matures, ridership stabilizes and becomes less price-conscious; customers absorb fare increases and do not abandon ferries en masse for other transit modes. The reverse tendency when observed, suggests a limited market for service and a low farebox recovery ratio. With limited federal funding for water mass transit, transit economics dictate that ferry subsidies should be reserved for viable routes. However, beyond judicious use of resources, this policy does not necessarily serve the public interest; rather, it limits system growth, discourages experimentation, and fosters transit inequity. When subsidies flow only to low-risk services, the benefits accrue to short-distance commuters, and the costs of exploring outlying markets are borne primarily by operators.

New York City Ferry Policy

As explained in Chapter II, the NYC ferry system serves three distinct markets: New Jersey, Staten Island, and Brooklyn/Queens. These inter-state and inter-borough services are administered by PANYNJ, NYC DOT and NYCEDC, with some degree of regional coordination. Since trans-Hudson, Staten Island, and East River routes are structured differently, there is no unified ferry policy. However, the Port Authority and the City of New York share certain interests in water mass transit, and have historically pursued similar objectives. In the 1980s, Mayor Koch and PANYNJ issued guidelines for east and west-of-Hudson ferries and created a framework for service provision. While ferries presented attractive opportunities, the public-private relationship was largely undefined. The Mayor’s Waterborne Transportation Plan (1986) and the Port Authority’s Hoboken RFP (1989), summarized below, established an arrangement whereby “government provides the infrastructure [but] the private sector is responsible for the planning, design, financing, and operation of ferry services.”⁹⁶ The municipal role in promulgating ferries was limited to landside support in order to minimize investment risk.

Figure 11. 1980s policy framework for ferry service in the New York Region.

Mayor’s Waterborne Transportation Plan	Port Authority RFP for Hoboken-WFC Service
<ul style="list-style-type: none"> • City and other public agencies will encourage ferry service. • No operating subsidies will be provided to ferry operators. • City will consider making land available for landing sites and set up a permitting process. • City will not regulate premium fares.⁹⁷ 	<ul style="list-style-type: none"> • PANYNJ will provide initial capital for temporary dock facilities at Hoboken/WFC with substantial investment in permanent facilities in the future.⁹⁸

⁹⁶ Arup North America, Ltd. *Transit Cooperative Research Report 152: Guidelines for Ferry Transportation Services* (Washington, D.C., 2012), 32.

⁹⁷ Ibid.

⁹⁸ Regional Plan Association, 5.

A. Real Estate

According to the Port Authority, “a central premise of ferry initiatives in the region is that ferries can play an important role in increasing access to undeveloped or underdeveloped land.”⁹⁹ Furthermore, “waterfront development is not only a significant justification for the provision of ferry service, but also provides [potential] resources to support [ferries], as one often complements the other.”¹⁰⁰ There is thus a mutually beneficial relationship between real estate and water mass transit. Arthur Imperatore successfully combined both operations to revive trans-Hudson service in the 1980s; in the 2000s, the Durst Corporation launched New York Water Taxi to meet demand for recreational service in New York Harbor.

Today developers contract with NYCEDC and ferry operators to provide Manhattan service on the Brooklyn/Queens waterfront. In return, companies finance ferry infrastructure and landside improvements, and promote local ridership.¹⁰¹ By linking housing and economic opportunities, ferries make riverfronts more attractive for real estate interests; in fact ferry routes correlate highly with rising property values.¹⁰² Residential development, in turn, generates density to support ferry service. Beyond a putative public benefit, real estate provides the best rationale for ferry expansion; development creates a ridership base, helps direct system growth, and limits risk of failure. The reciprocity of land use and transportation results from intentional alignment of housing and ferry markets. The East River Ferry is grounded in this principle, and owes its success to careful planning and execution. The following section traces the ERF from conception to implementation in the 2000s.

⁹⁹ Vilain, Cox, & Mantero, 187.

¹⁰⁰ New York City Economic Development Corporation, *Ferry Policy & Planning in New York City: Consideration for a Five-Borough Ferry System* (New York: 2013), 7.

¹⁰¹ This is not always the case. See Grabar, “Don’t Believe in Ferries.”

¹⁰² Vilain, Cox, & Mantero, 187.

A. The East River Ferry

The East River Ferry, begun in 2011, was spurred by two events in the Bloomberg administration: the Greenpoint-Williamsburg rezoning and New York's unsuccessful bid for the 2012 Olympics. In 2005, the City Planning Commission lifted land use restrictions on 174 blocks of Brooklyn CB 1, formerly zoned for manufacturing. The conversion from industrial to residential use unlocked development potential on the waterfront. The resulting high-rise construction boom brought thousands of new residents to Williamsburg and placed enormous strain on the neighborhood's transit infrastructure. Many new developments were built at the water's edge to capitalize on prime Manhattan views. However, these dense commuter enclaves lacked efficient access to its job centers. Simultaneously, emerging destinations i.e. waterfront parks, in New York Harbor signaled a need for recreational ferries. In 2009, New York State awarded NYC & Co., the city's tourism agency, a grant to study East River ferry service potential with NYCEDC and DOT.¹⁰³ At the time, there were four commuter routes, all served by New York Water Taxi: Fulton Ferry Landing – Pier 11, Fulton Ferry Landing – E 34 St, E 34 St – Hunters Point and the 2008 BAT – Pier 11 pilot.

From 2000 to 2005, New York City competed to host the 2012 Olympics, which it ultimately lost to London. The NYC2012 bid proposed an Olympic Ferry to connect the Olympic Village in Hunters Point South with venues throughout the five boroughs. The Olympic transportation plan relied on ferries to “keep passengers out of city traffic, [and provide] an attractive and elegant way to move around a predominantly island city.” After the Games, the ferry would be retained to “serve the public [with] waterborne access to an Olympic legacy of new and upgraded parks and athletic facilities.”¹⁰⁴ New York's final plan shifted

¹⁰³ Appleseed, inc., 21.

¹⁰⁴ Rudin Center for Transportation Policy and Management, *How New York City Won the Olympics* (New York: 2011), 47.

focus from ferries to buses in response to IOC concerns about “one-seat” transportation. However, NYC2012 “highlighted the potential of ferry service as a key component...to revitalize waterfront neighborhoods, especially in Brooklyn and Queens [where] the City’s plans...explicitly included new ferry landings.”¹⁰⁵ The final selection was held in July 2005, two months after the Greenpoint-Williamsburg rezoning. Following New York’s rejection, NYCEDC began preliminary planning for an East River Ferry.

In addition to Mayoral directives, the East River ferry is guided by the 2011 Comprehensive Citywide Ferry Study (Appleseed, Inc.), and the 2013 Citywide Ferry Study (Steer Davies Gleave). The ferry went into effect in June 2011, as a three-year pilot with a \$9.3M subsidy. NYCEDC selected the Billybey Ferry Co. to operate the service, spanning 7 stops in Brooklyn, Queens and Manhattan. Fares were set at \$4 each way, with projected annual ridership of 467,000.¹⁰⁶ The East River Ferry met its cumulative goal of 1.2 million passengers in the first 18 months.¹⁰⁷ One year later, City Council extended the service through 2019, and NYCEDC renewed Billybey’s contract in June 2014.

With the East River Ferry, NYCEDC departs from earlier waterborne transit policy, by both directing route planning and subsidizing private service. Though much of the ferry’s ridership derives from weekend trips, NYCEDC is squarely focused on commuter service. Moreover, the agency has taken a cautious stance on expansion, both to preserve the ferry’s integrity and limit the need for public subsidies. In a 2013 white paper, NYCEDC noted that “ferries enable load-shedding from [crowded] subway lines” but at the 2014 Metropolitan Waterfront

¹⁰⁵ Ibid.

¹⁰⁶ Appleseed, inc., 58.

¹⁰⁷ “ Mayor Bloomberg Announces Extension of East River Ferry Service through at Least 2019,” Office of the Mayor. December 13, 2013. <http://www.1.nyc.gov/office-of-the-mayor/news/404-13/mayor-bloomberg-extension-east-river-ferry-service-at-least-2019#/0>

Alliance conference, representatives stressed the low capacity of boats versus subways, and dismissed ferries as a solution to transit congestion.¹⁰⁸ Nevertheless, the East River Ferry is an essential part of New York's transportation system and its popularity, evinced by growing ridership, fuels borough demand for ferry service. The ERF is also vital to the city's resiliency framework; when Superstorm Sandy severed subway and tunnel connections to Manhattan, Billybey and other operators enhanced capacity to supplant fixed links for Brooklyn/Queens commuters.

The East River Ferry's design integrates best practices for waterborne transit. Its loop corridor structure prevents single-point saturation while maintaining peak headways and minimizing wait time. By linking waterfront destinations, the ferry exploits additional markets for recreational service. Another factor is calculated phasing, which involves "building a network of stops that leverages strong ridership at one location while building a [user] base at other stops over time."¹⁰⁹ By fostering stability, this strategy supports both cross-subsidization and system expansion. However, successful ferry service (regardless of configuration), generally limits its reach to minimize risk. The East River Ferry provides convenient transportation for a small geography, but does not address transit equity for neighborhoods like the Rockaways. Finally, the ERF maintains ridership by varying operating frequency in different seasons; winter contraction conserves fuel and vessels, enabling Billybey to meet summer demand. This multifaceted approach promotes reliable year-round service and long-term sustainability. The model also demonstrates the utility of subsidies in developing ferry markets; when managed conservatively, public funds can incentivize ridership without incurring financial losses. In four years, the ERF has recouped start-up and operating costs while generating profits and positive externalities.

¹⁰⁸ New York City Economic Development Corporation, 4.

¹⁰⁹ New York City Economic Development Corporation, 5.

B. Community Advocacy

The East River Ferry ignited demands for borough equity that intensified after Superstorm Sandy, particularly in affected neighborhoods. In the 2013 Special Initiative for Rebuilding and Resiliency report, the City made commitments to bring additional service to parts of Brooklyn, Queens, and Staten Island. That summer, NYCEDC contracted New York Water Taxi to run a free ferry from Pier 11 to Fairway and added a stop at BAT on the federally subsidized Rockaways – Pier 11 route. The ferry was extended through January (and again through August in 2014). In December, EDC released an RFEI “for a private company to build and operate a paid ferry service in St. George.”¹¹⁰ Only one of these routes has since become permanent (Red Hook), despite post-Sandy momentum and political pressure.

New York’s waterfront communities have a long tradition of ferry advocacy. 197-a plans, from Red Hook to Greenpoint contain provisions for ferry service; ferry demand exists in affluent and low-income districts across the five boroughs. The most active ferry constituency is based in the Rockaways, which have a history of stopgap service. The Rockaway Peninsula market is hamstrung by its distance from Manhattan; at 16 miles and ~50 minutes, it is among the longest routes in the system. The subsidy required to extend commuter service to the Rockaways (~\$30 per ride) is unsustainable without steady funding. In the nineties, two feasibility studies, by DOT and PANYNJ concluded that the Rockaways could not support ferry service.¹¹¹ In 2003, New York Waterway piloted summer service to Beach 169th Street at \$26 round-trip; between 2002 and 2008, City Council appropriated \$1.1 million in operating subsidies for Rockaway; a new service with \$6 fares was launched

¹¹⁰ Nicholas Rizzi, “New Ferry Service Planned for Staten Island,” *DNAInfo*, December 20, 2013.

¹¹¹ Sewell Chan, “Rockaway Ferry Plan Faces Doubts About Overall Costs,” *The New York Times*, August 6, 2005.

by New York Water Taxi in 2008. The route served Riis Landing – BAT – Pier 11, and ended when the subsidy ran out in 2010. The 2012 Rockaway ferry was initiated after Sandy and operated by Seastreak, with very low fares. The service posted strong ridership (200,000 over its total run), and was renewed several times, with support across the peninsula.¹¹² However, by late 2014, the ferry had exhausted its subsidy; despite a local campaign, the service was terminated in October. Currently, advocates are fighting to expedite the 2017 Rockaway ferry, part of the Mayor's expansion plan, by working directly with city officials.

Staten Island's South Shore is another vocal ferry coalition. South Shore neighborhoods have the longest commutes in New York City, with no direct access to Lower Manhattan. For the last twenty years, residents and representatives of CB 3 have rallied for fast-ferry service, but no operator has ever attempted pilot service. Immediately after Sandy, DOT built a temporary dock in Great Kills with New York Water Taxi service to Pier 11. The ferry ran for eight weeks but drew limited ridership.¹¹³ NYCEDC studied potential at Camp St. Edward and Totentville in 2013, but has no plans to reinstate South Shore service.

One overlooked community has made impressive strides toward ferry service, with some assistance. In 2013, the Metropolitan Waterfront Alliance launched a Ferry Transit Program to lobby for system expansion. MWA established a Bronx Ferry Committee in Soundview, an enclave of CB 9, and started a petition for ferry service.¹¹⁴ These efforts led to Soundview's inclusion in the Citywide Ferry Study, and Mayor de Blasio's ferry plan, which links the Bronx to the Upper East Side. MWA's success in Soundview is a striking case of ferry advocacy overriding ferry economics, and may be instructive for other communities.

¹¹² Katie Honan, "Rockaway Ferry Floats on through May, but Trip Will Cost Nearly Double," *DNAInfo*, January 20, 2014.

¹¹³ Jillian Jorgensen, "Staten Island Fast Ferry's 8-Week Run Nears the End; Not Convenient Enough?" *SILive*, January 18, 2013.

¹¹⁴ The Bronx has only one ferry landing, at Yankee Stadium, serviced in season by Seastreak.

ii. Sunset Park

Sunset Park is a highly active Brooklyn community with an extensive waterfront. Like the Rockaways, it has a strong recent history of ferries but has struggled to retain commuter service. The two communities were first linked in 2008 via an NYCEDC pilot funded by City Council. This initial route ran from Riis Landing in Breezy Point to Manhattan, with a stop at Brooklyn Army Terminal. After Sandy, Seastreak began express service from Beach 108th Street to Pier 11 – Wall Street. A BAT stop was added summer 2013, to allow storm-related reconstruction on the R-train. Prior to 2008, the city extended service to BAT during emergencies, specifically September 11 and the 2005 transit strike.

Sunset Park's experience with ferries dates back to 1906, when the McLellan administration took over a private ferry from Whitehall Street to 39th Street. Consolidation in 1898 created a need for better connections to Manhattan, so the city undertook an infrastructure program focused on the East River. However, these improvements were based north and inland of the Sunset Park waterfront. The resultant equity gap (which persists today) led the city to fall back on ferries.¹¹⁵ The rationale was that "South Brooklyn would not benefit directly from the new subway or the new river bridges"; therefore, the 39th Street ferry "was a tailor-made opportunity for balancing the scales."¹¹⁶ It's worth noting that the service was designed to serve Sunset Park's shipping industry, i.e. the future Bush Terminal, rather than local residents. The 39th Street service and the Staten Island Ferry jointly established New York's municipal ferry system; while the latter remains in operation, the former was terminated in 1938. After WWII, Sunset Park service was anchored at Bay Ridge/69th Street. The City contracted an operator to run a Staten Island – Bay Ridge ferry in 1954, which was obviated

¹¹⁵ At the time, the city was also struggling with the Staten Island Ferry and the impending bankruptcy of the Union Ferry Company.

¹¹⁶ Cudahy, 170.

by the Verrazano Bridge (1964). The year 1988 marked the restoration of Bay Ridge service with a route to Pier 11.¹¹⁷ Though late 80s/early 90s data are unavailable, the ferry was, from the start, discontinuous; cyclical service was extended and terminated as demand and funding allowed. A complete timeline of Sunset Park ferry developments appears below.

Figure 12. Summary of Sunset Park ferry service in the last 20 years.

Date(s)	Description
1996	Bay Ridge/69th Street pier closes for repairs; construction begins on Brooklyn Army Terminal Pier 4 at 58th Street. ¹¹⁸
1998	Pier 4 is completed; service to Manhattan resumes at BAT.
2001	Ferry service to 69th Street/BAT is terminated in August due to low ridership. ¹¹⁹
2001	After 9/11, DOT contracts with New York Waterway to provide free BAT service to Pier 11.
2002	Daily ridership on NY Waterway BAT service surpasses 2000 in July. ¹²⁰
2003	9/11 federal funding runs out; New York Water Taxi takes over service to BAT, which is discontinued due to low ridership. ¹²¹
2005	MTA transit strike in December; operators provide temporary service to BAT; DOT coordinates Staten Island Ferry to handle overflow on route. ¹²²
2006	Average weekday ridership (in July) is 247 users, lowest of 15 routes operating that year. ¹²³
2008	NYCEDC launches Riis Landing – Pier 11 pilot with service to BAT (funded by City Council).
2010	BAT service is discontinued due to low ridership.
2013	MTA announces 14 month downtime on R-train. Seastreak adds BAT to Rockaway route in August; MWA opens Bay Ridge eco-dock.
2014	Seastreak service is discontinued in October.

¹¹⁷ Regional Plan Association, 6.

¹¹⁸ Brooklyn Community Board 7, *New Directions/New Opportunities: Sunset Park 197-a Plan*, (Brooklyn: 2008), 105.

¹¹⁹ Appleseed, inc., 34.

¹²⁰ Regional Plan Association, 6.

¹²¹ Appleseed, inc., 161.

¹²² Ibid.

¹²³ Regional Plan Association, 6.

Sunset Park ferry advocacy is highly evolved; local organizations are well-informed about the benefits of ferries, the market for service, and past routes and landings. The community articulated an expansive vision in its 197-a Plan (2008), which calls on the city to “promote the expansion of ferry service on the Sunset Park waterfront as part of a regional ferry transit network.”¹²⁴ Beyond BAT and Bay Ridge/69th Street, the plan asks NYCEDC to “study the feasibility of additional ferry service from the 39th Street Pier, just north of the proposed waterfront park – or from Bush Terminal Pier 5 – to better serve Sunset Park commuters, provide additional options for park access, and directly link businesses on the Sunset Park waterfront to Manhattan.”¹²⁵ The Plan identifies three potential landing sites, at 39th Street, 43rd Street (Bush Terminal Pier 5) and BAT Pier 4, as shown in Figure 13 below. Acknowledging previous failures, the Plan advocates better bus connections at BAT to “facilitate public access to the pier and encourage ferry use.”¹²⁶

Superstorm Sandy rallied local support for ferries in Sunset Park, especially after Seastreak stepped in to alleviate the 14-month R-train shutdown. In its FY 2016 DCP needs statement, CD 7 emphasized continuing Sandy impacts on local transportation. The community board cited “infrastructure deficiencies” including “lack of ferry service” and called for “redundancy and alternatives” to public transit.¹²⁷ Apart from arguments for equity and resiliency, Sunset Park has two important demand generators: Bush Terminal Park and Industry City. The Park, built on a former brownfield, after decades of local advocacy, opened to the public in summer 2014. Industry City recently announced a \$1 billion program to modernize the former Bush Terminal over 12 years. The project will bring close to 30,000

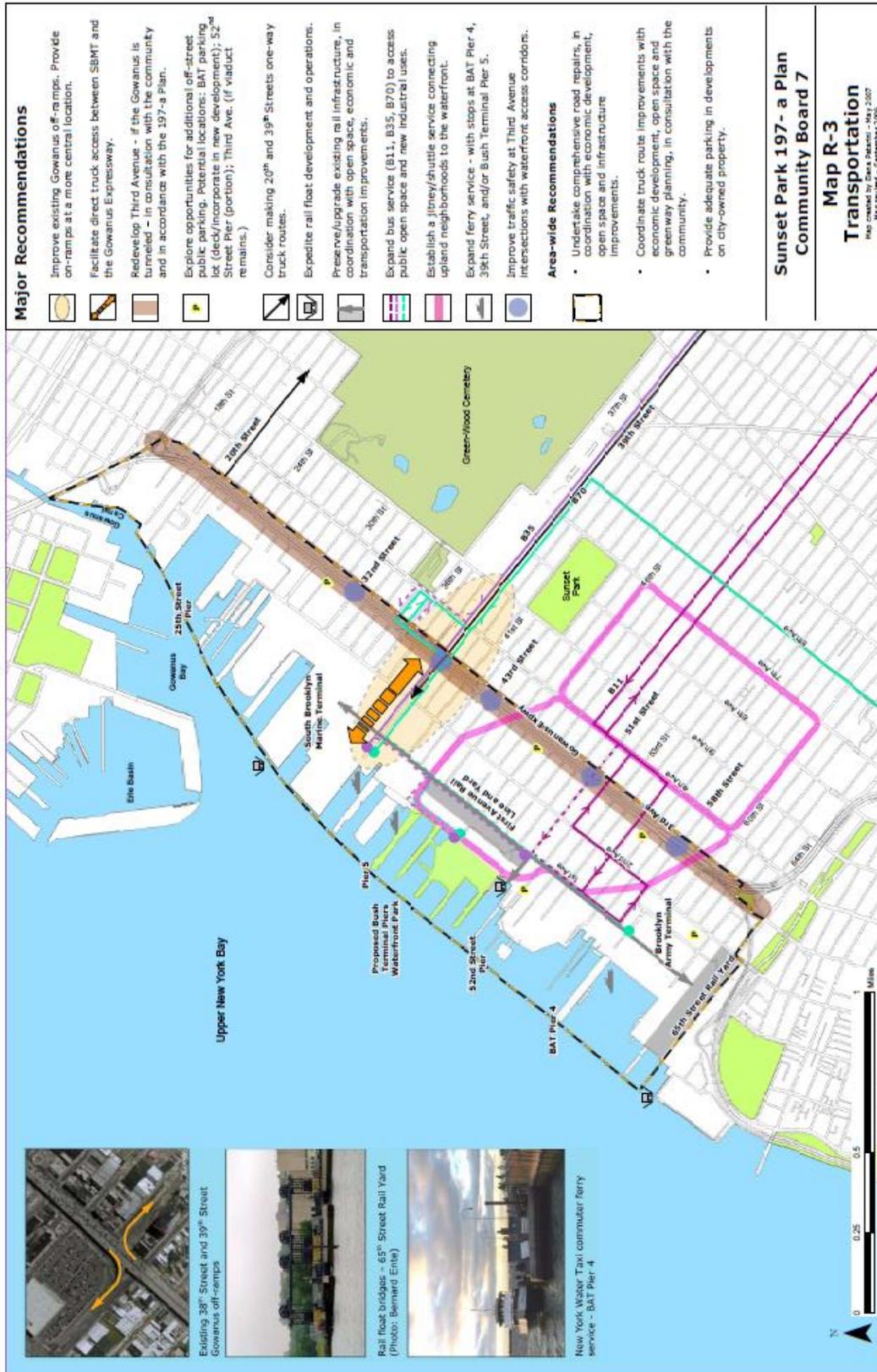
¹²⁴ Brooklyn Community Board 7, 20.

¹²⁵ Brooklyn Community Board 7, 207.

¹²⁶ Brooklyn Community Board 7, 218.

¹²⁷ Daniel A. Murphy and Jeremy Laufer, *Brooklyn Community Board 7 Statement of Needs*. http://www.nyc.gov/html/dcp/pdf/neigh_info/statement_needs/bk07_statement.pdf

Figure 13. Proposed ferry landings (2008). Source: Sunset Park 197-a Plan.



manufacturing and technology jobs to Sunset Park, along with research facilities and large commercial uses.¹²⁸ Despite these investments, there are few provisions for improved access to the waterfront at this time. Last year, the MTA restored the B37 bus, which runs along Third Avenue and was eliminated in 2010. However, east-west bus service operates only to Industry City and Lutheran Hospital/BAT (via the B39/B70 and B11, respectively). The community also lacks bike share stations (Citi Bike's expansion plans do not include Sunset Park). In-water access is restricted to intermittent ferry service at BAT, and the Bay Ridge eco-dock, which offers boat tours from July to December.

Despite its name, Sunset Park is greatly under-provisioned for open space. This densely populated community has few parks and playgrounds to serve families, youth, and the elderly. Prior to Bush Terminal Park, BAT Pier 4 was the only public access point on the waterfront. The pier is relatively recent; it was built in response to community demand, when the previous 69th Street dock collapsed in 1996.¹²⁹ The modern pier was designed in consultation with CB 7, and features ~400 parking spaces to maximize opportunities for "park and sail". The pier offers 46,500 sf of "waterfront public access area" with docking facilities for different vessels.¹³⁰

Beyond local green space, Sunset Park residents also lack access to Brooklyn Bridge Park and Governors Island, two high-quality recreation areas in New York Harbor. Currently, Brooklyn service to Governors Island is limited to summer weekends. New York Waterway could expand its seasonal Pier 11 – BBP – GI loop to include Bush Terminal Park, with a

¹²⁸ David M. Levitt, "Brooklyn's Industry City to Get \$1 Billion Modernization," *BloombergBusiness*, March 9, 2015.

¹²⁹ Daniel A. Murphy and Jeremy Laufer, Letter to the New York City Economic Development Corporation, June 7, 2014.

¹³⁰ "Brooklyn Army Terminal Pier 4 Park and Sail," Department of City Planning. http://www.nyc.gov/html/dcp/html/cwp/bk_army_terminal.shtml

possible stop in Red Hook. A “South Brooklyn” leg would direct tourists to Red Hook and Industry City, while linking new destinations across the river. However, this is currently infeasible, due to lack of docking infrastructure at Bush Terminal Park. In fact, there are no accessible piers along the Sunset Park waterfront, between Gowanus Bay and Brooklyn Army Terminal. CB7 has pushed for a ferry at 39th Street, but its low adjacent population and proximity to the 36th Street subway are seen as deterring factors. However, much of the anticipated growth in Sunset Park is taking place exactly at this junction. A working pier between 39th and 43rd streets would also leverage NYCEDC investments in SBMT/First Avenue Rail upgrades (2012).

After twenty years of stops and starts, Sunset Park’s need for ferry service remains unmet. Stakeholders agree that ferries could provide a host of local benefits from transportation to recreation, but repeat experiments have not yielded success. There are two competing explanations for this phenomenon, advanced by NYCEDC and CB7.

(1) Sunset Park lacks a market for commuter ferry service

Sunset Park’s low AMI, coupled with its high walk-to-work rate, makes ferries expensive and unnecessary for most residents.¹³¹ While many Sunset Park residents commute to the Manhattan CBD, they prefer to do so by train. The BAT ferry is geared primarily toward “park and sail” customers, who tend to reside in Bay Ridge.¹³² Significant ridership is attained only with subsidies and in summer months.

¹³¹ New York City Economic Development Corporation, *Sunset Park Waterfront Vision Plan* (New York: 2009), 10.

¹³² Appleseed, inc. “Appendix B: Site Profiles” in *Comprehensive Citywide Ferry Study* (New York: 2011), 93.

(2) Ferry service is poorly integrated into the community

Unreliable bus connections and Third Avenue traffic discourage commuters from taking the ferry. Pier 4 is situated too far south for Sunset Park customers. BAT ferry service is marketed to Bay Ridge residents and poorly promoted in Sunset Park.¹³³ Many potential users are unaware of the ferry, and forgo the service due to lack of information. These issues remain unresolved, even as Sunset Park is poised for new ferry service in 2017.

The preceding chapter explored agency, operator, and user perspectives on ferry service provision in New York City. It also clarified the public benefit of water mass transit, which is often defined in economic development terms rather than transportation equity. Real estate remains the primary impetus for ferry expansion; residential growth on the waterfront continues to spur demand for service. Beyond the East River Ferry, inter-borough and intra-Manhattan markets remain largely unexplicated. However, this is expected to change with new development in Brooklyn/Queens and on the West Side. Whereas system expansion has proceeded slowly in the last ten years, the city is now embarking on an accelerated program to extend ferry routes east-of-Hudson. Mayor de Blasio's ferry plan, introduced in Chapter I, will shape the future of water mass transit in New York City. Accordingly, the final chapter provides a thorough examination of the Mayor's strategy, focused on feasibility and viability. The thesis concludes with recommendations for implementation informed by history, economics, and equity.

¹³³ Laufer, Jeremy. Interview with Inna Guzenfeld. Brooklyn CB 7 Offices, January 9, 2015.

CHAPTER IV – TOWARD A CITYWIDE FERRY SYSTEM

Future Expansion

A. The Mayor's Plan

The Mayor's plan creates five new routes and multiple landings serving the Rockaways, South Brooklyn, Astoria, Soundview and the Lower East Side, as illustrated in Figure 14 below. (An extra proposed route via Pier 11/Stapleton/Coney Island Creek is not dated for implementation). The first three routes, likely considered more viable, will debut in 2017. The plan does not guarantee permanent service, but provides \$55 million in capital funding to kick-start the two-year timetable. The city projects an annual subsidy of \$10 to 20 million and 4.6 million trips compared to the East River Ferry's initial 3-year subsidy of \$9 million.¹³⁴ In all, the plan articulates a bold and expansive vision for citywide service, while recognizing that it may prove more expensive than the East River Ferry.

The proposal comes at a time of increasing demand for both commuter and recreational service. In 2014, the East River Ferry's weekly ridership totaled 911,249 one-way trips, second only to the Weehawken – West 39th Street ferry. (The ERF is even more popular on weekends, despite a \$2 surcharge.) A recent study by the New York City Comptroller's Office determined that "New Yorkers have longer average commutes than residents of any other major city".¹³⁵ In winter 2015, the MTA experienced severe delays and disruptions in service due to congestion and construction on its numbered lines. Facing a shortfall in capital funds, the agency raised fares for the third time in two years, from \$2.50 to 2.75.

¹³⁴ John Del Signore, "Map: What NYC's Expanded Ferry Service Will Look Like," *Gothamist*, February 4, 2015.

¹³⁵ Office of the New York City Comptroller, *NYC Economic Brief: The Hardest Working Cities* (New York: 2015), 1.

Figure 14. Proposed New Routes for 2017 [Closeup]. Credit: Gothamist.¹³⁶



¹³⁶ Accompanying note: “Geography is modified to show service more clearly. Some landings shown do not yet exist or need upgrades to become operational.”

Figure 15. Proposed Ferry Network Landings. Credit: NYCEDC.

New Landings	Existing Landings
<ul style="list-style-type: none"> • Rockaway • Bay Ridge • Astoria • Long Island City-North • Roosevelt Island • Soundview • E 62nd Street • E 23rd Street • Grand Street • Red Hook 	<ul style="list-style-type: none"> • Wall St/Pier 11 • Fulton/DUMBO • Schaefer Landing • North Williamsburg • Greenpoint • *Hunters Point South • E 34th Street • *E 90th Street • *Brooklyn Army Terminal • *Atlantic Ave / Pier 6 • Governors Island**

*Proposed upgrades. **Seasonal service.

The system has been particularly strained by growth in areas underserved by transit, such as North Brooklyn and Western Queens.¹³⁷ Yet in the next five years, the Brooklyn waterfront will see thousands of new units, from the Greenpoint Landing and Domino (Two Trees) developments. Further north, Phase I of Hunters Point South, a middle-income housing project begun under the Bloomberg administration is nearing completion. In Astoria, two adjacent projects with a combined ~4000 units will move forward after securing city approvals last year.¹³⁸ As part of the process, Council Member Costa Costanides has pushed for ferry service and/or an eco-dock at Astoria Cove.¹³⁹

These developments point to the need for a five-borough ferry system to relieve commuters and residents along the East River. While the Mayor’s plan holds near unanimous support among city officials, it has also garnered skepticism for its aggressive scope and schedule.

¹³⁷ The problem in Western Queens stems largely for perennial repairs, leading to inconsistent or unreliable service.

¹³⁸ 1700 units in Astoria Cove (Alma Realty Corp) and 2200 units in Halletts Cove (Durst Corporation).

¹³⁹ Tobias Salinger, “Astoria Cove Puts Freshman Council Member in Spotlight,” *Commercial Observer*, July 29, 2014.

The following section presents a critical discussion of the plan, based on principles laid out in Chapter III. The analysis begins with a summary of East River market constraints, confirmed by operator and user experience. It then identifies feasibility issues in East River service expansion, as outlined in the Mayor's plan. Finally, it assesses how the plan responds to these concerns, and proceeds with suggestions in the next section, titled Important Considerations.

East River Constraints

As discussed in Chapter II, the East River Ferry reveals important distinctions between the East River and trans-Hudson markets. Unlike the Hudson River market, which connects New Jersey commuters to Manhattan business districts, the East River market has limited potential for point-to-point service. The ERF was specifically structured to maximize ridership while providing significant time savings over transit. The service, which centers on Greenpoint-Williamsburg was spurred by population growth on the North Brooklyn waterfront, rezoned in 2005 for residential development. In the 2010 Comprehensive Citywide Ferry Study, Appleseed Inc. analyzed multiple service corridors, and selected the Pier 11/DUMBO/North Brooklyn/Long Island City/East 34th Street loop as the most viable. Service expansion was a distinct possibility, and NYCEDC envisioned future routes branching out from the East River Ferry. Today this idea is no longer central to ferry expansion as articulated in the Mayor's plan. The map in Figure 14 shows multiple routes partly connected to the East River Ferry via Lower Manhattan, DUMBO, and East Midtown. This paradigm shift is rooted in the economics of ferry service.

Unlike automobiles and passenger rail, ferries rarely provide door to door service; a public or private shuttle is often required to deliver commuters to their destination. In order to justify premium fares and frequent service, the inconvenience of water mass transit must be

balanced by substantial time savings over other modes. The most efficient routes provide express service between two points of high density and demand (all trans-Hudson ferry service is modeled on this assumption). The East River Ferry loop is successful because it links multiple point-to-point routes with minimal impact on travel time. However, when this corridor expands to accommodate additional stops, the time savings are diminished. Despite increased access, ridership is often compromised because users start switching to other (more direct) modes.

A greater service area therefore poses a risk to viability, especially in combination with frequent headways. For example, in order to maintain the East River Ferry schedule with extensions to the Upper East Side and Astoria, Billybey would have to increase vessel speed and/or deploy additional boats east-of-Hudson. Commuter ferries operate at speeds of 20 mph or lower, depending on vessel size and design. Winds and waves are also contributing factors, and vary widely outside New York Harbor; choppy waters around the Hell Gate Bridge and Rockaway Peninsula necessitate reduced speeds to ensure navigational and passenger safety.¹⁴⁰ Operator fleets range from ~5 to ~30 boats with fewer than 60 vessels total in operation at any time.¹⁴¹ This is a major constraint to system expansion which is, in fact, predicated on vessel supply. Few operators can afford to purchase new boats without assistance from the Federal Ship Financing Program. As described in Chapter II, Trans-Hudson service expansion post-9/11 prompted New York Waterway to purchase new vessels, under a loan from MARAD. These debts, coupled with high operating costs nearly drove them into bankruptcy in 2004.

¹⁴⁰ Washington, Matthew. Interview with Inna Guzenfeld. New York Water Taxi Offices, March 27, 2015.

¹⁴¹ In addition, ferryboats are taken out of service periodically for repairs, in which case operators may rely on each other to provide coverage. For example, New York Water Taxi agreed to take over the East River Ferry to allow extended maintenance on Billybey's fleet from November 2014 to March 2015.

The most successful routes maintain robust and constant ridership with seasonal fluctuations and premium fares. The trans-Hudson ferries are able to meet these criteria because they provide major time savings for commuters. The East River Ferry has attracted many users in four years, but lacks an essential fact of trans-Hudson service: *captive ridership*. In New York operators must contend with cheaper, more efficient transit options, even as ferries become more competitive, due to fare hikes and waterfront development. To overcome these disadvantages, a citywide ferry system must offer more than a pleasant ride. If key criteria e.g. reliability cannot be met, then service may prove unsustainable, resulting in financial losses (always a risk with pilot service). City officials may then be forced to scale back routes or terminate service to neighborhoods requiring higher subsidies.

Experience shows that there are limits to ferry service; the system expands and contracts periodically, but over time its reach and profile remain constant. Drastic escalations (i.e. multiple new routes in less than two years) are sustainable only with strong ridership and/or massive subsidies, and these must also be permanent. Furthermore, expansion plans must always consider what the market can bear, though markets change with development patterns. Ferry operators like New York Water Taxi agree that east-of-Hudson potential merits further exploration.¹⁴² However, repeat experiments have not found long-term viability beyond the East River Ferry. Given the constraints described above, the Mayor's plan may produce failure, despite widespread support and dedicated funds. The following critique will assess the plan's strengths, weaknesses, opportunities and threats; the goal is to maximize investments and outcomes for the city, private operators, and coastal communities.

¹⁴² Washington, Matthew.

Feasibility and Viability

The Mayor's plan envisions a unified ferry system that builds on existing East River service and accommodates planned growth on its waterfront. As indicated in the SWOT Analysis (Figure 16), the plan addresses citywide and local goals but not without potential drawbacks. The concerns outlined in this critique emerge from the plan's structure, timetable, and focus on commuter service. While the new stops and routes in Figure 14 have been studied extensively, most have not been tested; how they function as an inter-borough ferry network will not be apparent until after implementation. The timeframe leaves little room for trial and error; the plan is in essence, an expensive pilot for citywide service. Finally, the plan concentrates on commuter ferries, where NYCEDC has directed its efforts since 2008. However ferry ridership is increasingly driven by other markets, e.g. recreation and tourism, where service tends to be more lucrative.

There are two broad approaches to system expansion: increase the existing service area or create independent new routes. The Mayor's plan takes the second view with five routes that feed into East 34th Street and Pier 11. This is a deliberate choice intended to "ensure continuity of the East River Ferry" and a strength of the plan.¹⁴³ Enlarging the East River Ferry loop would eliminate time savings, strain operator fleets, and compromise its schedule. The solution is separate but interconnected services for commuters outside the corridor. However, this poses a different set of problems, apparent in Figure 14. The new routes converge in Lower and Midtown Manhattan, with haphazard links to the East River Ferry; the South Brooklyn line connects to the ERF via Fulton/DUMBO with redundant service to Pier 11; the Soundview line runs express from Pier 11 to East 62nd Street with no connection at East 34th Street; the Astoria line connects to Long Island City (via Roosevelt

¹⁴³ New York City Economic Development Corporation, "Construction Management Services Pre-Proposal Meeting," March 2015.

Island) but not to Hunters Point; Roosevelt Island, a future R&D campus with thousands of jobs, has no direct link to Manhattan; the Lower East Side and Astoria lines operate an identical route from East 34th Street to Long Island City North.

Without clear articulation of inter-ferry links, the plan creates replications and gaps in service, which are exacerbated by the sequencing of stops in South Brooklyn and the East Side. In Sunset Park, the Brooklyn Army Terminal serves the same market as Bay Ridge/69th Street except with 400 parking spaces. In Manhattan, the East 23rd Street stop is superfluous because the distance to East 34th Street is covered by the M34A bus, which runs directly along the waterfront. The spaces between these stops are not accurately represented in Figure 14.

The simultaneous rollout of multiple routes is a departure from past ferry policy. East-of-Hudson expansion has been restricted by the need for subsidies, which increase with distance from Manhattan. NYCEDC has consistently argued against subsidies because they are expensive and difficult to maintain. Beyond the East River Ferry, which will likely become self-sustaining after 2019, service is possible only with local and federal appropriations. When the funding stream runs out, the ferry is often discontinued (see Sunset Park example in Chapter III). The Mayor's plan overcomes this obstacle with an unprecedented commitment of \$70 million in capital costs and subsidies. While this infusion is necessary for system growth, it does not ensure success (i.e. strong ridership).

Beyond the plan's short timeframe, the phasing of routes is also debatable. The plan plots a large service area with extensive loop corridors, which all require different subsidies to maintain the system fare (\$2.75). A unified network allows for cross-subsidizing to balance costs and promotes overall sustainability. Based on this principle, it may be advisable to

pilot intra-Manhattan routes before expanding inter-borough service. The sequence of routes in Figure 14 was likely determined by available infrastructure and existing demand in Brooklyn and Queens. However, initial performance on the 2017 routes should not influence implementation of Soundview and Lower East Side routes in 2018.

Overall, the plan's rationale is fairly sound. It restores the Rockaway ferry and realizes the full South Brooklyn corridor, from Red Hook to Bay Ridge. It provides redundancy along the East Side, and creates permanent service to the Bronx. It extends affordable service to far-flung neighborhoods while conserving the East River Ferry. However, by targeting commuter service, the plan omits two vital sources of demand: Governors Island and LaGuardia Airport, where the city and state have made major commitments.

In March 2015, Council Member Brad Lander sent a letter, co-signed by other Brooklyn representatives, to Mayor de Blasio, requesting year-round service to Governors Island.¹⁴⁴ The Mayor's plan does not expand access to Governors Island, but could be modified with routes to Brooklyn Bridge Park and St. George. LaGuardia Airport has a rich history of ferry service, dating back to the 1980s. However, there has been no link between Midtown Manhattan and LGA since 2005. The Port Authority is working to upgrade LGA as a gateway for business travel, and improve transportation to the airport. An express service to LGA via East 34th Street (or Western Queens) with a premium fare i.e. the cost of an airport taxi ride could help subsidize the Soundview stop just across the East River. The service would also benefit general demand for airport access on the Upper East Side.

¹⁴⁴ Brad Lander et al., "Expanded Ferry Service between Governors Island and Brooklyn," *Capital New York*, March 17, 2015.

Figure 16. SWOT Analysis for Mayor de Blasio’s Ferry Expansion Plan.

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> • Creation of new landings and planned upgrades to existing landings. • Affordability and competitiveness with land-based transit. • Retention of East River Ferry corridor. • Restoration of Rockaway Ferry. • Support for new residential and commercial development. • Improved water access for waterfront communities. • Extension of intra-Manhattan service. • New routes structured to avoid strain on system and operator capacity. 	<ul style="list-style-type: none"> • No clear connections between the proposed routes. • Overwhelming focus on commuter service; no distinction between seasonal and year-round markets. • Redundant stops that increase travel time for customers. • No direct Manhattan connection for Roosevelt Island. • No connection to LaGuardia Airport. • No expanded access to Governors Island. • Certain routes may not be justified by real demand.
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> • Benefits to citywide tourism and economic development. • Potential shift of customers from subways to ferries. • Future investment in ferry transit connectivity. • Improved emergency management infrastructure. 	<ul style="list-style-type: none"> • Short timeframe for phasing and implementation; no opportunity for pilot service on untested routes. • Substantial start-up costs and high annual subsidies. • Possible conflict between loop corridor and point-to-point service. • Unspecified duration of operation and city commitment.

Finally, given the risks involved, the plan should focus on long-term viability. As the system and the city expand, there will be greater need for point-to-point service. The corridors may need to be restructured to provide efficient access to Manhattan. Contingency planning for weak routes may be necessary to maintain system integrity. For example, year-round service may be difficult to sustain on all lines, but permanent service need not be year-round. Rather than cancel underperforming routes, as has been done in the past, the city could run seasonal service to select stops and redeploy vessels to high-traffic points in the system. Built-in flexibility in planning and structure will help distribute adverse impacts throughout the ferry network.

Expansion beyond 2018 should be justified by rigorous studies and cost-benefit analyses. New routes should be tied to economic development and demonstrated demand. The proposed Pier 11 route to Stapleton, a future mixed-use community, has been criticized by Staten Island officials because of Stapleton's proximity to St. George and the dire need for fast-ferry service to the South Shore, briefly provided after Sandy. The link to Coney Island Creek, which is likely seasonal, also lacks a substantial market. This issue underscores the need for participatory planning in ferry policy, which should be guided by borough interests rather than city-sponsored development.¹⁴⁵ The following section outlines a vision for sustainable ferry service in New York City. The discussion centers on affordability, integration, and longevity with attention to transportation equity and coastal resiliency.

¹⁴⁵ Tom Wroblewski, "Rethinking the Stapleton Fast-Ferry Site," *SILive*, March 28, 2015.

Sustainable Ferry Service

B. Three Elements

The term “sustainability” has been used in reference to ferries throughout this document. For the purposes of this discussion, sustainable ferry service is defined as affordable, well-integrated, and above all, permanent. Each of the listed components, elaborated below, will be examined as it relates to ridership. As explained in Chapter III, ferry ridership is predicated on many variables including cost, connectivity, and reliability. Maximizing efforts in these areas will lead to better returns on public investments in citywide ferry service. (Tools and strategies toward that end are laid out in the recommendations portion of this chapter). Up to this point, the Mayor’s plan has been light on details. The only sources of information are the map in Figure 14 and a March presentation by NYCEDC. To create a sustainable ferry network, they will need a blueprint for affordable, integrated, and permanent service that strikes a balance of all three.

Affordability

Though ferries are extremely popular in City Council, they have their detractors among transit planners. Policymakers often point to the high-per ride subsidy of ferry service, compared to other forms of transit, like buses and subways. At the same time, ferries are viewed as external to public transit because they provide a premium service.¹⁴⁶ This is an economic contradiction: ferries are expected to be self-sustaining while charging comparable fares to modes that are not. As explained in Chapter III, ferries are essentially a luxury good and work best when users pay the maximum fare; a need for subsidies suggests a limited market for service; furthermore, ridership often drops when funds are discontinued, as in the case of Sunset Park. The New York City ferry system is comprised

¹⁴⁶ Unlike other cities, the NYCT subway does not operate a fare zone system, where fares are structured based on distance from the system center.

by private operators, who depend on farebox revenues to provide service. These are derived primarily from Hudson River routes and recreational harbor tours. However, due to greater price elasticity, the East River market cannot sustain New Jersey commuter fares. While NYCEDC estimates the east-of Hudson market at 550,000 potential users, many waterfront residents commute via land-based transit.¹⁴⁷ To sustain and incentivize ridership, the city must provide long-term subsidies from stable funding sources.

What defines an “affordable” fare for commuter ferries? There are many factors such as AMI, time savings, and convenience. When comparing travel options, NYC commuters tend to benchmark other modes to subways, and evaluate costs/efficiency based on MTA service. Affordability for all forms of transport, except perhaps automobiles, is therefore pegged to mass transit. Not surprisingly, the Mayor’s plan sets fares for new routes at \$2.75 to make ferries more attractive to the public. Due to limited non-emergency funding sources for ferry operations, low fares must be balanced by steep subsidies. Affordability therefore costs the city \$10-20 million in annual subsidies. If this commitment cannot be sustained year after year, fares will increase, with adverse effects on ridership. Though subsidies can and should be scaled back over time, the city may be forced to hold fares constant even as MetroCard prices continue to go up. Affordability is ultimately a test of what New Yorkers, as users and taxpayers, are willing to pay for an inter-borough ferry network, which is subject to change over time. To ensure long-term viability, the city should base fares on market conditions and not the cost of a subway ride.

Integration

Broadly defined, transit integration is a “process through which elements of the passenger transport system...across modes and operators [are] brought into closer and more efficient

¹⁴⁷ New York City Economic Development Corporation, “Pre-Proposal Meeting.”

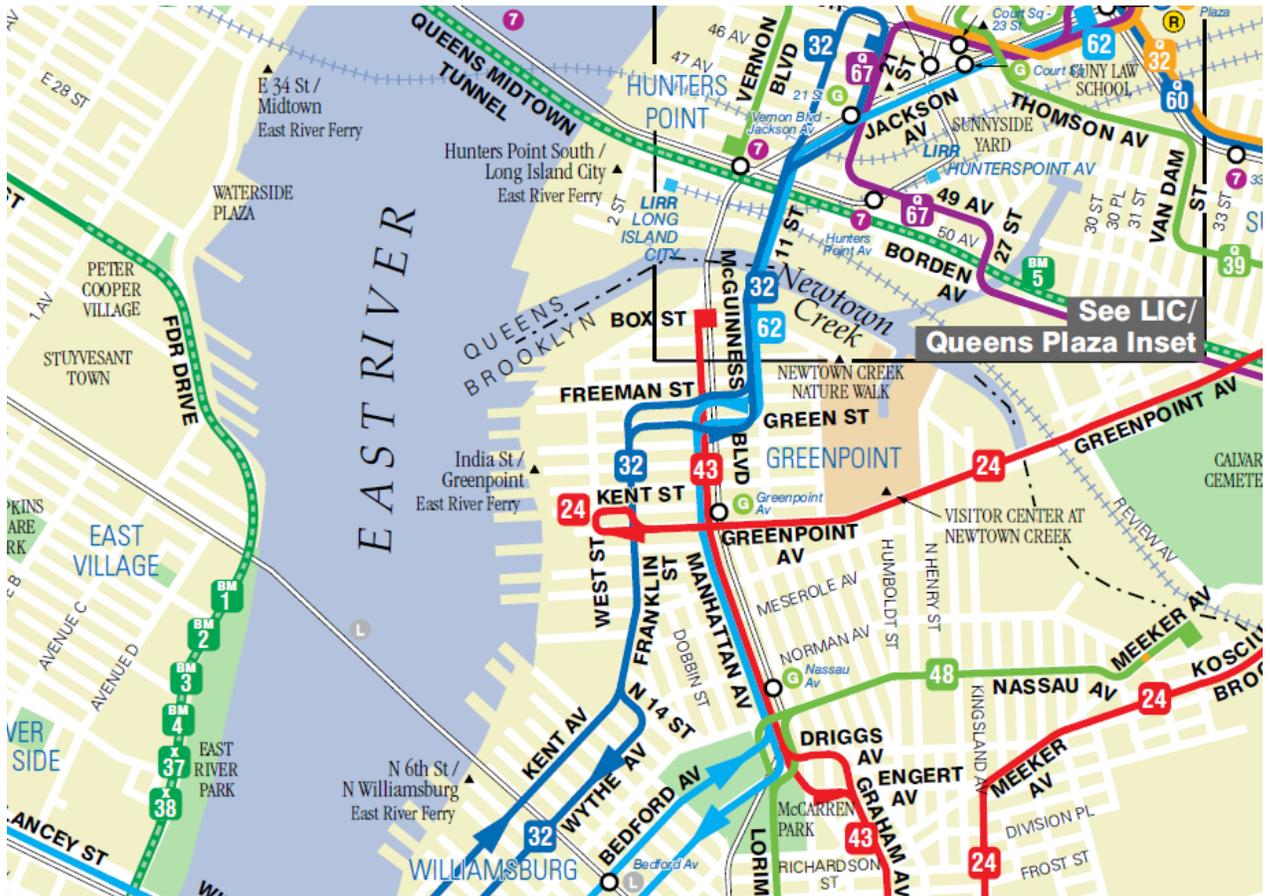
interaction, resulting in an overall positive enhancement to the overall state and quality of the services linked to the [respective] travel components.”¹⁴⁸ Integration has two main objectives: to facilitate seamless intermodal transfer and strengthen system ridership. The overarching goal is to increase the modal share of public transportation by diverting passengers from private cars.

The New York City ferry revival is now in its third decade. Yet integration with MTA transit remains low and limited, especially east-of-Hudson. While fare integration i.e. a single payment/ticketing system for all system modes, is currently infeasible, much could be done to enhance transit connectivity for the East River Ferry and the Mayor’s plan.¹⁴⁹ Due to their distance from subways, ferries rely on shuttle/bus connections for their users. Yet much of the Brooklyn/Queens waterfront is underserved by buses, especially in its industrial zones. In the next five years, Greenpoint and Hunters Point will add thousands of units in market-rate and middle-income housing. These developments generate demand for ferry service but not corresponding improvements in connectivity. In fact, access to land-based connections varies widely throughout the East River Ferry loop. In Manhattan, New York Waterway runs a shuttle from East 34th Street, but not other stops. Across the river, North 6th Street and India Street lack adjacent bus service; Hunters Point is bypassed entirely, despite proximity to LIRR (see MTA bus map detail in Figure 17). For ferry service to grow, better coordination is needed between NYCT Transit and private operators, who cannot provide all upland connections.

¹⁴⁸ Vahid Poorjafari and Mohammad Poorjafari , “Integration in Urban Public Transport Systems.” Paper presented at the 13th International Conference on Rail Transportation in Tehran, Iran, 2011.

¹⁴⁹ For a discussion of fare integration between private ferries and NYCT transit, see MWA white paper *Ship to Shore: Integrating New York Harbor Ferries with Upland Communities* (2014).

Figure 17. East River Ferry bus connections in North Brooklyn and Western Queens.



Credit: MTA – NYCT Transit.

Transit connectivity makes ferry service more convenient. However, convenience is more than “seamless intermodal transfer”; it’s an assessment of the total ferry experience. This includes reliability, wait time, and amenities. Unlike other modes, ferries rarely face traffic or breakdowns, but are affected by weather conditions, and resulting delays and cancellations. In cold winter months, commuters are less willing to make tradeoffs between wait time and travel time. Unlike Hudson River terminals, most East River landings are spud barges with gangway access (and future landings will be as well), which means they lack amenities like

bathrooms and shelters.¹⁵⁰ With the geographic isolation of ferry stops, and ferries' disconnect from municipal transit, these deficiencies work to undermine ferry ridership, and jeopardize the viability of commuter service.

Longevity

If affordability is achieved through subsidies, and integration facilitated by dedicated bus service, what is the path to system longevity? Apart from the Staten Island Ferry, there are no permanent east-of-Hudson commuter routes. Even the East River Ferry, now in its fourth year of successful operations, cannot claim an indefinite term of service. Most neighborhoods in the Mayor's plan have no recent experience with ferries. A few like Sunset Park and the Rockaways have seen a decade of cyclical service, which has built tension and distrust with NYCEDC. Waterfront communities are perennially underserved by public transit; as such, they want permanent ferries, and temporary routes with contingent funding do not advance this goal.

As discussed in Chapter III, ferry advocacy has many dimensions beyond commuter service. For Sandy-affected communities, water mass transit was a lifeline after the storm; many now consider ferries essential to future resiliency. By extending new routes, the Mayor's plan creates transportation equity for the New York waterfront and its neighborhoods; by building new landings, the plan expands *ferry access* and strengthens disaster response and recovery, citywide.¹⁵¹ Today, equity and resiliency dominate public discourse about ferries, yet policy discussions focus primarily on economics. These imperatives should be weighed equally in top-down decisions about system growth and its beneficiaries.

¹⁵⁰ New York City Economic Development Corporation, "Pre-Proposal Meeting."

¹⁵¹ The East River Ferry is the only fully handicapped-accessible form of transit in New York City, and this need and market is poorly understood.

C. Recommendations

The Mayor's plan is a watershed moment for water mass transit. Beyond already-expressed concerns, its bold scope and scale raise important questions about implementation. For example, should it be modeled after the East River Ferry and/or the city's post-Sandy response (installing basic infrastructure to facilitate immediate service)?¹⁵² Moreover, should the location/structure/phasing of routes be determined by consultant studies or community input? This paper contends that the plan's high stakes and potential impacts call for a public process to transform the status quo. A ferry system, municipal or private, is more than a collection of routes – it is a *regional* resource. Comprehensive planning with participatory mechanisms is necessary to realize, maximize, and sustain a five-borough ferry network. The final section below outlines an inclusive approach to NYC ferry policy via three intertwined recommendations, and future directions for exploration.

Involve Communities in Ferry Planning

Since the plan's announcement, its design has been questioned in two communities. Rockaway residents expressed frustration with the 108th Street dock, and called for more central service on the peninsula; Lower East Side groups disagree on the Grand Street stop, which some want moved south to Montgomery Street.¹⁵³ These controversies signal a need for better engagement in ferry planning and implementation. When transportation plans are presented as fact, public input is minimized and sometimes dismissed. Real community involvement is enabled through opportunities for meaningful participation, rather than tokenism. The city's ferry plan framework should be revised to allow and incorporate feedback, from formulation to execution. Communities can and should weigh in on all

¹⁵² At this stage, it appears that it will be, based on preliminary steps and information from the New York City Economic Development Corporation.

¹⁵³ Anthony O'Reilly, "NYC Seeks Citywide Operator for Ferries," Queens Chronicle, April 2, 2015.

aspects of ferry expansion, from site selection to landing configuration. While operators often control price, wait time, and reliability, other factors like location and amenities, often decided by the city, are also significant to ridership. Community consultation on these issues can clarify potential impacts and help address them prior to implementation. Participatory planning mitigates risk by ensuring “goodness of fit” between market demand and service provision. The city can facilitate this process by recognizing communities as partners in ferry expansion, using the following strategies:

1. Hold town hall meetings in neighborhoods slated for service in 2017.

The goal is to solicit feedback on new routes and landings. To maximize attendance, meetings should be scheduled outside working hours, with 30 days’ notice to community boards. Accurate information, including detailed maps, should be provided to all attendees. Presentations should be followed by Q&A sessions, with opportunities for public comment both during and after. These meetings would be held in fall 2015.

2. Create ferry advisory groups through the Metropolitan Waterfront Alliance.

The goal is to provide continued input into the Mayor’s plan. In 2013, MWA set up a working group in Soundview called the Bronx Ferry Alliance. The city should work with MWA to establish committees in all ferry neighborhoods. Committees should include local leaders, advocates, and residents, and be representative of their communities. The committees will be tasked with review of proposed service plans. MWA outreach would begin in fall 2015.

3. Engage committees to resolve issues in planning and implementation.

The goal is to build robust ridership at ferry stops and corridors. As part of its 2014 Citywide Ferry Study, NYCEDC retained a consultant to convene focus groups in

Manhattan. Going forward, the city should work with committees to maximize service participation, which means identifying and assessing barriers to (widespread) use. Committees could organize site visits, progress meetings, and visioning sessions (open to the public) to develop guidelines for ferry service in their communities.

Cultivate Ridership through Local Integration

Overall, east-of-Hudson ferries could be better integrated into their communities. Though ferries have become a tourist draw, local awareness of water mass transit remains limited. Commuters may not know that ferries are available to them, even when they stand to benefit from efficient service. While New York Waterway maintains an excellent website and posts status updates to Twitter, taking the East River Ferry still requires advance planning; riders must research arrival/departure times, landside transfers and bus schedules, and figure out how to get to the landing. These extra steps create inconvenience, and negate the time savings of ferry transit. If discouraged customers opt for subways, the rationale for providing service disappears.

Local officials and community boards play a vital role in building ferry ridership. In Bay Ridge/Sunset Park, Council Member Gentile and CB7 have pushed for ferry service in tandem with more buses to 58th Street (BAT Pier 4). However, local efforts have not been matched by integration measures, which are especially needed in M-zoned waterfronts, often the weaker links in ferry corridors. Despite their exclusive image, ferries can equalize access, foster resiliency, and boost local economies. The city can incentivize ridership by positioning ferries as local assets, using the following strategies:

1. Promote ferries as an option for all commuters in adjacent neighborhoods.

The goal is to increase and sustain community participation in ferry transit. With ferries there is sometimes confusion about the target audience, due to poor promotion. Low fares alone may not attract riders accustomed to taking subways. Therefore, rollout of new routes should be accompanied by marketing campaigns to inform local residents about ferry service. The city should provide community boards with details about schedules, fares and upland connections. Logistics and benefits should be clearly explained and text should be translated into languages spoken in those communities.

2. Transform East River landings into Hudson River-style ferry stations.

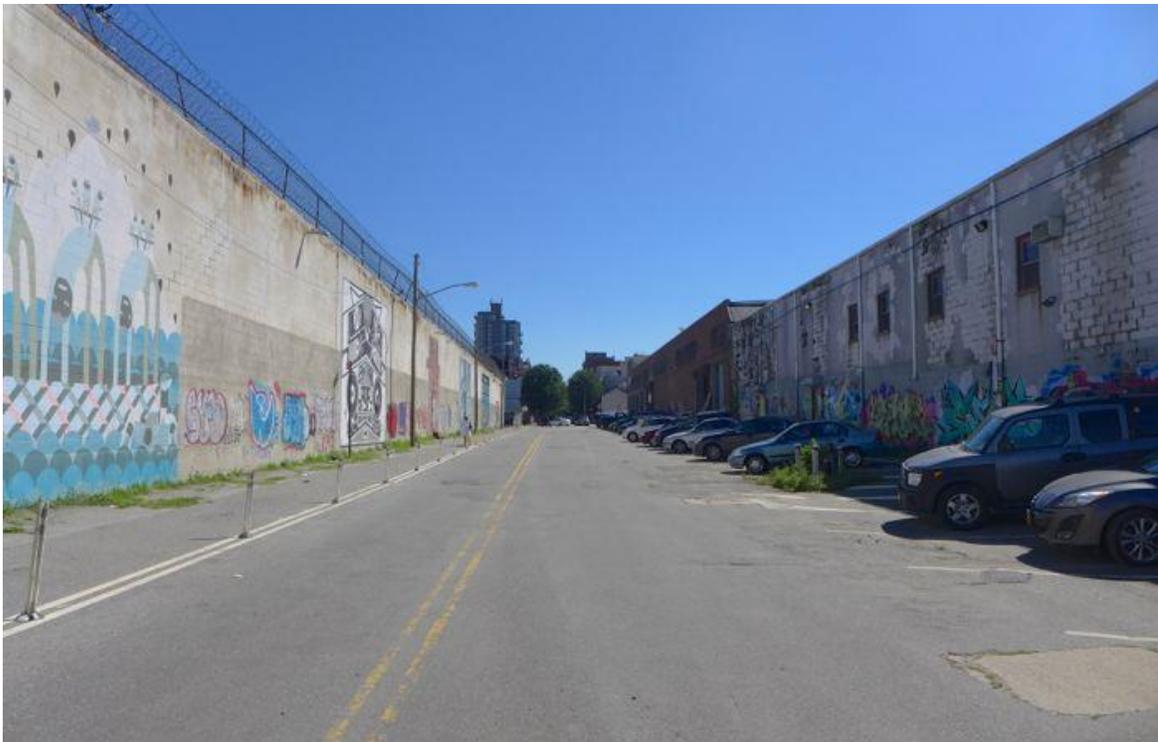
The goal is to maximize time savings, comfort, and convenience for users. Like transit connectivity, landing quality is highly unequal between Brooklyn/Queens and Manhattan. Pier 11 – Wall Street, while not quite a terminal, is far more advanced than India Street and Atlantic Avenue – Pier 6 barge/gangway landings. Terminals are expensive to build and should be justified by user density. However, targeted upgrades at East River sites could improve overall conditions and stimulate ridership. These are listed below with figure 18 for reference.

- a. **Provide connecting service to upland destinations.** If the MTA cannot add bus routes/capacity, the city should consider subsidizing free private shuttles (like New York Waterway service at East 34th Street). Bus/shuttle service should coincide with peak headways, and operate reliably during rush hours.
- b. **Provide better wayfinding and public information.** Bus connections shorten the distance to ferry stops, which is often a substantial walk. However, ferry landings are not easy to locate from inland areas; signage is

often small or spotty, and largely limited to the waterfront. The city should install visible signs (e.g. banners) along streets leading to the ferry, and major commercial avenues. Signage should be multilingual and provide clear directions to riders. Ferry maps and schedules should be posted at bus stops to emphasize connectivity.

- c. Provide enclosure and illumination for ferry riders.** Most ERF landings lack basic amenities, like bathrooms and shelters. With 20-minute headways, weather protection is important, especially in winter months. Some landings like Hunters Point South provide partial shelter, but do not shield users from high winds. Streets that lead to ferry landings can sometimes feel unsafe due to lack of lighting and foot traffic. The city should install lamp posts along industrial stretches of India Street and 58th Street in Sunset Park. MWA has suggested ways to enliven these corridors with concessions and landscaping. At present, the city lacks design guidelines for ferry landings. However, with five new routes and 20 landings, the Mayor's plan should set up quality controls. For example, the city could work with ferry committees to develop standards for landing features and configuration.

Figure 18. Landing at Hunters Pt South (top); India Street approach (bottom).



Credit: Foursquare Greg V. (top); Tribeca Citizen (bottom).

Prioritize Permanent, Rather than Year-Round Service

The discussion of sustainable service has stressed longevity over integration and affordability. This may appear counterintuitive; however, with sufficient (and sustained) demand, ferry routes may operate successfully with low connectivity and no public subsidy (e.g. New York Waterway's Belford Ferry). In the 1990s and 2000s many routes were initiated and abandoned as operators explored potential markets. After thirty years, the system has reached maturity, through waterfront development is creating new demand east-of-Hudson. However, experience shows that ferry markets vary greatly along the East River. The Mayor's plan commits great resources to ferry expansion, but even with competitive fares some stops and routes may not support commuter service. The Mayor's plan thus imposes a paradigm that may not fit all communities. To avoid systemic failure, it is advisable to decouple permanent and year-round service for low-demand neighborhoods. Some may be better candidates for seasonal service, i.e. May to October, when ferry ridership reaches its peak. This policy would maximize operator resources, conserve subsidies and result in better service citywide. Market distinctions will become apparent with first-year ridership figures; though communities may prove resistant to cutbacks, it is better to reconfigure routes than terminate, or lapse service. In sum, a far-reaching ferry system is far superior to one that serves only markets with high demand.

D. Conclusion

If it can be sustained, a five-borough ferry network will be a true game changer for New York City. To do so, the city will need to strike a balance between equity and economics, which has not been achieved on the East River. The Mayor's plan is an example of good government and commendable for its ambition, despite inherent risks; the extension of ferry access to low and high-income communities is necessary and just; the creation of a funding pot resolves the contentious issue of subsidies. The unprecedented system expansion will also alter service structure in New York City, since no operator has the capacity to serve all planned routes. As service areas grow beyond the East River Ferry, demand will require greater coordination of fleets, and reciprocal relationships between operators. Many plan details have yet to be revealed; Mayor de Blasio has shown openness toward community input, so the framework may change before 2017. In the next year, NYCEDC will select operators, award construction contracts, and finalize its Citywide Ferry Study, in anticipation of 4.6 million new riders. Whether the Mayor's gamble succeeds will not be clear until 2019. It is the author's hope that the city will work together with communities for affordable, integrated, and permanent service for all.

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