FERRY POLICY & PLANNING IN NEW YORK CITY

Considerations for a Five-Borough Ferry System

NYCEDC
New York City Economic Development Corporation

WAVES
Waterfront Vision & Enhancement Strategy

INTRODUCTION

New York City is a city of islands and over 500 miles of shoreline. As such, its reliance on waterborne transportation pre-dates the five boroughs. Development of bridges and tunnels and migration inland throughout the 19th and 20th centuries eventually eroded ferry transportation until its resurgence in the late 20th century. Recent economic shifts opened up more shoreline property to residential, recreational, and commercial development. With that came new opportunities for ferry services, beginning on the Hudson River in the 1980s, and continuing to this day on the East River.

New York City's Comprehensive Citywide Ferry Study performed in 2010 indicated strong demand for ferry transportation and its potential for activating waterfront neighborhoods. In response to these findings, the City of New York defined expansion of ferry systems as a priority in the Waterfront Vision and Enhancement Strategy (WAVES) and initiated the East River Ferry pilot service in June 2011. In conjunction with the Citywide Ferry Study update, this paper provides a preliminary road map for expansion to a five-borough ferry system, building on lessons learned and defining best practices.

BACKGROUND

The popular Staten Island Ferry and Trans-Hudson services between New York and New Jersey have experienced sustained high ridership and success. However, the performance of other ferry services within New York City, particularly along the East River, has proven to be less consistent. Recently, the tides have started to change as several ferry services, led by partnerships between the City of New York and private ferry operators, have emerged, and providing strong evidence of an increased appetite for waterborne transit service within the five boroughs.

New York City Economic Development Corporation (NYCEDC) performed a Comprehensive Citywide Ferry Study in 2010 (http://www.nycedc.com/resource/comprehensive-citywide-ferry-study).

That ferry study examined over 40 sites in the five boroughs for ferry service potential. The Citywide Ferry Study examined factors such as residential development, commuter and recreational demand, and the costs associated with various service configurations. Since that

study's release, the City has undertaken several new ferry services, most notably the East River Ferry pilot program which began in the summer of 2011. The East River Ferry is a year-round service linking seven stops along the East River in Brooklyn, Queens, and Manhattan, with added service to Governors Island on summer weekends. Service runs from approximately 7 am to 9 pm, providing a transportation option to satisfy commuters and leisure riders. The City has implemented two other services since the launch of the East River Ferry, primarily in response to Hurricane Sandy. These post-Sandy services, one a commuter service to the Rockaway Peninsula, Queens, and the other a summer weekend service to Red Hook, Brooklyn, provide evidence of latent demand for transit alternatives. These examples also demonstrate how ferries are tools for waterfront economic development and aid transportation recovery after disruptive events because of their rapid startup ability and operating independence from rail and roadway systems.

In light of lessons learned from these new ferry services, continued residential and commercial waterfront development, and the availability of updated U.S. Census Data, NYCEDC launched an updated Citywide Ferry Study in the summer of 2013. The Citywide Ferry Study update will provide potential new ferry route choices. This paper, produced in close coordination with the updated study, informs both decision-makers and stakeholders about the factors that determine success or failures of ferry routes, the capital investments required for expansion, and identifies emerging ferry market opportunities.

The paper is organized in three core topics, as follows:

1. **Ferry Planning Best Practices and Lessons Learned**: Defining parameters for a successful service and identifying capital needs.
2. **Policy Considerations:** Management, regulatory and financial support decisions.
3. **Ferry Expansion:** Benefits, justifications, and challenges associated with potential new markets for ferry service.

FERRY PLANNING: BEST PRACTICES AND LESSONS LEARNED

FERRIES' ROLE IN NEW YORK'S TRANPORTATION SYSTEM

FILLING TRANSIT GAPS

East River Ferry landing in Greenpoint, Brooklyn

Successful ferry service fills a need when other transit modes are absent or remote. In this role, ferries act as an essential tool in unlocking the development potential of underutilized waterfront areas. Because ferry landings are relatively inexpensive to build and ferry boats can be flexibly deployed, ferry services that have sufficient surrounding population density, are reliable, and are easy to access have proven to be viable transportation solutions.

High population density and a strong network of established transit systems ensure that subways and buses will remain the preferred means of transporting large volumes of people across the five boroughs. However, ferries can act as a cost-effective tool to fill transit gaps in newly developing neighborhoods across the City's extensive shoreline and supplement such existing transit systems. Ferry landings can be constructed relatively quickly, and at a fraction of the cost of subway infrastructure. For example, the extension of the 7-train required $1.6 billion per mile served, infrastructure serving the East River Ferry cost $8 million per mile served. Although buses require relatively little capital investment, they face service challenges of providing timely and reliable service on already congested roads and river crossings.

TRANSIT CONGESTION RELIEF

Ferries enable load-shedding from highly congested subway lines that operate at or near capacity and face sometimes insurmountable challenges to increase capacity. When these highly congested subway lines span or border our waterways, ferries can provide a lower cost solution to help shoulder the load.

SERVICE ROUTE FLEXIBILITY

As New York's development patterns continue to change and new communities and job centers emerge, ferries provide a transit mode that can be implemented quickly, serving routes that are easily modified to meet demand in a constantly evolving city. In many respects, ferries can serve as development-oriented transit, rather than the more traditional (and significantly more expensive) transit-oriented development.

QUALITY OF LIFE

Surveys conducted for NYCEDC and strong anecdotal evidence suggests that commuters and tourists value the relative serenity that ferry service can provide. There is a benefit in enjoying a pleasant commute or a ferry trip to a waterfront event on the weekend. Like a room with a view, ferry transportation offers more than just a ride often becoming as important to the rider as the destination itself.

PARAMETERS FOR SUCCESS

Many parameters for success that apply to ferries are common to all modes of transit such as safety, frequency of service, and appropriate hours of operation (year-round for commuters vs. seasonal weekend service for some recreational destinations). Factors for success that have proven important to the growth of ferry service within New York City include:

ATTRACTIVE ROUTES

Creating the right routes that attract the greatest number of potential riders at the lowest cost is critical to ferry success. Successful ferry routes balance service to enough locations to attract riders while avoiding becoming so expansive that travel times become too long.

The East River Ferry and its predecessors provide an example of the importance of route design. Whereas the East River Ferry serves many of the same waterfront communities and travel purposes as past services, important route design alterations have helped to create a more successful and sustainable service in its current configuration. Past services were weakened because they did not provide enough service frequency to attract dedicated riders; rider demand from single destination services was not high enough to sustain service; and service was deemed unreliable during foul weather. In contrast, the East River Ferry provides 20-minute frequency during peak commuting hours, serves a network of seven year-round locations, and only

suspends service as a result of weather conditions when directed to do so by the Coast Guard. While consistent and adequate financial support has been critical to the success of the East River Ferry, good design is also an important factor. This has been demonstrated in past services on the East River where financial support was provided by private interests, but services could not maintain ridership. By connecting to places riders wanted to go (Manhattan Midtown and Downtown, DUMBO) on a reliable and convenient basis, East River Ferry overcame the uncertainty factor and garnered more riders than predicted.

East River Ferry at the DUMBO landing

Another important aspect of route design is building a strong network of stops that leverages strong ridership at one location while building a ridership base at other stops over time. Whenever designing a ferry route, an analysis of the "marginal rider" informs whether adding new stops will produce enough new passengers to offset any travel time delay to riders from other locations.

Another design challenge is servicing more distant locations. The farther one gets from the hub terminals in Manhattan and Brooklyn, the higher operating costs become because of greater fuel usage and the need to deploy more boats to maintain service frequency. More distant locations often feature lower population densities and generate minimal time savings as compared to competing transit modes.

RELIABLE FUNDING

FEDERAL

Ferry services in the New York region are publicly funded by a variety of sources, mostly through capital assistance for infrastructure. Federal grant programs supporting capital projects include Transportation Investment Generating Economic Recovery (TIGER); Federal Transit Administration Section 5307 Discretionary (FTA 5307); and Moving Ahead for Progress in the 21st Century (MAP-21). Even though federal capital assistance is available, New York City's ferries are disadvantaged because current federal formula programs are administered through the Federal Highway Administration (FHWA) and therefore favor vehicle transportation over passenger transit. MAP-21, the current transportation authorization bill, uses a distribution formula that prioritizes the number of vehicles carried over a given distance, rather than the number of passengers carried. A more balanced formula program should consider the value of passenger movements on more equal footing to the absolute distance of a ferry route and number of vehicles transported.

A pervasive challenge faced by ferry operators is the lack of available resources for operating funding. No direct operating assistance is offered on a federal level.

STATE

State grant programs, such as those offered by Regional Economic Development Councils; also provide an opportunity for capital improvements. Operating funding assistance, on the other hand, is significantly harder to obtain. It is largely unavailable except at a local level on a discretionary basis. The East River Ferry's operations are financially supported by City tax levy funds. At the state level, the only source of operating funding is NYS Department of Transportation's (NYSDOT) State Operating Assistance program (STOA). This program is chronically underfunded and relies on a formula to distribute limited funds. While the Staten Island Ferry receives assistance from STOA, all other ferries were made ineligible through legislative changes aimed to prevent direct financial support to private ferry services. Because of these restrictions, the newly formed ferry routes in New York City operated by private companies under contract to NYCEDC remain ineligible for assistance. State legislation should be pursued to modify the STOA to include other ferry systems. Ideally, best efforts should be made to increase the amount of operating financial support available so existing recipients are not negatively affected.

CITY

As mentioned above, City tax levy has been the main operating support for ferry services. Another option for operating assistance would be the implementation of a tax or fee on properties in the immediate vicinity of ferry landings in order for the costs to be borne through those property owners who benefit most directly from proximity to ferry service. The ongoing Citywide Ferry Study will include a detailed analysis of the economic impacts of the East River Ferry on its current service route. A portion of increased property value attributed to the ferry could be reinvested in sustaining ferry service through a ferry assessment district. The size and location of each district should be determined on the primary catchment area for each ferry landing, which would vary based on whether ferry passengers primarily walk to the ferry, or drive.

Capital contributions from City Council members also have the potential to support ferry service.

PRIVATE

Historically, private developers and condo associations have also contributed to ferry service operations to support service for tenants. Acknowledging the increase in value that ferry service contributes to nearby properties, private developer funding should also continue to support ferries.

MANAGING FUEL COSTS

Diesel fuel costs can comprise over half of the operating expenses associated with ferry operations.

To address this challenge, fuel costs can be minimized in several ways:

- Operating boats appropriately sized to meet rider demand
- Operating vessels at fuel-efficient speeds
- Maximizing the number of riders served per operating mile
- Retrofitting existing boats in the harbor with fuel-efficient engines
- Designing new boats specifically to meet the operating characteristics of New York Harbor
- Supporting and monitoring ongoing research on alternate fuels (compressed natural gas, liquefied natural gas)

RELIABLE FREQUENCY

Similarly, frequency of service is critical to rider attraction and retention. For ferries to compete with other forms of transit, commuters need to know that a ferry will consistently arrive and depart on time. When a new stop is added to a route, frequency of service can be impacted unless additional vessels are added.

SEASONALITY

Responding to market needs that vary based on weather and special events is another major consideration when defining ferry routes. While commuters require year-round service regardless of weather and operating conditions, seasonal service and operating frequency can be varied to reduce costs. For example, the East River Ferry maintains consistent peak commuting service patterns year round, but reduces frequency of service on winter weekends to reduce costs when demand is lower. The East River Ferry route also expands during summer weekends to serve Governors Island. These considerations require a balance between providing a reasonable service frequency, minimizing operating costs, and maximizing ridership revenue to offset costs.


East River Ferry evening service

PHASED GROWTH

Phased growth is recommended to maintain sustainable ferry services. Planning exercises such as the Citywide Ferry Study enable informed decision-making on the growth of ferry systems as the city's population and travel patterns change. Because of the exponential costs of adding vessels, the high costs of fuel, and limited availability of public funds, especially operational funds, any growth in services must be carefully planned.

WATERFRONT DEVELOPMENT

Waterfront development is not only a significant justification for the provision of ferry service, but it also provides opportunity for resources to support ferry service, as one often complements the other. The timing of such developments is important to consider when determining the timing of initiating new or expanded ferry service. It is important that ferry services are integrated early in a developer's planning process to protect waterfront space for ferry landings, queuing areas, ticketing, and passenger shelters. Fortunately, many waterfront developers view ferry service favorably, and as a result, there is opportunity to partner with public agencies to access private funding for operating expenses, capital improvements, and upland amenities. If well planned, the implementation of ferry service can coincide with the opening of new commercial and residential developments in such a way that minimizes public operating financial support.

Passengers disembark at North Williamsburg, Brooklyn

COMPLEMENTING TRANSPORTATION NETWORKS

New York has a robust transit network providing residents and visitors with multiple options for traversing the city. Ferries can complement these systems by extending the reach of the traditional transit modes into waterfront areas that are more recently developed for residences and commerce. Ferries can also help ease the loads on higher-capacity modes such as subways and can be implemented much more quickly and cheaply. However, ferries run at a higher cost per passenger than higher capacity subways. Optimally, ferries can complement existing networks by connecting to higher-density waterfront areas where subway expansion is infeasible, slow to implement, or other existing transit modes are operating at capacity. In addition, ferry service can be used to create redundancies in the case of the failure of other modes after an emergency. For example, following Hurricane Sandy, while subways were not operating, the East River Ferry was rapidly returned to service and reconfigured to serve twice its normal capacity.

MINIMAL TRANSFERS

A one-seat ride and minimal transfers often attract riders even when travel time by ferry is longer than alternative modes. The East River Ferry results in similar travel times as other modes for some of its more popular landing locations, but draws riders because it provides a one-seat ride to a large majority of riders and is highly accessible. A survey of over 1,300 riders demonstrated that nearly 75% of East River Ferry riders walk to and from the ferry, with no transit transfers required.

At the same time, ferry landings that are more difficult to reach by foot have faced challenges in attracting riders—particularly those who do not already commute by car. The Rockaway commuter service has drawn strong ridership, but is dependent on personal vehicles to get to the ferry landing. Over 70% of riders drive to and from the ferry, indicating that parking is a key provision in maintaining ferry ridership in Rockaway.

Another example of the importance of fewer mode changes during commuting is the ferry service from the Brooklyn Army Terminal in Sunset Park. Historically, service from this location has attracted few riders arriving by car despite readily available parking. Sunset Park and nearby Bay Ridge commuters generally live within walking distance to the subway and therefore have demonstrated less willingness to drive to the ferry. One caveat to this, however, is the recent

experience of the Brooklyn Army Terminal ferry where ridership is currently at a historic high. Ferry service was implemented in August 2013 to address significant disruption to R line service resulting from the temporary closure of the Montague Street Tunnel which feeds trains to and from Manhattan. While it is anticipated that demand for ferry service from Sunset Park and Bay Ridge will likely decrease when regular subway service is restored, this example does demonstrate the vital role ferries can play during disruption to the traditional mass transit system.

Passengers enjoy the view from the top deck of the East River Ferry

PLEASANT RIDE

A more pleasant ride is a major attractor of riders to ferry services and therefore should be a key consideration when planning ferries services. In a time where remaining digitally connected is critical in professional and personal lives, ferry riders spend all of their travel time above ground, allowing them uninterrupted access to cellular networks. For neighborhoods where subways are at or nearing capacity, ferries provide a more comfortable and less crowded commute. Riders also place a value on the sights and sounds of being out on the water. A survey of Rockaway ferry riders showed that a “more pleasant commuting experience” is the top reason for riding, and patterns of high ridership on good weather days support this claim.

TIME SAVINGS

Travel time savings is appealing to riders, particularly commuters. Although it has been assisted by significant public financial support to maintain a fare that is lower than competing subway service, the current Rockaway commuter service has been successful in attracting and keeping riders. Rockaway ferry service ridership *increased* in the summer after subway service was restored... The current service uses a faster vessel than the previous 2008 pilot program and over 80% of commuters save time by riding the ferry in comparison with their alternative primary modes of travel. The second highest reported reason for riding the service after “more pleasant commuting experience” is that the service “saves time.”

CAPITAL NEEDS

Ferry service capital infrastructure mainly includes ferry boats and ferry landings. New York’s mostly privately owned ferry fleet entered service in the late 1990s and early 2000s. Ferry landings, both private and public, have been constructed or rehabilitated over the same time period. Below is a discussion of how capital needs have been addressed in the past and what future needs are likely to be.

VESSEL OWNERSHIP

The Staten Island Ferry and portions of the Governors Island Ferry are the main publicly-owned ferry fleets in New York City. All other vessels are owned and operated by private companies. While this structure has largely functioned well, as the system grows and evolves, it will likely need to be revised based on several factors.

A potential strain on piloting new ferry routes is that private operators cannot finance the purchase of new boats without long-term contracts, Public entities wishing to promote and support ferry service often have access to capital funds which could go toward vessels. Although the legal structuring of leasing publically owned boats to private operators presents significant challenges, it is possible that going forward some of the existing operating funding challenges might be reduced if public entities access capital funds to purchase ferries for use in New York Harbor. Public ownership of boats should be further explored if publicly supported ferry services continue to grow.

VESSEL DESIGN

Many of the boats operating in New York Harbor today were not designed for use in New York Harbor and are not optimal for the local operational and environmental context. Loading configurations, wake production, engine efficiency, and emissions are key considerations that need to be incorporated into future vessel design. Since many boats in use today have significant remaining useful life, in the short and medium term, retrofits could result in fuel savings, environmental benefit, and operating efficiencies across the various systems. Going forward, it would be optimal to have a fleet of varying size to provide options that promote fuel efficiency while meeting varying service demands.

VESSEL AVAILABILITY

As ferry services and water transportation become increasingly popular in the New York area, the existing boat fleet has become strained during peak operating seasons. Regular City-sponsored services must compete with higher revenue generating uses, such as privately sponsored summer weekend events that generate higher profits for boat operators. As a result, adequate assignment of boats is a growing challenge for less-profitable transit services when faced with direct competition of higher revenue summer services. Some of the strongest services in the area attract both commuter and leisure riders, and boats that once alternated between commuter and recreational services depending on the day of the week now face growing demand for use. For example, dedicating larger boats (those carrying up to 399 passengers or more) to events such as summer concerts at Randall's Island requires that the large boats serving East River Ferry weekend crowds be replaced with smaller boats, resulting in schedule changes, passenger confusion, and potential service delays. It is clear that as ferry service in New York Harbor continues to grow, so too must the fleet of vessels so that riders do not face delays and boats are not reaching capacity and discouraging use of these new systems.

FERRY LANDINGS

The majority of ferry landings in New York City are spud barges, consisting of a floating barge that is anchored in place using spud piles driven into the river bottom. These landings cost less to build than infrastructure required for other modes of transit. In general, the cost of a new landing ranges from $2 million to $7 million, depending on factors such as water depth, soil and shoreline conditions, and access to utility infrastructure such as power. Other considerations when constructing landings include securing passenger access from the shoreline, supporting

amenities such as passenger shelters and ticketing infrastructure, and accounting for required time and costs for design and permitting. These items require time and resources to complete, often taking longer to address than the actual construction of the physical ferry landing. Therefore, planning for the future of New York's ferry landing facilities should consider landing ownership.

LANDING OWNERSHIP

Most of the city's existing ferry landings are publicly owned, managed, and operated by NYC Department of Transportation, Port Authority of New York & New Jersey, NYCEDC, and NYC Department of Small Business Services. Constructing public landings is costly to the city, but it allows flexible use by a variety of operators. Public ownership also allows the City to deploy landings in response to changes in travel patterns and demand. Many federal and state grant opportunities allow for the construction of ferry landings but require a significant local match in funds at the city level the preferred model is for ferry landings to be publicly owned and controlled, but to receive private contributions towards the cost of constructing and maintaining landings. However, there may be certain instances in which private ownership is necessary.

PRIVATE SPONSORSHIP

Private sector participation also provides opportunity for ferry expansion through assistance with ferry landings and upland amenities, particularly from waterfront developers seeking to increase property value and accessibility for residents and employees. Not only have developers shown their commitment to ferry service through the privately funded construction of piers and ferry landings such as the East River Ferry's South Williamsburg and Greenpoint landings, but they have also acted as strategic partners in providing attractive amenities on the adjacent shoreline, and marketing of services to neighborhoods as a whole.

AMENITIES

Amenities at ferry landings are another major factor in attracting and maintaining ridership. To keep commuters using ferries throughout the year, passenger shelters for protection against the elements need to be provided at all landings. These shelters must also provide a view to identify approaching vessels. Upland areas must allow space for queuing without preventing access to the waterfront or adjacent pathways. Proximity to parks and other nearby upland destinations, clear way-finding signage, adequate lighting, and convenient ticketing solutions located near ferry landings all contribute to the attractiveness and convenience of a ferry service. Vending opportunities in proximity to ferry landings provide additional conveniences for riders.

FLEXIBILITY

As previously mentioned, flexibility of ferry landings is increasingly viewed as a critical aspect in ferry planning. Because ferry landings can be relocated to different locations across the City's waterfront rapidly at a relatively modest expense, ferries are inherently adaptable to meet changing neighborhood needs and travel patterns.

Since most ferry landings in New York Harbor are spud barges, it is relatively easy to relocate landings, as piles can be removed and the barge can be transported to a new location by floating the barge elsewhere, and then anchoring it into place in the new location by driving the piles again. Spud barges are usually connected to the mainland by a hinged gangway that also allows for vertical movement with the tides. It is recommended that ferry landings be designed to

accommodate both front- and side-loading vessels, and that they are designed to be compatible for use by an Austen Class Staten Island Ferry vessel, which is the primary vessel assigned for emergency use in the city.

The ferry response to Hurricane Sandy is a recent example of this flexibility advantage. Just two days after the storm passed, the Rockaways commuter service was mobilized by NYCEDC by moving a ferry landing from New Jersey to Beach 108th Street. Rockaway ferry service has since served over 130,000 commuter trips since it was launched in November 2012. As previously discussed, in August 2013 NYCEDC added an additional stop at the Brooklyn Army Terminal to help serve the Sunset Park area and offset the closure of the R-Train Montague Street Tunnel. In addition, a preexisting Rockaway summer beach ferry service was easily expanded to include an additional stop at Beach 108th Street. The enhanced summer weekend service provided over 4,000 rides, promoting economic revitalization across the Rockaway Peninsula.

Ferry service was also expanded in Red Hook, another community hard hit by Sandy. The IKEA ferry service was augmented by activating an unused ferry landing at the end of Van Brunt Street for free ferry service during summer weekends. This summer, 25% of all riders to and from Red Hook used the new ferry location, which has helped Red Hook small businesses recover from the storm.

It is important to note that while ferry landings can be relocated, service locations require upland infrastructure, such as pedestrian access and utilities, to support service activation. Also, water depths and navigational issues are important considerations in establishing ferry service.

POLICY CONSIDERATIONS

OPERATIONS

MANAGEMENT

Design and operation of ferry services benefit from the expertise of a transportation agency that oversees ferry operations. However, transportation agencies are not structured to allow for the proven and growing model of private funding contributions toward ferry services. For example, NYC Department of Transportation is unable to accept funds in escrow from a private developer who might want to contribute towards operating or capital costs associated with providing ferry service to a waterfront development. While an agency such as NYCEDC may not have the depth of resources of a dedicated transportation agency, there are advantages to its nimble financing structures that allow for partnership with private entities. Ultimately, the overseeing agency or team of agencies must have transportation expertise and the ability to sustain evolving funding needs through private partnerships.

REGULATIONS

A significant hurdle to expanding ferry service in New York is the environmental approvals and permitting processes associated with constructing new ferry landings. The installation of these structures in the water must be considered for impacts on coastal resources, such as shading, filling, and impacts to benthic and vegetative habitat. The time associated with these reviews (several years in some cases) contributes to delays in implementation of ferry service and weakens competitive applications for grant funding. For example, FDR Four Freedoms Park hoped to implement a pilot ferry service for the 2013 summer season, but despite funding and design availability, the project timeline was not feasible because of the length of the required permitting and review process. Construction of ferry landings often requires identification of locations to mitigate environmental impacts, and waterfront locations available for mitigation projects are becoming increasingly challenging to identify as mitigation opportunities become scarce.

Another concern associated with the length of approvals is that many federal grant programs can be out of reach for ferry projects because the environmental approvals associated with new ferry landings often cannot be met within grant program timelines. This affects funding opportunities. For example, NYCEDC's recent application for a TIGER grant was restricted to modernization and improvements to existing ferry landings because the timeline for obtaining permits for new landings must be completed within the timeline of the grant program.

A proposed solution to these regulatory challenges would be for the City to apply for a U.S. Army Corps of Engineers nationwide permit to allow for standard ferry landings in New York. The general permit would last for ten years, and any specific conditions of proposed new landings could be addressed by supplemental reviews, saving significant time and money. Additionally, a generic Environmental Impact Statement could be developed that would be the basis for site-specific environmental reviews.

COSTS AND RECOVERY

FARES

Setting the fare level for any transit mode is a balancing act between attracting enough riders and earning enough revenue to sustain service. Pricing can have an enormous impact on ridership and needs to be carefully designed to provide the greatest value to the largest possible number of potential riders while still optimizing financial viability.

Ferries, like most other transit modes, often require financial support to reduce fares to a level that is attractive to riders. While the level of fare transit users are willing to pay indicates the value that riders place on a service, the level of financial support required fills the value gap between the direct benefit received by the transit rider and the overall public benefits provided to society through the provision of service (for example, reduced roadway and subway congestion for non-ferry riders).

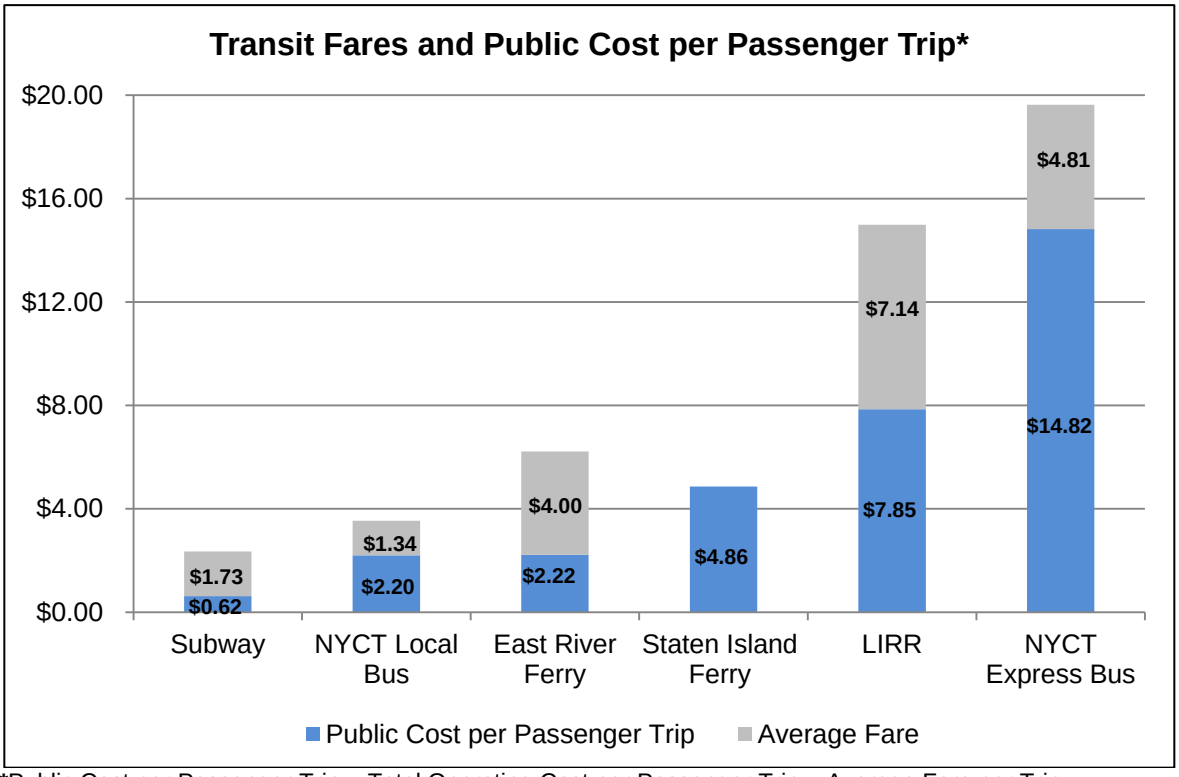
Information on current fare levels for ferries serving New York City are provided in the Appendix.

FERRY COSTS AND RECOVERY COMPARED WITH OTHER MODES

The East River Ferry is financially supported at approximately $2.22 per ride, bringing the actual total cost for each ride to approximately$6.22. This financial support places the ferry at a higher public cost per ride than subways, but on par with the $2.20 public support required for each local bus ride. In comparison, the public cost per ride on express buses is nearly seven times the public cost per ride to provide East River Ferry service. Express buses are considered to be the most comparable service to ferries because they match ferries premium service attributes, such as guaranteed seats, travel time savings, and flexible implementation.

Ultimately, the fare structure selected for ferry routes depends on the policy approach to a water transit system. The formula should weigh the importance of providing an affordable public service against the objective to minimize costs.

Figure 1. East River Ferry Fares and Operating Financial Support Compared to Other Transit Services



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

Table 1. East River Ferry Fares and Operating Financial Support Compared to Other Transit Services

Mode of Transport	Farebox Operating Ratio**	Average Fare	Public Cost per Passenger Trip
MTA Subway	73.7%	$1.73	$0.62
East River Ferry	64.3%	$4.00	$2.22
LIRR	47.6%	$7.14	$7.85
NYCT Local Bus	37.8%	$1.34	$2.20
MTA Express Bus	24.5%	$4.81	$14.82
Staten Island Ferry	0%	$0.00	$4.86

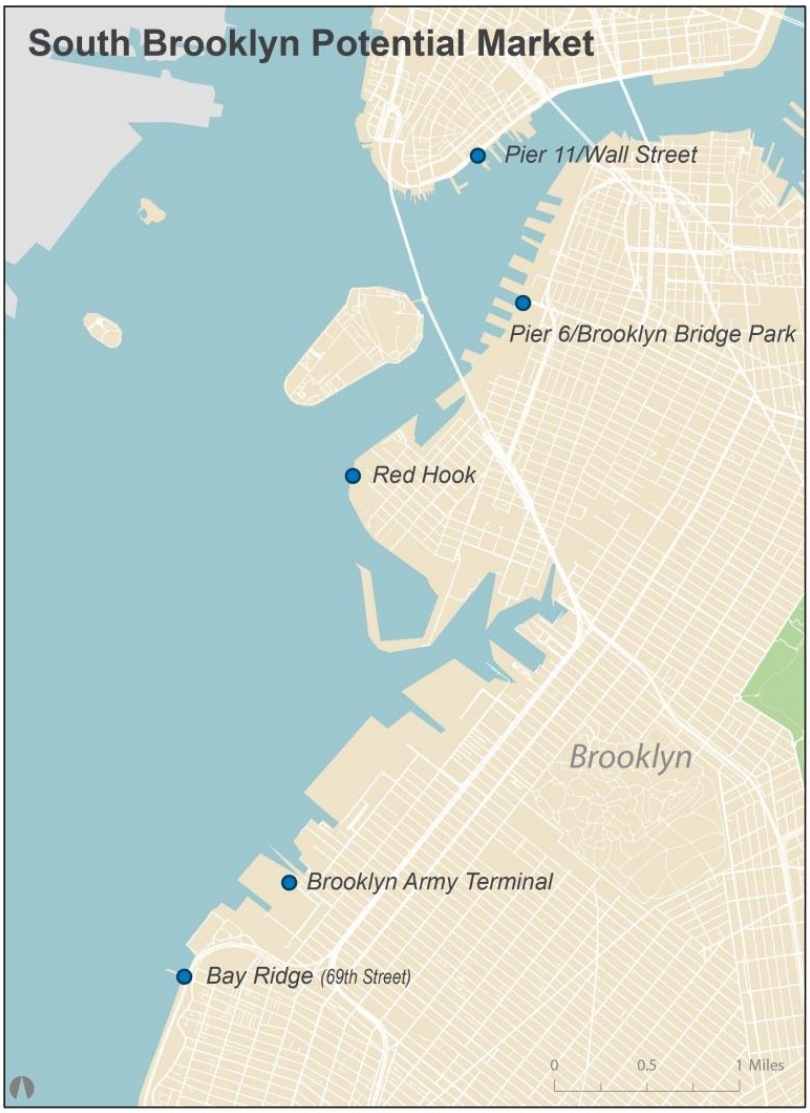
**Farebox Operating Ratio = Average Fare / (Public Cost per Passenger Trip + Average Fare). Reflects the revenue recovered from passenger fares compared to agency level operating costs.

Sources:
Information for Subway, NYCT Local Bus, NYCT Express Bus, and LIRR is based on 2012 data provided to NYC EDC by the Metropolitan Transportation Authority (MTA) in July and October 2013. Information for Staten Island Ferry is based on 2012 data provided by the NYC Department of Transportation (NYCDOT) in September 2013.

POTENTIAL NEW FERRY MARKETS

The recent success of the East River Ferry pilot program and positive response to the post-Sandy Rockaway and Red Hook services have increased the public's desire for additional ferry services. The new Citywide Ferry Study will provide a detailed analysis of a possible future five-borough ferry system. Based on current knowledge, the following are potential new markets for ferry services.

South Brooklyn



South Brooklyn, including waterfronts in Red Hook, Sunset Park, and Bay Ridge offers potential expansion opportunities. Ferry service in the area has operated in recent years to landings at the Brooklyn Army Terminal, the Van Brunt Street Pier in Red Hook, and Brooklyn Bridge Park Pier 6. While past ferry services to Brooklyn Army Terminal experienced low ridership, changing population demographics and new investment makes this area potentially attractive for new and expanded ferry service.

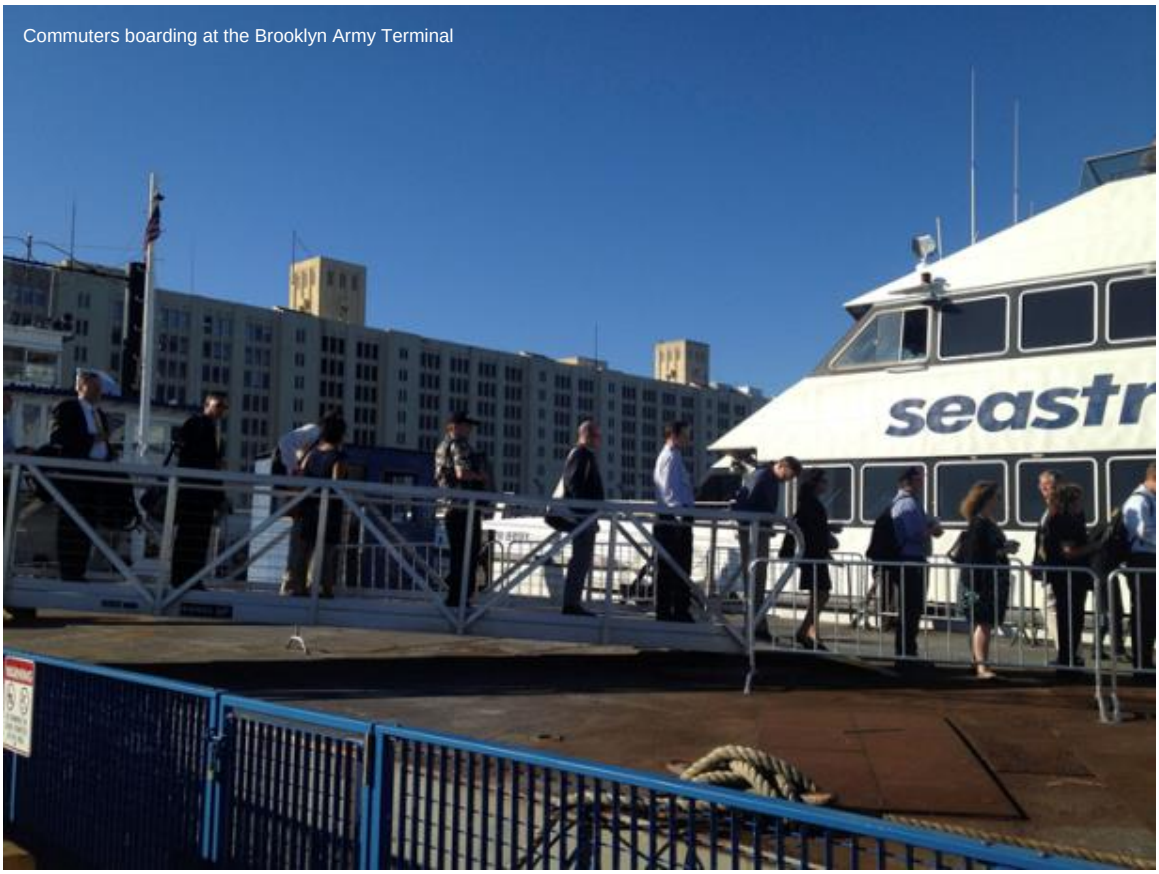
The population of Bay Ridge is increasingly younger, and more residents now commute from Bay Ridge to Manhattan. Many of these new residents are bicyclists and more likely to bike to a nearby ferry landing. The Sunset Park neighborhood, particularly along the west side of the Gowanus Expressway, including the Brooklyn Army Terminal, Industry

City and the former Federal Building, will make the area more of a commuting destination. Additionally, there is growing demand for an alternate commuting option to the nearby Lutheran Medical Center, a major employer within walking distance of the ferry landing. Uniquely, Brooklyn Army Terminal is one of the few ferry landings within the City that has parking adjacent to the landing, which has some ridership appeal.

This summer, to assist businesses damaged by Hurricane Sandy, weekend ferry service was expanded in Red Hook and served over 100,000 riders at its new location**.** Daily, year-round service to this transit-challenged community would make Red Hook accessible to Manhattan and other Brooklyn neighborhoods. In addition, ferry service can spur or complement new investment along the industrial waterfront, where a former beverage warehouse is now slated for development into a technology, media, and fashion center.

North of Red Hook, there has long been community support for ferry access at Brooklyn Bridge Park Pier 6 located at the foot of Atlantic Avenue. The growing residential population along the Columbia Street waterfront corridor has inadequate access to the nearest subways. Ferry service at this location is a natural extension of the existing East River Ferry service to Fulton Landing at the north end of the Park. Having a new service location at Pier 6 will enable the service to access more of the Park as well as the residences and businesses within the area.

Pier 11/Wall Street could act as hub for the these service options, allowing riders to travel to or from Lower Manhattan, or continue northward to Brooklyn or Queens on the current East River Ferry route.



Commuters boarding at the Brooklyn Army Terminal

UPPER EAST RIVER

Another potential ferry operating area is along the upper East River to serve several planned developments slated to be implemented over the next five years.

The E. 34th Street ferry terminal provides a hub from which Upper East River Ferry services could connect riders to Manhattan's Midtown Central Business District via public bus or ferry shuttle bus service. This terminal could also connect riders to Brooklyn and Queens Waterfront neighborhoods through southbound East River Ferry service.

Long Island City North (Queens West State Park) and the surrounding Queens West development have sufficient residential density to support ferry service. Additionally, population in the area of the existing ferry landing at Hunter's Point South will increase as new units are built. The existing ferry landing at Hunters Point South is distant from the northern portion of Queens West apartment buildings to capture the full potential of commuters, and the increasing population density on the peninsula could justify two ferry locations. Although Long Island City is well-served by transit, the 7-train is congested, and ferries can offer travel time savings to other waterfront destinations.

Roosevelt Island has several new developments that could benefit from ferry service. While there may be some near term demand from visitors to FDR Four Freedoms Park and the existing residential population of the island, looking ahead, Cornell University's Tech Campus, anticipated to begin construction in 2014, would benefit from additional transportation choices and access to newly emerging waterfront neighborhoods. Over 800 new residents are expected on the island in the next five years, with many more as campus construction continues. Ferry service could also relieve the already burdened F-train service serving Roosevelt Island.

View of Manhattan skyline from the Astoria, Queens. Credit: Harrison Peck

Across the East River, Astoria's waterfront is slated for construction to begin on approximately 4,500 new residential units over the next ten years at Hallets Point and Astoria Cove, in addition to the more than 20,000 people that live within the nearby Astoria Houses. N/Q trains serving that neighborhood are distant and already operating at capacity with limited ability to increase service. These new developments will be reliant on public buses, private shuttle buses to the subway, and private cars if ferry service is unavailable. Both project sponsors have expressed interest in a potential ferry service.

At E. 90th Street there is an existing ferry landing that could be activated for commuter service. Service from this location would serve the densely populated Upper East Side on an interim basis prior to the opening of the Second Avenue Subway. Once the new subway line opens, ridership from the Upper East Side might be maintained, and ferry service could provide quicker access to the Manhattan Central Business District for Astoria residents who ride the ferry to E. 90th to connect to the new subway line.

E. 62nd Street poses similar opportunities to E. 90th Street in terms of infrastructure, ridership, and relationship to the existing transit network. In addition, major health care and research employment centers such as Rockefeller University, Memorial Sloan-Kettering Cancer Center, New York Presbyterian/Cornell Medical Center, and the Hospital for Special Surgery are located close to the water's edge in this area. Ferry service to this area could facilitate employment access to a wide range of jobs, from low- to high-skill.

BRONX

The Bronx community has long been one of the most vocal proponents of ferry expansion. The greatest challenge to providing Bronx service is the lack of residential density near the waterfront, and that most ferry routes are not competitive with the travel times of alternate modes, such as express buses. Additionally, although some riders can drive and park at a Bronx ferry landing, studies show that commuters have a strong preference for a one-seat ride and will more likely choose to drive all the way to a final destination, rather than park and change modes.

In the densest waterfront neighborhoods of the Bronx, such as Co-Op City, travel by ferry requires nearly the same travel time as buses to Midtown, and significantly longer travel time to Lower Manhattan. Because over half of the cost of ferries results from fuel expenditures, the long travel distance to the Bronx combined with limited revenue resulting from low numbers of passengers per travel mile. This results in significantly higher overall costs than alternative travel modes.

The Citywide Ferry Study will examine this potential combination of routes and landing locations. Based on the results of the previous ferry study and conversations with Bronx elected officials, an initial recommended location for a ferry landing would be at the Soundview peninsula in eastern Bronx on the upper East River. This location can support parking for Bronx commuters to Manhattan, and also attract riders *to* the Bronx to visit planned commercial developments in the area.

View of Manhattan skyline from the Soundview waterfront

There is also opportunity to open access to ferry service in the Bronx by making it part of a ferry route servicing other nearby areas. The community of Glen Cove, Long Island, continues to make significant efforts to establish a ferry service to Manhattan. Such a ferry could also serve the Bronx. There is further opportunity in linking the Bronx to the Upper East Side, which would provide employment access from the Bronx to hospitals and research institutions, and also increase ferry service revenue by attracting additional ridership from the Upper East Side.

STATEN ISLAND

Staten Island is well-served by the Staten Island Ferry, but the upcoming developments of the New York Wheel and Empire Outlets are anticipated to significantly increase visitors to the area around St. George. These changes will also create a different demand for those tourists who wish to travel to Staten Island to shop and will most likely prefer to return to Midtown. Creation of a ferry close to the new commercial developments in Staten Island would reduce impacts from increased demand on the Staten Island Ferry, and could be designed to meet demand for varying hours, frequency, and service to Midtown that better matches the commercial demand anticipated for upcoming developments.

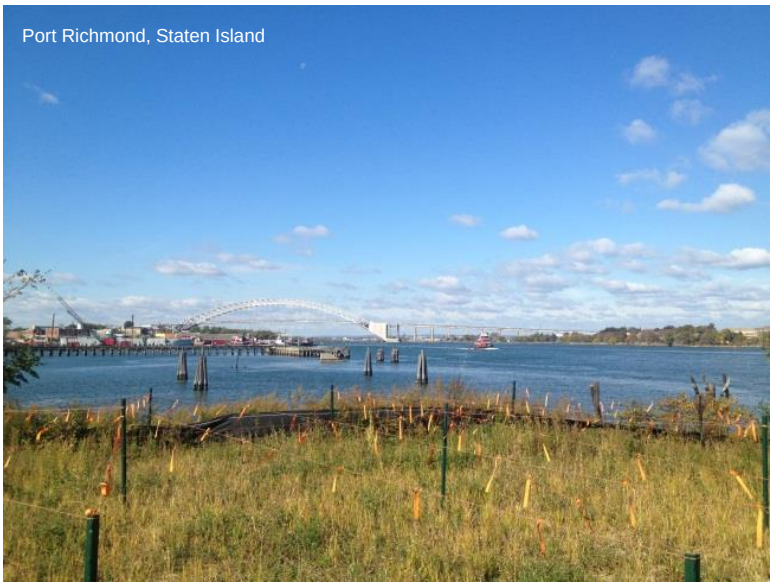
A critical factor to consider in implementing the proposed service from the St. George will be to find acceptable operating solutions that address strong security needs around the existing Staten Island Ferry, its facilities, and navigational challenges and restrictions around the Staten Island Ferry boats and other ships transiting the nearby federal channel.

A ferry service to the Stapleton area is another potential option that could serve the development planned for an area that is further from the existing Staten Island Ferry service than downtown St. George. Although the Stapleton area has residential ridership potential, more development units need to be completed before ferry service would be viable.

While there has been a long-term interest in ferry service to the South Shore, particularly at the Camp St. Edward site in the neighborhood, population density and projected ridership levels remain low and face competition with alternative travel modes. However, there has been interest from South Amboy, New Jersey, to begin ferry service to Manhattan to help mitigate traffic impacts from closures associated with the Pulaski Skyway project. A South Amboy route that also services the Staten Island South Shore could improve feasibility of service in this area.

CONCLUSION

Ferry service affords the unique opportunity to help connect and activate communities across over 500 miles of shoreline in New York City where upland transit modes are ineffective due to poor access or overcrowding. The City has learned important lessons from administering several ferry services; demand for waterfront neighborhoods continues to grow; and awareness of the need for transportation redundancy is heightened. These developments position the new mayoral administration to create a long-term agenda for ferries that capitalizes on the mode's advantages and fills transportation gaps. While not without challenges, ferries can address the demand for transit alternatives, act as a tool for waterfront economic development, and provide flexibility and rapid startup ability in times of emergency. In the long run, ferries will continue to act as important agents of the City's relationship with its waterways as local transportation needs continue to evolve.


Port Richmond, Staten Island


Camp St. Edward, Staten Island

APPENDIX

EXISTING FERRY SERVICES, SERVICE LOCATIONS, AND FARES IN NEW YORK CITY:

NYC Commuter Ferries		
Operator	**Service Locations**	**Cost of One-Way Fare**
NY Waterway - East River Ferry	Manhattan, Brooklyn, Queens, Governors Island	$4 - $6 (receives direct financial support)
Hornblower - Liberty Landing Ferry	Jersey City & World Financial Center	$7
NY Waterway – NJ to Midtown West Manhattan	NJ Hudson River locations to Midtown Manhattan (W. 39th Street)	$8 - $22
NY Waterway – NJ to Pier 11/Wall St	NJ Hudson River locations to Pier 11/Wall Street	$7 - $22
NY Waterway – NJ to WFC	NJ Hudson River locations to World Financial Center	$6 - $22
Seastreak – Rockaways, Queens, and Sunset Park, Brooklyn, to Manhattan	Rockaways, Sunset Park, Pier 11/Wall St, 34th Street Manhattan	$2 (receives direct financial support)
Seastreak - NJ to Manhattan	NJ Atlantic Highlands to Pier 11/Wall St & E. 34th Street	$26
NYCDOT Staten Island Ferry – Staten Island to Manhattan	St George, SI to Lower Manhattan	$0 (receives direct financial support)

NYC Tourism Ferries		
Operator	**Service Locations**	**Cost of One-Way Fare**
American Princess	NY & NJ sightseeing and beaches	$20 - $75
Circle Line	NYC sightseeing cruises	$27 - $39
NY Water Taxi	IKEA, Sandy Hook beach, sightseeing cruises, dinner cruises, etc.	$5 - $175
Statue Cruises	Statue of Liberty, Battery Park	$17