Sustaining Ferry Service in New York
Ferries’ role in NYC waterfront development

- Bloomberg Administration has promoted waterfront for redevelopment and recreation
  - Over 2,300 acres rezoned for residential and commercial uses
  - New waterfront parks (Governors Island, Brooklyn Bridge Park, East River)
- Waterfront transit options (especially subway) are few
- Ferries provide logical alternative, but service to date has been sporadic, leaving NYC behind international competitors
  - Over past 20 yrs., 30+ regional services have failed even as public has invested >$700MM in capital
  - While NY has largest ferry market in U.S., it lags cities such as Istanbul and Hong Kong that use their waterways as integrated transit corridors

Challenge:

If Ferries are to be an integral part of NYC’s transit network, long-term viability requires stable financing to ensure consistent and reliable service
New York Harbor Ferry Services

Weehawken Ferry Terminal
NYC has the largest ferry system in the United States

<table>
<thead>
<tr>
<th></th>
<th>Istanbul</th>
<th>New York</th>
<th>Seattle</th>
<th>Sydney</th>
<th>San Francisco</th>
<th>Oslo</th>
<th>Boston</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Routes</td>
<td>33</td>
<td>20</td>
<td>10</td>
<td>8</td>
<td>7</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>No. of Vessels</td>
<td>90</td>
<td>70</td>
<td>28</td>
<td>28</td>
<td>14</td>
<td>N/A</td>
<td>12</td>
</tr>
<tr>
<td>No. of Private Operators¹</td>
<td>0</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Annual Ridership</td>
<td>100 million</td>
<td>30 million</td>
<td>24 million</td>
<td>14 million</td>
<td>4.8 million</td>
<td>3 million</td>
<td>1.5 million</td>
</tr>
<tr>
<td>Service Frequencies</td>
<td>15-30 mins.</td>
<td>10-30 mins.</td>
<td>30-60 mins.</td>
<td>15-30 mins.</td>
<td>40-60 mins.</td>
<td>20-30 mins.</td>
<td>15-45 mins.</td>
</tr>
<tr>
<td>Service Types</td>
<td>Commuter, Recreation, Vehicles, Freight</td>
<td>Commuter, Recreation</td>
<td>Commuter, Recreation, Vehicles, Freight</td>
<td>Commuter, Recreation</td>
<td>Commuter, Recreational</td>
<td>Commuter, Recreation, Vehicles, Freight</td>
<td>Commuter, minimal recreational</td>
</tr>
<tr>
<td>Fare²</td>
<td>$0.95</td>
<td>FREE -$23.00</td>
<td>$3.50 - $6.90</td>
<td>$4.00-$6.15</td>
<td>$6.25 -$13.00</td>
<td>$4.50-$5.60</td>
<td>$6.00 -$12.00</td>
</tr>
</tbody>
</table>

¹ All services (except private Trans-Hudson ferries in NY) receive public operating subsidy
² International fares shown in U.S. dollars. Fares are for one-way and are not discounted.
PlaNYC made a commitment to expand ferry service

PlaNYC called for:
1. Comprehensive citywide ferry study
2. Ferry service pilot to serve the Rockaways
3. Ferry service pilot program on the East River
Case Study: Rockaway Ferry

- Funded by City
- Ran from June 2008 to June 2010
- Lessons Learned
  - Ridership never met projections
  - High subsidy per rider—over $20
  - Limited service—two runs in AM and PM, later reduced to one run in each direction, no midday service
  - Travel time approximately one hour
1. Inventory
2. Site profiles
3. Evaluate sites
4. Analyze corridors
Key Findings

- **Common characteristics of successful ferry services**
  - Frequent peak service
  - Connect CBD’s
  - Connect to transit
  - Riders value comfort & convenience, less price sensitive

- **Potential corridors**
- Integration of recreational and commuter service
- Comparison to premium express bus service
- Comparison of subsidies of transit modes
- Review of funding options
### Comparative Transit Subsidies

#### Subsidy per Passenger Trip by Mode

<table>
<thead>
<tr>
<th>Mode</th>
<th>Subway</th>
<th>Local Bus</th>
<th>SI Ferry</th>
<th>LIRR</th>
<th>Express Bus</th>
<th>Rockaway Ferry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity</td>
<td>1,920-2,640</td>
<td>60-100</td>
<td>1,280-6,000</td>
<td>1,145-1,320</td>
<td>50-65</td>
<td>149</td>
</tr>
</tbody>
</table>

*Average fare

Note: MTA subsidy figures calculated using data from the National Transit Database or MTA. Subsidy = (total operating cost per passenger trip) - (fare per trip)
# Funding: Options Assessment

<table>
<thead>
<tr>
<th>Source</th>
<th>Capital</th>
<th>Operating</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Federal</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ferry Boat Discretionary (FHWA)</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Formula Funding (FTA section 5307/5309)</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>MARAD (Federal Ship Financing Program)</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><strong>State</strong></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Statewide Mass Transportation Operating Assistance</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Other State DOT programs (multi-modal program)</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Local</strong></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Broad based tax sources (income, sales, property, etc.)</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>District funding</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Developer Contributions</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>
Other Funding Approaches

Review of Alaska, Washington State, Boston, San Francisco

- Systems are part of larger government entities
- Boston & SF contract with private operators
- All rely on a variety of revenue sources such as:
  - Gas tax
  - Sales tax
  - Bridge tolls
  - Vehicle license fees
  - General fund
- No two systems are funded in the same way
- Various funding streams are cobbled together to pay for services
- Some systems take advantage of local or special district funding
- Farebox recovery ratios as high as 75% in Washington State; Alaska is at about 33%
- Special district and regional funding used in San Francisco and King County, Washington
Issues

- Funding
- Coordination with other transit service providers
- Fare integration
- Governance
East River Ferry Pilot Program

Pilot designed to test:

- Integration of commuter and recreational service
- Ridership demand
- Effectiveness of marketing techniques
- Ticketing infrastructure
- Customer satisfaction
- Fare level
- Intermodal connectivity (buses and bikes)

Launched on June 13, 2011
**East River Ferry Pilot Program**

1. **Catchment Area:** Brooklyn/Queens waterfront (over 20,000 potential new dwelling units)
2. **City Funding:** $3.1 million annual subsidy
3. **Capital Investment:** >$5.5MM in City capital + $4.5MM in private capital
4. **Operators:** Billybey Ferry Company dba NY Waterway
5. **Service:** 7am-8pm M-F (20 min. freq. @ rush hr.); 9am-8pm Sat & Sun
6. **Fare:** $4
7. **Est. Annual Ridership:** 400K
8. **Timeframe:** Three year pilot program
East River Ferry Ridership

Ridership has exceeded expectations

- Annual projected Year 1 ridership: 410,000 passenger trips
- Ridership first 21 weeks: 522,847 passenger trips (includes free service)
- Paid ridership to date is 2.5 times forecasted level
- North Williamsburg, Greenpoint and Fulton piers experiencing strong weekday ridership
- North Williamsburg is weekend destination

<table>
<thead>
<tr>
<th>East River Ferry Ridership</th>
<th>Actual</th>
<th>Projected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total ridership (June 13 to Nov 6)</td>
<td>522,847</td>
<td>n/a</td>
</tr>
<tr>
<td>Total revenue ridership (June 25 to Nov 6)</td>
<td>423,057</td>
<td>168,628</td>
</tr>
</tbody>
</table>

- Excludes weekend of tropical storm Irene—no service
- Projected numbers for summer season
Discussion
To assess the viability of ferry service at various locations in the City, EDC undertook a year-long study that analyzed successful models in the region and around the world to identify what they shared in common

**Indicia of Success**

- Frequent service during peak periods (20 min. arrivals are optimal)
  - Majority of high-ridership Trans-Hudson routes have peak service at this frequency
  - Validated by stated preference survey conducted by PA for Regional Ferry Study (2010)
  - Reduction from 20 to 30 mins. results in ~30% decrease in ridership (per PA Study)

- Connections to Central Business Districts (CBDs) and transit
  - CBD connections with fare integration is optimal

- Premium, rather than “mass transit” option
  - Riders tend to be less sensitive to price
  - Riders tend to value comfort and convenience
  - Operating expense structure and capacity make ferries more comparable to “express buses”
  - Foregoing indicates “optimum pricing” (i.e. balance between minimized subsidy and maximized ridership) to be consistent with $5.50/ride fare of “express buses”
Using the criteria developed by the Study, EDC next undertook a four-step process to ascertain the relative viability of different landing sites around the City...

1. **Step One:** Developed inventory of landing sites (41 sites in all 5 Boroughs)
   - Developed through Council-led borough outreach meetings
   - Included recreational sites recommended by NYHarborWay
   - Also evaluated sites w/ existing infrastructure

2. **Step Two:** Created detailed profiles for each site; cataloguing:
   - Population and labor force within reasonable distance of site
   - Journey to work data by destination/mode
   - # of commuters to Midtown/L. Manhattan
   - Demographics (spending power, etc.)
The final two analytical steps allowed EDC to group landing sites into broad categories (with rankings within each) to determine the relative demand for service at each versus cost

3. **Step Three**: Determined # of vessels needed for 20-min. headways between each site and CBDs
   - Allowed sites to be grouped into 3 categories
   - Group 1 (fewer boats needed to maintain optimum headways) will generally require less subsidy than Groups 2 and 3

4. **Step Four**: Determined aggregate demand for service at each site
   - Used criteria recommended by consultant
     - # of commuters to CBDs
     - Time savings vs. transit/auto
     - Cost savings vs. transit/auto
     - Household income
     - New development (as-of-right & under-development)
     - Congestion relief (based on auto commuters to CBDs)
   - Higher ranked sites within each category should generally require less subsidy than lower ranked sites

```
<table>
<thead>
<tr>
<th>Group 1</th>
<th>Group 2</th>
<th>Group 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>2- or 3-boat service</td>
<td>4-boat service</td>
<td>5+ boat service</td>
</tr>
<tr>
<td>W. 69th St.</td>
<td>Snug Harbor</td>
<td>Riverdale</td>
</tr>
<tr>
<td>E. 23rd St.</td>
<td>Stapleton</td>
<td>Tottenville</td>
</tr>
<tr>
<td>E. 90th St.</td>
<td>Soundview</td>
<td>Fordham Landing</td>
</tr>
<tr>
<td>Roosevelt Island</td>
<td>Clemente State Park</td>
<td>Camp St Edward</td>
</tr>
<tr>
<td>Atlantic Ave.</td>
<td>Dyckman St.</td>
<td>Orchard Beach</td>
</tr>
<tr>
<td>E. 34th St.</td>
<td>Hunts Point</td>
<td>Coney Island</td>
</tr>
<tr>
<td>E. 75th St.</td>
<td>Yankee Stadium</td>
<td>City Island</td>
</tr>
<tr>
<td>Greenpoint</td>
<td></td>
<td>Citi Field</td>
</tr>
<tr>
<td>World Financial Center</td>
<td></td>
<td>Co Op City</td>
</tr>
<tr>
<td>S. Williamsburg</td>
<td></td>
<td>Rockaway</td>
</tr>
<tr>
<td>N. Williamsburg</td>
<td></td>
<td>Sheepshead Bay</td>
</tr>
<tr>
<td>Queens West</td>
<td></td>
<td>Floyd Bennett Field</td>
</tr>
<tr>
<td>Bay Ridge</td>
<td></td>
<td></td>
</tr>
<tr>
<td>World Financial Center</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Astoria</td>
<td></td>
<td></td>
</tr>
<tr>
<td>W. 125th St.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pier 79 (W. 38th St.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Red Hook</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brooklyn Army Terminal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sites closer to upper left of chart are projected to be more viable than those closer to lower right</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
```

Higher Intensity of Demand

Higher Likely Subsidy
For illustration, EDC created four ferry routes from among the Group 1 landing sites, in each case optimized to maximize ridership and minimize subsidy.

1. **Illustrative E. River Route: Manhattan**
   - Aggregate subsidy/yr.: $4.3M*
   - Per ride subsidy: $9.20*

2. **Illustrative E. River Route: Brooklyn and Qns.**
   - Aggregate subsidy/yr.: $4.3M*
   - Per ride subsidy: $9.30*

3. **Illustrative S. Brooklyn Route**
   - Aggregate subsidy/yr.: $4.7M*
   - Per ride subsidy: $11.10*

4. **Illustrative Hudson River Route**
   - Aggregate subsidy/yr.: $2.8M*
   - Per ride subsidy: $14.30*

---

Goal in creating routes was optimization; additional Group 1 sites could be incorporated too, but would require either higher operating costs to maintain 20 min. headways (W. 125th St. and Astoria) or offer relatively lower demand per cost than remainder of route (Roosevelt Is. and Red Hook).

* Assumes base fare of $5.50/ride ($5.00/ride with monthly pass)
Study concluded that extending service to Group 2 and Group 3 landings would increase operating costs and thus required subsidy for services to optimized Group 1 corridors.

**Illustrative Example: Extending E. River: Manhattan Service to the Bronx**

1. **E. River Route: Manhattan (Group 1)**
   - Aggregate subsidy/yr.: $4.3M*
   - Per ride subsidy: $9.20*

2. **Extension to Soundview (Group 2)**
   - Increases aggregate subsidy/yr. to $6.7M*
   - Increases per ride subsidy to $11.99*

3. **Extension to Co-Op City (Group 3)**
   - Increases aggregate subsidy/yr. to $9.2M*
   - Increases per ride subsidy to $14.84*

* Increase due primarily to the need to add a 4th (Soundview) and a 5th (Co-Op City) boat

Extending other Group 1 optimized services to other Group 2 and 3 sites results in similar increases in required subsidies over base subsidies.

* Assumes base fare of $5.50/ride ($5.00/ride with monthly pass)
Whereas the optimized Group 1 ferry services require per ride subsidies that were generally consistent with those required by express buses, Group 2 and 3 extensions result in higher requirements.

*Average fare

Note: MTA subsidy figures calculated using data from the National Transit Database or MTA. Subsidy = (total operating cost per passenger trip) - (fare per trip)
Service Extension Examples – South of Pier 11

Potential Service Corridors
South of Pier 11, Wall Street

<table>
<thead>
<tr>
<th>Service Corridor</th>
<th>Level 1 (2-3 boats rush hour, 1-2 boats off-peak)</th>
<th>Level 2 (4 boats rush hour, 3 boats off-peak)</th>
<th>Level 3 (5 boats rush hour, 4 boats off-peak)</th>
</tr>
</thead>
<tbody>
<tr>
<td>South Brooklyn</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Staten Island</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

- **To Stapleton:**
  - $5.86M subsidy
  - 189K rides
  - $30.92 per ride

- **To Coney Island:**
  - $6.9M subsidy
  - 177K rides
  - $13.35 per ride

- **To CSE:**
  - $13.94M subsidy
  - 251K rides
  - $55.55 per ride

- **To Sheephead:**
  - $9.6M subsidy
  - 557K rides
  - $17.24 per ride

- **To Rockaway:**
  - $9.5M subsidy
  - 62K rides
  - $16.90 per ride

*How to Read This Map*
- Annual subsidy
- Annual riders
- Subsidy per ride

*To Stapleton:*
- $47M subsidy
- 426K rides
- $11.07 per ride
Service Extension Examples – North of Pier 11

Potential Service Corridors North of Pier 11, Wall Street

<table>
<thead>
<tr>
<th>Service Corridor</th>
<th>Level 1 (3 boats rush hour, 1-2 boats off-peak)</th>
<th>Level 2 (4 boats rush hour, 3 boats off-peak)</th>
<th>Level 3 (5 boats rush hour, 4 boats off-peak)</th>
</tr>
</thead>
<tbody>
<tr>
<td>East River Brooklyn-Queens</td>
<td><img src="image1" alt="Map Segment" /></td>
<td><img src="image2" alt="Map Segment" /></td>
<td><img src="image3" alt="Map Segment" /></td>
</tr>
<tr>
<td>East River Manhattan</td>
<td><img src="image4" alt="Map Segment" /></td>
<td><img src="image5" alt="Map Segment" /></td>
<td><img src="image6" alt="Map Segment" /></td>
</tr>
<tr>
<td>Hudson River</td>
<td><img src="image7" alt="Map Segment" /></td>
<td><img src="image8" alt="Map Segment" /></td>
<td><img src="image9" alt="Map Segment" /></td>
</tr>
</tbody>
</table>

How to Read This Map:
- $\text{Annual subsidy}$
- $\text{Annual riders}$
- $\text{Subsidy per ride}$

- **To Riverdale:** $10.5M subsidy
  - 360K rides
  - $29.17 per ride

- **To Dyckman:** $10.7M subsidy
  - 323K rides
  - $33.13 per ride

- **To Co-Op City:** $9.2M subsidy
  - 620K rides
  - $14.84 per ride

- **To W. 125th:** $5.5M subsidy
  - 239K rides
  - $23.01 per ride

- **Hudson River:** $2.8M subsidy
  - 199K rides
  - $14.28 per ride

- **East River Manhattan:** $4.3M subsidy
  - 472K rides
  - $9.15 per ride

- **East River B-Q:** $4.3M subsidy
  - 467K rides
  - $9.30 per ride

NEW YORK CITY ECONOMIC DEVELOPMENT CORPORATION