FREIGHT FERRIES IN NEW YORK/NEW JERSEY HARBOR:

HOW TO MAKE THEM HAPPEN

by Roberta E. Weisbrod, Ph.D.
Partnership for Sustainable Ports
54 Remsen Street
Brooklyn, New York 11201
www.sustainableports.com
Phone (718) 935- 0860
Fax (718) 246 –2664 [1]
email weisbrod@sustainableports.com

Abstract
This paper is about the potential for freight ferries in New York/New Jersey harbor. Freight ferries are defined as fast ferries transporting high value time sensitive cargo, particularly air cargo, but also courier packages and even premium passengers. The proposal by a private entity for freight ferries is consistent with trends toward increasing usage of fast ferries nationally as well as incipient use of these kinds of freight ferries at a few locations globally, which are described.

In the greater New York/New Jersey metropolitan area freight ferries offer several opportunities. They help solve the ongoing problem of congestion in the NY/NJ metropolitan area, particularly in the roads and crossings associated with air cargo surface delivery. Air cargo brings high economic value to the region – solving congestion is needed to maintain that contribution. Freight ferries create synergies with other freight and passenger delivery services. They will also help spur redevelopment of waterfront communities, in particular those waterfront locations that have been isolated from the rest of the metropolitan area.

There are obstacles to the implementation of freight ferries. The major obstacle is finding appropriate landing sites. The reasons for the difficulty include competing uses, failure to plan for landing sites, and labor considerations. Safety issues and air quality environmental issues also will need to be addressed. The elements of a bold plan to make freight ferries happen in the NY/NJ region are suggested.

Key Words: freight, ferry, intermodal, congestion, air-pollution

- Working under the auspices of the :
  Metropolitan Waterfront Alliance, Municipal Art Society
  457 Madison Avenue, New York City 10021
  212 935 3960
  www.waterwire.net

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I. FREIGHT FERRIES: WHAT THEY ARE, THE URBAN CONTEXT, AND HOW THEY MIGHT OPERATE

Freight ferries defined

This paper is about the potential for freight ferries in New York/New Jersey harbor: current trends, opportunities and obstacles to their use. Steps to make freight ferries happen in the NY/NJ region are suggested.

Freight ferries are defined here as fast ferries carrying high value time sensitive packages making local deliveries. They carry air cargo as well as mail and overnight delivery packages between airports and from airports to -- and among -- central and other business districts. The minimum speed of these vessels is 25 knots or greater. Each trip is limited in time to a few hours or less.

The Urban Context

All forms of urban waterborne freight are likely to show increases in the coming decades. Freight ferries are one facet of urban waterborne freight, which include container barges, container railcar floats, the more traditional boxcar rail floats, and bulk-carrying barges, trailer bridges (vessels carrying truck trailers) and short-sea shipping (vessels carrying roll on-roll off trucks). The trends in urban life and business practices stimulating increasing use of waterborne

freight transportation, would also make freight ferries competitive, and are described herein. Obstacles that need to be overcome are similar for freight ferries and other forms of urban waterborne freight transport. Opportunities for freight ferries are greater than other forms of waterborne freight because freight ferries (a) that carry premium freight can also carry premium (are willing to pay for extra quality) passengers and (b) have smaller land footprint requirements than do other forms of waterborne transportation.

This paper specifically focuses on NY/NJ harbor freight ferries, but also examines their use and projected use in other urban harbors.

Business Models proposed for the NY/NJ region

Two operational models have been proposed for high value time sensitive cargo carried by fast ferries. One business model has air cargo carried on ferries in UHL air cargo containers. The containers can be directly rolled on and off the vessel. At dockside the air cargo containers are loaded into vans, trucks, hostlers for final delivery. The disadvantages are that loading and unloading of cargo between airport and ferry add time.

In the other model, truck trailers convey the air cargo containers in the ferries. A 53-foot trailer can hold five UHL air cargo containers. Ferries would typically hold four to eight trailers. Loading and unloading by rolling on and off would be simplified. The disadvantages are that trailers add weight, increasing the capital cost for an appropriate vessel. The landing site now has more obtrusive trucks.

II. THE CASE FOR FREIGHT FERRIES IS COMPELLING

Air Cargo is important economically and is growing rapidly

The United States is the world's largest air cargo market – 60% of the total tonnage of world cargo moved, to, from or within the U.S. (1) And the NY/NJ airports (primarily Kennedy and Newark airports) are first in the nation in terms of international cargo, handling a full 25% of total US activity. (2) Air cargo brings great economic value to the region, with total international air cargo trade valued at $116 billion in 1999.

Air cargo is growing rapidly internationally, nationally and regionally. In terms of volume, world air cargo activity grew 38% between 1994-99 to 23 million tons; (1) in the NY/NJ region, the volume increased by more than 9% in 1999. Total world air cargo tonnage is expected to continue to grow substantially in the coming years (32% between 2000-2004); it is important for NY/NJ to retain market share.

Table 1: Air Cargo (World growth)(1)

	1994	1999		(2004)	
		increase over 1994		*(increase over 2000)*	
Total World	16.6	23.0	*38%*	30.4	*32%*

(million tons)

The reasons for air cargo's growth besides the general expansion of world trade are new ways of doing business, e-commerce, just-in-time delivery, etc. These same new economy business trends that account for growth also drive increasingly stringent performance requirements -- air cargo must be delivered to the customer quickly and reliably. This is particularly crucial to the strength of regions like NY/NJ, which have become major service markets and therefore highly reliant on high value time sensitive delivery.

Congestion threatens air cargo growth as well as the quality of life in the region

Congestion has a negative impact on all freight transportation in the NY/NJ region. According to the North Jersey Transportation Planning Authority (NJTPA), 90% of the 350 million tons of freight, which move through New Jersey, are carried by truck. Because of congestion (and other unspecified factors), NJTPA found that it costs about twice as much to move an intermodal container within the NY-northern NJ region as it does other regions in the country. (3)

But the speed, and especially the reliability, demanded by the market place for delivery of air cargo in the New York/New Jersey region is hampered by this crushing congestion. This congestion is experienced full force when air cargo coming into Kennedy International Airport in New York City by international carriers needs to be transported to Newark Airport in New Jersey for domestic distribution. A road trip of approximately 31 miles can, due to congestion, take up to three hours, and moreover, the length of time the trip will take is totally unpredictable.

Air cargo from Kennedy Airport suffers from and feeds the congestion. According to the New York State Department of Transportation, the one major highway leading to the airport, the Van Wyck Expressway, has a level of service of E and F conditions (E is stop and go, F is gridlock). The capacity of the chronically congested road is 6000 vehicles of all types per hour. The 1.8 million tons of Kennedy air cargo in 1998 generated 800,000 trucks per year on the Van Wyck, (about 2700 trucks per day). The economic cost of congestion on the Van Wyck alone, according to NYSDOT is $400 million annually.(4) (By way of comparison, congestion costs New York City $8.3 billion annually, so congestion on the Van Wyck has a significant impact on the overall figure).(5)

Air quality in the region is extremely poor and trucks are a major reason

This region contains some of the unhealthiest air in the nation. The region, northern New Jersey and New York City as well as all of Long Island and the lower Hudson Valley, is in severe non-attainment of EPA standards for ground level ozone -- smog. Severe non-attainment is the second highest level of air pollution in the nation.

The New York/New Jersey metropolitan region has among the densest knot of truck vehicle miles traveled (VMT) in the nation. (See figure 1). Diesel truck engines are a significant source of nitrogen oxides, one of the precursors of ground level ozone. Moreover, diesel engines in trucks are a major source of fine particulate air pollution (PM 2.5, fine soot). Fine particulates

have been implicated in significantly increasing mortality by Harvard Medical School studies (6) and EPA is in the process of regulating this form of air pollution. Given the high concentration of truck VMT in the region, and the fact that the diesel engines of trucks are the prime source of fine particulates, it is likely that when EPA regulations are in place, New York/New Jersey will rank high in soot as well as smog. (7)

Building more roads is not an answer to the problem of air pollution. Increasing road capacity for truck transport, whether physically or regulatorily doable, would only result in increased truck usage, thereby increasing nitrogen oxides as well as fine particulates, and creating more unhealthy air. Failure to correct air pollution will result in a loss of federal highway funding

1. Viable options to truck transport are needed

As noted, transport of air cargo between the airports and to central business districts can be slow and unpredictable. This not only adds to the cost, it reduces the competitiveness of the service. Since there is no rail service connecting the two airports (and there is none contemplated) or the airports and the central business district (CBD), at present the only alternative is helicopter service. Helicopters, despite their cost, are being used for delivery of some local air cargo, particularly pharmaceuticals.

Although all the areas' airports, JFK, La Guardia and Newark, were built on water with the intent that air cargo could be delivered by water, (8) air cargo is overwhelmingly delivered by truck. The proposal by Empire WaterLink for waterborne transport of air cargo is the first in the NY/NJ region and the only one at the current time. (9)

b. Parking for trucks is lacking in the Central Business Districts

One of the implications of using trucks to transport the increasing amounts of air cargo to the central business district is the lack of parking in the central business district for trucks and the difficulty in creating more parking. If the business model used involves fast ferries carrying air cargo containers directly, the need for more trucks and the need for parking would be reduced. Were waterborne transport using this model to become available, small trucks, vans, and in some cases hostlers, would be needed only for the short run between the ferry landing and business offices. These smaller vehicles could accomplish many more trips than if they had to make the long unpredictable run to the airport; fewer large trucks would therefore be needed and the need for more truck parking would be reduced.

In the case of the business model in which freight ferries carry truck trailers, the parking issue would be unchanged.

Conclusion

Truck delivery of air cargo, which adds to air pollution, can be very slow and unreliable due to congestion, adds to local congestion, and adds to the cost of doing business on a daily basis and the risk of doing business in the longer term. This is bad for region's the businesses and bad for

the competitiveness of the region as a whole. Because of the high value of air cargo to the region, and the role of the region's airports as a gateway to the nation (25% of all international air cargo), retention of market share is important to the economic strength of the region. Freight ferries would help solve these problems, and as seen below would open up other opportunities.

Air cargo delivery is clearly in the public interest because of its positive impact on the regional economy and the problem of air pollution. For these reasons it would seem likely that the public sector would and should be supportive of the waterborne alternative, freight ferries.

III. RECENT TRENDS SUPPORT THE GROWTH OF FREIGHT FERRIES

Fast ferry use is increasing in the U.S.

National trend

Fast ferry use is growing rapidly. According to a recent study by the Maritime Administration of the United States Department of Transportation (Marad), although only 176 of 1206 passenger ferries in the US in 1997, were fast ferries, fast ferry ridership grew by 6.8% per year in the 1993-97 time period, traditional passenger ridership declined by 0.1% annually. Marad believes that there will be a surge in fast ferry construction, since a large percentage of US ferries will need replacement shortly (34% were built before 1975), and Marad believes that a large percentage of the replacement ferries will be fast ferries. (10)

The maritime industry has seen evidence of new construction of fast ferries. The trade journal, Marine Log, attributes the growth to funding support from Marad Title XI loan guarantees, and the Ferry Boat Discretionary Program administered under FHWA under the auspices of TEA-21, as well as the recent trend of the domestic industry to acquire licenses from international fast ferry manufacturers. (11) (With licensing, the domestic manufacturer uses foreign technology).

It is not unreasonable to suggest that fast ferries designed for freight transport will show similar growth in the near future.

Federal studies of the ferry sector mirror the growth of the industry. The USDOT FHWA is preparing a National Ferry Study, as authorized by TEA-21. The study will review existing routes; how government funding has been used to support ferry construction; and will explore the potential for new routes; examine the potential of growth for fast ferries, as well as for the use of alternative fuels. (12) The study should be made public shortly. In addition, the US Maritime Administration has recently released the results of a study, " High Speed Ferries and Coastwise Vessels," examining the potential for expansion of interurban waterborne freight. (13)

Ferry service has been increasing in the NY/NJ Region

Recent growth has been significant

In the New York/New Jersey region, interstate passenger ferry use has increased dramatically, with most of the growth in fast ferry use. Investments are being made by the private sector and by government that are likely to maintain the momentum. It should be noted that freight ferries could use some of the same landings and some of the same vessels (at the same or different times) as passenger ferries.

Growth of trans Hudson ferry routes and ridership has been dramatic. Ridership in 1986 was 1000/passengers per day. A decade later ridership was 10,000/day. Usage has increased every quarter since initiation of private ferry service.(14) Currently there are over 25,000 riders/day on the private trans Hudson ferries. This has had many beneficial effects. NY Waterway estimates that 3000 cars per hour are removed from the roads during rush hour – the equivalent of 1/12 lanes of traffic from bridge and tunnel crossings). (15) The Port Authority of New York/New Jersey credits the trans Hudson -- Hoboken to Battery Park City -- ferry for relieving the need to invest in additional system expansion of the Port Authority Trans Hudson (PATH) subway system . The federal source of much of the funding for capital construction is the Congestion Mitigation Air Quality programs (CMAQ) of TEA-21 and before that ISTEA.

The region is planning for more ferries in the future

New Jersey, New York State, the Port Authority of New York and New Jersey, and New York city are all making plans for increasing ferry and waterborne freight transportation.

New Jersey has prepared a major comprehensive study of passenger and freight waterborne transportation service. (15) The study evaluates the feasibility of future ferry routes. The study also clearly recognizes the importance of harbor freight vessels (in the report limited to truck, container and rail ferries – and not air cargo container carriers) in helping to achieve reduction in VMT.

New Jersey's Final Report and its Technical Study reviewed ferry policies of many other urban areas, -- Hong Kong, Sydney, Vancouver, Seattle, Boston --- and evaluated policy options in terms of how support may be advanced to ferry routes. The New Jersey report pointed out that in New York and New Jersey public sector support is limited to terminal construction, but other regions, notably San Francisco consider ferry service such a very cost effective part of mass transit, road decongestion, and tourism support, that they provide operating subsidies.

New York City Economic Development Corporation has recently retained a consultant to enhance ferry service on the East and Harlem River shorelines in Manhattan and the Bronx at the Battery Maritime Building, E. 23rd, E. 34th, E. 62nd, E. 75th, E. 90th streets and Yankee Stadium piers (16). The RFP built upon an Environmental Assessment, which served as a planning document. (17) This builds on EDC's success in building a new terminal at the foot of Wall Street, Pier 11, and their advanced planning efforts for Pier 79 on the Hudson River at West 39th and serving the midtown portion of the central business district.

Waterborne freight transportation ranked high in the cost benefit analysis of EDC's recently completed Major Investment Study Cross Harbor Freight Movement. (18) New York City Department of City Planning recently completed a study on freight transport in New York City,

which concluded that freight ferries – high value time sensitive waterborne carriers – would be a positive addition to the ferry mix. (19) In addition, New York City DOT, which oversees private ferry transport for the City of New York, has prepared retrospective documents, which serve as a guide to future endeavors. (14)

In 1992, New York State Department of Transportation joined with New York City agencies in a joint request for proposals for high-speed ferries in New York City. More recently, New York State, through the New York area MPO, New York Metropolitan Transportation Council (NYMTC -- New York City, lower Hudson Valley, Long Island) initiated the Long Island Sound Ferry Coalition which seeks to support growth of ferry transport between Connecticut and New York. NYMTC will shortly release a request for proposals for a waterborne transportation plan that is likely to encourage freight as well as passenger ferry service. In addition, there is an initiative to bring waterborne containers from New York to Connecticut. Finally NYMTC has commissioned a regional freight plan study, to begin in fall 2000, which will encompass air cargo and waterborne freight.

The Port Authority has played a significant role in the success of fast ferry passenger transport in the bi-state area. They are supportive of freight ferries. With respect to the larger issue of waterborne freight in New York/New Jersey harbor, there is a commitment to invest $75 million in supporting infrastructure, although there it is not clear if there was an appropriation in the recent capital plan.

<u>Freight</u> ferries are being planned in the San Francisco Bay area

A recently completed study of potential ferry service, the San Francisco Bay Area Council Water Transit Initiative, came to the enthusiastic conclusion that a major enhancement of ferry service should and could be brought about. Among the factors driving the massive increase in ferry service is the projected nearly 250% increase in congestion in the next 20 years. Congestion costs the Bay area $3.5 billion annually (The comparative figure for New York City alone is $8.3 billion annually).

The Bay Area believes that the only way to make the water transit initiative happen is through a bold approach, that the incremental approach would not achieve a critical mass of passengers. The bold approach, meaning frequent extensive and high quality service to be established within 5-10 years for Phase I would bring ridership to 20 million/year from its current 4 million. (The ridership goal is based on ridership of similar cities on water and the fact that in the1930s, ferry ridership in the Bay Area was 50 million). The cost for a world class water transit system – passenger and freight ferries -- is estimated at about $600 million to 1.5 billion, (including bus links and new buses). In addition to capital investments, the Bay Area governments anticipate providing an operating subsidy for transit of $40 million annually. (20)

The proposed freight ferries will carry air cargo between Oakland International and San Francisco International airports, and to distribution points along the bay shore. There will be passenger service to and from the airports as well. Two dedicated cargo terminals at the airports are being planned, to be serviced by five specially designed cargo vessels. The technology being considered is the Hovercraft. (21) (22) The shallow depth of Oakland Bay drives this

decision, since Hovercraft ride on air above the water, and can even operate above land to the terminals. Their noisiness, which would preclude them as passenger ferries, would have less of an impact on the noisy airport environment. According to the Bay area report, there are no commercial Hovercraft operating in the US while there are several in Europe. (21)

The Bay Area report expresses the belief that air cargo doesn't require as much speed as commuter and airport passengers require and could employ relatively slower vessels. (21)

Freight ferries are in use in other nations

An air cargo ferry system between Hong Kong and Shenzhen airports employs high-speed jetfoil ferries making 16 crossings day. The trip on the Pearl River route is accomplished in 60 reliable minutes as opposed to truck, which takes 3-4 hours. The operating company, China Travel Services Cargo, is considering the feasibility of air-sea cargo deliveries to other destinations on the Pearl River in addition to Shenzhen. (23) (24)

Similarly high value time sensitive cargo – fresh fish (unfrozen) is carried by high-speed catamarans, in dedicated cargo vessels and passenger-cargo vessels, from Norway to France (21)

IV. FREIGHT FERRIES OPEN UP OPPORTUNITIES FOR THE METROPOLITAN REGION

Freight ferries can make the run from dock to dock between Kennedy and Newark airports in less than sixty minutes; other than in conditions of dense fog their travel time is reliably predictable. They can carry passengers between the airports as well and can take passengers and freight (not only air cargo but also courier packages), to and from the airports, central business districts, and new redevelopment areas.

New Redevelopment areas in New Jersey and New York are strengthened

New Jersey's Gold Coast, the Hudson River shore line from Ft. Lee to Bayonne is showing enormous growth in commercial and residential development. (25) The growth is clearly related to the ease of transportation between the coast and New York City.

More recently there has been substantial growth in jobs in the boroughs of New York City, with Brooklyn, Queens, the Bronx and Staten Island together generating more jobs than Manhattan. (26) An editorial in the Gotham Gazette pointed out that most of this growth has been in waterfront areas in New York City and in New Jersey – "the most important boom zone is New York harbor itself." (27) In Brooklyn, which leads in outer borough job growth, there has been substantial development in high tech media. Neighborhoods such as Sunset Park, Red Hook, DUMBO (Down Under the Manhattan Bridge Overpass) and the Brooklyn Navy Yard are being wired for broad band communications. All these areas suffer from inadequate transportation especially in terms of mass transit connections to the rest of the city. Ferry service, passenger and freight, would make these areas "gold". All four areas in Brooklyn have in one way or another begun the process to develop ferry service.

In a similar fashion, the Bay Area Water Transit Initiative perceives that a major opportunity resulting from the ferry network being planned will be the redevelopment of former military bases. In the San Francisco Bay area, all the military bases area have transportation and access challenges, with twelve out of thirteen on the waterfront. With an aggregate of 11,000 dry acres, the opportunities are extensive. (28)

Urban Cultural Loops on water become possible

Urban cultural loops, ferry connections between on water and near water cultural and recreational treasures – from Governor's Island, Liberty State Park, Snug Harbor, Fulton Ferry Landing (and the Brooklyn Bridge Park), the Battery, Pier 79 for the Intrepid and Hudson River Park, Riverbank State Park, the Newark Performing Arts Center, Liberty Science Center, Hoboken, New Jersey Gardens Mall and the bi-state Gateway National Park and Ellis Island, are being promulgated and actively explored by a group convened by the Metropolitan Waterfront Alliance. These cultural loops would service recreation, tourism and education for both states.

Perhaps freight ferries could also service tourism and recreation and the cultural loop by having the landings do double duty. Times of service in some instances might be complementary. For example ferries might run air cargo into the CBD between 5 AM and 10 AM, cultural loopers between 10 AM and 4 PM, and then air cargo could be picked up from the CBD between 4 PM and 10 PM. The landside space reserved for truck/van waiting for air cargo in the early AM and late PM. could be reserved for cultural loop buses in midday.

V. ISSUES AND OBSTACLES THAT HAVE TO BE ADDRESSED AND OVERCOME

A. Availability of appropriate landing sites

The dearth of landing sites was the major issue raised at the two Roundtables with the NY/NJ ferry industry convened by the Municipal Art Society-Metropolitan Waterfront Alliance. The Roundtables were held in June 2000. (The Municipal Art Society is a not-for-profit organization dedicated to protecting and improving the urban fabric (www.mas.org). The Metropolitan Waterfront Alliance is a New York New Jersey consortium of civic groups dedicated to waterfront public access and mixed use (www.waterwire.net).

(1) Landing site zoning in New York City is generally permissive

In New York City, most of the waterfront is zoned for manufacturing and freight ferries (considered under zoning "Use Group 17") are permitted. (19) Those areas that are zoned as parks are silent about ferry (including small package ferry) use.

(2) But there are conflicts with other existing uses/commitments

The Hudson River Park, which will extend from the Battery to 59th St on the West Side of Manhattan, needs to affirm operation of ferries and freight ferries as part of the mix of activities.

The Act, which created the park, specified that only those activities described in the Management Plan would be allowed. The Hudson River Park Trust, a governmental entity representing New York State and New York City, was tasked with creating a management plan. Many but not all of the Park Trust commitments included or at least did not prohibit ferries. For example, the Trust's public description of allowable activities neither prohibits nor encompasses ferries and freight ferries. (29) And the Hudson River Trust included ferries as an allowable activity in the documents filed in a NYS Department of Environmental Conservation administrative hearing (concerning the Environmental Impact Statement), in the section "Summary Description of the project. (30)

Unfortunately, the Hudson River Trust's Management Plan omitted all mention of ferries as a park activity. This Management plan was submitted to the Corps of Engineers for permitting; the recent approval by the Corps would seem to endorse the lack of ferry landings, other than Piers 78-79 on West 38th and 39th Streets. An important window exists at Pier 40 (at approximately Houston Street on the lower west side) The management plan allows for 50% of Pier 40 to allow "commercial activity." The nearby presence of FedEx and the Holland Tunnel would make Pier 40 a good freight ferry landing.

Communities vary in their response to ferry landings. Some communities are concerned about the potential impact of ferries used for passenger transport, with vehicular traffic a major concern; (31) in some neighborhoods even foot traffic is a concern. Other communities want ferry service for their residents and will attempt to block those routes that don't have landings servicing their neighborhoods.

(3) Labor

This is an extremely complex issue. In San Francisco, as in NY/NJ, the major customers for air cargo freight ferry service are UPS and FedEx. Fed Ex is not unionized and UPS is unionized but with a different labor union than the one that would perform the maritime function. The ILWU, which normally serves the maritime function in Oakland/San Francisco, has closed maritime operations for a variety of reasons. Neither UPS nor FedEx nor any other time sensitive package shipper could afford the risk of a maritime operation cessation (22). The lack of certainty is the critical issue.

In New York and New Jersey similar issues apply, but there are more unions. Furthermore, there is no "map" of which union commands a particular area of the harbor. Finally, it is not clear if the maritime model, a few workers unloading thousands of 20 and 40 foot + containers from large containerships, is applicable to the freight ferry model in which ten or so light air cargo containers are rolled off each vessel.

(4) Exclusive dockage can add to the cost of ferry operations

There are issues of capital and efficiency. In terms of efficiency, if there is a dedicated/exclusive dock for one freight ferry company, then the workers who unload might have a good deal of unproductive time. In the case of a shared dock, the workers could make more productive use of their time. This would reduce the operational cost to the freight ferry company.

Not only are landing sites not readily available, but they represent a significant capital cost both to the ferry owner/operator and often to the public sector which provides funding for the landing site construction. Shared dockage among ferry companies would provide a better return on private and public dollars.

(5) Environmental issues must be addressed.

(a) Construction of docks and channels and Habitat -- Near shore waters

Most ferries have relatively shallow drafts, so the need to dredge channels and berths is minimal. Dredging and dredged material disposal, should they be needed, would require permits from the state conservation departments and the Army Corps of Engineers. Similarly putting in temporary floating docks and/or permanent near shore docks requires environmental review and/or permits from the state environmental agencies and the Army Corps of Engineers.

(b) Operations -- High speed ferry wakes and wake-induced erosion

A recent report by the Society of Naval Architects and Marine Engineers warns that high-speed ferry wakes "can be dangerous to both human and the natural environment."(32) However they conclude that these issues can be resolved or minimized with vessel design, route choice, operator training, and speed management.

(c) Operations -- Air pollution

Most fast ferries built and operated in the United States are powered by diesel engines. Marine diesel engines are not regulated with respect to air emissions. While currently ferries are few in number, as their numbers increase their contribution to regional air quality will increase. This issue has been anticipated by a number of scientific studies of maritime emissions in general, (33) and by a recent study by the Bluewater Network, which concluded that in equivalent trips across San Francisco Bay, ferries emitted more than an order of magnitude higher amounts of pollutants – nitrogen oxides and particulate matter (PM 10) as measured in grams per passenger mile -- than diesel buses. (34)

Some Transportation Departments are already positioning themselves to be able to offer clean fuel ferry service. The Norfolk Transit system has a CNG ferry (35). NYCDOT is contemplating procuring one for the Staten Island route. (36) The San Francisco Bay Area Water Transit initiative is considering the use of compressed natural gas and/or liquefied natural gas for its new ferries. A recent study analyzed the use of natural gas as a fuel for Boston harbor ferries. (37) Fuel cell powered commercial vessels are also on the horizon. (38)

(6) Planning at the outset for ferry landings in waterside projects

Failure to plan at the outset for waterborne transportation, all passenger or mixed use, makes it extremely difficult to put in place service when the waterfront development is complete. In many instances planning for waterborne freight transportation, and/or waterborne passenger

service adds to the value of an enterprise. Brooklyn Bridge Park Local Development Corporation views ferry service as a way of addressing citizen concerns about large numbers of visitors traversing narrow sidewalks. (39)

The New York City Planning Department- Transportation Division has encouraged the planning for air cargo freight service in passenger ferries at the 39th St pier on the West Side of Manhattan. (40) New York City Economic Development Corporation in writing the lease for the pier will allow mail envelop and small package ferry delivery. The agency plans to oversee the frequency, amount and scheduling of small package service.

(7) In conclusion

Freight ferry landing rights have to be incorporated into land use decisions. There are various forms land use decisions can take. The decisions can be in the form of land use regulations either through the City zoning regulations or through the coastal program revisions or in the form of land use requirements, which are specified in the scope of services to private applicants for leasing landing sites in requests for proposals.

B. Safety Issues vs. Reliability/Speed

Fast ferries increase the risk of major accidents, the Bay Area Council report concluded. The report also concluded that this risk could be reduced by the use of the Vessel Traffic Service system, which monitors vessels in operation, especially when upgraded with an Automated Identification System. In addition, the Bay Area Coast Guard will require submittal of vessel security plans by ferries.

On a national level, the US Coast Guard is addressing the safety issue through a recently announced federal initiative recently announced in the Federal Register. (40)

Anticipating the safety issues inherent in fast ferries' commitment to speed and reliability, operators in the NY/NJ area established the High Speed Commercial Craft Safety Board in 1997. The board, which is composed of ferry owner/operators, New York City DOT and the Coast Guard, meets monthly resolving safety issues. (41) Among their outputs has been the development of a training program for operators of high-speed craft.

General maritime safety issues, which have strong bearing on ferry safety, are addressed through the Harbor Safety, Navigation and Operations Committee of the Port of New York & New Jersey ("Harbor Ops Committee"). (42) The Harbor Ops committee is composed of representatives of the entire maritime community: New York and New Jersey State government, federal government agencies, other levels of government, the Port Authority, maritime businesses, the Sandy Hook pilots, maritime Trade Associations, the environmental community, and is led by the United States Coast Guard.

In addition to the risk of collisions, another safety issue is subtler. In attempting to meet schedules, maintenance might tend to be deferred resulting in equipment breakdowns. There is some evidence that this has happened. In the last two Coast Guard Group New York harbor

safety incident reports, approximately 32/92 incidents involved passenger vessels. (43) These ferry related incidents caused minor problems, but the relatively high percentage of incidents means that this must be watched.

C. Capital investments

Federal funds are available in the region in two ways: for vessel construction and for terminal construction. Title XI of Federal Ship Financing Program of the Merchant Marine Act of 1936, as amended by the National Shipbuilding and Shipyard Conversion Act of 1993, administered by the Maritime Administration provides loan guarantees for commercial U.S. flag ships constructed in US shipyards..

Terminals and other associated costs can be funded through the Ferry Boat Discretionary Program as well as through CMAQ of TEA-21 (and before that ISTEA). It is the policy of both New York and New Jersey not to provide operating subsidies. Private owner/operators are responsible for all operating costs – and therefore free to set their own fares and set their own schedules. (14)

D. Lack of information upon which to make business decisions

Members of the Roundtable pointed out that origin and destination of air cargo is not available from federal information sources. This information is particularly needed for planning freight ferry routes. The air cargo industry has raised the same issue on a national level – particularly air cargo exports. In part the reason is inadequate enforcement and in part the regulations do not require Shipper Export Declarations for goods under $2500 in value which are believed to represent 3-10% of $700 billion of goods exported by all modes of transportation. Goods under $2500 represent the 7th largest category of all goods exported. But since air cargo represents 1-2% of goods shipped by weight and 1/3 by value and since more and more goods worth less are being shipped by air, there is a lack of information covering a significant portion and valuation of all cargo. (44)

Information regarding what are the NY/NJ regional origins and destinations of air cargo; the commodities; the mode of transport for delivery; and the valuation of cargo by origin and destination, is needed by the business sector in order to make valid business decisions, and is needed by lenders and investors in the private and public sectors.

E. Lack of Coordination among localities on a planning and policy level

Coordination is needed in order to generate bold plans and in order to make bold plans happen. Coordination on the state and local governmental level is needed to engender confidence in private and federal governmental investors in capital projects. On the policy level, coordination as the Bay Area Council Water Transit report points out is needed to standardize design of unloading infrastructure in order to ensure efficiency and speed.

Note that high level planning has taken place within the separate governmental entities. New Jersey Department of Transportation recently completed a major ferry planning study. (15)

New York City performed an environmental assessment for ferry transit service (17) and is initiating a consultant planning and design study for the East Side of Manhattan. (16) New York City EDC has undertaken a major investment study for cross harbor freight transport, with the results very supportive for advancing waterborne freight infrastructure as well as a rail freight tunnel; they are initiating an environmental impact study to move waterborne freight transport forward. (18) The Port Authority of New York/New Jersey plays a major role in intra-regional freight and passenger transportation. Operational level coordination takes place in the High Speed Commercial Craft Safety Board and the Harbor Operations Committee. What is needed is coordination among these various efforts as if they were one economic network – which they are.

VI. A VISION FOR MAKING FREIGHT FERRIES HAPPEN

If freight ferries are seen to be beneficial to the region, by helping reduce congestion, by supporting a major economic sector -- air cargo, and by providing premium passenger service, then this public benefit should be supported by the public sector efforts. The public sector would do well to create bold plans to capture the economy of scale and create a critical mass. Unified approaches between the two states, working on the policy level, will encourage the private sector to invest their resources. A unified approach would enhance the region's access to federal transportation funding.

The Bold Plan for waterborne transport is:

- **Far-reaching in space**

New York/New Jersey waterborne transportation becomes the critical link in what becomes the nationally crucial coastwise trade connecting New England with the mid-Atlantic and southern states.

- **Unified**

New York and New Jersey present a large-scale unified plan. The private sectors, especially the financial institutions, make loans and invest in waterborne transportation, freight and passengers. The federal government supports the leadership exhibited by the region with demonstration grants and innovative financing programs. In particular the efforts of the two states individually with respect to fuel cell research, and jointly with respect to safety systems are recognized and promoted by the federal government.

- **Sophisticated**

Technology is developed and applied to create safer, more integrated, and more efficient waterborne transportation networks. The two states build upon their leadership in alternative fuel and fuel cell research and development and initiate applications that have the same overwhelming impact that the Fulton ferry had in its day.

- **Comprehensive**

The plan encompasses commutation, freight transport and tourists/excursions ferries all seamlessly integrated with all the other transportation systems; pedestrian, bike, bus, car, taxi, train, subway, air, other waterborne, and truck. The synergies of multiple uses of vessels and docks increase the value of the various elements of the system multiple fold

- **Widely endorsed**

The citizens of the harbor region, drawn as they are to the waterfront, are delighted by the plans for waterborne transportation and work toward their implementation.

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