



# UCL

## **PROJECT PROFILE**

### **USA**

### **New York Airtrain**

omega centre

**Centre for Mega Projects in Transport and Development**

A global Centre of Excellence in Future Urban Transport  
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## **A INTRODUCTION**

### **Project name**

AirTrain JFK

Built: 1998-2003.

Located at John F. Kennedy International Airport, Queens, NY, USA, approximately 16 miles outside of Manhattan.

Owned by Port Authority of New York and New Jersey

Contractors: Air Rail Transit Consortium.

**Figure 1: AirTrain JFK car and tracks**



Source: [www.evworld.com/article.cfm?storyid=956](http://www.evworld.com/article.cfm?storyid=956) (May 2008)

### **Type of project**

This megaproject, AirTrain JFK, is both a light rail project connecting terminals within John F. Kennedy International Airport in Queens, New York, USA, and a link from the airport to regional mass transit hubs. The project relieves traffic congestion and offers public transportation to one of the most important airports in the United States.

**Figure 2: AirTrain JFK car**



Source: [www.slagcement.org](http://www.slagcement.org)

“New York is the financial capital of the United States and the international capital of the world. No other city offers the quality and diversity that New York City offers. It is a center of business and industry, headquarters to multi-national corporations, and a Mecca for the fine arts, entertainment and fashion. A record number of people are drawn to a variety of financial and service-related businesses every day, and the city is a destination point for millions of tourists and conventioners who patronize its hotels, restaurants and theaters. New York City's primary international gateway is John F. Kennedy International Airport (JFK), located approximately 16 miles from Manhattan. A major component of the national air transportation network, JFK handles approximately 350,000 flights each year, carrying over 30m passengers and nearly 2m tons of cargo. Along with two other area airports – La Guardia (LGA) and Newark International (EWR) – JFK contributes significantly to the regional economy. It provides 37,000 direct and 207,700 indirect jobs, and generates USD 6.6bn in wages and salaries and USD 20.4bn in regional sales. Although forecasts indicate that JFK will serve as many as 37m passengers by 2003 and 45m by 2013, this growth potential may very well remain unrealized if ground access to, from and within the airport is not improved. The Port Authority (PANYNJ or PA) of New York and New Jersey, in conjunction with the Federal Aviation Administration (FAA) and various economic, technical and environmental consultants, has conducted in-depth analyses for an airport access project that would reduce automobile trips to JFK, provide a safe, reliable and environmentally sound alternative, and improve intra-airport mobility.” (Cracchiolo, 1998)

### **Technical specification**

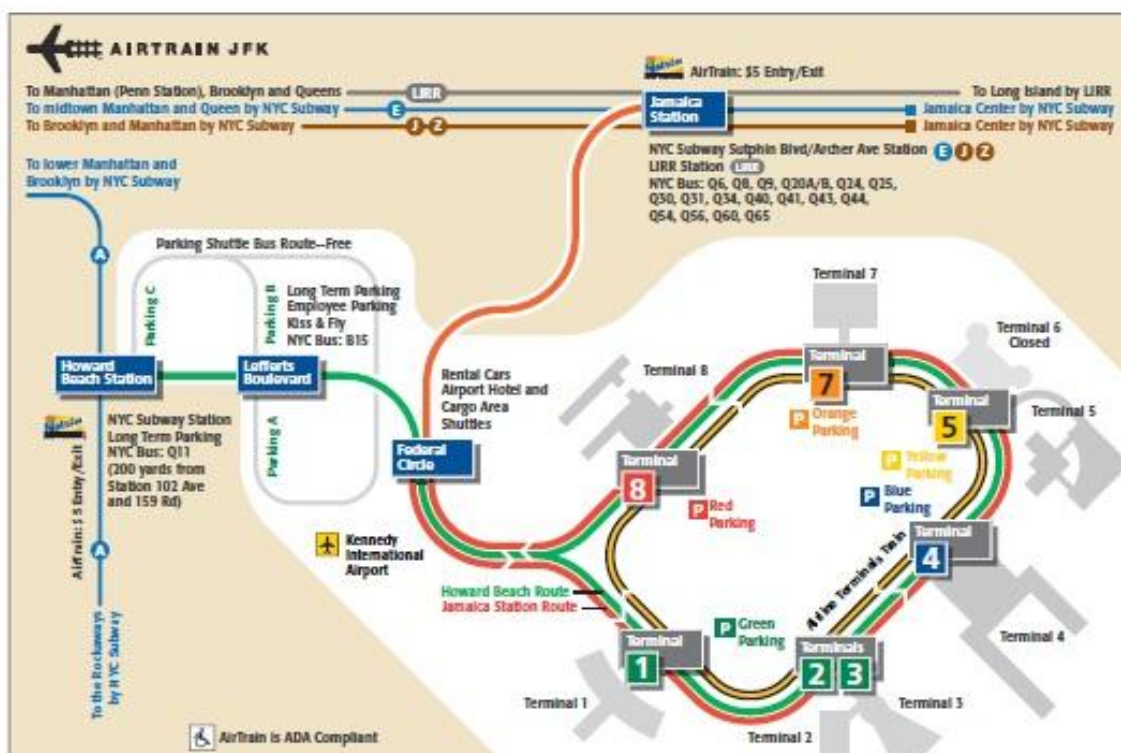
“The JFK AirTrain technology selection was based in part on the existence of other nearby systems, but not APMs. One requirement was that the AirTrain be capable of operation on the LIRR [Long Island Railroad] and MTA [Metropolitan Transportation Authority] tracks for a

possible future 'one-seat ride' using those tracks. Thus the AirTrain is steel-wheel/rail, its vehicle width is the same as the adjacent rail systems (10 ft; wider than typical APMs), and its power distribution system is also compatible." (Moore, 2005)

## Principal transport nodes

AirTrain JFK connects the airport terminals (Central Terminal Area) with one line extending to the rental car area (Federal Circle) within JFK airport, the long-term and employee parking at Howard Beach, and the A train stop of the New York City Transit Authority (NYCTA) subway stop at Howard Beach, with another line connecting JFK airport with the Jamaica Center station of the MTA Long Island Railroad, the NYCTA E, J, and Z lines, and local buses. (See Figures 3 and 4)

Figure 3: AirTrain JFK map



Source: <http://www.panynj.gov/airports/jfk-to-from.html>

## "THE AIRTRAIN AIRPORT ACCESS SYSTEM JOHN F. KENNEDY INTERNATIONAL AIRPORT AIRPORT CIRCULATOR SERVICE

- The AirTrain on-airport circulator service substantially replaces ground transportation, i.e., shuttle bus operations that currently transport passengers and airport employees around the airport roadway network.
- Nine separate AirTrain stations will serve the on-airport circulator service: six stations are located in the airport CTA, interfacing with the nine existing terminal buildings; three stations serve off-CTA locations, one at the car rental site and two in the long term parking areas. One of these stations links up to the AirTrain Terminal at the NYCT 'A' train Howard Beach station, thus functioning as a long term parking station and an Airport Access Terminal interface.

- All nine stations provide enclosed, environmentally controlled spaces at three levels within a high quality public environment. All have grade level, glass enclosed lobbies and glass enclosed platforms. The six CTA stations have elevated, glass enclosed connectors with moving walkways that link the station to the terminal building. All stations provide maximum width escalators. Glass enclosed, glass elevators move passengers vertically in a safe, secure manner and accommodate baggage cart movement throughout the AirTrain System, from stations to cars and eventually to the terminal building.
- Departing passengers and airport employees parking in long term parking areas will use the AirTrain as a free ground transportation system to circulate from parking to the CTA. The trip time is approximately eight minutes to the first terminal building – thereby significantly reducing their travel time from long term parking. This also improves the roadway network by removing on-airport bus operations, which clog the CTA frontage zones.
- Arriving passengers seeking car rental facilities will use the AirTrain as free ground transportation to circulate to car rental facilities, again reducing their trip time and removing bus traffic.
- Arriving passengers seeking connecting flights at another terminal will transfer from one terminal to another, utilizing the free AirTrain airport circulator system.
- Individuals meeting and greeting arriving passengers or seeing departing passengers off on their flights can park anywhere in the CTA and use the free AirTrain service to circulate around the CTA to another terminal.
- By utilizing the Airtrain System to connect the airport CTA – an eight minute round trip – AirTrain will also stimulate economic development and airline competition by allowing the individual terminal complexes to function as one large facility. As an example, airlines located in different buildings can create partnerships because of AirTrain's ease of inter-terminal transfer." (Arema, 1999)

#### AirTrain JFK in the region:

#### **"THE AIRTRAIN AIRPORT ACCESS SYSTEM JOHN F. KENNEDY INTERNATIONAL AIRPORT AIRPORT ACCESS SERVICE**

- The JFK AirTrain airport access system interfaces with two existing regional transit systems; the Long Island Railroad (LIRR) at the Jamaica Station Complex, and, directly below the railroad Complex, the New York City Transit System (NYCT) Sutphin Boulevard Station. It also interfaces with the subway at the NYCT Howard Beach Station, directly adjacent to the airport's long term parking area.
- With these interfaces, AirTrain links up to ten of the eleven LIRR branches, A, E, J and Z, NYCT train services and numerous city bus routes. This master plan provides two viable inter-modal connections for AirTrain patrons arriving from the airport, Manhattan, the four other New York City boroughs and Long Island.
- An AirTrain passenger departing Manhattan – from Penn Station via the LIRR – will arrive at the AirTrain Terminal at Jamaica Station, transfer to the AirTrain System, and arrive at the airport's Central Terminal Area (CTA) in eight minutes. The total trip time from Penn Station, Manhattan to JFK is approximately 40 minutes. A passenger taking the NYCT A train from downtown Manhattan will arrive at the AirTrain Terminal



at Howard Beach station, transfer to the AirTrain System, and arrive in the CTA also in eight minutes. The total trip time from downtown Manhattan is approximately 70 minutes.

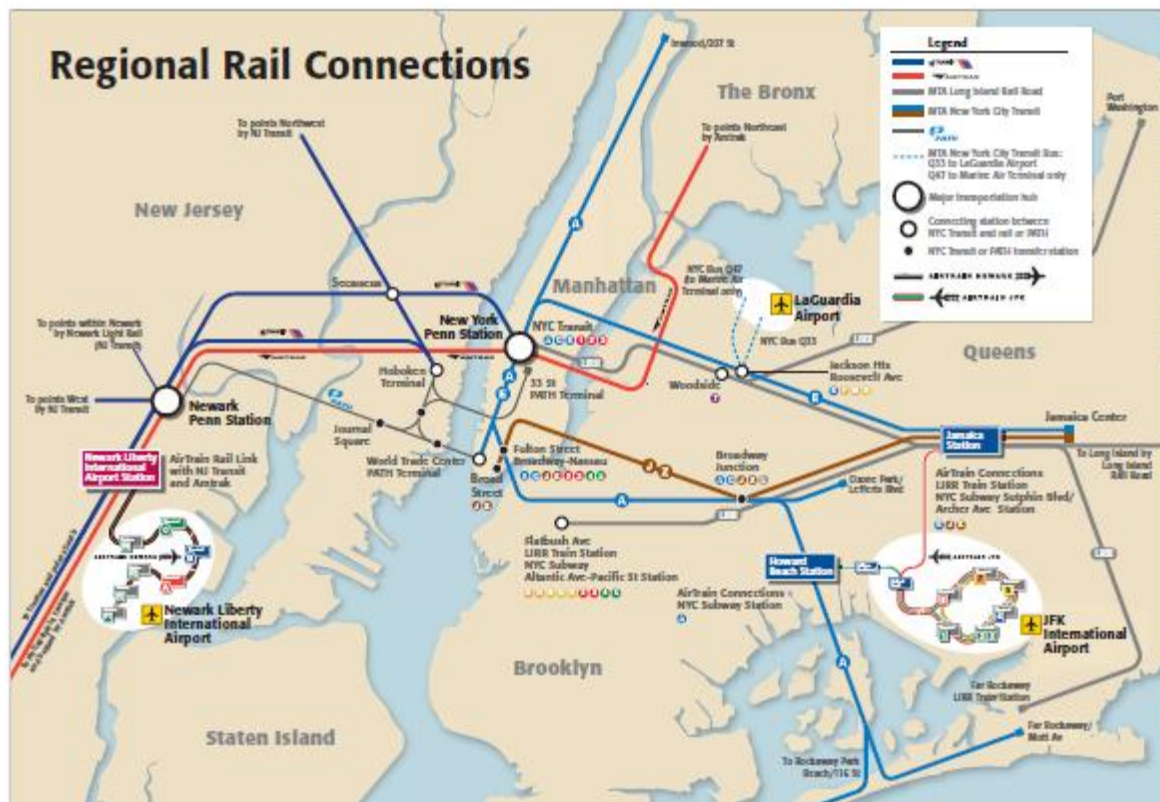
- Most AirTrain passengers accessing the regional transit network will travel to those points of origin by walking or via taxi, subway, bus or some other mode of ground transportation. Regardless of the system, including a .one-seat ride concept, the same access issue would apply.
- The AirTrain System is a custom 'airport-access' design developed to be physically compatible with the existing MTA Systems. The AirTrain vehicle is designed to accommodate baggage storage and baggage cart movement (and address ADA issues), provide essential airport information and present an image of premier signature service. The vehicle is also designed to operate exclusively on the AirTrain right-of-way, however, a future 'one-seat ride' vehicle would have the ability to operate on MTA and AirTrain rights-of way in conjunction with the AirTrain System.
- Although inter-modal transfer is required, two critical issues determine Airtrain's success: guaranteed trip time and the development of significant public spaces at the two regional connections. Gateway designs at the Jamaica Station and Howard Beach Station AirTrain Terminal interfaces will create a sense of arrival for the passenger and enhance the ease of transfer between systems." (Arema, 1999)

Figure 4: NYC AirTrain JFK Connections



Source: <http://eriksrailnews.com/archive/january03.php>

**Figure 5: Regional rail connections**



Source: <http://www.panynj.gov/airtrain/pdfdownload/JFKRailConnections.pdf> [accessed July 2011]

## Major associated developments

### AirTrain JFK and Jamaica Station

As the AirTrain JFK project was implemented, it was linked to a broader vision for economic redevelopment of Jamaica, Queens, and the construction and renovation of a new Jamaica Station connecting four modes – AirTrain, the LIRR, the subway system, and local buses.

**“THE AIRTRAIN TERMINAL AT JAMAICA STATION THE JOHN F. KENNEDY INTERNATIONAL AIRPORT (JFK) AIRPORT ACCESS GATEWAY**

- The Long Island Railroad (LIRR) Jamaica Station Complex exists as a regional inter-modal transportation hub, and, as stated, serves ten of the eleven LIRR branches New York City Transit's E, J and Z train services and numerous city bus routes.
- Because of its regional transit infrastructure, and its proximity to JFK, this existing transit operation has been selected as the ideal facility to develop the AirTrain System's functional and symbolic gateway into the airport.
- AirTrain passengers arrive at the existing Complex by the above mentioned transit systems where, as a primary objective, the AirTrain Terminal provides the smoothest, most efficient inter-modal transfer possible.
- The functional planning of the AirTrain Terminal addresses the 'seamless ride issue' by overriding the reality of passengers transferring from the existing public transit systems, located at the Complex, to the AirTrain airport access system. This is

accomplished by creating public spaces that provide a high level of patron service and the civic image of arrival at the airport's transit gateway.

- The AirTrain system will arrive forty-four (44) feet above grade at the existing Jamaica Complex's south side. AirTrain passengers coming from the public transit systems will arrive below the street at subway level, from street level via car, taxi and city bus and above street level on the five LIRR platforms. They will then circulate south – horizontally and vertically – over to the AirTrain station, platform level fare zone.
- Two new public concourses will provide the horizontal and vertical paths of travel to the AirTrain station. The first is an environmentally controlled street concourse that links the subway mezzanine to street level. The second concourse is an open-air mezzanine /bridge above the LIRR platform zone, which creates a multi-level platform environment and will also serve as the railroad's new mezzanine waiting area and platform transfer function.
- Walking distances from these separate transit systems – again all located within the multi-modal Complex – average approximately 450ft or two to four minutes in walking time to the AirTrain fare zone; including vertical circulation via maximum width escalators and large glass enclosed, glass elevators. As mentioned, the entire AirTrain operation is designed to accommodate baggage cart movements within the stations and the trains.
- Two signature-building components comprise the functional design and gateway image of the AirTrain Terminal. The first is the Portal Enclosure, an articulated train station shed, which sits over the multi-level LIRR platform zone announcing a sense of arrival at the Complex. The second, the Vertical Circulation Building (VCB), is a multi-story glass atrium space that serves as the horizontal and vertical collector for passengers arriving from street and subway level, and LIRR platform zone.
- Once in the VCB, before entering the fare zone, AirTrain passengers will be provided with various other airport passenger amenities and information services, including the potential for baggage check.
- An exclusive AirTrain street level vehicular pick up/drop off zone will be located on the 94th Avenue side of the Terminal to accommodate a 'kiss and fly' function where passengers can be dropped off or picked up by ground transportation choosing to avoid the Van Wyck Expressway.
- Finally, the Jamaica business community has observed that the AirTrain Terminal development at Jamaica Station may provide the potential for future economic development activity in the Jamaica Center area.

#### THE AIRTRAIN AIRPORT ACCESS SYSTEM BAGGAGE CHECK STRATEGY

- The ability for AirTrain passengers to check their baggage is proposed to occur at two locations; at Penn Station in Manhattan, and within the AirTrain Terminal at the Long Island Railroad Jamaica Station Complex.
- Planning for a designated airline service zone has been incorporated into the Main Ticketing Hall in the Penn Station, Farley Building Master Plan. Planning for a designated airline service zone is incorporated into the Jamaica Station Airtrain Terminal within the Vertical Circulation Building, AirTrain Lobby, adjacent to the

AirTrain Station fare zone.

- A Port Authority Aviation Department Baggage Sub-Committee has been formed. The Sub-Committee, comprised of staff from the Port Authority Aviation Department and Airport Access Program, airline representation and the current inter-terminal baggage transfer operators at JFK have been evaluating alternative strategies for transporting baggage to the airport from both locations once it has been checked by the passenger.
- A preliminary study has been performed to assess baggage transport methodologies and required transport agency interfaces, including the Port Authority, LIRR and the Penn Station Redevelopment Corporation. Budgetary cost estimates and time analysis studies are under development. Preliminary discussions have also been held with the Federal Aviation Administration concerning security and regulatory issues.” (Arema, 1999)

### Parent projects

JFK airport may be considered a parent project, however, the AirTrain JFK is an independent project and may in fact be considered as a ‘competitor’ to other railways in the New York metropolitan area. Its challenging gauge characteristics restrict direct compatibility. However, the project serves one of the most important airports in the United States, and certainly for the City and the region. (see ‘Introduction’).

The Port Authority leases all three airports in the New York metropolitan area – LaGuardia Airport (LGA), Newark Airport, and John F. Kennedy – until 2050. AirTrain JFK represents a significant part of the Port Authority’s USD 9.4bn Airport Improvement Program (AIP) since the 1990s, which has delivered new terminals, new parking facilities, and a more efficient roadway system. (Port Authority of New York and New Jersey, 2003, p9).

**Figure 6: Location of JFK Airport in New York Metropolitan Area**



Source: [www.evworld.com/article.cfm?storyid=956](http://www.evworld.com/article.cfm?storyid=956) (May 2008)

### Spatial extent of AirTrain JFK

- 8.1-mile AirTrain double track system with three service loops: 1.8-mile CTA; 3.3-miles to Howard Beach, and three miles to Jamaica station;
- ten stations, fully enclosed, heated, air-conditioned, with platform doors, wide escalators, large glass-enclosed elevators, moving walkways to airline terminals and 240ft platforms;
- six stations serve the terminal area.

### Multimodal transfer point at Jamaica Station

For regional rail connections see Figures 4 & 5.

The multimodal transfer point links the new light rail system to the LIRR, New York City Transit subway lines, and ground transportation systems. The terminal in the Jamaica section of Queens – at the northwest corner of 94<sup>th</sup> Avenue and Sutphin Boulevard – is about three miles from John F. Kennedy International Airport.

The Vertical Circulation Building – Jamaica Central Control Building – is a major component of the project. It is a 250,000sqft structure with seven floors. It enables passengers to connect between the LIRR, NYCTA, street level and the AirTrain, with passenger check-in facilities featuring flight related information. This project also entailed a new ‘portal’ structure, built over the LIRR tracks with elevators, escalators, moving walkways that connect to LIRR and NYC Transit facilities. Although passengers can obtain flight-related information here, plans to integrate feature passenger baggage check-in facilities have not yet been realized<sup>1</sup>.

### Terminal at Howard Beach Station

“The Howard Beach terminal consists of two glass-enclosed vertical circulation spaces totaling 10,000 sq ft that connect the subway platforms, the airport’s long-term parking area, the neighboring community, and a new mezzanine that spans over the platforms. A connector bridge leads passengers over to the 9,500-sq ft AirTrain terminal.

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<sup>1</sup> Finishing these connections also required work on existing LIRR facilities, to replace all platforms and canopies, platform facilities, and systems. The project team faced historic preservation requirements, including approval from the New York State Historic Preservation Office on platform canopy design to preserve the historic nature of Jamaica Station.

The LIRR station also entailed renovating the stairs from platforms to street level, replacing the existing Westerly Bridge, and reconfiguring Sutphin Boulevard between Archer and 94<sup>th</sup> Avenues, adding a new street concourse. A final phase involves demolishing the LIRR’s existing transfer mezzanine and stairways from street level at Sutphin Boulevard, replacing them with new stairways to the LIRR platform level.

The project also involved expansion and renovation of the existing subway station mezzanine. Three new high-capacity elevators in the subway mezzanine space shuttle passengers between subway, street, and portal levels.

Completing construction within the busy stations of LIRR and the Sutphin Boulevard/Archer Avenue subway stations required installing varying temporary and permanent design features. It also required integration with railroad and transit operations – including 54-hour weekend track outages – and detailed construction planning and staging to minimize disruption to riders.

Other efforts to minimize disruption included maintenance and protection of traffic, community outreach, vibration monitoring, and condition surveys. The project crews performed work during off-peak hours whenever possible and limited their use of cranes on the street. Materials were delivered to the site – and debris removed – by rail. NEW YORK CONSTRUCTION NEWS (2004b).

The environmentally controlled, 9,200-sq ft mezzanine serves as the core intermodal linkage for the whole complex. Constructed over the existing right-of-way for the A train, the new mezzanine provides a heated and air-conditioned space where passengers can wait, offering views down to the subway platforms. The area connects down to the platforms via glass-enclosed elevators and wide escalators that accommodate baggage.

The new station's façade has an aluminum and glass curtain-wall system. The enclosure system for the underside of the mezzanine consists of stainless steel Epicore decking, which is corrosion resistant and does not require painting. The project added the same system under the subway platforms, complementing it with fiberglass panels on the platform walls and a stainless steel standing-seam roof.”<sup>2</sup> (New York Construction 2004 B).

## **Current status**

AirTrain JFK has been in operation since 2003. The Light Rail System could be adjusted to the requirements of a one-seat option between JFK and Manhattan at some unknown future date. The economically related project, the development of Jamaica Station into an economic center through the construction of an integrated shopping center, was scheduled to be finished in 2010.

### Current and future capacity

- Vehicles (in 2003):
  - Cars: 32 fully automated driverless cars operating in one-to-four car trains (American Society of Civil Engineers 2005); 1-4 car trains (Bombardier);
  - Lines: three;
  - Stations: ten.
- Vehicle capacity: The operating capacity is about 75-78 passengers per car – less than usual – to allow for luggage. (Englot & Bakas 2002) The Port Authority provides the number of 97 passengers per vehicle. (Port Authority 2003 B)
- Service:
  - The AirTrain operates 24 hours a day
  - Trains from Howard Beach and Jamaica Stations run every ten minutes off-peak hours, and every five minutes in peak times: (4-9 a.m. and 3-8.30 p.m.)
  - Train traffic connecting the terminals within the Central Terminal Area is every two minutes.
  - Speed: Up to 60 mph.

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<sup>2</sup> “That was part of an extensive fix for the subway platform area. The design for the 20,000sqft subway platform area incorporates similar patterns and detail, creating a visually holistic environment for arriving passengers. A capping element was the extensive use of transparent, clear glass in the overall design. That element permits a clear diagram of the terminal's components, with each transit function visible and easily understood. “It's gorgeous”, said one judge.” New York Construction News (2004a).

## **B BACKGROUND TO PROJECT**

### **Principal project objectives**

The principal project objectives were airport and passenger capacity improvement. AirTrain JFK, according to the forecasts, would be required to meet the projected growing passenger numbers.

The improvement became essential following massive ridership forecasts in the wake of airline deregulation (Steinberg, 1991). Competition for the predominant share of international passengers led PA to undertake several of the airport access improvement proposals mentioned above, but also led to other developments, including a central terminal consolidating ticket sales, baggage check-in, shops, restaurants and a million square foot building linked to the terminals; this project failed because of the financial refusal of the airlines. (Steinberg, 1991)

Given the tremendous numbers of vehicles flowing along the roadways to and from the three major airports within the New York metropolitan region (La Guardia, Newark Liberty International, and JFK), and the chronic congestion on the ground approaches to JFK, the need for improved landside airport access has long been recognized. According to McHugh (1994), the Port Authority has been under a mandate to connect JFK and Newark airports to Manhattan by rail since 1962, and proposals had been made and studies conducted on ways to address this challenge. But prior to AirTrain JFK, public transportation to the airport was only once offered: in 1978 the MTA (a New York City transportation agency) opened the 'train to the plane' airport connection. Costing USD 7.50, the service ran along the A-line between Manhattan and Howard Beach, where a bus connected to the airport. It was discontinued in April 1990<sup>3</sup>. Regarding the implementation of the proposals, the obstacles ranged from funding issues, to a lengthy regulatory process, to opposition from various stakeholders, especially from Queens neighborhoods that might be affected by new rights of way.

The proposals included:

- 1968: MTA recommends LIRR connection from Jamaica Station via Paisley Boulevard to JFK;
- 1969: RPA addresses the subject of rail access in its Regional Plan News;
- 1969: Kennedy Airport Access Project by Port Authority and MTA and airlines. The study examined alternative extensions of the Long Island Railroad to JFK, and recommended the use of the Rockaway Beach Branch (RBB) to Howard Beach and the JFK Central Terminal Area (CTA) alternative;
- 1971: MTA develops design criteria for the LIRR connection;
- 1971: PA issues LGA Airport Access Study;
- 1975: PA issues LIRR/LGA Airport Access Study;
- 1976: Public Transportation Access to Airports, Tri-State Regional Planning Commission; the report studied airport landside access as part of the regional

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<sup>3</sup> The Port Authority was instrumental in the Congressional legislation authorizing the use of PFC for ground access projects, and was able to allocate PFC funding to the project, using Port Authority monies to move the project forward while PFC was being approved. In the words of one Port Authority representative, "There were 21 prior proposals [for airport access] – 20 of which had failed. We looked at why they had failed and it came down to two things: community opposition or funding. So we realized that if we came to the table with funding and could keep community opposition under control, we could do something."

- aviation system planning;
- 1977: PA studies a bus roadway/transitway on Rockaway Beach line right-of-way;
- 1978: 'train-to-the-plane' service introduced (discontinued 1990);
- 1983: Improved Public Transportation Service to Airports, New York City Department of City Planning and Port Authority – prepared for the Urban Mass Transportation Administration (now Federal Transit Administration) and the Federal Highway Administration;
- 1987: NYCDOT report on the LGA subway/Bus Shuttle Service Study;
- 1988: JFK Airport CTA Redevelopment Program (JFK 2000) proposes an on-airport AGT with provision for connection to the Howard Beach Station;
- 1989: RPA again addresses rail access in its Regional Plan News (Port Authority of New York and New Jersey, 1997a) (Vol. II, Carey-Proposal);
- 1992: Construction and Engineering Feasibility Study of an Airport Access Automated Guideway Transit (AGT) system, Port Authority. The study evaluated the feasibility of a 22-mile Automated Guideway Transit system linking midtown Manhattan with LaGuardia Airport and JFK;
- 1995: The AGT plan was replaced by the new 'Light Rail System' – the current AirTrain JFK – plan;
- 2005: In the wake of September 11, then-Governor Pataki once more proposed a 'one-seat' connection between lower Manhattan and JFK as a means of revitalizing the area around Ground Zero. A new scoping document by the Lower Manhattan Development Corporation, the Port Authority, MTA, and the New York City Economic Development Corporation evaluates the feasibility of Manhattan access;

(Port Authority of New York and New Jersey, 1997a) (Lower Manhattan Development Corporation, 2005).

- Owner and operator: Port Authority of New York & New Jersey Transit Consortium;
- Cooperating agencies: Long Island Rail Road; Metropolitan Transportation Authority, New York State, New York City.

#### Developing rail access to JFK as the general objective

The original intention of most stakeholders was a one-seat ride option, making JFK airport directly accessible from the city centre – Manhattan – as is the case in many other European and American big cities. However, AirTrain JFK in its current shape constitutes the smaller part of the latest one-seat ride plan. The direction between Manhattan and the airport is not a direct one, but airport travellers need to change from public transportation into the AirTrain connector at either Jamaica or Howard Beach Station: a two-seat ride option.

The objective was to enhance the capacity, efficiency and utility of JFK, and therefore that of the regional and national air transportation system (Port Authority of New York and New Jersey, 1997a) (Vol. 3), in view of anticipated increases in passenger and flight load, and the economic importance of the airport for the region<sup>4</sup>. Providing rail access to JFK airport and connection between terminals on-airport helped to reduce on- and off-airport congestion and

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<sup>4</sup> "New York City's primary international gateway is John F Kennedy International Airport (JFK), located approximately 16 miles from Manhattan. A major component of the national air transportation network, JFK handles approximately 350,000 flights each year, carrying over 30m passengers and nearly 2m tons of cargo. Along with the two other area airports – LaGuardia (LGA) and Newark International (EWR) – JFK contributes significantly to the regional economy; it provides 37,000 direct and 207,700 indirect jobs, and generates USD 6.6bn in wages and salaries and USD 20.4bn in regional sales. Although forecasts indicate that JFK will serve as many as 37m passengers by 2003 and 45m by 2013, this growth potential may very well remain unrealized if ground access to, from and within the airport is not improved." Cracchiolo, AG (1998)



stabilized the time needed to get to the airport.

Before the AirTrain JFK was built, the only means of landside access were the congested Van Wyck highway and public transport involving complicated, indirect intermodal changes. Journey times to the airport could be up to two hours during rush hour, but are now a reliable 45 minutes.

**Figure 7: Traffic congestion on Van Wyck Express Way**



Source: FTA Roundtable

A trip around the Central Terminal Area now takes only eight minutes, as opposed to 30 minutes before the AirTrain was built. (Rodriguez, 2004) (p. 32)

**Figure 8: Traffic congestion on JFK Airport**



Source: FTA Roundtable

Another objective of building the AirTrain, according to the Daily News, was that “officials want to improve airport access partly out of fear that Newark Airport is eclipsing Kennedy as the gateway to the region, because of traffic and other problems there” (Grant, 1996) (p75).

### The key stakeholders

According to the Environmental Impact Statement, the *Port Authority's* objectives are to:

“accommodate future growth in air traffic:

- preserve full capacity of the National Air Transportation System
- encourage airline competition
- provide significant benefits to air passengers and airport employees by effectively providing safe, reliable transportation to and from the airport and reducing delays
- provide regional benefits including reduced air pollution and reduced congestion on the highways accessing JFK”

(Port Authority of New York and New Jersey, 1997a) (I 2-13)

The Port Authority began implementation of AirTrain JFK after having begun a similar project at Newark Airport, and after financing was secured (through the Passenger Facilities Charge). The Port Authority's position regarding rail projects seems to have changed from strong opposition via PATH-train to AirTrain Newark and AirTrain JFK implementation since its formation in 1921. The explanations provided range from a ‘forced’ take-over (of PATH in the 1980s), an inexplicable leadership mind-set change during the 1990s (according to interviews with various stakeholders conducted through 2008), and its financial concerns regarding rail projects. Originally developing a 22-miles version<sup>5</sup> of a one-seat ride from Manhattan via LaGuardia Airport to JFK in 1992, the Port Authority supported the current, shorter version of this plan in the face of insecure financing and political opposition (including right-of-way problems, expected community opposition) regarding the long version.

### *Air Rail Transit Consortium*

The *New York State Governor Pataki* was a strong supporter of AirTrain. This support stems from the fear that Newark Airport (New Jersey State) would eclipse New York State in terms of airport importance, and from the desire to strengthen airport access for the metropolitan area.

*New York City* and Mayor Giuliani were more sceptical regarding AirTrain JFK. The Mayor was a strong supporter of the 22-miles one-seat ride option, partly because it also would have served LaGuardia, the airport attracting the majority of airport users for in-state flights. AirTrain JFK provides neither a connection to LaGuardia, nor a one-seat ride to JFK, and Giuliani threatened to veto the project via his power to deny the necessary rights-of-way – which would have yielded adversarial effects as a result of re-routing through other neighborhoods. The Mayor only agreed to the current project after assurance that the City would not be responsible for any costs, either for construction or through Port Authority airport lease bargains, and following the agreement to further work on access to LaGuardia airport. (Barry, 1999)

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<sup>5</sup> This more ambitious variant involved a 22-mile rapid transit railway linking JFK and La Guardia airports to East 59<sup>th</sup> Street in Manhattan, mainly following the lines of the LIRR. (Tomkins, R., 1995) In fact, most of the comments included in the FEIS refer to the 1994 Draft Environmental Impact Statement (DEIS) which included the LaGuardia link, and so many have become obsolete.

Opposition and scepticism also came from the airlines and local communities. The *airlines*, according to one interviewee, opposed the project for financial reasons. Funding the project through the Passenger Facilities Charge involved adding a USD 3 charge to each airplane ticket (with a few exceptions), which was supposed to be for improvements within the airport site. Even the 8.1-mile AirTrain JFK version was only built 'on airport grounds' after those had been extended. Rather than building a new system, the airlines would rather have spent the Passenger Facilities Charge on terminal and area maintenance. In line with this, the airlines reinforced the community opposition to the project. According to one interviewee, the airlines changed their position when they needed the Port Authority's approval to move ahead with building a large, new terminal at JFK Airport.

Some communities strongly resisted the airport connection plans. The Manhattan East Side community, for example, organized strongly against the connection being routed via the already traffic-jammed 59<sup>th</sup> Street Bridge. Their opposition was one reason for the failure to realize the 22-miles project. Near LaGuardia airport, a City Council member was prepared to fight against the connection running through the neighborhood of his constituency. Queens residents, for example residents along Van Wyck Expressway, also put up a fight against having the aboveground track running through their backyards or in front of their windows. (Gregory, 1998) Some interviewees suggested racial overtones in the eventual choice of route, routing it through black, rather than white neighborhoods, and suggested the Port Authority's strategy was to buy off black church leaders in crucial neighborhoods by providing employment opportunities for their communities. (Interviews with various stakeholders, conducted in 2008)

### Economic development of Jamaica, Queens

One objective that emerged during the implementation process of the project was the economic development of the neighborhood surrounding Jamaica Station, and some interviewees suggest that this development was part of the strategy to increase acceptance of the project in the respective Queens neighbourhoods. By making Jamaica's Long Island Rail Road station a major node in the accessibility of JFK Airport, an economic resurgence related to airlines and air travel related businesses was expected, including a short-term boost for retail businesses. (Holusha, 2004) This objective fit neatly with New York State's and New York City's intentions to invest in the surrounding area of Jamaica and the regional plan's concept of transforming it into a fourth downtown.

Another plus for the neighborhood was stated in the EIS – that the Port Authority would ensure that local businesses and businesses headed by women or minorities were used. In general, benefits were expected as a result of job creation, sales and wages generated during the construction period (Port Authority of New York and New Jersey, 1998a) (citing the Empire State Development Corporation). In 1997 the project was expected to create more than 4,000 construction jobs during the five years of the construction process. (Port Authority of New York and New Jersey, 1997a) It was expected to generate USD 980m in sales and USD 580m in wages. (Port Authority of New York and New Jersey, 1998b)

## **Key enabling mechanisms**

### Passenger Facility Charge (PFC)/ funding agreement

In 1990 the Federal Aviation Administration introduced the Passenger Facilities Charge within the Aviation Safety and Capacity Expansion Act (an amendment to the Federal Aviation Act of 1958), as a funding mechanism for improvements to airports. The 1990 Act

authorized the creation of a program allowing airport operators to collect a fee of up to USD 3 ('Passenger Facility Charge') to contribute to funds for eligible airport improvements. The AirTrain is mostly (70%) funded by PFC revenue, with Port Authority capital funds providing the remaining funding. No state or city revenues have been used. This financing method helped to increase acceptance of the project by various stakeholders who would otherwise have been opposed; it solved conflicting interests between the Port Authority and the City of New York, forexample. (Rohde, 1998) (Cracchiolo, 2003b)

In 1998 the Port Authority applied for PFC funding for the three airports that it operates within New York metropolitan area. It received FAA approval in the same year. The PFC program therefore proved to be a major enabling factor for AirTrain.

#### *Issues with PFC*

- Since earlier passenger-user forecasts were challenged because the level of usage was considered too low to justify the high cost of the project, the Port Authority presented new forecasts in 1997<sup>6</sup>. To obtain final approval from the FAA for PFC funding, it reinforced its application with more information, claiming that demand for JFK would continue to grow, and that the light rail would help accommodate an additional 3.35m air passengers by 2013. (Mobilizing the Region, 1999) (p. 240)
- For the project to remain eligible for PFC funding, the the area of the airport had to be enlarged. Since the Passenger Facility Charge (see below) may only be used for defined improvements at airports, and funding for mass transit therefore is restricted to on-airport areas, the Port Authority had to obtain the Van Wyck right-of-way to Jamaica Station as part of the 'airport', before construction began; the New York City Council agreed. (Mobilizing the Region, 1999)

#### New York City's approval to use the Van Wyck right-of-way

This was critical: NYC's approval for the Port Authority to use the right-of-way on the major interstate Van Wyck, thereby not adversely affecting residential neighbourhoods by taking a new right of way, helped the project to progress.

#### Interjurisdictional coordination/ commitment from key agencies

"Port Authority coordinated directly with NYSDOT (New York State Department of Transportation), NYCDOT (New York City Department of Transportation), MTA (Metropolitan Transportation Authority), LIRR (Long Island Railroad) and federal agencies. Port Authority and NYSDOT signed a memorandum of understanding that committed both agencies to coordinate AirTrain and NYSDOT highway work and later signed permit agreements that detailed how and on what timeline construction permits would be reviewed." (Rudin Center for Transportation Policy and Management, 2007)

The Port Authority gained commitment from key agencies, in part due to the high profile of the project, and just as importantly, because of the direct benefits that would be gained by the other agencies. For example, the LIRR got a new command center and a European-style train shed at Jamaica and NYSDOT was able to share the costs of much-needed improvements on the Van Wyck Expressway. (Rudin Center for Transportation Policy and Management, 2007)

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<sup>6</sup> In its initial PFC application, the Port Authority projected that the light rail line would allow a small increase in capacity – 134,000 new air passengers per year and four flights per day by 2003 (projections made in 1996). The ATA attacked the passenger forecast as too small a benefit for a USD 1.5bn project, and the figure caused the FAA to reconsider its support for the Airtrain in 1996.

### Community outreach

The Port Authority devoted extensive resources to community outreach and communication, and to providing local benefits, all based on an extensive process of community outreach and listening. It created an extra position to deal with community outreach. As several Port Authority representatives explained, “We learned how to be good neighbors [which was new because the Port Authority was] not accustomed to working off airport” and “Patty Clark developed a [outreach] program that responded in a real personal way to the residents of Queens. That was real critical to the program’s success.” (Rudin Center for Transportation Policy and Management, 2007)

Initial neighborhood opposition from residents afraid of noise, dust, and inconvenience nearby was overcome once the AirTrain project established neighborhood economic development objectives in Jamaica. Those included the beautification along the Van Wyck Expressway, a program for jazz in Queens on signage along the Van Wyck renovated Howard Beach station, and the foundation for a ten-storey office building in Jamaica, leading to plans for economic revitalization of the area. Through subcontracts to AirTrain projects, PANYNJ awarded USD 40m to Queens-based minority, women’s owned and local business enterprises. Prime construction awards to subcontractors were worth more than USD 55m. (Port Authority of New York and New Jersey, 2001)

### **Design-Build-Operate-Maintain**

Both the award to design, build, operate and maintain the light rail system and its construction began in 1998. The Port Authority awarded a Design-Build-Operate-Maintain contract to the Air Rail Transit Consortium: “This strategy (DBOM) allowed the team to advance early construction while design was still underway, and to respond quickly to unforeseen field conditions, changing airport and highway operational requirements, and community concerns.” (American Association of Civil Engineers, 2005) One of the main benefits of implementing this strategy was that there was much more interaction between the designers and the contractors, which allowed both parties to collaborate to a greater degree with the design and construction.

“Under a design-build-operate-maintain (DBOM) delivery approach, the selected contractor is responsible for the design, construction, operation and maintenance of the facility for a specified time. The contractor must meet all agreed upon performance standards relating to physical condition, capacity, congestion and/or ride quality. The potential benefits of the DBOM approach are the increased incentives for the delivery of a higher quality plan and project because the design-builder is responsible for the performance of the facility for a specified period of time after construction. Since the late 1990s, three transit projects have been procured as DBOMs: the New Jersey Transit Hudson-Bergen LRT MOS–1 and MOS–2 and the JFK Airtrain.” (Secretary of Transportation to the United States Congress, 2007)

The Port Authority chose the DBOM type of contract because it allows for a single point of responsibility (“to have clear communications”), for a reduced owner role in coordination (“to avoid risk in design/ construction interface”), and fast-tracking of design and contracts (“to shorten the schedule”). This project development type would further be expected to reduce project costs, due to a shorter schedule, to produce higher quality (“due to contractor operation and maintenance responsibility”), to grant higher cost certainties (“due to lump sum price for contractor proposal”), to require fewer staff (“due to transfer of risk and decision making”), and to bring construction experts upstream (“to reduce cost and shorten schedule”) (Port Authority of New York and New Jersey, 2003B)

Public pressure and support remained for a one-seat ride from Manhattan to JFK. Practical

implementation of the project was difficult because of the resistance of different stakeholders and the AirTrain in its current form is part of a more extensive plan.

Construction was required to take place in a way that did not disrupt normal car traffic in this highly congested area.

### **Main organisations involved**

The Air Rail Transit Consortium, which was awarded the USD 930m contract to design and build the line, was and is the main contractor for AirTrain. The Port Authority also authorized awarding this group a five-year contract for USD 105m to operate and maintain the line, with two five-year renewal options up to a total of 15 years. (Port Authority of New York and New Jersey, 1998a) Skanska's share of the project was USD 600m, with Bombardier taking USD 550m, and the others sharing the balance. (McIvor, 1998)

Besides the contractors, awarding authority and the Air-Rail Transit Consortium (below) the following have been involved in the project: private abutters, the airlines, several community organizations (community boards), interest groups (including 'Airport Rail Link Now', Transportation Committee, 'Friends of the JFK Express', 'Committee for Better Transit', 'East Side Coalition on Better Airport Access') commentators, federal, state and local actors.

### **Pre-construction phase**

In order to minimize disruption of traffic flow, the construction relied heavily on the use of pre-cast segments and columns, which were built at the Bayshore Concrete Products Facility in Cape Charles, Virginia. The contract stipulated the construction of 5,409 concrete segments. (Rodriguez, 2004) One issue with the placement of the segments was that there was little storage room by the airport. The segments were shipped to New York and delivered to the site on the particular day each segment was supposed to be placed.

### **Construction phase**

Actual construction of AirTrain began in May 1998 and finished in December 2003. One of the difficulties during construction was the fact that a large portion of construction activity occurred in the 10ft median of the Van Wyck Expressway. The goal for construction was to minimize disruption to the traffic flow of the expressway. The system was built 'span-by-span'. This presented its own problem because every segment was different. In total, there were 22 variables that affected the construction of each span. These varied from span length to whether there was a curvature in the segment. Another benefit of the DBOM process was that there were several construction innovations. Due to the many variables for each span, the contractor needed to find an erection technique that could be altered for each variable. When the contractor could use span-by-span construction, cantilever construction was used in areas where the track curved. The high costs of labor in the region also motivated the contractor to find new ways to save time and cut costs.

During the construction phase, surrounding homeowners expressed concern that the placement of the concrete pilings in the median of the highway would diminish their property values. Although several people complained, the majority of complaints were for nuisance violations rather than property damage. (Harris, 2000) Despite efforts to minimize effects on traffic congestion, many neighbors complained that the AirTrain construction did disrupt traffic flow. (Harris, 2000) One lane in each direction had to be closed during construction on the Van Wyck Expressway, though this only happened during non-peak hours. This, along with the high cost of the project and a fatal accident during a test run, fueled much of the controversy surrounding the project.

On Friday 27 September 2002 test driver Kelvin DeBourgh was killed in an accident. The New York Times reports:

“A futuristic three-car elevated train, the precursor of a USD 1.9bn automated light-rail system that is expected to carry millions of air travelers a year to and from Kennedy International Airport, derailed on a curve during a test run to the terminals yesterday, killing its operator, who was alone on board. Its speed unknown, the sleek white AirTrain – a realization of more than 35 years of bickering, false starts and failed attempts to link the city by rail with its principal airport -- slammed into a concrete retaining wall 25ft above ground just west of Federal Circle, a roundabout on the airport's northwest fringe, at 12:25pm. The force gashed open the front car, which sheared away 150ft of the wall and came to a halt with its right side partly overhanging the parapet. The cause of the crash was not immediately determined, but it was expected to cost millions of dollars and months of delay for the AirTrain project, whose construction began five years ago and had been untroubled by major accidents or other setbacks. The AirTrain was to begin limited service later this year. While a definitive cause was months away, investigators were looking into the possibility that 16,000 pounds of concrete ballast – put aboard to simulate a load of passengers – had shifted on the gentle curve, leading the front end, and then all three cars, to stray and jump the tracks. The combined weight of the train and ballast was more than 90 tons, officials said. Moreover, under the force of the collision, investigators said, tons of the ballast in the front car slid forward, pinning and fatally injuring the train's operator, Kelvin DeBourgh Jr, 23, of Jamaica, Queens, an employee of Bombardier Transportation, the Canadian company that designed, built and was testing the Airtrain system for the Port Authority of New York and New Jersey, the airport's parent. Fire Lt David Marmann said that when his Rescue Squad Company 270, based in Queens, reached Mr DeBourgh, he was alive but pinned from the waist down to the front of the cab, his legs crushed, by six concrete blocks, each weighing a half ton, which had slid forward on the plywood floor as the train halted abruptly. “I asked him his name, about his family, was he married – just wanted to keep him with us,” the lieutenant said. “At one point he said, 'I can't see you anymore – all I see is a bright light'.” Firefighters moved the concrete blocks with a hoist capable of lifting 8,000 pounds, and within 15 minutes of their arrival had freed Mr. DeBourgh. Placing him in a wire-basket stretcher, they lifted him through the train's shattered front window. He was lowered down a Fire Department tower ladder to a waiting ambulance and taken to Jamaica Hospital Medical Center, where he died at 3:05pm.” (McFadden and Polgreen, 2002)

Railway Age reports:

“An investigation has been completed by the Safety Board of the Port Authority of New York and New Jersey into the fatal crash last 27 September on the USD 1.9bn AirTrain JFK rail circulator system at Kennedy International Airport.

The board, comprised of senior Port Authority officials, concluded the accident “was unrelated to the design and construction of the automated rail system”, and allowed testing to resume on 23 April. The probe also determined that operator Kelvin DeBourgh was not properly trained and there was a communication breakdown.” (Railway Age, 2003)

## **Planning and environmental regime**

### Actors involved

The Federal Aviation Administration decided the funding approach. The Passenger Facilities Charge (see above) enabled the project to proceed by providing the means of funding. The Berger Group, in association with URS, Taylor/Voorsanger and K&K prepared

a feasibility study and alternative analysis. The alternatives considered were highway improvements, high occupancy vehicle lanes, busways, subway and commuter rail extensions and innovative fixed guideway transit alternatives. (Berger Group, 2000)

The Port Authority of New York and New Jersey, a bi-state agency, is the lead agency for the project. The Port Authority is headed by the two governors of New York State and New Jersey State, who need to approve its projects in both states. The Port Authority awarded the DBOM contract to the Air Rail Transit Consortium. The City of New York did not have a direct say, but was potentially able to stop or reroute the project by denying right-of-way.

#### National Environmental Policy Act of 1969 and Implementing Regulations, FAA

"In the United States it takes the form of a statutorily required Environmental Impact Assessment (EIA) protocol, established in the 1969 National Environmental Policy Act and applied to many publicly funded projects including many transportation megaprojects. The EIA is a two-step process. The first step, the preliminary assessment, may result in a Finding Of No Significant Impact (FONSI), which then does not require any further action. However, selected transportation projects, specifically the "new construction or extension of fixed rail transit facilities (eg. rapid rail, light rail, commuter rail and Automated Guideway Transit); and the new construction or extension of a separate roadway for buses or high-occupancy vehicles not located within an existing highway"<sup>7</sup> are defined in law as having a significant impact and must go to the second step, an Environmental Impact Statement (EIS). The EIS is a detailed assessment of the predicted environmental effects of the project and of alternative paths of action. The statement must evaluate: the environmental impact of the proposed action; any adverse environmental effects which cannot be avoided should the proposal be implemented; alternatives to the proposed action; the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity; and any irreversible and irretrievable commitments of resources which would be involved in the proposed action." (Unpublished draft Brecher/ Nobbe, p. 5)

#### **Environmental statements and outcomes related to the project**

DEIS (July 1994) 'Scoping Document' on Automated Guideway Transit system linking Manhattan and Queens to LaGuardia and JFK airports, FEIS:

- Prepared by the Berger Group, in association with URS, analyzed visual impacts, parklands concerns, local traffic and air quality around stations and historic and archaeological resources. (Berger Group, 2000)
- The DEIS refers to the more ambitious variant planned, a 22-mile rapid transit railway linking JFK and La Guardia airports to East 59th Street in Manhattan, mainly following the lines of the LIRR. The plan was given up by the Port Authority in favor of the JFK AirTrain, and most of the comments in the FEIS refer to the DEIS from 1994, which included the LaGuardia link, and so many comments have become obsolete.

Written Reevaluation/Technical Report on Changes to the Proposed JFK Airport Access Program on the Light Rail System (1996)

FEIS (May 1997) – Final Environmental Impact Statement, Lead Agency: U.S. Department of Transportation, Federal Aviation Administration, Project Sponsor: The Port Authority of

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<sup>7</sup> FEDERAL AVIATION ADMINISTRATION, F. (2007).



## New York and New Jersey:

- The FEIS includes comments on the Draft Environmental Impact Statement, and addresses them. It evaluates the proposed action (AirTrain) against other options, including the no-build option;
  - It lays out the EIS study methodology, project description and public info program;
  - It then argues the need for improved airport access (importance of airports for the region, history, airport access times and reliability, ground access capacity);
  - It describes alternative analyses (Light Rail, Roadway Expansion, Intelligent Transportation Systems, Subway Extensions, Railroad Extensions, Busways, High-Occupancy Vehicle Roads, No-Build);
  - It provides an Environmental Analysis;
  - It provides a short term use vs. long-term productivity and irreversibility statement;
- It suggests mitigation measures:
  - Required actions and processes – Federal, State, City;
- The FEIS includes the comments made on the DEIS, which were mostly obsolete due to the change in project scope;
- main critics:
  - abutters of the Van Wyck (and tenants from Manhattan 59th street area, where it was supposed to run through before);
  - the Queens communities/ Community boards 5,6 and 8;
  - generally professional and private reviewers of the DEIS;
  - about noise and visual disturbances;
- main critiques:
  - noise and sight infliction along Van Wyck;
  - noise, sight and super traffic mode density in Manhattan around the Queensborough bridge;
  - the general rail-idea;
  - harms environment;
  - fails to improve real access;
  - too much money for too few persons benefiting (similarly for the LaGuardia option);
  - reliability of the AGT-system;
  - failure to use existing systems – such as extending the LIRR, instead of creating a new system;
- main critiques of the DEIS:
  - no cost-benefit analysis;
  - doubts (and confirmations) about ridership forecast models;
  - the basic assumption on which the DEIS relied: Penn Station would be too

- overcrowded (and therefore a new system would be necessary), because of the constraints of the PFC financing mechanism it would not be capable of integration into other transportation modes;
- the lack of availability of the DEIS (it was available only in the dark corners of libraries at the end of the world with one hour opening time during usual business hours, with insufficient publishing of notice of availability);
- the DEIS was not very informative.

## **Overview of public consultation**

PANYNJ developed a 'Public Information Program' for the purpose of developing and disseminating project information to the public and other interested parties and to obtain input to the DEIS (Port Authority of New York and New Jersey, 1997a) (I 1-20).

A special public relations position was created within the Port Authority, to interact with communities, neighbors and all concerned.

### Prior to DEIS

- a presentation on the DEIS-process and program update was made to Manhattan Borough Board at a meeting in Manhattan borough hall on 19 August 1993, with discussion of issues raised by board members;
- a presentation was made to the Transportation Committee of Manhattan Community Board #8 at a meeting on 18 October 1993 (with members of Manhattan Community Board #6 Transportation Committee, Transportation/Environmental Committee Chair of Manhattan Community Board #5, Assemblyman Ravitz, Councilman Eristoff, representatives of Assemblyman Grannis and Congresswoman Maloney);
- subsequent to this meeting Community Boards 5,6 and 8 formed the Airport Access Task Force, which was later expanded to include Manhattan Community Board #4;
- Queens Borough President's Office received telephone briefings during the course of development of the DEIS (all information FEIS (Port Authority of New York and New Jersey, 1997a) (I 1-20)

### Scoping process

- one interagency and two public scoping meetings were held to give the public opportunities to provide input on the proposed alternatives and scope of analysis to be followed in the preparation of the DEIS;
- public notices were prepared and published in advance: a Notice of Intent to prepare the DEIS (21 May 1993), in The New York Times (24 May 1993), in the New York Daily News (22 June 1993 and 23 June 1993), press releases, letters of invitation to agencies, elected officials, and Community Boards;
- a distribution list appears in '30 September 1993 Scoping Document for the Environmental Impact Statement for the Port Authority of New York and New Jersey's Airport Access Program';
- scoping meetings were held: an interagency scoping meeting on 21 June 1993; a public scoping meeting in the Borough of Manhattan on 24 June 1993; a public

scoping meeting in the borough of Queens on 28 June 1993;

- at the scoping meetings the original AGT-system plan was presented (Port Authority of New York and New Jersey, 1997a) (I 1-21).

#### Public hearings on the DEIS

- an interagency meeting including federal, state and city agency representatives was held on 15 June 1994;
- two public hearings were held at Queens Borough Hall on 26 July 1994 and Saint Peter's Church on 28 July 1994;
- the Notice of Availability of the DEIS was published in the Federal Register and in New York State Department of Environmental Conservation, Environmental Notice Bulletin 24 June 1994;
- Advance notice of the meetings was given in major newspapers and local publications.

#### Public comment period on the DEIS

- A 45-day public comment period followed the publication of Notice of Availability in the Federal Register;
- The FAA granted a request to extend this period;
- A total of 218 comments, written and oral, were received from 172 individuals and organizations (Port Authority of New York and New Jersey, 1997a) (I 1-23).

#### Written re-evaluation and technical report

- copies and notices of availability were mailed out to 400 individuals who had already received the DEIS, and 43 who requested copies;
- 17 responses to this report were received (Port Authority of New York and New Jersey, 1997a) (I 1-23).

#### Following the FEIS

- A 30-day public comment period was supposed to follow (Port Authority of New York and New Jersey, 1997a) (I 1-23).

### **Complaints procedures**

#### Public comment periods

These occurred on both the PFC application in 1995, and the Draft Environmental Impact Statement in [1997]. (See 2.4.3.)

#### Community resistance

Among the challenges facing the construction of AirTrain JFK, were interest group opposition and community concerns. Indeed, the project met with resistance from many groups, including the airlines and several transportation advocacy groups. Interestingly, the airline industry supported improved access, but was opposed to the use of the PFC to fund the project and instead argued that the responsibility for access should be left to the state and local governments. The industry eventually filed suit; however, two Federal Appeals Courts ruled in favor of the FAA-approved PFC funding technique. (Lombardi, 1999)

## Response of Port Authority

In 1999 the Port Authority started to address community concerns about the AirTrain construction more strongly. It hired a full-time outreach manager who coordinated community and construction, and through whom the surrounding communities were incorporated into the project. The Port Authority further “hired a member of the community to assist the agency in developing construction procedures that responded to community concerns, draft community-sensitive communications, and interface with local elected officials, community boards, and residents within the project area.” (Cracchiolo 2003, 14) During the four years of construction this consultation or outreach included regularly scheduled meetings of the above, newsletters and construction updates, as well as tracking and response calls on a 24-hour, 800 (free of charge) hotline number. (Cracchiolo 2003) As a result of the interaction with the community, the Port Authority committed to a beautification program in the area and incorporated concepts for landscaping and lighting into the project: recognizing the concerns on the part of residents related to construction noise, property values, and the other long-term effects on their neighborhood, the Port Authority developed a guide way design that would minimize AirTrain’s visual impact and reduce noise.

## **Land acquisition**

Property acquisition was necessary – “The proposed project would involve the Port Authority’s acquisition of property interests (fee and/or easement) for air terminal purposes via purchase or condemnation after execution of the previously described settlement or other agreements with governmental entities, for the LRS ROW including stations within lands which may be owned by the State of New York, New York State agencies or public authorities, the City of New York, and private entities.” (Port Authority of New York and New Jersey, 1 997b) (S-45)

“NYC required the project to undergo the Uniform Land Use Review Process (ULURP) in order to transfer City property interests necessary primarily for the Jamaica segment of the project. This process involved extensive community input and action by the Queens Borough Board, City Planning Commission and New York City Council.” (Cracchiolo, 2003a)

General Right-of-Way Issues (all information taken from Port Authority of New York and New Jersey (1997a) (I, 5-129f)):

- Jamaica to JFK Federal Circle: fee acquisition required at the crossing of the southeast corner of 94th Avenue and the Van Wyck, when the LRS passes over private property; two privately owned parcels, located adjacent to the MTA/LIRR property at northwest corner of Sutphin Boulevard and 94th Avenue, then proposed site of Jamaica (LRS) Station, here permanent easements and/or fee acquisitions for aerial Guideway foundations, stations and construction easements are required from LIRR, NYC; permanent easements and/or fee acquisitions required from NYSDOT and NYCDOT within the limits of the VWE median from 94th Avenue to 1 33rd Avenue.
- Federal Circle to the CTA: Port Authority has the master lease with the City of New York for JFK. It leases parcels within the airport to each of its individual tenants. It is these tenant leases which need to be modified wherever LRS intrudes on the space; requirement of adjustment in the existing lease line boundaries to construct the Guideway along the North Service Road, improvements here implemented by Port Authority, although it belongs to NYSDOT; adjustment of lease boundaries necessary

for restricted Service Road B and construction of Federal Circle Station; a couple of smaller lease adjustments, for instance at the junction of CTA circulator and mainline LRS or at the site just north of the American Airlines LRS Station; ROW requirements for electrical substations at CTA LRS Stations may require further adjustments.

Federal Circle to Howard Beach: permanent easements or fee acquisitions required from NYS DOT and New York City from the Ramada Hotel to the proposed OMSF site; for the LRS connection to NYCT Howard Beach Station permanent easements or fee acquisitions required from NYCT.

## **C PRINCIPAL PROJECT CHARACTERISTICS**

Project characteristics inside Port Authority:

- Specially selected Port Authority staff;
- Outside of normal Port Authority procedures;
- Project office with co-located Port Authority and consultant staff;
- Community outreach office;
- Modified contract provisions:
  - Contingency fund with bonus feature
  - Corporate guarantees
  - Reduced design reviews by Port Authority
  - QC by contractor, QA by Port Authority

(Port Authority of New York and New Jersey, 2003B)

Fare (2007/8):

- free within the airport;
- USD 5 access fee (in addition to public transport fares; USD 3 originally proposed);
- USD 40 unlimited rides per month.

(Port Authority of New York and New Jersey, 2007)

### **Description of route**

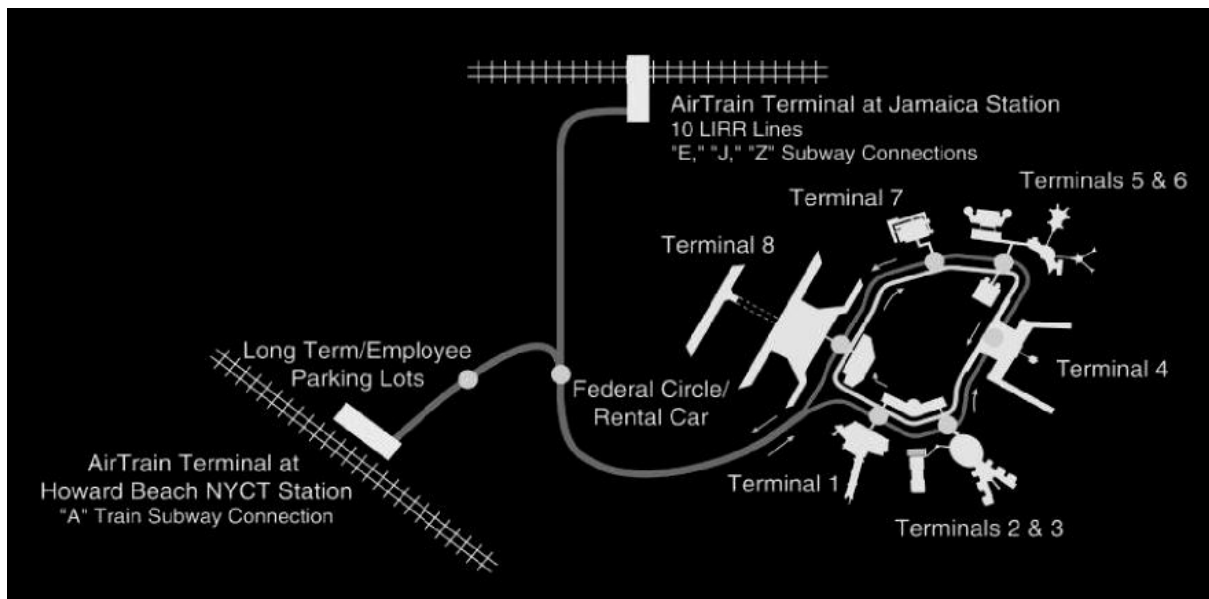
The 8.1-mile AirTrain system includes three service loops: the 1.8-mile Central Terminal Area (CTA) (which links six stations, with a continuous service between the terminals); the 3.3-mile Howard Beach extension, linking CTA with stations for on-site car rental and hotel shuttle – called Federal Circle, also leading to employee and long-term parking and Howard Beach intermodal station (A-Train); and the longest – the three mile Jamaica extension which links CTA and Federal Circle with Jamaica intermodal station [LIRR, E-, J-, and Z-Trains] There is a one-seat ride to Manhattan from here.

### **Main and intermediate travel nodes**

The AirTrain is a new system at the airport, which created new connections between existing structures such as the airline terminals and Howard Beach and Jamaica Station. While all stations and structures had to be either built or adjusted for the Light Rail System needs, additional station enhancement was made in Jamaica Station, Queens, which was specifically developed into an economic centre.

The AirTrain makes several intermodal connections: the John F. Kennedy Airport, Jamaica subway station, Howard Beach subway station, several bus stations, and the parking lots. Six stations serve the terminal area and long-term and employee parking lots. “Three types of vertical circulation (elevators, escalators and stairs) lead through the AirTrain/ Mezzanine Bridge,” (Judge, 2003) combined with a moving walkway. “The AirTrain Vertical Circulation Building functions as the collecting interface for the dual AirTrain concourses. On the street level, there is a pick-up/drop-off zone for passengers arriving or leaving by personal automobile or taxi.” (Judge, 2003)

**Figure 9: Main and intermediate travel nodes**



Source: arema.org.

### *Stations*

“The AirTrain stations are climate controlled with large glass elevators and wide escalators to accommodate passengers’ luggage, and are equipped with flight information displays. Moving walkways allow passengers direct access through the airline terminals without crossing frontage roadways.” (American Association of Civil Engineers, 2005)

The historic Jamaica Station has been enhanced to accommodate AirTrain. A new intermodal terminal and airport gateway has been developed here: an inter-modal Vertical Circulation Building (VCB) and mezzanine constructed over the Long Island Railroad platforms, with direct access to the NYCT Station for the subway.

Howard Beach Station: an inter-modal mezzanine constructed over the NYCT’s Station at Howard Beach for the subway.

### *Facilities*

The Operations, Maintenance and Storage Facility & Central Control Facility is a new construction, built at the same time as the Light Rail. (Port Authority of New York and New Jersey, 1997a) (1-18)

## D PROJECT TIMELINE

Year	Month	Type of Decision	
1968		Earlier Proposal	The Metropolitan Transportation Authority recommends Long Island Railroad connection from Jamaica Station via Paisley Boulevard to John F. Kennedy International Airport (JFK).
1969		Earlier Proposal	The Regional Plan Association, a NY-metropolitan area based non-profit planning association, addresses the subject of rail access in its Regional Plan News.
1969		Earlier Proposal	Kennedy Airport Access Project started by Port Authority and Metropolitan Transportation Authority and airlines. The study examined alternative extensions of the Long Island Railroad to JFK, and recommended the use of the Rockaway Beach Branch to Howard Beach and the JFK Central Terminal Area alternative.
1971		Earlier Proposal	The Metropolitan Transportation Authority develops design criteria for the Long Island Railroad connection.
1971		Earlier Proposal	The Port Authority of New York and New Jersey issues the LaGuardia Airport Access Study.
1975		Earlier Proposal	The Port Authority of New York and New Jersey issues the Long Island Railroad / LaGuardia Airport Access Study.
1976		Earlier Proposal	The Tri-State Regional Planning Commission issues Public Transportation Access to Airports; the report studied airport landside access as part of the regional aviation system planning.
1977		Earlier Proposal	The Port Authority of New York and New Jersey studies bus roadway/ transit way on Rockaway Beach line right-of-way. (Port Authority of New York and New Jersey, 1997a)
1978		Precursor	The Metropolitan Transportation Authority launches the Train-to-the-Plane – an existing subway line.
1990		Precursor	Train-to-the-Plane discontinued.
1990		Finance	The Federal Aviation Administration approves a new mode of financing on-airport projects: the Passenger Facility Charge. It allows airport operators to collect fees for airport used for improvements.
1993	September	Scoping Document	Scoping Document which analyzed a project of larger scope than the current AirTrain: the 22-mile Automated Guideway Transit system linking the Manhattan end of the Queensborough Bridge, LaGuardia airport and JFK airport, proposed by the Port Authority of New York and New Jersey
1995	August	Finance	In August the Federal Aviation Administration approves funding of AirTrain JFK through the Passenger Facilities Charge even though AirTrain is off-airport.
		Light Rail System	The Port Authority of New York and New Jersey presents its current Light Rail System plan.
1995	July	Light Rail	The Draft Environmental Impact Statement is submitted for



Year	Month	Type of Decision	
		System	review.
1996	May		<p>Port Authority of New York and New Jersey board decision favors the current 8.1[originally: 8.4]-mile Light Rail Link: There was long-standing and broad consensus on the need for improved airport access, but it was difficult to find a common position. Though it is not considered the optimum solution, the failure of previous proposals that focused on a one-seat ride to JFK made elected officials willing to support a two-seat ride between JFK and Manhattan. In 1995, the more ambitious 22-miles plan was given up by the Port Authority in favor of the current JFK AirTrain, which still incorporated the funding mechanism of the Passenger Facility Charge, and connected the existing rail lines with JFK.</p> <p>Port Authority of New York and New Jersey releases projections for the number of new passengers the light rail line would accommodate by 2003. The Air Transport Association attacks the Port Authority's projections, citing too small a benefit. This causes the FAA to rethink the AirTrain.</p>
1996	July	Newark	Record of Decision for Newark airport monorail
1997	May	Newark	Beginning of construction of the AirTrain at Newark airport, which is also operated by the Port Authority of New York and New Jersey.
1997	May	Light Rail System	Final Environmental Impact Statement for AirTrain JFK. The Lead Agency was the US Department of Transportation, Federal Aviation Administration; Joint Lead Agency: New York State Department of Transportation; Project Sponsor – Port Authority of New York and New Jersey. The Final Environmental Impact Statement was prepared in accordance with the National Environmental Policy Act of 1969 and the New York State Environmental Quality Review Act. (Port Authority of New York and New Jersey, 1997a)
1997	July	Light Rail System; Finance	The Record of Decision on the Final Environmental Impact Statement is issued in July 1997 and approval for the implementation of the Passenger Facility Charge is given by the Federal Aviation Administration in 1998.
1997	September	Light Rail System	Mayor Giuliani and Governor Pataki agreed to allow Port Authority to begin building the Light Rail System at JFK, ensuring that Port Authority cannot offset construction costs against airport rent it owes to the City, and therefore NYC would not lose any of its Port Authority revenues; in case the Port Authority would offset costs, New York State would reimburse the City. (Mayor's Press Office, 29 September 1997) But this doesn't represent the final decision of the Mayor's office, yet.
1998	February	Light Rail System	The Federal Aviation Administration approves partial funding through the Passenger Facility Charge. The decision is challenged by the airlines.

<b>Year</b>	<b>Month</b>	<b>Type of Decision</b>	
1998	May	Light Rail System	Contract awarded to Air Rail Transit Consortium: Five pre-qualified consortia submitted proposals to design, build, operate and maintain the system, and have been reviewed by Port Authority. The contract was awarded to Air Rail Transit Consortium, consisting of Skanska USA, Bombardier and Perini.
1998	May	Light Rail System	Commencement of construction phase
1999	June	Light Rail System	City Council approval: In June 1999, the project was given a much-needed local boost when the New York City Council voted to proceed by 47 to 3 (Lombardi, 1999). In general it helped that Governor Pataki strongly supported the chosen alignment linking JFK to the Jamaica Long Island Railroad station.
1999	August	Light Rail System	Federal Aviation Administration's final approval to use the Passenger Facility Charge for funding including the Jamaica project: Federal Aviation Administration issues its record of decision on 16 August 1999 approving the project's funding through the Passenger Facility Charge. The decision rejected an attempt by the airlines to stop funding for the project, and to restrict Passenger Facility Charge funds to on-airport use. Federal Aviation Administration, on the other hand, considered traffic congestion on the ground as worth addressing to improve airport access by at least partially approving of using Passenger Facility Charge funds for construction. According to Federal Aviation Administration's decision the fee may be used for airport access roads, while the mass transit system must be on the airport. (Mobilizing the Region, 1999)
2001	February	Light Rail System	Beginning of construction of the USD 500m Jamaica station, the transfer point to the Long Island Railroad and subway systems.
2002	September	Light Rail System	A fatal accident occurred while testing the AirTrain JFK. One test-driver died from moving cargo simulations.
2003	March	Light Rail System	Greater Jamaica Development Corporation formed the Jamaica Capital Corporation to manage development around the AirTrain Station to turn JFK Corporate Square in downtown Jamaica into an aviation-related, airport-supportive business district
2003	December	Light Rail System	Opening of AirTrain JFK
2005	June	Post-AirTrain JFK	A new scoping document by the Lower Manhattan Development Corporation, the Port Authority, Metropolitan Transportation Authority, and the New York City Economic Development Corporation evaluate the feasibility of Manhattan access. (Lower Manhattan Development Corporation, 2005)
2008	July	Post-AirTrain JFK	In honor of the 60 <sup>th</sup> anniversary of John F. Kennedy airport, Port Authority gives free rides on AirTrain JFK.

## **Key timeline issues**

At the current stage of our research we think that the key timeline issues, the key issues which moved the project forward, include:

- the abandonment of the 22-miles project size in favour of the current one in 1996;
- the introduction of the PFC program and its implementation for AirTrain JFK;
- Port Authority's decision to use the Design-Build-Operate-Maintain approach;
- the deal with MTA regarding Jamaica Station.

## E PROJECT FUNDING

### Overview

The project is mainly funded by the Passenger Facility Charge, as approved by FAA in October 1999. The funding was first approved partially, therefore creating problems for intermodality, according to the Tri-State Transportation Campaign. Port Authority's design of stations and construction components had to be compatible with the subway system and the LIRR station, for FAA approval of eligibility. Thus the light rail sections from Howard Beach subway, the New York City transit station, were only partially approved, and the design cost of integrating subway cars into the light rail system in the future prohibited (or at least strongly severed), as well as the future use by MTA trains of the terminal loop. The same was true for the Jamaica – terminal loop segment. (Mobilizing the Region 1999)<sup>8</sup>

As described above, 70% of AirTrain funding comes from fares, the remainder from Port Authority capital funds (USD 600m). (Cracchiolo 2003; PANYNJ 2002) (with an additional capital funds contribution from NYC). Approval for partial funding by the Federal Aviation Administration came in 1998 under the 1990 Aviation Safety and Capacity Expansion Act (amendment of the Federal Aviation Act of 1958). Under this Act, airport operators are allowed to collect a fee of up to USD 3: the Passenger Facility Charge<sup>9</sup>, to include passengers into eligible airport improvement projects; so PFC is in essence a fee that would be levied by airport operators on enplaning passengers. The line's operating costs were covered by revenue from fares and avoided costs from shuttle bus operations. (Port Authority 1998 B) [The project's projected costs increased from USD 1.1-1.2bn in 1996, to over USD 1.3bn in 1997 (FEIS, S-36), to USD 1.5bn in 1998 (Wald, 1998) to the final USD 1.88bn project in 2003.]

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<sup>8</sup> "The FAA authorizes the PFC charge to be used to enhance airport safety, security or capacity (meaning more passenger air trips). But its application to airport access is uneven. The PFC can be used for airport access roads, but mass transit systems must actually be 'on' the airport to be eligible for use. (This provision required the Port Authority to obtain the Van Wyck right-of-way to Jamaica Station as part of the 'airport' before construction begins; the NYC Council agreed to do that). And while traffic congestion on the ground is considered a constraint on future airport passenger growth (which the PFC funds may address), the law contains no emphasis on reducing ground traffic by diverting auto and taxi trips to transit, which necessarily would begin off-airport. The Air Transport Association had charged that the FAA illegally considered the Port Authority's application to collect the PFC for the JFK rail system in isolation, rather than as part of a regional rail system that is partly ineligible for PFC funding. The FAA decision at least partly confirmed the airlines' narrow view of the law's purpose and effect. For instance, the FAA determined that the Port Authority's design of stations and construction components to be compatible with both the subway system and the Long Island RR was 'ineligible' for PFC funding. As such, the 3.3 mile USD 456m light rail section from the NYCT Howard Beach subway station to JFK central terminal is only partially approved for PFC revenue, and the design cost of integrating NYCT subway cars into the light rail system in the future was prohibitive. The component cost to accommodate MTA trains' possible future use of the USD 94m terminal loop (eg. station length, structural strength, controls to accommodate off-airport users, etc.) was disallowed. The 3.1 mile USD 598m segment of the light rail connecting Jamaica Station to the JFK segment was also only partly approved for PFC revenue for the same reason; fare collection equipment at Jamaica was also disallowed." Mobilizing The Region, W. (1999)

<sup>9</sup> The Passenger Facility Charge (PFC) Program allows the collection of PFC fees up to [USD 4.50] for every enplaned passenger at commercial airports controlled by public agencies. Airports use these fees to fund FAA-approved projects that enhance safety, security, or capacity; reduce noise; or increase air carrier competition. Federal Aviation Administration, F. (2007).

## **Overview of key stages in funding approach**

In 1990 the Passenger Facilities Charge was implemented as a mechanism for financing airport improvements. On 6 February 1995 the Port Authority met with airport carriers to discuss its proposed project and aspects of the draft PFC application.

- 31 March 1995: PFC application to impose USD 3 PFC at JFK and to collect a total of USD 276,369,600 over approximately five years and 11 months (less the amount previously approved for collection for EWR-monorail, USD 50m, and the amount being withdrawn as a result of the deletion of the two flyovers, USD 111m);
- 8 May 1995: FAA determined this application to be substantially complete;
- 24 May 1995: a notice was placed in the Federal register, inviting public comment (the comment period closed on 23 June 1995);
- 1 October 1995: earliest charge effective date;
- 1 January 2001: estimated charge expiration date for the use of PFC on the airport (US Department of Transportation, 1997);
- Other information on financing the project, such as the development of Jamaica station, is not confirmed.

## **Revenue**

The low ridership made people suspicious about the revenues; but the Port Authority said, the project was never meant to be a money maker. (Donohue, 2006)

## F. OPERATIONS

### Reported traffic volume

**Table 1: Yearly arrivals and departures at JFK**

2003	31.7m
2004	37.5m
2005	40.9m
2006	41m (expected)

(Source: Wikipedia, 2007)

### Ridership forecasts and actual turnouts

Ridership forecasts as conducted before 1996, for instance the one published in the Final Environmental Impact Statement (Port Authority of New York and New Jersey, 1997a) by Charles River Associates (conducted 1994) referred to the 22-miles AGT system, the forerunner to the current AirTrain JFK. In the FEIS the forecasts have been adjusted accordingly. Between 1996 and 2003, airport trips were expected to grow at a rate of 2.5% annually. No distinction was made between paid and unpaid ridership, as made later. (Port Authority of New York and New Jersey, 1997a) (I 2-8)

**Table 2: Average daily airport trips – study in FEIS by Charles River Associates**

(conducted 1994)	Employees	Passengers	Intra-airport trips	Total
<b>1993:</b> actual trips to the airport	45,579	44,840	16,622	107,041
<b>2003 (forecast)</b>	49,297	50,849		100,146

Source: (Port Authority of New York and New Jersey, 1997a) (referring to AGT/ connecting LaGuardia and Kennedy)

In addition to the trips to JFK, 16,622 trips per day would be made within the airport: JFK long-term parking – 1,175; JFK employee-parking – 13,700; JGK Interterminal – 3,680; JGK Rental Car – 1,360; total pool of JFK trips 106,000 per day in 1993. (Port Authority of New York and New Jersey, 1997a) (I 2-8)

However, those numbers refer to the whole 22-mile AGT system and the daily trips to the airport. They do not attempt to predict the actual use of the AGT system, but rather to illustrate the need for increased airport access; they refer to the potential of such a system.

The Environmental Impact Statement (1997) cites a study by Parsons Brinckerhoff, “based on various assumptions regarding the operation of the LRS and competing modes”. (Port Authority of New York and New Jersey, 1997a) (I 2-9) The study projects the daily trip demand on the LRS (the 22-miles version) in 2003 as follows:

- On-Airport: 22,895 (68%);
- Off-Airport: 10,985 (32%);
- Total: 33,880 (100%).

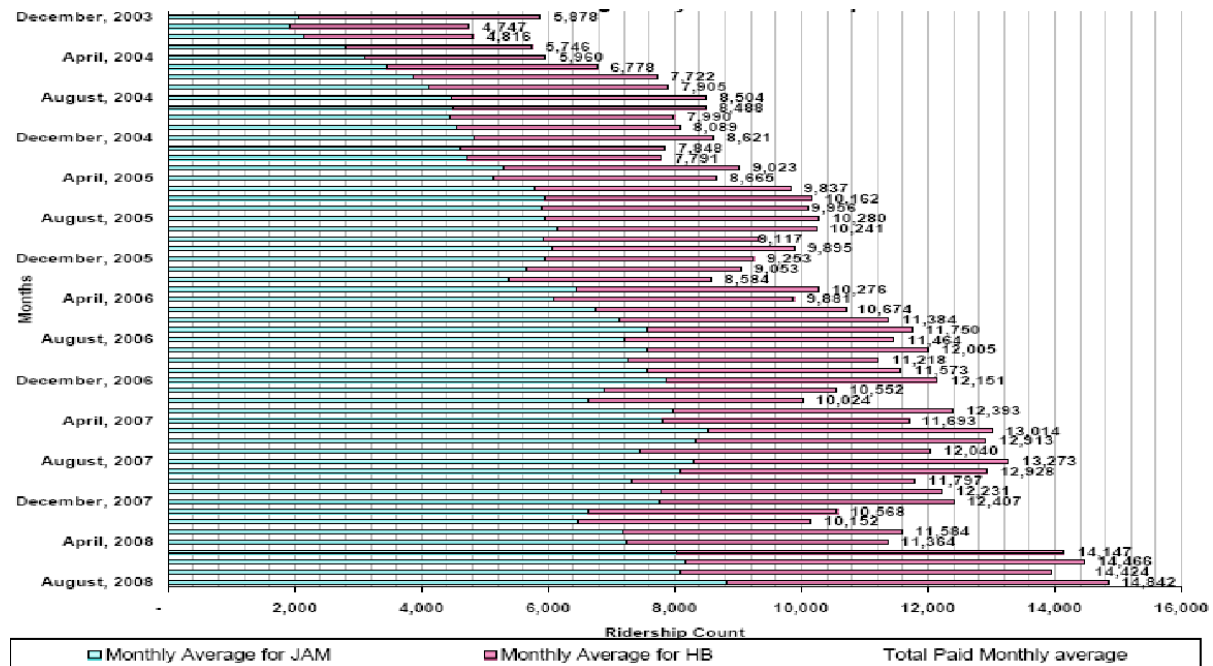
Source: (Port Authority of New York and New Jersey, 1997a) (I 2-9)

Those numbers, however, are difficult to compare to the actual turn-out starting in 2003, since – apart from the usual methodological problems – they are first calculated for the 22-miles system, and do not distinguish between paid and unpaid ridership. It is also difficult to tell what the numbers above actually count: whether they exclude overlaps of on- and off-airport travels, or not. A further problem is that the numbers available distinguish either between on/off-airport or between Jamaica/Howard Beach Station Ridership, so only the total numbers can be compared.

Figure 4 presents the currently available data on paid ridership for trips from and to the subway hubs – excluding the non-paid ridership figures integrated within former calculations. From the figures it becomes visible that paid ridership since 2003 is steadily increasing – if fluctuating on a monthly basis.

Analyzing the daily ridership projections, if one assumes a 50/50% split between paid and unpaid ridership, it looks as if the forecasts for 2003 (total of 33,880 on- and off-airport daily trip demand on the 22-miles LRS, Parsons Brinckerhoff) are still not met in 2008 (nearly 15,000 paid riders on the 8.1 mile AirTrain JFK).

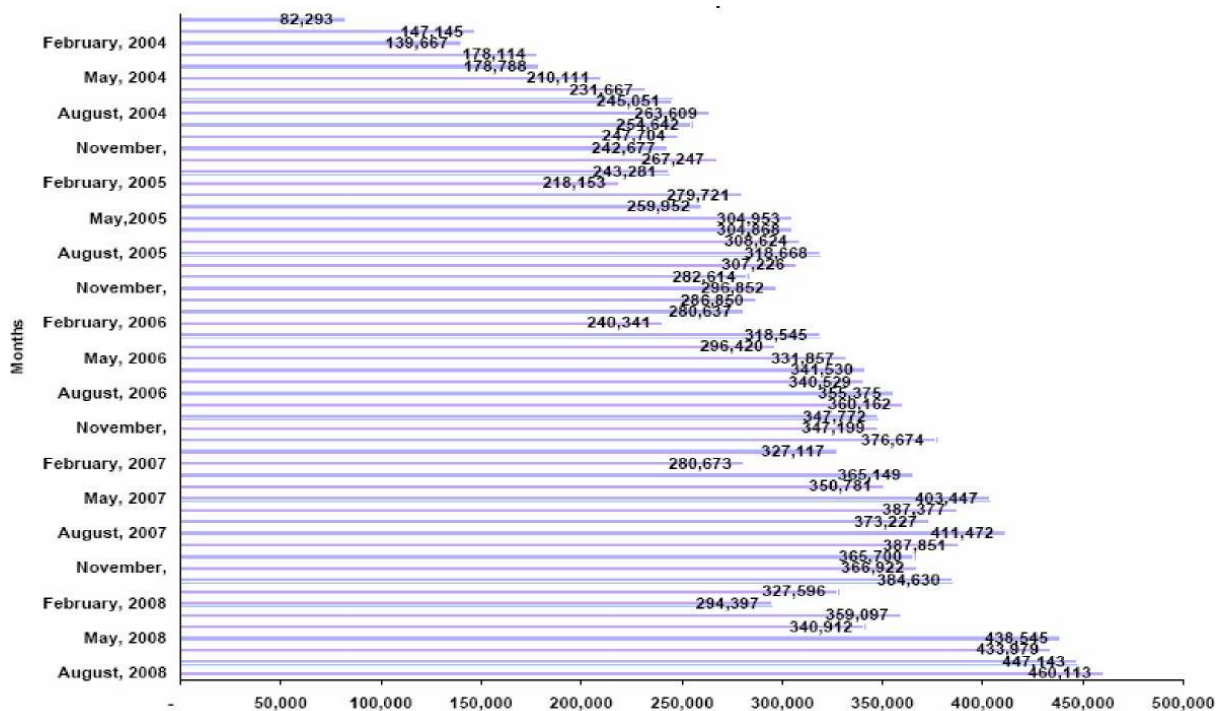
**Figure 10: Average daily paid ridership per month**



Source: Port Authority of New York and New Jersey, (2008)

In sum the least which may be said about AirTrain JFK ridership, both paid and unpaid – and no matter what it gets compared against – is that it has been steadily increasing since the project's opening in 2003 (see Figure 12).

**Figure 11: Total (actual) paid ridership per month – February 2004 to August 2008**



(Source: Port Authority of New York and New Jersey, 2008)

Some voices on the ridership numbers:

“The positive numbers [increased ridership] are a stark rebuke to early critics who feared the AirTrain would be an expensive boondoggle. AirTrain JFK loses about USD 30m each year, but the Port Authority said it was never built to be a moneymaker.” (Donohue, 2006)

“AirTrain JFK's paid ridership increased more than 15% in 2006 while AirTrain Newark's paid ridership grew by more than 8% last year as both airport rail systems set annual passenger records, the Port Authority of New York and New Jersey reported. Nearly four million paid riders used AirTrain JFK in 2006 to connect between Kennedy International's passenger terminals and mass transit systems operated by New York City Transit and the Long Island Rail Road. AirTrain Newark, which links Newark Liberty International to the Northeast Corridor Rail Line served by NJ Transit and Amtrak, handled nearly 1.6 million paid passengers in 2006. Both systems also serve tens of thousands of daily riders who use the rail systems for free to travel between passenger terminals and to connect to parking lots and rental car areas. The port authority said that 13% of Kennedy International's passengers now use AirTrain's free or paid service to access passenger terminals, while AirTrain Newark is the primary ground transportation for 10% of Newark's passengers.” (American Association of Airport Engineers, 2007).



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