JFK AIR CARGO STUDY

NEW YORK CITY ECONOMIC DEVELOPMENT CORPORATION | THE PORT AUTHORITY NEW YORK & NEW JERSEY

TECHNICAL REPORT

| John F. Kennedy INTERNATIONAL AIRPORT |





MAY 2012

L&B
Aviation Planning at the Leading Edge

ACKNOWLEDGEMENT

Landrum & Brown and its consultant team wish to acknowledge and thank Port Authority and Economic Development Corporation Staff for their support and cooperation throughout this Planning Effort.

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JFK AIR CARGO STUDY

NEW YORK CITY ECONOMIC DEVELOPMENT CORPORATION | THE PORT AUTHORITY NEW YORK & NEW JERSEY

Executive Summary





Aviation Planning at the Leading Edge

EXECUTIVE SUMMARY

As the air cargo industry evolves, the region and its airport system must implement changes that both respond to emerging trends and anticipate future needs of its logistics partners. The New York City Economic Development Corporation ("NYCEDC" or "EDC") and the Port Authority of New York & New Jersey ("Port Authority") therefore initiated a strategic planning process to review and revitalize the air cargo market of John F. Kennedy International Airport ("JFK"). The work was begun with the understanding that the following goals were to be targeted in the Strategic Plan ("the Plan").

- Grow and enhance air cargo movement within JFK and its environs
- Increase cargo-related employment opportunities available within New York City ("the City")
- Promote a comprehensive regional freight policy and public investment
- Diversify and expand industrial business in the City and the region
- Generate new investment in cargo-related facilities and infrastructure to serve the City and JFK
- Maximize real estate usage and operational efficiencies within the JFK Study Area

THE IMPORTANCE OF AIR CARGO

In 2005, the Port Authority completed a detailed study of the economic impact of the Newark Liberty ("EWR"), La Guardia ("LGA"), JFK and Teterboro ("TEB") airports. That effort determined that JFK's cargo operations impact the region in four ways:

- **Direct** impacts involve those activities which take place on the Airport.
- **Indirect** activities occur off airport and include a wide range of supporting functions.
- **Induced** effects arise from the expenditures by the recipients of direct and indirect wages and salaries.
- **Catalytic** benefits are new businesses that are created by cargo activity.

The data indicate that 1,000 tons of annual air cargo activity provides and supports about 35 jobs within the region. Over the past decade JFK's cargo volumes have declined by 600,000 tons.

BACKGROUND

JFK has long been considered one of the pre-eminent air cargo gateways in the industry. Growth was driven by balancing a strong flow of domestic cargo with international trade with emerging partners in Europe. As the air cargo industry matured, the international markets expanded to include Latin America and Asia, and more recently the Middle East. However, as the business expanded, so did the competitive arena. Based on geography, Los Angeles International Airport ("LAX") developed a focus on trans-Pacific traffic, Miami International Airport ("MIA") with South and Central America, and Chicago O'Hare International Airport ("ORD"), given its central location in the U.S., pursued commerce with all markets.

Aircraft technology became more sophisticated; more airports began to realize and address growing regional international trade interests and to take advantage of unused capacity in the holds of passenger aircraft. The result has been the emergence of numerous competitors for market share and a change in how some international cargo is routed. After September 11, 2001, the industry experienced seminal changes, the most significant of which continues today – the substitution of trucking activity for domestic air cargo and domestic legs of international air cargo. This trend has been exacerbated by unstable fuel prices and the rising costs of security, which makes the less expensive option of goods movement by truck, when possible, a more financially feasible option. In the face of continuing economic challenges, more mature markets are most severely impacted and the downturns in air cargo volumes over the past decade have affected JFK more than other gateways. JFK air cargo volumes have declined by almost a third over the past decade.

Through a competitive "Request for Proposal" process, a team of nationally respected firms led by Landrum & Brown ("L&B") was selected to assess the global and regional air cargo markets, determine the long-term implications for JFK and the City, and recommend strategies for moving forward in the new operating environment. Simply stated, the issue is whether the Airport and the region can regain the levels of cargo activity that have been lost over the past ten years. If so, the challenge is then to identify the strategies and specific initiatives that the City and the Port Authority should pursue.

The development of this strategic plan for JFK is somewhat unique because of the extent to which the on- and off-airport businesses and operations are functionally integrated. The off-airport cargo community is home to one of the industry's largest assemblies of customs brokers and freight forwarders that control the routing of most of the world's international freight shipments. The physical plan for future growth must recognize the need for facile operations as well as closely coordinated business activities. Physical planning will be an important element for moving forward. As a mature airport, and perhaps the oldest true cargo gateway in the world, JFK has numerous facilities and infrastructure with functionality that has become limited and in need of modernization. This includes the access roads to both the airport facilities and to the regional cargo community for which connectivity is so important.

Six months of industry due diligence included extensive outreach to stakeholders at the Port Authority and the EDC, on- and off-airport tenants and users, the development community, and the industry at large. The comprehensive inputs were combined with a wide analytical spectrum of air cargo dynamics, forecasting, business agreements, operating practices, financial policies, and market opportunities. These analytical efforts indicate that there are opportunities to recapture some lost traffic, but that it will be necessary to change the Airport and regional business model to achieve this and to create new regional logistics operations.

CRITICAL ISSUES AND FINDINGS

BRANDING AND VISION

As the aviation and air cargo industries have evolved over the past twenty years, newer cargo developments and operations at primary and secondary gateways have eroded JFK's market share of air cargo. At the same time there has been a deteriorating perception of JFK and New York as an ideal region in which to do business. Over the last five years the Port Authority's marketing budget for air cargo has been reduced to zero and there has been little interaction between the Port Authority and the City on marketing efforts.

The Airport needs to define its future role in Air Cargo. How JFK should position itself is described on page one of the Recommendations Section that follows. As the air cargo industry has evolved, the primary competing U.S. gateways have developed an identity: MIA is the gateway for Latin America, LAX for Asia, and ORD is the entry into the heartland of the nation. The former dominance of JFK driven in large measure by its European connections has eroded proportionately to the maturity of that market. The aggressive cargo marketing by other airports and the expansion of the passenger market with wide-body aircraft enable secondary gateways like Dallas/Fort Worth International Airport ("DFW"), George Bush Intercontinental Airport ("IAH"), Atlanta Hartsfield Jackson International Airport ("ATL"), Washington Dulles International Airport ("IAD"), and Philadelphia International Airport ("PHL") to siphon cargo that had historically flowed through JFK. Recapturing this lost cargo volume due to market fragmentation will be problematic and depends on innovative solutions to generate new air cargo activity.

Although the New York regional airport system still accesses the greatest variety of geographic markets, the challenges that face JFK as the most mature of the gateways require a rebranding and repositioning of the Airport among the industry segments with which it deals.

AIRPORT CAPACITY

The Port Authority has embarked on a substantial analysis of the capacity of its Regional Airport System so that it can better position those facilities to meet the needs of the City and the broader constituency they serve. This includes accommodating growth in passenger and cargo activity while maintaining a safe and secure operating environment with high levels of service. It is probable that the provision of future capacity will require modification of the aeronautical infrastructure, the potential deactivation of some existing cargo facilities, and the addition of new aviation support facilities. The impact requires that JFK must be planned with attention to the potential constraints, creating a new physical plan that addresses present and future industry needs with sensitivity to costs and operating efficiencies.

The impacts of a potential new runway and the land requirements of aviation support elements could impact available space for cargo and constrain available properties. A conceptual development plan that allows for phased, fiscally-prudent development of modern, cost-effective air cargo facilities must be prepared and implementation initiated when runway requirements are identified and finalized.

BUSINESS COSTS AND POLICIES

The cost of doing business in the Region and at the Airport is higher than at any other North American gateway and represents major concern to the industry which for the most part realizes that there is little that can be done on the broader scale. However, the cost concerns are complicated by two major issues. The first is that the Port Authority does not have a budget or financial targets for its air cargo operation. While the creation of a specific cost/revenue center for cargo is not typical, the size of the operation and the challenges the Airport and the Region face, argue for a more structured management approach.

The second consideration is the level of service received for the price – in other words – value. There are opportunities to reduce costs and create operating synergies that will make the Airport more attractive to the global market. This will include a combination of adjustments to rates and charges, new leasing terms, the addition of financial and economic development incentives, and the introduction of operating efficiencies. In certain instances,

the City must play a strong partnership role. A cost containment program for tenants and users of on- and off-airport facilities that includes rates and charges that balance risk and reward for potential partners is essential. The financial package should include a comprehensive City and Agency incentive package consistent with FAA guidelines.

TRUCKING

Because of increasingly tighter security guidelines there have been two significant industry changes in cargo movement. The first is a tendency to push cargo to major gateways where economies of scale can reduce the cost of screening for a shipper. The second is increasing use of trucks for the movement of domestic cargo and domestic legs of international cargo in order to avoid screening costs. In both instances, JFK suffers because of the ban on tractor trailer combinations with 53-foot trailers on the Van Wyck Expressway. The problematic access combined with the restriction on the most efficient vehicles for transport, have increased the cost of doing business, and reduced air cargo related trucking and attendant cargo volumes. This is particularly significant since a substantial portion of JFK's international cargo has been historically trucked to the Airport from points as far away as Vancouver.

The industry is particularly frustrated by the constraint since there appears to be no major physical impediments to making a change that would allow JFK and the Region to compete on a level playing field with other gateways. The City and the State of New York have had it on their planning agendas to address the restriction on 53-foot trailers that prevents such vehicles from serving the JFK community. *From a logistics perspective this constraint has substantial financial and operating implications and, in the belief of the Team, adversely impacts cargo tonnage and regional job growth by discouraging trucking activity.*

PRIVATE INVESTMENT

The cargo activity levels in the Region and on the Airport make investment by the private sector attractive under the right business scenario. Revised leasing policies and practices to encourage private-public partnerships and third-party development of on-airport cargo facilities would encourage private investment and reduce the cost to the City and the Port Authority.

OFF-AIRPORT INFRASTRUCTURE AND DEVELOPMENT

The City has recognized that the synergies that currently exist between the on and off airport cargo communities around JFK must be exploited. The air cargo traffic flowing through JFK is largely dependent on the hundreds of supporting businesses in Queens and Nassau counties. The area directly across Rockaway Boulevard from the Airport's busiest cargo area, holds one of the industry's largest concentrations of customs brokers and freight forwarders. Revised and more efficient use of on-airport properties would facilitate the relocation of a substantial number of these operations. If that can be accomplished, there may be an opportunity to develop new businesses that actually generate cargo in an off-airport development. The creation of appropriate critical property mass which can accommodate a large planned development will be necessary.

The Team used their specialized knowledge and experience to integrate the study and evaluation into a realistic and fiscally prudent Plan for the Airport and the Region to address the Critical Issues. Because of its length, the document has been structured in four sections:

1. Recommendations
2. Implementation
3. Background and Analyses
4. Appendices

Listed and described in Section A are the five primary recommendations that are essential to address the loss of cargo activity at JFK. There are a number of additional recommendations that are subsets of the primary recommendations. These are discussed in greater detail in the Recommendations Section of the Plan.

As a client with the PA for this planning effort, the City indicated its support of JFK and its willingness to be a partner, as appropriate, in the pursuit of the initiatives discussed in the Plan. This partnership will be essential in creating a new image for the Airport and the Region and for introducing policy modifications, and new development initiatives that will be critical to future success.

The City and the Port Authority have a unique opportunity to reposition JFK within the air cargo industry through boldness, initiative, and vision.

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JFK AIR CARGO STUDY

NEW YORK CITY ECONOMIC DEVELOPMENT CORPORATION | THE PORT AUTHORITY NEW YORK & NEW JERSEY

Section A – Recommendations





Aviation Planning at the Leading Edge

SECTION A
RECOMMENDATIONS

The recommendations that follow are structured to develop a Strategic Plan ("the Plan") that integrates business, physical planning, and marketing considerations that will form the revitalized JFK Cargo Program. The recommendations reflect realistic analyses of the viable alternatives given the need for fiscal prudence and increasing industry-wide competition.

THE VISION

The vision is critical to the logic that underpins the initiatives. It would be the core of the marketing and business development efforts, and the basis on which future physical development is predicated.

John F. Kennedy International Airport ("JFK") would be positioned as a true gateway that encourages and accommodates robust domestic consolidation for international distribution, and addresses the reverse logistics with equal efficiency. The aggressive forecast (which is used for physical planning purposes) and demand/capacity analyses call for the Airport to handle approximately 3,500,000 tons of cargo in 3,000,000 square feet of facilities by 2040.

Future facility development would be conducted by third parties in an environment that shares both risk and reward, and works in a public-private partnership to control the costs of doing business for tenants and users. All future Cargo development would occur in Zones A, B, C and D as described in Chapter 6 of Section C in this document.

- Access to the Airport would be modified to enable tractor-trailer combinations with 53-foot trailers to pick-up and deliver cargo to the Airport and to the off-airport facilities immediately surrounding the Cargo Zones. New facilities would be planned to address roadway geometry for the larger vehicles and have ample room for truck queuing and automobile parking.
- Fewer and larger common-use cargo facilities concentrated in Zone D would reduce truck movements as well as vehicle dwell time on the Airport. This contributes to reduced trucking costs and produces time savings for drivers. The reduced and concentrated number of facilities would also contribute to reduced emissions and more efficient traffic flows that would be facilitated by clear signage.
- Integrator operations would be concentrated in Zone C. This would also ease trucking congestion and reduce queuing issues. Part of Zone C would be preserved for the expansion of terminal capacity to accommodate passenger growth for the next 30 years.
- Eventually the carrier cargo facilities in Zone B would be relocated to Zone D. Zone B would be rededicated to customs brokers and freight forwarders creating an on-airport Cargo Village. This would create a more efficient operating environment for these supporting businesses, and accommodate their trucking elements and employee parking which are problematic in the current off-airport environment.
- All cargo would be moved out of Zone A which reduces trucks on the southernmost segment of the Van Wyck Expressway and would open up Zone A for new development.
- Off-airport facilities and development would be considered for those businesses that rely on shipping by air to give them immediate access to global distribution.

Recommendations and strategies have been grouped to address the key findings identified in the due diligence. For these planning purposes, air cargo is considered to be the core business activity. A core business is one that involves high volume activity and provides an "anchor" of sufficient scale to create a major revenue stream, justify long-term development of the Airport, and sustain a variety of ancillary and supporting services and businesses. The Airport must be able to develop clear competitive strengths in its core business and plan around its continued presence. Sustaining this core business is the critical priority of the Plan.

PRIMARY RECOMMENDATIONS:

Recommendation 1: ***Develop a single internal Port Authority Vision of the "new" JFK cargo environment that reflects, and is consistent with the City economic development goals and initiatives and the PA's role to manage a regional system that includes three commercial airports.***

Discussion

The development of this Vision is essential to a strategic rebranding of JFK within the air cargo industry. The reputation of the Airport as an aging facility and the perception that the Port Authority of New York & New Jersey ("Port Authority") insists upon unyielding and uncompetitive business terms should be addressed. The relationship between the Port Authority and New York City ("the City") should be strengthened so that the New York City Economic Development Corporation ("NYCEDC" or "EDC") and the Port Authority share a common perspective on business development and that growth initiatives are mutually supportive. This should include a strategic integration of on and off airport physical development, partnering on creative business arrangements, and synergistic marketing.

Recommendation 2: ***Establish air cargo as a business center with specific cost controls and revenue targets.***

Discussion

With the variables and challenges of the air cargo operation, the Port Authority would benefit from the creation of a separate business center. This would enable staff to set parameters for a tiered pricing structure for ground rents, develop targets for individual negotiations within a determined financial context, and evaluate the cost-benefit of potential new initiatives. Additionally, an air cargo "budget" would allow the Port Authority to better determine a dollar allocation for marketing. Businesses typically allocate 1½ to 2½ percent of their costs to marketing. This percentage is obviously linked to a number of variables including market position, dollar allocation priorities, overall funding capacity, etc. See Recommendation 5.

Recommendation 3: ***Finalize the preferred conceptual layout plan as the basis for future development. Create renderings based on the alternatives that can be used for marketing tenancies and use of the Airport.***

Discussion

The Preferred Alternative may change slightly based on the results of current analysis of runway options. Nevertheless, it will be important to develop a conceptual rendering that can be presented to the industry for marketing purposes. More importantly, however, the Preferred Alternative has been developed to provide capacity for forecast demand in a fiscally prudent manner with all appropriate phasing. Future development must be strategic rather than incremental to ensure that the right facilities are available when needed. Other alternatives have been prepared to accommodate potential different runway options.

All of the alternatives reflect concepts that would provide high levels of service, safety, efficiency, and security for tenants and users, and incorporate state of the art landside concepts. The currently accepted version can be found at the end of this summary document. (See **Exhibit A-1**)

Recommendation 4: ***Immediately and aggressively pursue modification of the constraint on large or 53-foot tractor-trailers on City roadways by allowing these larger vehicles to access JFK and the surrounding air cargo community.***

Discussion

For large trucking shipments that serve gateway airports the 53-foot trailer is the vehicle of choice for efficiency and cost effectiveness. This vehicle can carry five standard Unit Load Devices (containers) that typically measure 125' x 96' for cargo, while a 48-foot trailer can only accommodate four containers. In an environment where trucking costs have become increasingly important, the constraint on 53-foot trailers, in effect reduces trucking efficiency to JFK by 20 percent and raises costs correspondingly. This puts JFK and the Region in a non-competitive position with other gateway airports.

While negatives cannot be measured, the industry outreach clearly indicated that for a number of companies the 53-foot trailer constraint and the resultant cost impacts of using smaller vehicles remove the City from their operating spectrum. The potential economic impact is substantial. The forecast numbers show approximately 1.5 million tons of cargo a year that would be handled by 53-foot trailers in 2040. If the legal restriction were to be lifted, a modest increase of only five percent in the trucked tonnage would equate to more than 1,400 more jobs.

Recommendation 5: ***Create and allocate funding for an aggressive and focused marketing effort.***

Discussion

During the course of the planning effort questions were raised by the Port Authority/EDC regarding the amount of money that could/should reasonably be allocated for marketing air cargo. Budgets at other airports are typically difficult to access or are not specifically designated for air cargo. Representative numbers vary based on available dollars, current market position, and regional interest, and commitment and range from several hundred thousand dollars to several million. The Port Authority and the City have no common vision for air cargo development and although it continues to market air cargo at the highest levels of the Aviation Department, the Port Authority has no marketing budget and no formal marketing

plan. In light of the levels of competition for market share and the aggressive posture of competitors in the northeast region of the U.S., it is essential that a focused marketing effort be built on the new branding.

SUPPORTING RECOMMENDATIONS

PHYSICAL PLANNING:

Recommendation 6: Future cargo development should focus on larger facilities in Zone D to contain costs by providing economies of scale.

Discussion

The Preferred Alternative recommends three large cargo facilities in Zone D that would be the primary focus of carrier activity (other than integrators). The facilities are double-decked and each capable of handling in excess of 1,000,000 tons with a throughput of 1.5 tons per square foot. From an operating perspective the ideal structure would be a single-handling company for each building. This would help control costs through economies of scale, minimize the proliferation of equipment on the cargo aprons, and expedite cargo processing. The focus on fewer large buildings in a single Zone would also reduce truck traffic on-airport, the related carbon footprint, and the dwell time of trucks. The reduced dwell time would lower trucking costs – a major regional issue.

Signage, as part of the Preferred Alternative, would be simpler and easier to follow for long-haul trucking, and short-haul connectivity with facilities across Rockaway Boulevard would be easier and faster.

Recommendation 7: Maintain sufficient aircraft ramps to accommodate forecast freighter traffic.

Discussion

Forecasted levels of freighter activity indicate a potential need for 38 aircraft parking positions in a conservative operating scenario. The Plan recommendation is that carriers would continue to meet long-term cargo demand through wide-body belly capacity, reducing the growth rate for freighter activity. Increasing sophistication in cargo handling equipment, and the emphasis on common-use facilities with a single major handler as the primary tenant, provides for increased efficiency in turning aircraft and optimization of ramp capacity. The Preferred Alternative provides capacity for future needs.

Recommendation 8: Dedicate Zone C to the development of an integrator complex.

Discussion

Both FedEx and UPS operate out of JFK. FedEx has the larger operation but has a substantial amount of unreported truck-to-truck traffic to serve its Long Island markets. The demand analysis calls for roughly 500,000 square feet of facilities to accommodate substantial trucking and employee parking, as well as airside operations. Concentrating this activity in Zone C, which may be slightly reduced by future expansion of the Central Terminal Area, would enable all other carriers to be accommodated in Zone D and distribute trucking movements, while improving levels of service throughout all of the Airport cargo operations.

Recommendation 9: Based on the Preferred Alternative, develop a "Cargo Village" in Zone B for the ancillary and supporting services upon which cargo activity depends. The focus would be customs brokers and freight forwarders.

Discussion

The Preferred Alternative provides for approximately 1.8 million square feet of state-of-the-art facilities for customs brokers and freight forwarders. This business segment would benefit from proximity to the on-airport cargo facilities. There are clear indicators of demand, assuming the facilities can be developed and leased for a price that the market will bear. Calculations indicate that this kind of incremental development on-airport would provide a greater financial benefit to the City than comparable off-airport development.

Recommendation 10: Explore the creation of a trade-oriented commercial development in Zone A.

Discussion

This concept, developed in greater detail in the context of the analysis, would enable the Port Authority to create a commercial development in excess of one million square feet, without any impact on existing cargo facilities and without phasing implications. The concept should be tested with a Request For Expression of Interest (at virtually no cost) to assess feasibility and interest in the development community. If development is considered viable, the project can progress, which would quickly generate jobs, create a new image for JFK in the global trade community, and generate a new source of revenue that could be used for cargo development and related activities.

Recommendation 11: Provide a Certified Cargo Screening Facility to serve the broker-forwarder community and small carriers.

Discussion

Current Transportation Security Administration ("TSA") guidelines require screening for all belly cargo. The cost of the equipment and the space requirements for the breakdown, screening, and buildup of cargo make the operation problematic for smaller users. Like the rest of the air cargo business, profitability is largely driven by economies of scale. The provision of this service by the Port Authority or by a third party to the regional cargo community and other potential users would provide another mechanism to lower costs and improve marketability. The Preferred Alternative includes this, but a facility could be added at an alternate site on a near-term basis.

Recommendation 12: Provide capacity for Customs inspection in all cargo buildings.

Discussion

U.S. Customs & Border Protection ("CBP") has indicated that its clearance efficiency could be greatly enhanced by providing a small inspection area in all cargo facilities, which would allow for freight designated for inspection to be staged, opened, and cleared. The presence of these clearance stations combined with fewer buildings to which CBP Inspectors travel would facilitate clearance and hold times. It would also enable CBP to make better use of its staff and optimize their output. The resultant expedited clearance could translate into cost savings for trucking.

Recommendation 13: Demolish or functionally shut down facilities determined to be no longer viable.

Discussion

A dollar figure on the total operations and maintenance ("O&M") costs for facilities that are no longer used was not available. Nevertheless, estimates from previous studies indicate that the cost in some facilities is as much as $2.00 per square foot. The Port Authority has 3.5 million square feet of "cargo" facilities considered to be unviable. The "closure" and/or demolition of fifteen percent of these facilities could generate savings approaching $1 million a year. The savings could be allocated to demolition of facilities that have the greatest adverse impact on marketing and overall aesthetics, and in particular, those that would not be targeted for demolition in the near future in conjunction with new development. Note that the cost of demolition was not included in the scope of study but is of course a consideration.

Recommendation 14: Create an Aesthetic Concept that will be included in Design Standards and Development Guidelines for all new cargo facilities.

Discussion

An important consideration in marketing is appearance. A majority of the existing cargo facilities are in disrepair and the surrounding areas are not well maintained. This affects overall marketing and has an immediate adverse impact on nearby facilities that are occupied and functioning. Aesthetics are particularly important where the cargo facilities are visible from public roads or airside where they are visible from arriving or departing aircraft.

Recommendation 15: Initiate an immediate clean-up of the cargo zones.

Discussion

The appearance of the grounds surrounding many of the cargo facilities has an adverse impact on marketing. While cargo operations are largely driven by costs, carriers and supporting businesses also focus on value. The high costs of leasing and doing business in the region will always be an issue. If potential tenants and users do not perceive that the facilities and environs in which they operate are well-maintained they will see less value for their investment and potentially seek other alternatives.

Recommendation 16: Ensure that new cargo facilities have the capacity for fumigation.

Discussion

The movement of perishables is an important segment of air cargo. On occasion fruits, vegetables, and flowers may require fumigation. A number of existing cargo facilities at JFK has climate controlled space for handling perishable products. This is available in the form of portable coolers which do not provide enough capacity currently. A fumigation operation requires about 300 square feet and can easily be built into new construction. This provides a valuable service that can enhance marketing at minimal cost.

LANDSIDE OPERATIONS

Recommendation 17: The Port Authority and the City should ensure that the Van Wyck Expressway is included as part of the designated highway network for 53-foot trailer access.

Discussion

As discussed earlier, access to JFK for 53-foot trailers is critical. While there are broader access issues that will eventually need to be addressed for roadways in areas around JFK, it is most important to recognize that the immediate goal is to get the large trucks to the Airport. Work will eventually need to be done off-airport to address physical constraints for the larger trucks at some interchanges along the interstate highway network in the City, but that should be considered as phase two of the initiative.

Recommendation 18: Reduce truck interaction with passenger activity on the southernmost segment of the Van Wyck Expressway.

Discussion

With a long-term strategy in place to focus on the development of Zone D, and the elimination of Zone A for cargo in the future, signage and roadway modification, as appropriate, should be implemented to divert air cargo trucking from the Van Wyck Expressway as it approaches the Airport to the east via JFK Expressway, 150 Street, and Cargo Plaza.

Recommendation 19: Improve off-airport connectivity between the facilities in Springfield Gardens and the Cargo Zones.

Discussion

A substantial amount of the air cargo – both inbound and outbound that is processed through JFK, is handled in supporting cargo facilities around the Airport. Connectivity is essential to reduce transfer time and costs. Levels of truck activity peak to coordinate with international shipping windows that can cause congestion on Rockaway Boulevard. The geometry of the existing access points should be reviewed and modified, as appropriate, to facilitate turns and optimize roadway levels of service.

Recommendation 20: Finalize negotiations and develop the JFK Truck Center.

Discussion

The Port Authority is finalizing the development of a trucking center that will enable vehicles to be staged off the roadway system while waiting for cargo pickup. The concept has been under consideration for some time and can immediately impact both revenues to the Port Authority, levels of service and amenities to the trucking industry, and carbon emissions by reducing truck movements and idling. The Port Authority should also ensure that all trucks, not at a cargo facility, be directed to the truck center and not be permitted to “hold” in unauthorized areas.

Recommendation 21: Review and address roadway geometry for on-airport cargo facilities.

Discussion

The improvement of access and egress to the individual cargo facilities can increase the efficiency and safety of trucking operations. Future facilities and connecting roadways in the Preferred Alternative are planned to accommodate larger trucks. All roads in the cargo zones should have appropriate turning radii and truck courts that allow for the maneuvering of full-size tractor trailers. A minimum depth of 150 feet is recommended for the truck court modifications. This standard should be applied to leaseholds where change of turning radii and maneuvering depth is possible.

Recommendation 22: Create a new numbering system for the cargo facilities.

Discussion

Because the JFK cargo community developed incrementally in four separate cargo zones over the past 60 years, and because the building numbering system was in large part chronologically derived, there is no apparent rational way of linking a building to a Zone. Although the redevelopment of the cargo Zones would take a number of years, the renumbering of the cargo facilities and linking them to a Zone would expedite way-finding for the industry and provide additional value at minimal cost.

Recommendation 23: Simplify pickup and delivery and reduce trucking dwell time through fewer stops, more efficient landside planning, and technology.

Discussion

New facilities in the Preferred Alternative provide for fewer truck stops and increased efficiency. Development criteria for these facilities should address landside operations and specifically physical planning elements that will accelerate truck handling. Facilities should be planned with an optimum number of truck bays to minimize queuing operations and expedite handling. The number of bays may vary based on the planned internal material handling systems and the nature of the tenants' operations.

An enhanced shipment-ready computer system would alert customers as to when shipments are fully available for pick up and would schedule a window for pick up at the facility. The system would need to be developed, require the acceptance of off-airport cargo facilities to participate, and receive buy-in from the trucking firms. Performance monitoring (e.g., average wait times at facilities) would also need to be developed.

Recommendation 24: Review and update both directional signage and indicators of building tenancies.

Discussion

Truckers travel from as far away as Vancouver to bring cargo to JFK. Changing tenancies and the building numbering system make it difficult for a driver not familiar with the Airport to locate a specific facility and/or tenant. Signage would help direct truckers, unfamiliar with the Airport, off the Van Wyck Expressway as soon as possible. This would reduce congestion and improve safety.

Recommendation 25: Create a facilities update map that tracks tenancies on the Airport and is available via internet to the cargo community.

Discussion

As another potential way to assist way-finding, an updated cargo facilities map reflecting new numbering should be created. This could be easily updated and linked to the Port Authority website, but also available as an electronically-transmitted stand-alone document that can be used by the community to facilitate their trucking activities.

BUSINESS DEVELOPMENT AND FINANCE

This set of recommendations includes leasing and activities related to property management, as well as financial practices and policies. The purpose of these recommendations is to establish a framework within which the Port Authority and the City can mutually develop a more amenable business environment for the air cargo industry by lowering and/or containing costs.

Recommendation 26: Create a tiered pricing structure for ground leases.

Discussion

There are clear indications of demand in the Customs Broker and Freight Forwarding businesses for facilities on the Airport. The issue historically was that such operations were not encouraged to be on JFK. That philosophy has changed since the support functions clearly represent a strong potential leasing market and new revenue stream for the Port Authority and ultimately the City. The primary constraint has been cost. Although the business is willing to pay some differential for an on-airport location, current cost structures and lease terms make it difficult for small to mid-size firms to afford to relocate. The pricing analyses indicate that while the differences between on- and off-airport pricing can be addressed, a tiered ground rental structure that reduces the rate for land without ramp access, combined with longer ground leases on development, will enable basic facilities to be *developed and leased*.

Recommendation 27: Change the basic Port Authority leasing policy to enable property staff to negotiate ground leases in excess of twenty five years.

Discussion

This Plan confirms the Port Authority strategy to utilize private developers when financially feasible, to construct new cargo and cargo-supporting activities. Given the size of the potential investment, and the need to amortize the investment over time, it is essential that the length of the lease be extended to be competitive with other gateways where 35- to 40-year lease packages are available. The longer lease terms would allow developers to reduce the basic rents to tenants. The impact on flow through costs to the buildings occupants and users should become a part of future negotiations.

Recommendation 28: Initiate ground lease payments with the start of beneficial occupancy in new buildings.

Discussion

The Port Authority has historically required that ground lease payments for new development begin upon the signing of the lease. This forces developers to factor in this cost with the basic building lease payments accruing to tenants. This adds substantial costs to projects, some of which are already encumbered by demolition costs and potential contribution to infrastructure enhancements. The lease or associated development agreement should address this but also include a "failure to perform" provision.

Recommendation 29: Institute joint marketing and leasing provisions for new and competing properties.

Discussion

A major consideration for developers is the potential competition from lower priced existing Port Authority facilities. A cooperative leasing and marketing partnership should be in place that would enable the new development to address capacity challenges facing the Airport and accommodate new entrants to the Region. Relocation of tenants from the Port Authority to a private facility can be directly linked to demand and capacity issues, and developers can be required to compensate the Port Authority *under certain mutually agreed upon conditions,* for lost revenue. The intent is to prevent concerns over "pirating" tenants, creating an unfair playing field that discourages new development.

Recommendation 30; Develop and implement a phasing plan that will accelerate cash flow, minimize tenant moves and infrastructure modification.

Discussion

The Preferred Alternative presents conceptual development plans and phasing for the development of all four Zones. Phasing factors include lease expiration dates, property availability, and minimization of tenant moves. Ideally, a tenant should have to move only once. The PA as any facility owner/operator especially in a constrained financial environment needs to balance and consider near-term development options with the financial implications of revenue losses associated with long-term development considerations. The Port Authority has indicated that near-term development options and the more immediate financial benefits that development will bring may supersede the long-term considerations. This may alter the recommended phasing plan. The phasing plan derived from the Preferred Alternative is included in **Appendix A**.

Recommendation 31: Create a central clearinghouse for tenant alterations.

Discussion

A primary area of concern for tenants of Port Authority facilities is the ability to make changes to the facility that allow them to be responsive to operating requirements. In many instances, these improvements can represent cost savings, service enhancements, and/or expanded capacity. Developing a central coordination and follow-up point can ensure the completeness of requests, accurate routing, and responsiveness to the tenant. This role could be filled at the Port Authority level or at the Airport.

Recommendation 32: Ensure the availability of up-to-date design standards and development guidelines for tenants and potential developers.

Discussion

Part of the challenge of tenant alteration requests can be mitigated by a tenant awareness program regarding design standards and development guidelines. These should be updated consistent with any new safety, security, and/or code modifications. The Port Authority has always maintained (or exceeded) consistency with City Code. In light of the proposed volume of new development, the existing guidelines should be revisited to ensure relevance to a long-term aesthetic.

Recommendation 33: Explore the feasibility of a joint City and Port Authority Incentive Program to attract Airport tenants and users.

Discussion

The cost of doing business has been identified as a major consideration for JFK and it will be important to reduce costs where possible. That being said, incentives can play a role in the process *after* a level of tenant or user interest has been established. While direct subsidies cannot be paid by an airport to a carrier, there are a variety of options that are or could be available from the City and the Port Authority to encourage both development and operation. These are discussed at length in Chapter 8. The key in applying these incentives is to create a scenario for continuing success. These are best achieved by orienting incentives to volume discounts that flow through to all involved parties and achieving economies of scale.

Recommendation 34: Adapt and promulgate formal Performance Measures that will both inform and guide the Port Authority and the City on cargo activity and potential new initiatives.

Discussion

There are over one hundred measures that could be used to evaluate some aspect of air cargo activity at an airport. The value of these measures varies from airport to airport based on the tenant and user profiles, and general operating characteristics of the overall air cargo program. The use of too many measures tends to diminish their perceived value and the attention given to them by members of the cargo community. Chapter 8 recommends two sets of measures that would provide critical feedback to the Port Authority and its Senior Management, and to the City which will have a different perspective on the operations.

Recommendation 35: Introduce a new cargo tonnage reporting system for Airport tenants and users.

Discussion

Since 9/11 there has been increasing use of trucks operating out of air cargo facilities for domestic freight operations. Cargo that moves on a truck-to-truck basis is not reported to the Port Authority or to the Airports Council International. At JFK the long-term forecast estimates that approximately 600,000 tons of annual cargo will be unreported in 2040. This planning ambiguity that this volume represents creates planning challenges for space allocation and utilization. This also disrupts phasing of new development and distorts estimates of potential economic impacts and job creation. The Port Authority should introduce a reporting system that would enable them and the EDC to capture a more accurate understanding of how the JFK facilities are being used.

Recommendation 36: Re-evaluate the use of Industrial Development Agency funding for cargo development projects on a case-by-case basis.

Discussion

Under the Master Lease the NYC Industrial Development Agency ("IDA") is precluded from financing new cargo development at JFK. While the Port Authority may be able to provide financing conduits that can match IDA rates, the issue becomes one of allocation of scarce Port Authority resources between future passenger, cargo, and aviation support elements. Given the anticipated volume of new development, the *potential* assistance from the IDA on a specific project should not be precluded automatically, particularly if the assistance could be the key determinant for a new market entrant and increased regional economic activity.

Recommendation 37: Review the Development Request For Proposal (RFP) Process for simplification.

Discussion

One of the challenges for a public agency entering into an agreement with the private sector is the requirement for a competitive process for partnership selection. The cost to the developer of a response to a large cargo project solicitation can exceed $500,000. This often discourages participation in a very intense, competitive environment. A modified and very focused RFP process should be explored.

MARKETING

Recommendation 38: Develop a Port Authority Air Cargo Marketing Plan that considers and integrates the City strategic input and participation.

Discussion

A formal, prioritized marketing plan for air cargo is essential to prioritizing workload and the allocation of resources. The absence of a marketing budget for air cargo has mitigated the need for the document to some extent. Nevertheless, the industry has changed over the past five years and competition has increased substantially for market share. If the Port Authority is to recapture lost tonnage and attract new users, the agency and the City must make their presence known in the industry, counter negative publicity and marketing by competitors, and present the new vision of JFK. The traditional arguments of delivering air cargo to so many people overnight must be replaced with an emphasis on cost control and efficiency, and global capacity tied into domestic redistribution networks. Many of the elements of the Plan are described in the recommendations that follow.

Recommendation 39: Establish a marketing budget for air cargo.

Discussion

The formulation of a marketing plan would enable the Port Authority and the City to understand what efforts need to be undertaken. Once initiatives are evaluated and prioritized, and the City and Port Authority have a sense of what should be done, a determination can be made regarding budget allocation. Because of the limited activity for the past three years and the absence of current marketing material, it is anticipated that year one costs would be higher than years two and three. The first year would be spent largely on refining the broad target market and pursuing specific priority carriers. By year two the winnowing process would have been completed and efforts could be much more focused.

Recommendation 40: Correlate a Gross Domestic Product ("GDP") analysis with emergent aviation markets to assist in targeting and prioritizing marketing efforts.

Discussion

Utilizing data on geographic region and country specific GDP, the Port Authority can identify highest relevant growth areas and develop a focused target list for marketing carrier outreach. This would pertain to both existing users and potential new entrants. While some regions have traditionally been strongholds for other gateways, the potential represented by substantial growth in such areas as Latin and South America, and Africa, must be considered on a structured basis. The work would also include identification of any requirements for liberalization of bilateral air service agreements and the development of statistical databases on air traffic and demographic data to allow an efficient preparation of tailored air service information packages.

Recommendation 41: Develop a cost/benefit route – weight analysis including fuel burn calculation and time to market elements to compare JFK against other established and emergent gateways.

Discussion

A route-weight fuel burn analysis would enable the Port Authority to further narrow and prioritize the most profitable carrier markets. By drawing the comparisons to competitors, the marketing group would be better positioned to discuss the actual cost of doing business. This type of analysis is best focused on freighter operations, although a similar application could be used for passenger development.

Recommendation 42: Create renderings of the proposed new cargo and commercial development in the Zones.

Discussion

While it is understood that some of the development may change over the course of the forecast period, it is important that the Port Authority demonstrate visually to the industry the changes that are anticipated. This will be important for mature business segments who have dealt with JFK over the years as well as marketing targets. The renderings should present aspects of the development that reinforce visually, to the extent possible, changes to landside access, aircraft parking, on- and off-airport connectivity, and special services such as the Truck Center and central screening facility, that would reduce costs, improve operations, and enhance the air cargo community's quality of life.

Recommendation 43: Develop new collateral material to address the planned changes and offset the negative marketing on security and costs from competitors.

Discussion

JFK must present a new image to the industry. It is constantly denigrated by competitors for issues both real and manufactured. It is a gateway with high costs in a business environment that is cost sensitive. New material that positions the Port Authority and the City as partners with the industry and stresses cost containment and security as well as time and operational enhancements including access will be important to the message. Renderings and cost analyses should be part of the material. Generic, adaptable presentations should be prepared by the Port Authority and the EDC. The possibility of incentives should be introduced as part of the material.

Recommendation 44: Identify and initiate joint PA-EDC marketing initiatives.

Discussion

As gateways compete with one another for a larger piece of the global market, more airports are teaming at some level with their city or region to extend marketing discussions beyond the typical parameters within which airports normally market themselves. This added dimension often includes elements such as facilities and services for regional partners and available incentive programs all geared to business elements of a carrier's operations. In marketing to Asia, the involvement of a City, particularly one as prestigious as New York, adds substantial weight to the discussions and opens the discussions up on issues such as quality of life which, to the Asian markets, is significant.

Recommendation 45: Develop generic Sales Kits with specific inserts for market segments –carriers, trucking, customs brokers and freight forwarders.

Discussion

Sales Kits should be available for all marketing and property representatives. This can be a four, six, or eight page folder with the capacity to handle inserts that should be developed for carriers, truckers, and supporting industries. These business segments have different interests and concerns that should be addressed in the relevant insert. For example, the Zone B Cargo Village would have a special insert for brokers and forwarders, while Zone D would address the issues with which carriers are concerned

Recommendation 46: Increase targeted trade show participation.

Discussion

Because of budget reductions, the Port Authority does not participate in air cargo industry trade shows. Historically, involvement has always been an issue because the Port Authority has been sensitive to outside perceptions of agency staff travel, particularly to overseas destinations. The Port Authority is one of the few airports of international stature that is not represented at meaningful international air cargo events. In many instances cities also participate with an airport to maximize the impression made on targets and to develop a better understanding of the synergies joint marketing can offer. Part of the issue with these trade shows is their sheer number, which makes prioritizing attendance problematic. Nevertheless, there are at least four annual events that should be targeted for marketing air cargo at JFK: 1) TIACA (The International Air Cargo Association), 2) IATA – the International Air Transport Association, 3) Routes – Europe, and 4) Routes - Asia. Additionally, the Port Authority should target a conference focused on Latin America. The Air Cargo Americas conference held every two years in Miami should also be considered. It is important that the Port Authority and the city representatives who participate are knowledgeable and can speak with some authority on the issues.

Recommendation 47: Develop multi-lingual marketing material on a selective basis for top priorities.

Discussion

While English is a fairly well-accepted language in the aviation industry, it is less so in emerging markets. Beyond that, it is a professional courtesy and sign of respect to have presentation material available in the home country language. It is impractical to consider a large number of languages. Once the primary geographic targets have been identified, the top three may be appropriate for translation.

Recommendation 48: Create a Port Authority/The City air cargo-oriented marketing presentation and tour.

Discussion

As a high priority market for most global carriers, City and the Port Authority with a regional airport system will receive requests for assistance with tours, operational and technical assistance, and general planning help from carriers, airports, and foreign governments. This may involve assistance with hotels, restaurants, and other social amenities, as well as site and facility visits, and classrooms. Responsiveness to such requests is an excellent marketing tool and each represents an opportunity for new business.

Recommendation 49: Create a Port Authority/City public outreach initiative to inform the public on air cargo issues.

Discussion

In addition to the enhanced marketing efforts, a public information and outreach program should be created to ensure that the region understands the complexities, challenges, and benefits of air cargo.

Recommendation 50: Develop and Market the Zone A "Trade Mart" Initiative

Discussion

The development of Zone A for commercial trade-related purposes would be best pursued as a joint venture between the Port Authority and the City. The Port Authority must be involved because the property is on-airport and subject to the appropriate operating, safety, and security guidelines and restrictions. The tenancies of the primary facilities, however, would more appropriately fall outside the Port Authority's basic marketing expertise but would be well-suited to the charter of the EDC. The physical development would be a PA responsibility and the marketing would be substantially enhanced through the activity of the EDC. There are major firms that would be interested in exploring such a concept.

OFF-AIRPORT

A major component of the planning effort involved reviewing off-airport facilities and markets, and assessing what could be done to revitalize the real estate market and potentially create new jobs. The primary issues are that in the millions of square feet surrounding the Airport, vacancy rates are very low, developable land is extremely limited, and existing uses are fragmented among numerous property owners. The challenge, therefore, is to create a concept that is viable from a cargo development perspective and has a reasonable chance to be coordinated. The intent is to create a development zone that encourages cargo growth by accommodating a range of activities that provide additional value and levels of service to the movement of goods by air.

Recommendation 51: Pursue the adaptive reuse of off-airport facilities for logistics support and value-added services for air cargo.

Discussion

This recommendation has several critical subcomponents that must be evaluated independently and will be ultimately linked to the development of the on-airport cargo village in Zone B. The underlying premise is that the development of Zone B will create vacancies off-airport that would allow for adaptive property and building reuse and/or redevelopment. The critical steps include:

1. Determine the timing and size of the initial construction for on-airport support facilities in Zone B and, on a more limited basis, in Zone D.
2. Assess the demand for facilities that provide for activities such as light assembly or manufacturing of air eligible products, specialized packaging, perishables processing, critical parts supply, fulfillment, and electronics repair. The pursuit of value added services for off-airport trade development, would create some additional business synergies from which the success of Zone A would benefit.
3. Identify property owners that have holdings sufficient to form a critical mass for an off-airport development.
4. Develop a potential incentive package for key property owners and develop a relocation strategy to the airport for tenants wishing to relocate. These incentives could include tax benefits for property and capital expenditure, training, an economic development zone, etc.
5. Based on the nature and size of the development, explore financing and development alternatives including the participation of the private sector in infrastructure modification.
6. As tenanting progresses, consider the extension of Foreign Trade Zone (FTZ) status to the development. FTZ status would be a major advantage for importers whose products would fly into JFK to be processed and redistributed domestically.

This is a complex initiative and will require close coordination between the Port Authority and NYCEDC to evaluate its feasibility and execute implementation strategies.

Recommendation 52: Create a "virtual" Cargo Village which includes off-airport facilities.

Discussion

The off-airport cargo community at JFK is one of the largest in the world, and provides an unsurpassed amount of knowledge and experience in domestic and international goods movement to include services that accommodate virtually every kind of product shipped by air. Creating a "virtual" cargo village that includes on- and off-airport businesses would provide a much expanded and more accurate picture of the services and facilities that are available. This is basically a marketing concept that would incorporate the off-airport facilities into the JFK marketing and development effort and would typically be included in a marketing plan.

The Issue of Infrastructure Financing

During the course of the planning effort, the Port Authority and EDC requested guidance on the best method of financing infrastructure projects on- and off-airport. Experience indicates that ***there is no best method.***

It is anticipated that most future development will involve a private partner (or partners) in some form if not in entirety. Each project must be evaluated on a case-by-case basis because of the variables involved. The cost and availability of money, equity participation, conflicting public resource allocation priorities, as well as basic variables such as risk, timing and demand, and the potential for a more creative public-private partnership agreement on long-term ownership or revenue sharing will determine how best to finance a project.

It is not unusual for an RFP to generate several responses with widely divergent approaches to financing. In any such project the financing can impact the revenues which are split among the developer, his financing entity, the airport, and/or the City. The timing and amount of the cash flow may be very important considerations with regard to which financing option is preferable. Lastly, one of the key considerations is how the financing option impacts the basic rent and fee structure that will flow through to the tenants. A high rate of return to the Airport or the City from a building with a prohibitive rent structure is worthless.

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Exhibit A-1 PREFERRED ALTERNATIVE

Tug Times (In Minutes with 20 MPH Avg.)

	A	B	C	D	E	F	G	H	I	J
A		1.50	2.72	2.94	7.78	12.20	11.84	10.35	8.35	6.27
B	1.50		2.50	2.72	7.56	11.98	11.62	10.13	8.13	6.05
C	2.72	2.50		1.50	6.34	10.76	10.40	8.91	6.91	4.83
D	2.94	2.72	1.50		6.12	10.54	10.18	8.69	6.69	4.61
E	7.78	7.56	6.34	6.12		6.02	5.83	8.29	6.29	4.21
F	12.20	11.98	10.76	10.54	6.02		7.41	10.32	10.72	8.63
G	11.84	11.62	10.40	10.18	5.83	7.41		2.92	3.49	5.57
H	10.35	10.13	8.91	8.69	8.29	10.32	2.92		2.00	4.08
I	8.35	8.13	6.91	6.69	6.29	10.72	3.49	2.00		2.09
J	6.27	6.05	4.83	4.61	4.21	8.63	5.57	4.08	2.09	

Scale = 1:400

Preferred Alternative

JFK INTERNATIONAL AIRPORT
CARGO STUDY

Exhibit X-X

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JFK AIR CARGO STUDY

NEW YORK CITY ECONOMIC DEVELOPMENT CORPORATION | THE PORT AUTHORITY NEW YORK & NEW JERSEY

Section B – Implementation Plan





Aviation Planning at the Leading Edge

SECTION B
IMPLEMENTATION PLAN

NEXT STEPS

This section lays out a timetable for implementing the recommendations for the Air Cargo Study ("the Plan"). The schedule is predicated in part upon approvals of the Plan, the time it takes to establish and/or coordinate functional responsibility, and the availability of reasonable funding. The Plan also recognizes that physical development will be based on market – driven factors. No new development is recommended except where currently indicated as a need by the industry, or where the analyses indicates a benefit would accrue to the Port Authority of New York & New Jersey ("Port Authority"), New York City ("the City"), or regional stakeholders. There are no "if you build it they will come" assumptions, nor should there be. New regional business concepts can and should be tested with responsible stakeholder interest, and new development will largely accrue to the private sector.

There are several clear and overriding considerations for implementation. The first is a designation of appropriate leads for the Port Authority and the Economic Development Corporation ("EDC"). For the Port Authority this is essential because the air cargo operation is not defined as a separate business center and its management is split among the central offices, properties, financial, marketing, and financial staff – most of whom are in discrete business units. Coordination on time-sensitive issues or those that require multi-unit input can be problematic. The EDC is essentially new to the air cargo business and to airport operations. This adds a requirement to "educate" as well as coordinate on the development of appropriate strategies and initiatives. Effective marketing and the potential realization of several recommendations will depend on teaming and cooperation, which in the past has not been required.

The situation will be compounded by timeframes. Implementation will take place over a decade. Issues and staff, and potentially political perspectives, will evolve and change. While the Plan does not suggest rigidity, it will be important to create and maintain a vision that will become JFK to the global air cargo industry.

The timeframes that follow are estimated based on reasonable planning assumptions. A number of these are predicated upon certain sequencing which may vary. There are also a number of relatively inexpensive quick-turn items that can be pursued almost immediately. Where possible these should be pursued to demonstrate interest and commitment. The steps are not completely prioritized since it is assumed that there will be multiple leads from either the Port Authority or the EDC, and a number of tasks may proceed simultaneously.

2012

1 Implementation – Port Authority / EDC

1. Designate the City and Port Authority leads and create the Planning Team.
2. Review the Plan and determine top priorities for implementation based on designated and available staff.
3. Create a proposed time frame for starting implementation.
4. Determine priority issues for on- and off-airport integration.
5. Determine levels of financial contribution.
6. Determine the Vision of the "new" JFK cargo environment that reflects and is consistent with the City's economic development goals and initiatives.
7. Determine introduction strategies for the local community and the industry.

2 Establish air cargo as a business center with specific cost controls and revenue targets – Port Authority

1. Designate lead for the air cargo business center.
2. Determine air cargo elements to be included and the revenues and costs for each.
3. Establish a budget for the business center.
4. Allocate appropriate dollars for business development/marketing.

3 Pursue modification of the constraint on 53-foot tractor-trailers – Port Authority / EDC

1. Develop and initiate a detailed trucking survey to quantify use (or non-use) and potential implications for air cargo.
2. Quantify potential adverse impact on air cargo growth.
3. Explore IT applications for tracking and verification.
4. Develop core strategy for New York State Department of Transportation ("NYSDOT") discussions.
5. Address the Van Wyck Expressway as the initial priority with Springfield Gardens to follow.

4 Create a central clearinghouse for tenant alterations – Port Authority

1. Review the existing process internally.
2. Check with tenants to identify processing issues and choke points.
3. Ensure tenants have the most recent design standards and development guidelines.
4. Identify common errors based on tenant misinformation.
5. Determine average processing time and set new performance targets.
6. Determine new internal process and lead.

5 Explore a trade-oriented commercial development in Zone A – Port Authority/EDC

1. Determine the Project Lead.
2. Review the development concept and in detail and identify phasing issues.
3. Determine agency roles and responsibilities.
4. Identify potential bidders.
5. Develop the core business assumptions.
6. Create defined physical parameters.
7. Identify development considerations and challenges.
8. Create an "offering sheet" discussing the concept.
9. Issue a Request for Expression of Interest ("RFEI") and schedule a meeting and site tour to determine interest.
10. If interest – issue a limited Request for Proposal ("RFP").
11. Identify a regional broker for assistance.

6 Finalize negotiations and develop the JFK Truck Center – Port Authority

1. Provide right of first refusal on possible future relocation. This will give a developer options to remain involved in the event physical relocation of the facility is required.

7 Initiate an immediate clean-up of the cargo zones – Port Authority

1. Review existing lease requirements on cleanup and site maintenance.
2. Announce site inspection schedule.
3. Determine penalties for failure to cure.
4. Identify Port Authority controlled areas where appearance is an issue and initiate cleanup.

8 Introduce a new cargo tonnage reporting system – Port Authority

1. Identify existing problem areas with carriers under the current system.
2. Create motivation to comply.
3. Ensure format captures data that is unreported captures truck to truck traffic and does not duplicate.
4. Establish internal monitoring and collection parameters.
5. Determine distribution format and methodology.

9 Re-evaluate the potential use of Industrial Development Agency ("IDA") funding for cargo development - EDC

1. Determine how best to modify the Master Lease
2. Identify parameters under which IDA funding *might* become an option.
3. Outline the process that would be required.

10 Develop a joint Port Authority/City public information and outreach program on air cargo – PA/EDC

2013

1 Finalize the Preferred Alternative – Port Authority

1. Review runway alignment options and compare to the Preferred Alternative.
2. Modify Alternative as appropriate.
3. Finalize Alternative for marketing and business development purposes.
4. Finalize the Phasing plan.

2 Develop an Air Cargo Marketing Plan – Port Authority/EDC

1. Determine the lead for air cargo marketing and designate the marketing Team.
2. Use Gross Domestic Product ("GDP") analysis to help target and prioritize efforts.
3. Develop a cost/benefit route – weight analysis including fuel burn calculation and time to market.
4. Determine budget allocations.
5. Identify any bilateral or trade constraints.
6. Identify existing tenants and/or users with growth plans.
7. Identify existing tenant/user partner needs and opportunities.
8. Determine priority markets by geography and market segment.
9. Develop key marketing message for general publication.
10. Develop key messages for specific market segments.
11. Create renderings of the proposed new cargo and commercial development.
12. Identify off-airport opportunities.
13. Develop new collateral material.
14. Develop generic Sales Kits with specific inserts for market segments.
15. Develop selective multi-lingual marketing material.
16. Identify joint Port Authority-EDC marketing initiatives.
17. Develop a prioritized list of targeted trade show participation.
18. Determine potential participants.
19. Create an Airport/City marketing presentation and tour.

3 Explore reuse of off-airport facilities for logistics support - EDC/Port Authority

1. Determine the timing and size of the initial construction for on-airport support facilities in Zone B and on a more limited basis in Zone D.
2. Assess the demand for facilities that provide for support activities.
3. Identify property owners that have holdings sufficient to form a critical mass.
4. Develop a potential incentive package.
5. Review private sector financing and development alternatives.
6. Assuming demand, consider the extension of Foreign Trade Zone status to the development.

4 Explore developing a "Cargo Village" in Zone B – Port Authority/EDC

1. Select a broker with whom to work.
2. Coordinate with off-airport targeted consolidation opportunities.
3. Develop strategies for approaching partner owners and incentives.
4. Identify immediate opportunities based on phasing in Zones B and D.
5. Establish development time frames.
6. Determine the potential capacity of initial development.

5 Introduce a Certified Cargo Screening Facility – Port Authority

1. Confirm the site and timing for long-term use.
2. Identify an existing facility for potential interim screening.
3. Develop core business assumptions and terms.
4. Develop and issue an Request for Qualifications ("RFQ").

6 Adapt and promulgate formal Performance Measures – Port Authority/EDC

1. Identify project leader.
2. Finalize performance measures.
3. Determine measurement and reporting processes.
4. Determine cure periods as appropriate.
5. Determine implications of failure to comply.
6. Coordinate with the cargo community.

7 Create a joint City/Port Authority Incentive Program – EDC/Port Authority

1. Determine Project Lead.
2. Identify key marketing areas where existing and new incentives might be helpful.
3. Create Incentives Menu consistent with FAA guidelines.
4. Determine process for consideration and application of benefits.
5. Establish evaluation criteria.
6. Determine points at which the City should become involved and how.

8 Provide capacity for Customs inspection in all cargo buildings – Port Authority

1. Meet with Customs to determine space requirements.
2. Define potential benefits of enhancements.
3. Include capacity for Customs in development guidelines for new facilities.
4. Explore with existing tenants potential carve out of space.

9 Implement a signage and locator program – Port Authority/EDC

1. Identify existing directional signage.
2. Review accuracy of building signage.
3. Survey community for feedback and concerns.
4. Identify off-airport needs.
5. Identify on-airport needs.
6. Create a new numbering system for the cargo facilities.
7. Create a facilities update map.
8. Update building tenancies.
9. Distribute to the regional cargo community.
10. Link to the Port Authority's website.
11. Institute signing to divert air-cargo trucking from the Van Wyck Expressway eastward via JFK Expressway, 150 Street, and Cargo Plaza.

10 Create a tiered pricing structure for ground leases – Port Authority

1. Determine targeted differentials between property with and without airside access.
2. Determine and test market a targeted facility lease rate extrapolated from a modified ground rent.
3. Factor in the cost of money and length of lease to calculate potential lease payments.
4. Calculate overall financial impact.
5. Establish a modified ground rent structure.
6. Determine other lease terms as appropriate.

11 Change the basic Port Authority leasing policy to enable property staff to negotiate ground leases in excess of twenty five years – Port Authority

12 Initiate ground lease payments with the start of beneficial occupancy in new buildings – Port Authority

13 Create a "virtual" Cargo Village which includes off-airport support facilities – Port Authority / EDC

1. Determine the Project Lead.
2. Explore the concept with regional business and industry associations.
3. Identify primary stakeholder concerns and issues.
4. Develop a potential marketing concept for stakeholder review.
5. Determine marketing control and legal implications.
6. Establish participation criteria.

14 Demolish or functionally shut down facilities determined to be no longer viable – Port Authority

1. Identify all non-viable facilities and determine current O&M costs.
2. Determine cost of demolition and clean up versus opportunities for new development consistent with Preferred Alternative and phasing plan.
3. Shut down facilities as appropriate.
4. Determine feasibility of allocating cost savings to demolition and site preparation.

2014

1 Refine the operating requirements of the Integrators to ensure the continuing viability of Zone C

1, Meet with the Integrators to update operational requirements.

2. Update forecast volumes.

3. Determine facility and ramp requirements.

4. Determine landside requirements.

2 Update Design Standards and Development Guidelines for all new cargo facilities – Port Authority

1. Create an Aesthetic Concept on a zone by zone basis.

2. Include a Customs inspection area in the new cargo facilities in Zone D.

3. Include a provision for a fumigation facility in new cargo development.

4. Include a provision for a truck-tracking Information Technology ("IT") system.

3 Improve off airport connectivity between the facilities in Springfield Gardens and the Cargo Zones – Port Authority

1. Review and modify, as appropriate, the geometry of the existing access points to facilitate turns and optimize roadway levels of service.

2. Review and address roadway geometry for on-airport cargo facilities.

3. A minimum depth of 150 feet is recommended for the truck court modifications to the leaseholds of turning radii and maneuvering depth should be made where possible.

5 Simplify pickup and delivery, and reduce trucking dwell time through fewer stops, more efficient landside planning, and technology – Port Authority

1. Explore shipment-ready computer systems to alert and schedule customers for cargo pick up.

2. Coordinate system introduction with the regional cargo community and major trucking firms.

3. Include, where applicable, customer inputs.

4. Introduce a performance monitoring system.

2015+

With the exception of the planned Truck Center and a cargo facility currently under negotiation, future development and related phasing will be driven by market triggers and physical planning needs. The original Master Lease for the Airport between the Port Authority and the City would have expired in 2015. A number of ground leases are naturally linked to that date. The expiration of those leases will provide the Port Authority with an historical level of development flexibility to implement the broad changes that are envisioned.

It is anticipated that the regional market for air cargo and the supporting business and physical infrastructure will remain strong if appropriate modernization occurs. The private sector will be a strong partner in future growth. The partnership opportunities for development both on and off airport will be substantial and varied, requiring case-by-case consideration and public sector creativity and willingness to explore new risk-reward scenarios with regard to financing. The ability to consider different options will be critical. It is possible that each development scenario, when defined, will have different goals and objectives. This will make it virtually impossible to prioritize the 'best" financing options at this time.

The Port Authority and New York City will face numerous challenges over the coming decade as they seek to re-energize the air cargo business at JFK. Increasing levels of competition, and rising costs regionally and within the industry will be the primary challenges. This Plan outlines an approach that is consistent with the best practices at major cargo airports throughout the world, and recommends initiatives that are fiscally sound, operationally pragmatic, and reflective of the most current security considerations. The full development of the new facilities as proposed will take up to ten years and should be driven by market forces. In moving forward adherence to the plan must be balanced with appropriate flexibility. Nevertheless, it will be important to maintain an integrated business and physical planning vision that positions the long-term success of JFK's cargo operations over near-term financial benefit.

JFK AIR CARGO STUDY

NEW YORK CITY ECONOMIC DEVELOPMENT CORPORATION | THE PORT AUTHORITY NEW YORK & NEW JERSEY

Section C – Background & Analysis





Aviation Planning at the Leading Edge

JFK AIR CARGO STUDY

NEW YORK CITY ECONOMIC DEVELOPMENT CORPORATION | THE PORT AUTHORITY NEW YORK & NEW JERSEY

Chapter 1 – Goals and Objectives of the Planning Effort





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Aviation Planning at the Leading Edge

CHAPTER 1
GOALS AND OBJECTIVES OF THE PLANNING EFFORT

As the air cargo industry evolves, the region and its airport system must implement changes that both respond to emerging trends and anticipate future needs of its logistics partners. New York City ("NYC" or "the City"), through the New York City Economic Development Corporation ("NYCEDC"), and the Port Authority of New York & New Jersey ("Port Authority") have therefore initiated a strategic planning process to review and revitalize the air cargo market of John F. Kennedy International Airport ("JFK" or "the Airport"). The resultant strategic plan will create an impetus for new facilities and business practices on-airport as well as regional real estate redevelopment and job growth. The work was begun with the understanding that the following goals were to be targeted in the Plan.

- Grow and enhance air cargo movement within the JFK Study Area
- Increase cargo-related employment opportunities available within New York City
- Promote a comprehensive regional freight policy and public investment
- Diversify and expand industrial business in the City and in the New York region
- Generate new investment in cargo-related facilities and infrastructure to serve the City and JFK
- Maximize real estate usage and operational efficiencies within the JFK Study Area

1.1 OBJECTIVES

The Study will result in an Action Plan addressing planning, policy, and investment considerations based on the goals stated above. The Action Plan will include each of the objectives listed below:

- Develop, where applicable, best practices in cargo-related operations and logistics, including cargo processing times, and traffic transportation times, security screening, freight forwarding, and trucking operations both on- and off-airport.
- Develop methodologies for promoting the New York airports to incumbent and prospective carriers.
- Establish baseline metrics by which the City and the Port Authority can evaluate future improvements and investments made both in and around JFK airport.
- Review and address development, management policies, and procedures in accordance with the City's and the Port Authority's project goals.
- Forecast potential 5-, 10-, and 20-year air cargo demand for JFK and the Region to include tonnage, aircraft operations, and the nature of how the cargo will move.
- Assess the real estate requirements (i.e. facility types and sizes, locations) needed to accommodate projected freight volumes, both on- and off-airport.
- Address air freight activities as they relate to roadway access/congestion, facilities and real estate investment/development, and general business growth in and around JFK Airport.
- Quantify and define the relationship between on- and off-airport issues as they impact the growth of air cargo and related uses.
- Create a marketing strategy for short- and long-term promotion of JFK and the region as a hub for future cargo volume growth.
- Identify on-and off-airport infrastructure constraints and access choke points.

1.2 PLANNING GUIDELINES

In pursing the separate tasks in this effort and developing final recommendations, the Team considered the following guidelines. This was done to ensure that the work remained on-target, reflected the realities of the air cargo industry, created initiatives that are fiscally prudent, and benefited not only the Airport and the City, but JFK's tenant's and users.

- To ensure that JFK's aviation mission is protected. Simply stated this means that the operating infrastructure and capacity of the Airport will not be adversely impacted by any recommendations, and that safety and security will always be paramount considerations.
- To stimulate regional development activity both within and extending beyond the Airport boundaries. A key consideration for cargo growth will include exploring the viability of attracting new businesses into the Region that will not only enhance cargo volumes, but also create new jobs.
- To create new jobs for the region.
- To base the Plan in an understanding of cargo industry dynamics and factors driving the growth of cargo in North America.
- To ensure the Plan will be "realistic" so that expectations can be managed.
- To enhance Airport revenues without an adverse impact on operating costs to tenants and users.
- To ensure that Airport and Airport-stimulated development are compatible with the planning and infrastructure of the surrounding community.
- To prepare a conceptual development plan that will recognize state-of-the-art sustainability considerations.
- To carefully consider business and physical planning options for the redevelopment of the four existing cargo areas.
- To identify and prioritize off-airport access improvements that would foster cargo growth and optimize landside access and egress options to individual facilities and cargo complexes both on- and off-airport.
- To ensure that the approaches to the current and future runways and all transitional surfaces are protected and all operating and safety guidelines addressed.
- To create a conceptual development plan for cargo facilities and infrastructure that includes optimum security and safety provisions.
- To strategize how best to configure the shape and size of parcels to enhance their marketability and utility.
- To evaluate development options from both a private sector, and the City and the Airport perspective. This will enable the Team to recommend appropriate funding options and mechanisms attractive to the private or public sector for on- and off-airport properties and business development.
- To create scenarios that will facilitate successful marketing to the aviation and air logistics communities.
- To develop a framework for marketing cargo services to carriers and supporting businesses at and around JFK.

JFK AIR CARGO STUDY

NEW YORK CITY ECONOMIC DEVELOPMENT CORPORATION | THE PORT AUTHORITY NEW YORK & NEW JERSEY

Chapter 2 – Understanding the Issues

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CHAPTER 2
UNDERSTANDING THE ISSUES

This Chapter summarizes the major factors affecting air freight at John F. Kennedy Airport ("JFK" or "the City") between 2000 and 2010. Many of the trends appeared in the early 1980's after airline deregulation, became more evident in the 1990's, and were clearly manifest throughout the air cargo system at the turn of the decade. The next decade brought a continuation of these processes, although the terrorist attacks of September 11, 2001 introduced major changes in security.

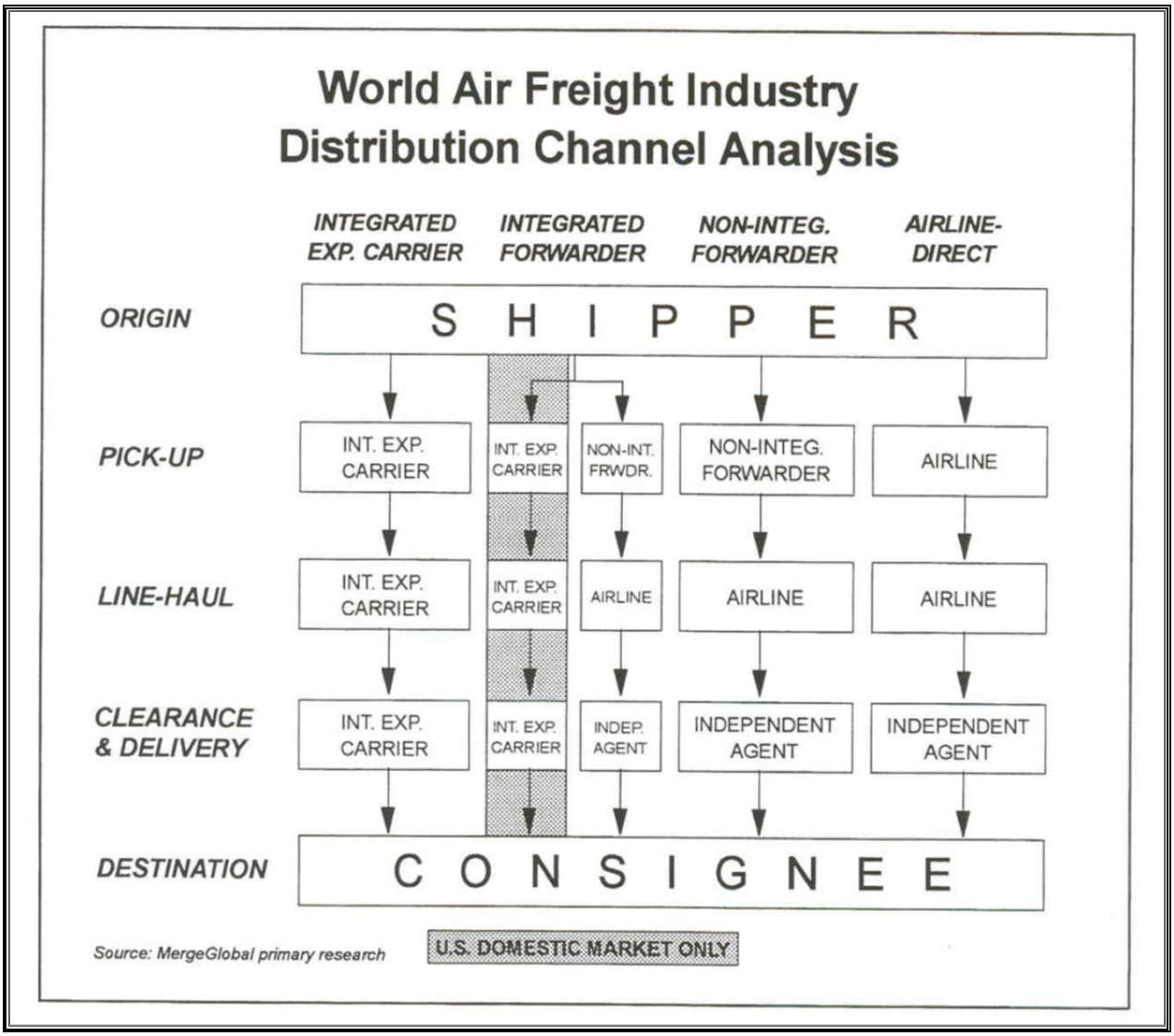
2.1 UNDERSTANDING AIR CARGO

One of the primary challenges in developing regional air cargo strategies is the general lack of understanding that most people and organizations not involved with goods movement, have of the air cargo industry. It is built around time and cost and offers its constituents an incredible amount of flexibility. Before discussing the trends that have affected JFK, therefore, it is important to provide some context as to how cargo operates, the major business partners, and the factors critical to success.

The Federal Aviation Administration ("FAA") defines air cargo as freight and mail. It is also typically categorized as either international or domestic. Because of its role as an international passenger airport, JFK handles large numbers of international, wide-body aircraft with substantial amounts of belly capacity. (Note that "belly cargo" refers to cargo that is carried in the hold of a passenger aircraft.) Many international passenger carriers also operate freighters. This creates an ideal interlining operation with the diverse domestic passenger and integrator operations at the Airport. The result is one of the broadest air distribution systems in the industry.

Air cargo shipments begin with the shipper. This can be an individual or a major manufacturer. For purposes of this narrative they will both be considered "the shipper." Shippers have the option of taking a product directly to a carrier or alternatively using a third party logistics provider (usually a *freight forwarder)* to find the best shipping options and to ensure that all the arrangements are made. The graphic below indicates four shipping channels: an *integrated express carrier* like FedEx, an integrated forwarder like DHL or TNT, a non-integrated forwarder like Expeditors or Panalpina, or a carrier.

These entities will ensure that the shipment is trucked safely to the airport where it will be enplaned. Sometimes *forwarders* will work with *consolidators* to combine shipments to a common destination. By combining the shipments, the cost per pound can be reduced and a savings theoretically passed along to everyone in the shipping chain. Domestic shipments are typically off loaded at the destination airport and are picked up by, or delivered to the consignee by truck.



For international shipments, it is necessary for the shipment to be inspected by the Customs officials of the destination country. Because this can be a detailed and cumbersome process, the shippers and forwarders typically work with a *Customs Broker* (an importer) who works with the government agencies to clear the goods for entry into the country. Once cleared the shipment is picked up by, or trucked to the consignee. Upon occasion, the shipment may be moved to a *container freight station* for basic handling and customs inspection. Subsequently the shipments are broken down for individual consignees and delivered by truck. The roles of the different participating entities are discussed in greater detail later in this section.

It is important to remember that virtually all air cargo begins or ends its journey on a truck, making the ground distribution system as critical as the air distribution. The design and location of airports and their cargo facilities must take this into consideration and be capable of accommodating growth in the landside component of the operations commensurate with growth on the airside.

To facilitate shipping, freight forwarders have become independent booking links between manufacturers, shippers and logistics operations, and the non-integrated carriers control about 70 percent of international cargo. Typically, to keep costs down, they book blocks of

space with carriers in the belly of passenger aircraft. The other 30 percent is carried by the integrators who will accept shipments directly from shippers and upon occasion will take bookings from a forwarder. On international shipments, integrators may compete directly with airline/forwarder alliances for business but overnight delivery does not necessarily play as vital a role in international shipping. Forwarders and shippers will also utilize freighters operated either independently or by the passenger carriers. In certain instances, carriers may lease freighter aircraft from a company such as Atlas or other Aircraft, Crew, Maintenance, and Insurance ("ACMI") carriers, but the numbers of such operations and their impact on airport handling requirements and infrastructure are not typically significant. One of the keys to successful international goods movement is clearance by the federal agencies. Easy and timely access for inspection is vital. If the federal agencies do not have the staffing to accommodate timely inspection and clearance, the best facilities and location in the world will not move international cargo effectively.

Domestic cargo differs dramatically from international. It is not related to Customs clearance, is dominated by the integrators, is less influenced by forwarders, has an enormous trucking component, and creates substantial demands on the airport's aeronautical infrastructure. Integrators carry 90 percent of domestic cargo. Competition among the integrated carriers is driven by guaranteed overnight (or other time definite) delivery to almost any location. Integrators operate with a very tight shipping window to their mid-west distribution hubs; this creates a concentration of ground traffic within a region as trucks bring the packages to the airport at the last possible minute. Of the remaining 10 percent, large volumes move in the bellies of passenger aircraft. The goods are not typically as time sensitive, and arrive at the cargo facilities (both origin and destination) in smaller concentrations, but with much greater frequency, and without such well-defined shipping windows.

In combination, these segments of the cargo business create pressure on airports to provide more: a) passenger terminal capacity and proximate aircraft apron; b) expanded warehousing, Ground Service Equipment ("GSE"), and office space; c) a more extensive network of restricted service roads; d) more remote apron and accessing taxiways; e) building frontage, customer, and employee parking; and f) improved roadway access and geometry. Of the major gateways, only JFK and Chicago O'Hare International ("ORD") airports are positioned to deal effectively and comprehensively with the future requirements of both the passenger and cargo segments of their business.

In an ideal environment, space for the on-airport cargo community would be expansive enough to include a full complement of the supporting and ancillary businesses that are important components of an air cargo operation. Geographic proximity to the carriers allows these other businesses to realize operational and financial benefits, while providing higher levels of service to their customers. This integrated "cargo village" is considered by many airports their key to success in the air cargo business.

2.1.1 CRITICAL CARGO VARIABLES

The goods movement industry continues to experience dramatic changes. Factors such as consolidations, rising fuel costs, changing distribution patterns, increased reliance on speed, e-commerce, and high-speed logistics will require that individual airports re-examine their business goals, market priorities, physical capacity, and the compatibility of these three criteria in meeting the challenges of accelerating growth. Ten critical variables of goods movement by air are described below. All of these variables impact JFK to some degree. Although some of the variables are not air cargo specific, they reflect changes that will eventually affect air cargo volumes at JFK and its long-term compatibility with industry needs.

Growth in the passenger markets. Global forecasts by Boeing, the FAA, and the Airports Council International indicate that the world passenger market could double over the next 20 years. Airports will be challenged to provide the resources to achieve targeted levels of service for both passenger and cargo growth. In instances where the capacity of an airport is exhausted, there will be pressure to shift the most easily relocated business segment – in most cases, cargo – to the nearest, most viable alternatives. Among the major U.S. gateways, JFK has the most flexibility to accommodate both passenger and cargo growth. The four cargo areas of JFK can easily accommodate three times the current cargo volumes. Carriers on international routes are using wide-body belly capacity for an increasing percentage of their cargo. This is a two-edged sword for JFK. On the one hand, increased passenger activity will grow the cargo business. On the other hand, as international passenger operations continue to proliferate from other airports, there will be fragmentation of demand for the traditional gateways such as JFK, Los Angeles International ("LAX"), ORD, and Miami International ("MIA").

Growth in the cargo markets. Global forecasts by Boeing, the FAA, and the Airports Council International call for an annual increase ranging from 5.0 percent to 6.9 percent of air cargo volumes over the next 20 years.

Much of this growth will occur on the trans-Pacific routes but there will also be substantial growth in South and Latin American countries, Eastern European countries, and Africa. The multi-cultural nature and size of New York City ("NYC" or "the City") will be a drawing point for this growth. As indicated above, a substantial portion will be driven by passenger activity, but basic cargo growth will be based on cost effectiveness and operational efficiency. JFK must position itself away from the image of a high-cost facility to one which can optimize value to tenants and users.

Key shipping windows. Two of the great myths in the industry are that air cargo aircraft operate around the clock, or only at night; this is not the case. Integrators typically schedule departures on the west coast between 8:00 and 10:00 p.m. to reach mid-west sortation facilities by midnight. While not as time specific as the integrated carriers, freight carriers must also operate out of shipping windows to allow for: a) coordinated pickup and delivery at local and regional destinations, b) integration of transshipments, and c) restrictive overseas airport and government controls. The result is a clustering of operations and aircraft parking requirements. This causes a peaking of demand for aircraft parking on a daily basis. (At JFK this typically occurs in the late afternoon and continues to approximately midnight.) Many international gateways have late evening peaks that are targeted to allow shipments to reach destination markets for early morning distribution.

The size of JFK enables it to address the diverse airside and landside needs of a large cargo community. The absence of a curfew, the availability of federal agencies, and diligent noise monitoring are critical elements that enable later international cargo operations (as well as integrator connections) to prosper. Frankfort is now confronted with a ban on night flights that will have a severe impact on cargo activity and the regional economy. While JFK has traditionally been a leader in environmental issues and noise awareness, this is a sensitive issue that should be monitored.

Aircraft parking. Reliability of delivery and cost as opposed to overnight delivery have accelerated the utilization of freighter traffic on a number of routes, but aircraft parking is not as critical an issue as it was ten years ago. This is largely due to: a) the ability of cargo handling operations to off- and on-load aircraft more quickly, and b) carrier strategies to spend less time on the ground. This frees up existing freighter parking positions more quickly, which extends capacity. Nevertheless, JFK must be able to provide sufficient

parking for freighters when the need arises or the flights will divert to another market. The forecast indicates that JFK will see its freighter operations rise to 100 per day in 2040. The result will be increased demand for aircraft parking.

The growth of truck substitution. One of the most difficult variables to evaluate in air cargo is the truck substitution component. Many air cargo facilities are operating to a great extent as truck terminals, yet requirements to report truck-to-truck traffic are scarce. Airports cannot realistically evaluate comprehensive space demands, effectively plan for and phase new development, or fully capture business opportunities without careful consideration of the truck substitution component. Additionally, as truck substitution continues to play a greater role, airports must address the fact that an air cargo facility is an inter-modal facility, and must be designed to accommodate trucks as well as aircraft. Critical elements include roadway access and truck parking, as well as queuing, maneuvering, and docking challenges. Truck substitution has been accelerated by the new security screening requirements which, because of the resultant increases on air shipping costs, have increased modal diversion. When combined with passenger growth, the constraints of the land envelope warrant business strategies, lease management practices, and physical planning that will optimize airport property and its ability to serve customers

E-Commerce. Many of the shipments generated by home shopping networks, catalogue shopping, and most recently, e-commerce, require specialized facilities for efficient processing and expedited delivery. Accordingly, these shipments have a greater tendency to move by air or expedited trucking. This has accelerated demand for air cargo operations in general and integrator operations in particular. Much of this fulfillment requirement is met by businesses concentrating operations on or near airports.

Manufacturing creep. Manufacturing facilities, particularly those focused on time-sensitive products, in response to demand for faster delivery, are moving and/or locating key warehouse facilities closer to airports, or onto airports. This is a major element in Asian airport development and can be seen in facilities in Shanghai, Pudong, Shenzhen, Guangzhou, and Incheon for example. In the U. S, we are seeing this in the growing Aerotropolis concept in cities such as Dallas, Indianapolis, and Detroit. This reduces inventory, trucking costs, and staffing requirements, while increasing levels of customer service. This significant and growing business segment is a major element of the “Airport City” concept but is very difficult to introduce to a mature airport environment, particularly when property around the airport is developed. Nevertheless, there may be opportunities to create a functioning variation of the concept on or around JFK.

High-speed logistics. The changes in manufacturing and shipping are giving rise to the design of new high-speed logistics facilities that can effectively integrate a number of diverse industry segments. The facilities can handle throughput and sortation, kitting (minor assembly), and returns (fulfillment), as well as traditional operations. These value-added distribution centers can be major job generators, in some cases, approaching the employment levels of traditional manufacturing operations. While the size of these buildings (often exceeding 500,000 square feet) makes them unlikely to occur on JFK (since they would require a footprint of nearly 20 acres and could present some height constraints), they could be accommodated within a reasonable distance from the Airport.

Building technology. As a result of the escalating cost of storing goods, and the shortage of on-airport property, modern cargo facilities are being designed to emphasize speed of transition rather than warehousing. The result is taller buildings to handle highly mechanized equipment with sufficient depth and adequate airside and landside doors. It should be noted, however, that not every air cargo operation requires sophisticated equipment. The demand is a function of the size of the operation, the nature of the cargo,

the scheduling needs of the shippers and forwarders, and budget. New security requirements (see Emerging Trends) may necessitate facility modifications that could reduce existing floor capacity and require more internal storage.

Aircraft technology. Modern freighters are more fuel-efficient, have greater range, and carry larger payloads. The ability of new aircraft such as the 787 to over-fly traditional points of entry, as well as the inability of many airports to accommodate the new large aircraft including the A-380 and 747-800 (Code F Aircraft – the largest commercial airplanes) will affect the selection of origin and destination airports. This could have both positive and negative impacts on JFK. Although information is largely anecdotal, there are indications that the new non-stop accessibility of the large New York market at a more reasonable cost will be attractive to a number of international markets. Despite its size, the belly of the A-380 passenger aircraft will not deliver cargo volumes in excess of what is typically handled in today's routine shipments given the anticipated volumes of luggage. The 747-800 freighters, however, will require more Code F apron and have operational constraints at a number of airports.

2.1.2 AIR CARGO SUCCESS FACTORS

As the industry undergoes major changes, the basic ingredients of an airport's successful air cargo operation have remained essentially intact. These factors have played major roles in the success of JFK to date. However, as airports mature, regional growth and evolving goods movement dynamics may negatively impact the airport's ability to meet the needs of the air cargo industry, and eventually force shifts in operations to alternate facilities. In looking at these factors, there are indications that growing challenges pertaining specifically to JFK exist while the attractiveness of the New York Region for air cargo remains strong. The challenges create opportunities to be explored regarding more efficient utilization of existing Airport assets as well as development of new facilities and infrastructure.

Substantial passenger market – both Origin & Destination and transfers. As the Port Authority begins its Airport System Capacity Planning Study it has indicated that one of its top priorities is maintaining its preeminent position in passenger traffic. To grow this segment of the business will require JFK to accommodate substantial amounts of belly cargo and, in the instances of carriers that fly both passenger and freighter, provide adequate aircraft apron for the freighter component of the business. Given the existing high levels of passenger activity, and the projected growth for the industry, JFK is exceptionally well positioned to achieve this goal and has the physical capacity to address physical constraints.

Large regional consuming and producing marketplace. The large and growing population of the Region and the surrounding states, along with the City's interest in the promotion of logistics and the related jobs should generate substantial volumes of both inbound and outbound freight. Trade flows to Europe and to Asia typically favor exports and imports respectively as a result of international monetary standards. This creates shortfalls in outbound shipments to Asia and inbound product from Europe. A balance is critical to the financial success of a cargo operation. The flow of cargo to and from certain global regions will vary based on economic trends. In the event the economics substantially decrease in either direction, there is a strong probability that cargo in general and freighter traffic in particular will be reduced accordingly. The challenge for the region is to create an operating environment with sufficient financial benefits to attract product form the surrounding region. Air cargo business reacts to economies of scale; large volumes enable all parties to reduce costs and potentially pass on savings to customers.

Substantial lift to a large number of markets. A substantial number of operations to global markets and sufficient volumes of cargo to each destination enables shippers to consolidate shipments thus reducing overall shipping rates. JFK has a large and diverse user universe that could enable efficient interlining between passenger and freighter aircraft with a resultant global outreach. Forwarders are attracted to JFK because of the ability to backstop flights with other options in the event the targeted flight is missed. The other major element of this factor is that the amount of lifts and the competition helps control costs.

Supporting business infrastructure of freight forwarders, customs brokers, and trucking. While integrated carriers control nearly 90 percent of domestic cargo shipments, freight forwarders and customs brokers control approximately 70 percent of the international market. (While this split has remained fairly consistent, the role of forwarders in domestic shipping continues to shrink and the integrators are pursuing a larger share of the international business as well). Typically these segments of the industry cluster on or near the transportation facility they wish to utilize. The result is the existence in the area immediately surrounding the Airport of more than a million square feet of such facilities. This community is in part a reflection of the ocean-borne shipping community that is served by a number of the regional brokers and forwarders. At JFK the history has been to keep such businesses off-airport (with the exception of Building 80). Given the high leasing rates on the Airport and the availability of space across Rockaway Boulevard, a large community developed off-airport. The industry trend today, however, is to move such firms into an on-airport community that helps reduce operating costs. Given the dysfunctional roadway geometry and building sizes off-airport, this is a possibility for JFK.

Roadway infrastructure providing ready access to the airport and to an effective highway distribution system. One of the side effects of air cargo growth is a corresponding increase in trucking traffic and its impact on regional traffic patterns and flows. An original determinant of air cargo success at JFK was the regional roadway infrastructure and the links it provided between the Airport and a highway distribution system. The growth in passengers and cargo, as well as overall regional growth, causes congestion on the Van Wyck Expressway making effective access and efficient rates of travel increasingly problematic. The regional restriction on 53-foot tractor-trailers is also a matter of concern. The resultant shipping inefficiencies and higher costs place the Airport and the Region at a disadvantage. It is also important to note that JFK is a major gateway situated on an island. Increases in tolls on the Hudson River crossings (without a perceived corresponding increase in service or efficiency), has had an adverse impact on shipping business that has the flexibility to move.

Physical capacity to accommodate growth. The most obvious criterion for the future success of an air cargo program is the physical capacity to accommodate the airside and landside requirements of both tenants and users. This includes aeronautical infrastructure, physical facilities, landside parking and queuing, and roadway geometry. The latter two elements are important to ensure that the airport functions efficiently as an inter-modal facility. While the cargo operations continue to experience solid growth, there are some very real constraints facing the Airport as buildings age and carrier requirements change. However, JFK has the capacity to accommodate growth for the foreseeable future and has the infrastructure to handle the 747-800F and the A380 aircraft. The proximity of Springfield Gardens and the substantial supporting business infrastructure offer additional ability to create a comprehensive, well-integrated cargo community.

Geographic positioning to serve effectively as a major cargo center with clear advantages over potential competitors. JFK, given its positioning in the Northeast has historically been well situated to serve as a transshipment hub for both domestic and

international cargo. The size of the immediate region and the market that can be reached within a day's drive is substantial making New York one of the premier origin and destination airports as well. Europe remains the primary geographic market but the size of the region makes it an attractive shipping target for other major geographic markets. Conversely, the coastal location physically halves the catchment region that the Airport can service. This does limit the market.

Bilateral and Open Skies Agreements. The use of U.S. airports by foreign flag carriers is based on international trade agreements which formally grant nations and carriers access and are discussed at greater length later in this chapter. New York is usually one of the first markets to which international carriers seek, and are granted access.

2.1.3 AIR CARGO BUSINESS PARTNERS

A successful air cargo operation is predicated upon the efficient interaction of a number of businesses with different operating requirements and facility needs. These firms have different levels of involvement based on the nature of the cargo and the markets through which the cargo moves. In an ideal environment, most of these operations would be co-located on the airport, creating an efficient, integrated, air cargo community. Operating costs are lower, economies of scale can be achieved, and international goods can be cleared faster and with fewer problems. The realities of limited modern, functional on-airport space and higher leasing costs have required businesses to situate operations that do not require ramp access off-airport.

Freight Forwarders are exporters that serve as travel agents for a shipper's freight. Simply stated, if a shipper wants to send freight to Borneo he will call a forwarder. Nationally, these firms control the routing of about 70 percent of the international freight, and about 10 percent of the domestic. A forwarder facility will vary from a small amount of office space and about 5,000 square feet of warehouse, to larger forwarder operations that may require as much as 100,000 square feet. Still, like any business that does not fly aircraft they do not need to be on the airport nor are they usually prepared to pay higher airport leasing rates.

Customs Brokers facilitate the clearance of international cargo through local federal customs. Like forwarders they usually maintain a small amount of office space but typically have little need for warehouse space, preferring instead to form alliances with trucking companies that can handle any large storage requirements. They do not need to be on-airport and are handling most of their business with the federal clearance agencies electronically. Like their forwarder counterparts, the customs brokers are located off-airport. It should be noted that many Brokers also serve as forwarders. This will sometimes impact their facility needs by adding additional warehousing space.

Federal Agencies have dual responsibility for interdiction and facilitation. The bulk of the cargo activity involves U.S. Customs and Border Protection ("CBP"). Customs is supported by the Department of Agriculture ("DOA") and the U.S. Fish and Wildlife Service, ("USFWS"), along with law enforcement agencies at the federal, state, and local levels. At an airport with a substantial international presence, it is absolutely critical that these agencies have ready access to the cargo. A centralized facility where all of the agencies are located together is ideal. Such an arrangement allows for rapid coordination on clearance issues, and minimizes ground traffic by shippers and consignees. While CBP addresses inbound shipments, the new security mandates have created an enormous role for the Transportation Security Administration ("TSA") on outbound shipments and more recently increased their involvement with inbound cargo. Security is discussed in some detail under the section on "Emergent Trends".

CBP has dual responsibility for interdiction and facilitation. CBP officials inspect a randomly targeted portion of imported cargo (based in part on a risk assessment) for contraband goods. They also work to ensure that the inspection process does not delay the flow of goods. CBP officials partner in this inspection process with DOA and USFWS who handle specialty areas involving flora and fauna. A major role of these support agencies is the detection of diseased products or invasive species. The TSA's major role is to ensure that the cargo that is moving in the bellies of passenger aircraft is safe and has not been exposed to contact outside a secure shipping chain. Currently they inspect outbound cargo on a risk assessment basis. For in-bound cargo, the TSA is concerned with belly cargo targeted for transfer. The future TSA role may soon extend to inspection of freighter cargo. TSA also oversees off-airport elements of the inspection process that delegates inspection to Certified Shippers that could be either the manufacturers or freight forwarders acting as their agents.

Consolidators work with or may function as a freight forwarder providing assembly points for cargo prior to its delivery to a carrier on the airport. Consolidation is critical in that it creates shipping economies of scale and reduces the shipping cost per pound to specific destinations. The ability to consolidate shipments and the frequency of flights to such a broad range of destinations are important to JFK's continued success. Consolidators do not have to be on the airport but as with forwarders and brokers, relatively easy access is important to allow for delivery of the cargo to the carriers on the airport.

Container Freight Stations are typically located off-airport and handle the breakdown of inbound international freight. Their function is similar to a consolidator in that they provide relatively inexpensive space for short-term storage and redistribution, to a number of clients. In many instances, these typically independent operations are bonded to allow for the rapid movement of inbound cargo through the customs process.

Freighter Airlines are those carriers that do not carry passengers and specialize in heavy freight and general cargo as opposed to small packages or mail. Cargolux and NCA are examples of such carriers. Throughout the industry, there has been substantial growth in "wet leases." This kind of leasing arrangement provides carriers with an option of leasing aircraft, crew, maintenance, and insurance ("ACMI") through such carriers as Atlas.

Integrators are those carriers that operate a trucking component as well as their aircraft and offer point-to-point as opposed to airport-to-airport delivery. They specialize in overnight express. Examples are FedEx, UPS, and DHL. Their business is driven by time definite delivery, and proximity to the regional business districts is important to their operation. Depending on their level of activity at an airport, they tend to require substantial amounts of aircraft parking although they may not require a large amount of building space. They also frequently require large amounts of truck parking, and, because they are labor intensive, employee parking. At some integrator facilities staff also provides customs brokerage and forwarding functions.

Combination Carriers, *for purposes of this document,* are defined as airlines that fly both freighters and passenger aircraft. These predominately Asian carriers prefer to process both belly and freighter cargo in the same facility when possible. In rare instances, a carrier will split their belly cargo and freighter operations between airports when capacity becomes a factor. However, this is something that they will avoid if possible. No U.S. passenger carrier includes freighters in their fleet. Most carriers (other than integrators), are leaning more to leasing space than building their own facilities, and preferring to partner with a handling company or other third party for the development of new facilities. (Note that in industry parlance there are "combis" that is an aircraft that carries passengers and freight with the passengers in the front of the aircraft.)

Cargo Handling Companies operate on a contract basis providing service to carriers on the apron where they load and unload the aircraft and/or in the warehouse where they assemble or breakdown the freight. Their business is best conducted on the airport. Their revenue is generated on a fee-for-services basis, with current market rates that range from 2.5 to 6.0 cents per pound of cargo handled.

Air cargo that is transported in passenger aircraft is off-loaded and loaded at the passenger terminal gate. It is typically transported to the cargo terminal for handling by a tug and cart system over a restricted service road accessible only to cleared personnel. Air cargo freighters typically park directly at the cargo facility for loading and off-loading by the handling company. There is a growing trend in the industry to lease cargo facilities directly to handling companies who can then use the available capacity to create economies of scale for their staff and equipment.

Trucking Companies make up the surface component of air cargo operations. While these companies rarely lease space on an airport, it is very important that air cargo facilities be designed to accommodate trucking, including frontage, access, and roadway geometry. Trucking operations to a gateway like JFK frequently are long-haul. Providing amenities and general service to drivers in the form of a Truck Service Center is desirable if space permits.

2.2 EMERGENT TRENDS

The past decade has seen some very basic changes in the structure of the air cargo industry.

This section examines the evolution of JFK's air cargo business from 2000 to 2010 and summarizes how many important industry trends have affected the air cargo industry in general and the dynamics for a mature Airport like JFK in particular. The past decade has been characterized by pre-existing factors that have continued working themselves out.

For over a half century, JFK has served as a premier gateway to the world's most dynamic city and nation. It was well established as a leading intercontinental gateway, long before other U.S. cities could even consider obtaining international flights. If a foreign destination could serve only one U.S. airport, the destination historically was JFK. Today that has changed dramatically. For Europe, JFK remains the first, and sometimes the only, U.S. destination for many airlines, representing a vital node for both passenger and cargo services. However, other gateways at LAX and MIA capture the bulk of the Asian and Latin markets respectively, and new aircraft technology and passenger demand make other gateways such as ORD desirable for international traffic as well.

Despite fundamental changes in the airline industry, the role of JFK has remained largely constant. However, the last four decades have seen fundamental changes in the roles of other airports. The success of commercial aviation, its transformation from a luxury for the ultra-wealthy to a mass product for travelers and a routine conduit for goods has caused a worldwide dispersal and fragmentation of commercial passenger and cargo services. International traffic volumes are now large enough to support many gateways and carriers. Dallas/Fort Worth ("DFW"), Hartsfield-Jackson Atlanta International ("ATL"), Denver ("DEN"), George Bush (Houston) ("IAH") and Detroit Metro ("DTW") International airports now have significant intercontinental flights. In 2012, Boston Logan International ("BOS") will add nonstop flights to Tokyo, joining fourteen other airports in North America. International passengers and air freight no longer need to transit JFK, but now have a wide range of potential carriers, gateways and routings.

Other parts of the world are experiencing this fragmentation... London's Heathrow Airport shares intercontinental traffic with over six intercontinental gateways in the United Kingdom. Smaller continental airports such as Dusseldorf, Nice, Stuttgart, and Faro have intercontinental flights. Many Caribbean destinations have nonstop services to Western Europe. A similar pattern of fragmentation holds for Australia and Latin America, the Middle East, and is emerging in India, China, and other world regions.

The Airports Council International publishes airport rankings. In 2010, JFK placed 14th in terms of passenger traffic (**Table 2.2-1, *World Airport Rankings by Total Passengers***) and 19th by air freight (**Table 2.2-2, *World Airport Ranking by Air Freight***). Please note that historical performance will be detailed in the Forecast Chapter.

Table 2.2-1 WORLD AIRPORT RANKINGS BY TOTAL PASSENGERS

2010 Rank		2010 Passengers
1	Atlanta	89,331,622
2	Beijing	73,948,113
3	Chicago O'Hare	66,774,738
4	London Heathrow	65,884,143
5	Tokyo Haneda	64,221,074
6	Los Angeles	59,070,127
7	Paris de Gaulle	58,167,062
8	Dallas/Fort Worth	59,906,610
9	Frankfurt	53,009,221
10	Denver	52,209,377
11	Hong Kong	50,348,960
12	Madrid	49,844,596
13	Dubai	47,180,628
14	**New York JFK**	**46,514,154**
15	Amsterdam	45,211,749
16	Jakarta	44,355,998
17	Bangkok	42,784,967
18	Singapore	42,038,777
19	Guangzhou	40,975,673
20	Shanghai Pudong	40,578,621
	Newark	33,107,041
	New York La Guardia	23,893,082

Source: Airports Council International, Port Authority of New York and New Jersey, 2011

Table 2.2-2 WORLD AIRPORT RANKING BY AIR FREIGHT

2010 Rank		Air Freight (Tonnes)
1	Hong Kong	4,165,892
2	Memphis	3,916,811
3	Shanghai Pudong	3,228,081
4	Incheon	2,684,499
5	Anchorage	2,646,695
6	Paris de Gaulle	2,399,067
7	Frankfurt	2,275,000
8	Dubai	2,270,498
9	Tokyo Narita	2,167,853
10	Louisville	2,166,656
11	Singapore	1,841,004
12	Miami	1,835,797
13	Taipei	1,767,075
14	Los Angeles	1,747,629
15	Beijing	1,551,471
16	London Heathrow	1,551,404
17	Amsterdam	1,538,134
18	Chicago	1,376,522
19	**New York JFK**	**1,344,126**
20	Bangkok	1,310,148
23	Newark	855,594
	New York La Guardia	6,828

Source: Airports Council International, Port Authority of New York and New Jersey 2011

THE PAST TEN YEARS

This Strategic Plan includes recommendations to enhance JFK's air cargo business. The Team assessed how industry issues have and will impact the Airport moving forward. Changes over the last decade are reflected in **Table 2.2-3, *United States Rankings for the Kennedy Airport, 2000 and 2010***, below that summarizes JFK's performance over the 2000-2010 period. The national drop in domestic passengers reflects the growth of point-to-point services by low cost and regional carriers. New international services from interior gateways reduced the need for passengers to connect between domestic and international flights. The large increase in domestic activity at JFK results from the growth of JetBlue. It should be noted that neither the aircraft nor operational plans of Jet Blue lend themselves to a cargo operation. As a result, there is no corresponding increase in air cargo volumes.

Table 2.2-3 UNITED STATES RANKINGS FOR THE KENNEDY AIRPORT 2000 AND 2010

		Domestic Passengers	Domestic Freight	International Passengers	International Freight
Change 2000-2010	Total	-0.01%	13.37%	12.63%	17.24%
	JFK	63.20%	28.26%	25.50%	-20.60%
JFK Rank in U.S.	2000	32	14	1	1
	2010	17	15	1	1
JFK Share	2000	1.12%	1.64%	12.88%	20.21%
	2010	1.83%	1.36%	14.35%	14.23%

Note: 2000 domestic volumes for integrated carriers were estimated with 2003 data. Table does not include traffic of road feeder services.
Sources: United States Department of Transportation Databases C298, 28DM and 28IM, 2000 and 2010.

JFK's domestic freight fell because of the shift of air freight from traditional airlines to integrators and widespread substitution of over-the-road trucking for domestic air transport. Several airlines replaced high capacity wide-body aircraft, often containerized capabilities, with low capacity bulk-loaded narrowbody equipment. The next section of this Chapter highlights the trends that are shaping air cargo for the coming decade.

2.2.1 AIR CARGO SECURITY

Perhaps the most significant change over the past ten years has been in the area of security. This recent focus has been on anti-terrorism. Historically the industry has addressed anti-theft, and systems and facilities both on- and off-airport consider theft deterrence in their planning. This discussion addresses anti-terrorism, anti-theft will be covered in the Facilities Chapter.

REGULATORY POLICIES

Immediately after the attacks of September 11, 2001, the U.S. Congress enacted the Aviation and Transportation Security Act ("ATSA"), which created the Transportation Security Administration ("TSA"), the federal agency primarily responsible for air transportation security. Initially created as part of the Department of Transportation, pursuant to the Homeland Security Act, TSA was transferred to the Department of Homeland Security ("DHS") in 2003. The Bureau of Customs and Border Protection ("CBP"), also part of the Border & Transportation Security Directorate of the DHS, enforces regulations that impact air cargo security. While, the FAA's focus is on ensuring air cargo shipments do not present safety hazards, CBP focuses on regulating its import and export. While these missions, particularly CBP's, impact the security of air cargo shipments, security is TSA's primary mission. In ATSA, Congress established two primary mandates for TSA regarding air cargo security:

- Provide for the screening of all property, cargo, carry-on and checked baggage and other articles, that will be carried aboard passenger aircraft operated by U.S. and foreign air carriers.
- Establish a system to screen, inspect, or otherwise ensure the security of freight that is to be transported in all-cargo aircraft as soon as practicable.

In January 2004, TSA approved its Air Cargo Strategic Plan, which the agency describes as using a "threat-based, risk-managed" and "multi-phased, layered" approach to strengthen air cargo security. The plan has four major elements.

- Enhancing the Known Shipper Program - TSA's "primary cargo security program," which prohibits air carriers from accepting cargo that does not originate from shippers who meet TSA's Known Shipper requirements.
- Establishing a Cargo Pre-Screening System - This system will identify potentially high-risk cargo and ensure that 100 percent of it is inspected.
- Establishing an Aggressive Research and Development ("R&D") Program.
- Implementing Additional Appropriate Measures – These include requiring background checks on persons with access to cargo and new procedures for securing aircraft between flights.

TSA enacted regulations implementing its Known Shipper program and requiring adoption of security programs for certain types of carriers, which detail procedures to screen cargo, verify the identities of persons with access to planes, and ensure the security of parked aircraft. TSA periodically issued security directives ("SDs") and emergency amendments to security programs ("EAs"), to enhance these and other security measures. For example, TSA had required domestic and foreign carriers to conduct random inspections of passenger aircraft that carry cargo and all-cargo aircraft, and foreign all-cargo air carriers operating into and out of the U.S. to follow security plans approved by TSA. In addition, TSA developed canine detection teams and technology, including explosive detection machines, to enhance the effectiveness of its cargo security program. TSA initial efforts included rules that:

- Require safety threat assessments for individuals with unescorted access to cargo;
- Codify cargo screening requirements first implemented under SDs, EAs, and part 1550 programs issued in November 2003;
- Require airports with Security Identification Display Area ("SIDAs") to extend them to cargo operating areas;
- Require aircraft operators to prevent unauthorized access to the operational area of the aircraft while loading and unloading cargo;
- Require aircraft operators under a full or all-cargo program to accept cargo only from an entity with a comparable security program or directly from the shipper;
- Codify and further strengthen the Known Shipper program;
- Establish a security program specific to aircraft operators in all-cargo operations with aircraft with a maximum certificated takeoff weight more than 45,500 kg;
- Strengthen foreign air carrier security requirements essentially to parallel the requirements on U.S. aircraft operators; and
- Enhance security requirements for Indirect Air Carriers (freight forwarders).

Meanwhile, CBP implemented the Congressional mandate passed as part of the Trade Act of 2002 to require advance transmission of electronic cargo information for both arriving and departing cargo. Air carriers importing and exporting cargo must submit detailed shipment information to CPB electronically. For shipments into the U.S., the information must be transmitted four hours prior to arrival for intercontinental flights and at "wheels up" for flights from Canada, Mexico, and Central and South America north of the equator. For exports from the U.S., the information must be provided two hours prior to scheduled departure from the last U.S. port.

As the TSA explores implementing 100 percent inspection of belly cargo inbound into the U.S., the compatibility of standards, processes, and equipment utilized by international trading partners has become an issue that is still under discussion and an area of concern. Also still to be implemented is 100 percent inspection of cargo in freighters.

SAFETY CONSTRAINTS

Safety issues, which are addressed primarily by the FAA, will also continue to constrain the cargo sector.

For years, the FAA has been conducting aviation safety oversight assessments of countries around the world, to determine whether U.S. aviation partners are complying with their obligations under the Chicago Convention to regulate their own carriers' safety practices. If the FAA finds a country to be doing so to its satisfaction, it assigns a Category I rating, and that country's carriers may continue to serve the U.S., and expand operations to the U.S., to the extent provided for in applicable bilateral agreements. If in the FAA's judgment the country is not in compliance with minimum international standards, it assigns a Category 2 rating. If a country has carriers with existing operations to the U.S. at the time it is assessed a Category 2 rating, those carriers are permitted to continue current operation levels under heightened FAA scrutiny. If a country does not have air carriers with operations at the time of the Category 2 assessment, its carriers are prohibited from serving the U. S. However, new operations from Category 2 countries are allowed if conducted using aircraft wet-leased from U.S. carriers or foreign carriers from Category 1 countries authorized to serve the U.S. with their own aircraft.

Some foreign countries have challenged the fairness of these FAA assessments, and have questioned the authority of the U.S. to police other countries' adherence to ICAO standards. However, as a practical matter, carriers from countries rated as Category 2 face very real constraints on their ability to serve the U.S. market, regardless of how high a level of safety those carriers may be able to demonstrate with respect to their own operations.

The United States has been focused on safety domestically as well. The National Transportation Safety Board ("NTSB") and Air Line Pilots Association have pointed out that there are significant differences between the safety standards for cargo and passenger operations. These include less stringent operating rules regarding flight and duty time limits, reporting weather information, and alternate airports, and use of flight dispatchers. In addition, less stringent certification standards apply to cargo aircraft, which, for example, do not require safety equipment standard on passenger aircraft such as fire-suppression systems in the main cabin or lower decks, emergency exits, and exit slides. The relatively greater age of the cargo fleet means maintenance issues are more significant, including limited support from manufacturers. Moreover, many cargo aircraft undergo numerous modifications and reconfigurations, complicating maintenance. In addition, the airfield and firefighting requirements for airports that handle air cargo aircraft are not the same as those for air carrier passenger operations. In addition, there are limited federal certification or regulatory requirements for personnel and companies that prepare and load cargo.

To address air cargo safety issues, the FAA's Flight Standards Service developed the Cargo Strategic Action Plan and Air Cargo System Safety Implementation Plan (September 30, 2002), which identifies its long-term strategies as increasing inspector awareness on inspection guidelines by issuing an updated handbook policy and developing a formal training course. In addition, FAA plans to issue an Advisory Circular in the near future which addresses NTSB recommendations A-98-45 through -48, resulting from its investigation of the 1997 Fine Air crash, which focuses on proper loading of cargo.

These and other measures have added to the cost of operating air cargo flights in the future.

While airports tend to focus on TSA Guidelines as they directly impact their own operations, it is important to understand how different elements of the shipping chain are affected.

Shippers and Forwarders. Cargo is generated by shippers that can vary in size from private individuals to multi-national corporations. The FAA originally imposed a "known shipper rule" that required carriers and freight forwarders accepting freight into the system for transport on a passenger aircraft to review the background of the shipper and qualify the entity as legitimate. In October 2002, the FAA strengthened this requirement limiting freight forwarders to submitting cargo to carriers only if the customer had used the forwarder for 24 shipments in the past two years. Further the shipper must have had some business dealings with the forwarder prior to September 1, 1999. If these conditions are not met, the forwarder, as part of a validation process, must inspect the shipper's facility and review the financial records. These rules made it difficult for shippers to change forwarders and fostered the development of multiple accounts to mitigate potential problems in the event there was a problem with one forwarder.

If the cargo is determined not to be from a known shipper, then it must be screened before it can be placed on board a passenger aircraft. Because of the cost, operational challenges, and occasional delays inherent in the screening of some shipments, diversion to freighter aircraft has become an attractive alternative for shippers and forwarders. Tighter security and screening requirements have also created incentives for forwarders to consider relocation to an on-airport site in order to extend cut-off times and minimize the potential for delays that might be incurred during truck inspections.

Truck Substitution. A substantial amount of air cargo (anecdotal indicators are that as much as 25 percent of the cargo volumes at an airport are unreported because they move only on trucks) moves on trucks either as origin and destination freight, or as truck-to-truck freight. Since, truck-to-truck cargo does not need to be screened, the volumes increased dramatically after September 11, 2001 and much of the diverted freight has remained on trucks. Nevertheless, the truck–air relationship has remained intact if somewhat diminished. New security requirements on the cargo industry involving the implementation of higher levels of screening technology, greater processing costs, and lengthier processing times have reinforced this modal shift. Based on facility volumes and diversity of the shipping base, this translates into the need for a separate screening facility (if physically and operationally feasible), modifications to an airport's infrastructure to include separation of truck and passenger vehicle traffic to and/or on the airport, further separation of vehicles in the air cargo areas, and modifications of the buildings and surrounding roadways to allow for a smooth flow of vehicles, easy truck parking, and minimal potential obstructions caused by queuing.

Added security requirements may have affected the flow of cargo to an airport. In some instances trucks arriving at the cargo facility may be required to move to a holding area for more detailed inspection. More typically, because of lengthier time spent in the truck bays, unloading of trucks may be delayed and additional space could be required for vehicles queuing for routine inspections and access to the cargo areas. Delays to arriving trucks, particularly if those delays tend to be unpredictable and of varying length, can create additional pressure on local shippers and forwarders to accelerate cut off times and reduce their consolidation potential. Air cargo typically moves in fairly well defined shipping windows, and most shipments are trucked to the airport as close to that window as possible.

At international gateways such as JFK, several hundred trucks could arrive at the airport over a two-hour period. In many instances, these trucks and their cargo must be screened and without proper facilities, delays could be extensive. The problem is exacerbated if the cargo is trucked over a large distance to airports with unpredictable screening delays. Ideally, an airport will provide the space necessary to develop effective screening facilities that can eliminate screening delays. This is a task now being looked at by the major gateways. A secondary, but no less important potential impact of the delays, is the effect extensive truck queues have on air quality. For airports already facing ceilings on noxious emissions, this could be a serious issue.

Belly Carriers. The passenger airlines, for which cargo often represents the margin of profit on many routes, have experienced decreases in both capacity and demand domestically. On the airside the effects of September 11, 2001 were immediate. First, the number of commercial flights was dramatically reduced. At hub airports, operations dropped as much as 27 percent. The resultant loss in belly cargo capacity forced the diversion of cargo to trucking and freighter/integrator traffic. Second, the TSA restricted the nature and sources of cargo that could be carried in passenger aircraft. Increased emphasis of the "Known Shipper" rule also accelerated the diversion. Third, carriers in many instances reduced the size of the aircraft, lowering operating costs, but also reducing belly capacity. Fourth, restrictions on the amount of personal possessions that passengers may carry on board forced additional baggage into the bellies, and further reduced available capacity for freight and mail. Lastly, because of the more stringent application of the Known Shipper rule, carriers became reluctant to, or constrained from accepting freight, and as a result referred many shippers to freight forwarders. Internationally, to better manage costs and achieve higher revenues, carriers are utilizing wide-body belly capacity to a much greater extent. The challenge is to create consistent universally-accepted standards for belly cargo inspection which has become an issue for the TSA. The key to this is to ensure that only "Known Shippers" can have cargo loaded in passenger aircraft. Many foreign countries are resisting the imposition of U.S. driven standards for operational and political reasons. As the industry works to resolve the issues, the fundamentals of the goods movement infrastructure have shifted, and the result has and will continue to impact the nature of, and demand for relevant airport facilities. Overall, as the air cargo market expands and volumes continue to grow, international belly cargo will remain viable but has become more expensive than in the past. Domestically the market will be challenged as freight forwarders continue to focus on the trucking alternative.

Freighter Operators. On a limited basis, freighter operators on a limited basis have been the beneficiaries of the industry's diminished belly capacity. As security requirements remain less stringent for these carriers, it enables them to theoretically capture a greater percentage of the market. As security requirements are finalized, the potential for operating delays due to screening both inbound and outbound cargo may eventually impact the use of freighters at heavily trafficked airports. Additionally, with the increasing shift of traffic to freighters in some instances, demand for aircraft parking positions is increasing. If airports cannot meet this demand through modification or additions to existing infrastructure, then the demand may shift away from some current gateways. This is not an issue for JFK which has ample capacity to accommodate current and future freighter operations.

With most wide-body freighter operations focusing on international traffic, the challenge is to establish a level of confidence with security controls at international shipping points, given the almost limitless shipping points from which freight for the system can be generated. The imposition of unilateral security standards on a global basis is not immediately practical or politically viable, and restrictions on carriers or points of origin may

appear arbitrary and be deemed undue constraint of trade. While it is likely that most nations and carriers will agree upon some basic common guidelines, the interim period will continue to be problematic from a security perspective.

Integrators. Integrators historically have created and operated security-oriented facilities and cargo systems. As a result modifications to their existing operations were less extensive than for most other carriers. However, their facilities and operations have been designed for tracking and safeguarding shipments once they have been accepted into the system. They perform random screening, but because of the nature of their business they cannot and do not conform to the constraints of the known shipper rule. Though different from each other, their superior tracking systems and time-definite delivery guarantees provide elements of operational security that other carriers typically lack.

A critical element of a number of integrator operations is trucking access to the aircraft ramp. At a number of airports this is permitted particularly when facilities are constrained or in some cases located entirely off-airport. This presents challenges to site design, administrative controls, and responding to competitive interests. The physical aspects are the most easily addressed. The real issues will be whether the TSA (as it addresses freighter screening in the future) will eventually limit ramp access for trucks, what the criteria for access will be, and under what circumstances exceptions, if any, can be made.

The ground element of integrators' operations is expanding. The continued and increasing use of time-definite second and third day delivery means more utilization of trucks with greater on-airport queuing and parking requirements as well as additional levels of traffic. If time constraints on truck flows increase as a result of the screening requirements, integrators may shift more operations off-airport or seek an alternate airport where other truck traffic is not as heavy, from which to operate.

Ground-Handlers. While ground-handling companies have little to do with the entry and exit of goods into the system, handling company employees have access to cargo when it is on-loaded and off-loaded from aircraft and trucks, and in the warehouse prior to and after shipment. Many handling companies employ part-time workers and experience high turnover particularly at entry-level positions. This sometimes creates operating problems for cargo facilities. At JFK there are sufficient options for handling so that this is not an issue.

2.2.2 IMPLICATIONS FOR AIRPORT SYSTEMS

As airports seek to increase revenues, cargo operations have become better appreciated as potential sources through increased rentals and/or fees. As the industry adjusts, these new cargo facilities must be designed to respond to increased demand for freighter aircraft parking and expanded trucking operations. An air cargo operation is an inter-modal operation. While traditional security applications have tended to focus heavily on the airside, there are three aspects of an air cargo leasehold that must be considered when addressing security issues.

1. The aeronautical component to include taxiways and ramps, including setbacks;
2. The building as it pertains to the dimensions, configuration, and operating characteristics of the internal space allocated to warehouse, office, and other related uses, and the concentration of truck and airside doors;
3. The landside component to include building frontage, queuing capacity, parking for customers and employees, and roadway access.

Most of the physical provisions for anti-terrorism security also pertain to anti-theft.

Aeronautical Component. The aeronautical operating area ("AOA") includes aircraft parking apron that is usually adjacent to the cargo building, as well as the taxiways and taxilanes that provide access, and any restricted service roads ("RSR") or non-licensed vehicle roads ("NLVR") that enable belly cargo tugs to move on non-public roads to and from the passenger terminals. Direct aeronautical access to aircraft apron is not necessary for every tenant. Passenger-only carriers and handling companies that deal with belly cargo need only be connected to the AOA via a restricted service road. However, most carriers flying freighters, or handling companies dealing with freighters, need to have ramp access, and most appropriately, ramp directly adjacent to the cargo building to minimize operating costs.

Building Component. The dimensions of a building directly impact the number of access points on both the airside and landside, and the resultant complexity of access control. Buildings must be designed with throughput, operating efficiencies, and leasing costs in mind. In leasing cargo facilities, rental rates are based on the leasehold square footage and the footprint of the building, while the tenant's operating efficiencies, in many cases, may be substantially enhanced by the height of the facility. The design and installation of security systems will add costs and may impact throughput capabilities. Other critical elements in building design are the number, dimensions, and spacing of cargo doors on the aeronautical and landsides, the use of floor versus mezzanine office, and storage for equipment. The TSA requirements for screening can add from 5,000 to 10,000 square feet of space to a cargo facility. This would allow cargo to be off-loaded from a truck, broken down for screening, screened, and then rebuilt in shipping containers. For smaller operations with limited space, this is extremely problematic from both a financial and operational perspective.

Building Access. Facility access must be tightly controlled. Cargo facilities with their extensive truck bays offer a number of access opportunities that must be controlled by observation and physical barriers. These can be as basic as keeping the bay doors closed until a truck is in the dock, or monitoring and enforcement of the "yellow line." The "yellow line" is an actual line that is painted on the floor of cargo facilities parallel to the front (landside) of the building. (This is giving way where feasible to actual physical barriers). Usually it is 20 feet from the bay doors and defines the point beyond which unauthorized personnel may not pass. This authorization typically is by the airport based on tenant recommendations and appropriate screening. Typically, this authorization is very limited and seldom includes non-facility employees. This concept is recognized by the trucking industry whose drivers need to be inside the cargo building to load and unload the vehicles.

Part of the difficulty in securing a cargo facility is the diversity of the population who need to access it, and the differences in the levels of access that each require. Office space should be physically separated and secured from the warehouse, but provide easy access for customers at the ground level. Access to a mezzanine office should not require non-employees to enter warehouse space.

Single-Tenant Facilities. Single tenant facilities, whether carrier or handling company controlled, are easier to secure than multi-tenant buildings. There are no concerns over the integration of individual tenant security systems and technology, fewer access points, direct accountability, and lower installation costs. The building system should be linked to airport security, and local law enforcement as necessary and appropriate. The interior design should allow for the control of visitors in a single area without impacting efficiency or effectiveness. As compared to a multi-tenant facility it has the benefits of more visible and known staffing, and an interior that is more open to observation of the cargo areas. At most airports, however, single tenant buildings are not the predominant facility.

Multi-Tenant Facilities. Multi-tenant facilities represent challenges from a number of perspectives. Unless the facility has been developed or is managed by a third party, the most problematic issue is accountability for day-to-day security in common building areas and within the vehicle areas. Historically, airports have had difficulty with tenants failing to perform even routine maintenance or policing of such areas. Insurance issues associated with security accountability can create a challenge. These facilities typically have multiple access points in order to serve the tenants; this adds difficulty and cost to access control.

A more complex issue is the introduction of security technology into the building. With a single tenant with uniform operating equipment and procedures the design and implementation of security technology to include such items as physical characteristic verification devices, Closed Circuit Television ("CCTV"), screening devices, etc. is less expensive and easier to maintain. In new facility development, the building design should incorporate security systems and technology enabling amortization of the investment over a longer period of time and minimizing the impacts on tenants. The addition of individual tenant systems after leasing is typically more costly to the tenants and more difficult to monitor and maintain.

Landside Component. The landside element of an air cargo facility must have sufficient space for truck turning and queuing, acceptable proximate roadway geometry, and acceptable overall access to the leasehold. In many airports, older cargo facilities were not designed to accommodate the larger trucks that are typically used today for long haul trucking. This is true of the areas surrounding the cargo buildings, as well as the access roads to the cargo areas in general. Ensuing problems usually result in diminished traffic flows, random off-site truck parking, and a negative impact on air quality.

Another critical element of landside planning is the automobile parking requirements for the facility. Typically a freight operation does not require extensive parking; however, on an airport the need can vary. Both employees and customers must have proximate parking that is physically separated from the trucking operations. In instances where automobile parking is limited, employee parking is usually shifted to a remote area, shuttles are set up, and operating costs are increased.

Roadways. In an ideal environment, trucking activity, beginning with entry onto the airport grounds, should be separated from automotive/passenger traffic. A system of readers and transponders will allow a central control to track the vehicle from the airport entry as it moves to a central screening area, and eventually, the cargo facility. Electronically cross-referencing the driver with the truck should also be included at the screening facility. Roadways should be wide enough and have geometry appropriate to allow for easy unrestricted movement, and the ability to avoid a blockage. The problem is that many airports do not have roadways systems that provide for optimum vehicle separation, nor do they have the geographic capacity to make modifications. In other instances, the capacity to develop a truck screening facility with appropriate queuing areas may also be lacking.

For those airports with the space to accommodate potential changes to trucking movements, the cost of creating new screening facilities and potentially miles of road, may be prohibitive unless a third party is involved.

Parking Lot Access. To mitigate against theft, a well-designed cargo facility requires that automobiles and trucks be segregated with regard to both access and egress to the complex, as well as parking for the vehicles. This separation should be physical with employee and visitor lots positioned away from the building and secured with a single manned pedestrian access gate. All employees and visitors should be checked and be

subject to local security and administrative processes. No employee vehicle parking should be adjacent to the building. (Airport statistics indicate that the majority of theft is by employees. Moving the cars away from the building reduces opportunities.) Parking for key management staff or for persons with disabilities, should be provided as appropriate, however, even this parking should be designed away from cargo bay doors.

2.2.3 MAJOR GATEWAY SHIPPING

One of the major side effects of the new air cargo security guidelines has been that the economies of scale offered by the gateways and the proportionately higher costs of screening at small to mid-size facilities encourages the migration of cargo screening to the gateways. The utilization of a centralized cargo screening facility at a gateway can offer further incentives to this shift.

2.2.4 RATIONALIZATION OF BELLY CAPACITY

As carrier fleets expand to accommodate international passenger demand they have almost universally up-gauged to wide-body aircraft. Both Emirates and Etihad are prime examples of carriers whose long-term plans for the carriage of cargo shifted from a 70 percent to 30 percent mix of freighter to passenger lift, to 30 percent to 70 percent. Freight forwarders have been quick to capitalize on this shift which allows them to ship freight in the lower-priced bellies. Although the use of freighters will still continue to grow as gross industry volumes increase, carriers will continue to make better use of previously underutilized space in the passenger fleets. This exacerbates gateway fragmentation and has had a severe and ongoing impact on JFK.

2.2.5 EMERGENT GATEWAY FRAGMENTATION

This will be discussed in much greater detail in the discussion of routes. The basic issue is that inland airports because of growing demand, better aircraft technology, and evolving carrier route structures have introduced a number of international routes. These new flights, although of relatively limited frequency, all serve to pull belly cargo out of JFK particularly on flights to Europe. This represents the greatest challenge to an existing, mature gateway because it is virtually impossible to structure any rational counter to the use of available belly space from an inland airport.

2.2.6 MODAL SHIFTS

As discussed above, costs (mostly associated with security) have helped shift a substantial amount of domestic air cargo to trucks. This trend began in 2000 as many businesses in the face of a developing recession, began to opt for second and third day delivery of shipments as opposed to overnight delivery. At a number of airports, cargo facilities have become truck terminals. Interestingly, much of the tonnage has not disappeared; it has shifted to trucks and is not reported. On the international side, shipping historically has focused on dramatically different products which are typically incompatible with air freight. More recently however, the advent of the “fast ship” has attracted attention from some shippers because of the vastly improved product. Maersk has introduced a new ship that is 1,302 feet long, and has a net cargo capacity of 123,200 tons that can be transported much more cheaply than by air. Most remarkable, the ship carries a crew of only 13, and cruises at 31 knots – halving the time of typical trans-oceanic shipping

2.2.7 LIBERALIZATION

International air service liberalization continued after 2000 although the pace has been much slower than in the previous decade. Major liberalizations include Turkey (2000), France (2001), India (2005), Australia (2008), Brazil (2010), and Japan (2010). The Single Market Agreement with the European Union in 2007 lifted restrictions on services to London Heathrow. While the Chinese bilateral remains very restrictive, negotiations in 2005 allowed additional services. Several of the U.S.-China bilateral revisions resulted in new routes from ORD, EWR, and ATL.

The changes created tangible benefits for JFK. Delta Air Lines could now fly from JFK to London Heathrow, joining British Airways, American Airlines, Virgin Atlantic, and Kuwait Air. Delta also started services to Dublin without the need to serve Shannon too. Delta Air Lines inaugurated nonstop services to Tokyo in 2009.

These liberalization measures were much more important to the interior hubs. ATL, Charlotte Douglas International ("CLT"), DFW, and other airports obtained their first nonstop flights to London Heathrow Airport ("LHR"). Before the 2007 Single Market agreement, their flights were required to use less popular London airports such as Gatwick Airport ("LGW"). This is consistent with a broader pattern, in which liberalization creates very large opportunities for new gateways, but only incremental gains for established gateways such as JFK.

2.2.8 EMERGENCE OF NEW MARKETS

New markets are developing in Eastern Europe, Africa, and the Middle East - markets with which JFK has substantial connectivity - that will probably have some impact in the next five years. Africa has been a difficult market to anticipate since it has had substantial ups and downs economically. Nevertheless, most industry analysts anticipate expansion for the African markets. Airports in the Middle East are building substantial portions of their growth assumptions around economic development in the African nations. Of the major gateways in North America, New York, Miami, and Atlanta are best positioned to pursue this market. However, of the three, New York has the greater physical capacity and interlining diversity. The Middle East continues to prosper as a transfer center for cargo with its three main carriers, Emirates, Etihad, and Qatar aggressively pursuing expansion and competing with one another. It is unclear whether the transfer strategies of these carriers will remain sustainable as new more fuel efficient aircraft facilitate expanded non-stop capability to the industry. Additionally, carriers are also expanding their markets. Between 2000 and 2010, Delta Air Lines inaugurated nonstop flights to Accra, Bogota, Dakar, Montego Bay, Port au Prince, Prague, Santo Domingo, Sao Paulo, Tel Aviv, Tokyo, and other destinations. This expansion increased the supply of belly capacity at JFK.

2.2.9 CHANGING DISTRIBUTION SYSTEMS

Prior to the economic downturn of 2008-2010, there was increasing interest on the part of Asian manufacturers and shippers in general, and Chinese industry in particular of shifting some manufacturing out of Asia back to North America and Europe. This interest will continue as the economy recovers. Rising labor costs in Asia, the accelerating consumption of a growing middle class, higher fuel costs, and the added expense of security screening have increased shipping costs substantially. This makes this repatriation of previously exported industry and the importation of new business to the U.S. and Europe more viable. As this trend matures international shipping will be adversely affected. Domestically,

manufacturing and distribution continue to move to a decentralized business model in order to reduce the cost of transportation logistics. This increases demand for trucking and conversely reduces the need for air support.

2.2.10 GROWTH OF ACMI CARGO OPERATORS

As carriers move to "right-size their fleets, many are shifting away from owning their freighters preferring instead to "wet-lease" their all-cargo aircraft to include the ACMI. This strategy also reflects the greater reliance on wide-body belly capacity for most shipping, and an increasing dependence on outsourcing for unusual or peak shipping requirements. The higher costs of the leases are off-set by reduced maintenance and operating costs incurred by the carriers. A side effect of this trend is that airports do not always know which carrier has chartered the operation. This can be problematic for planning both aircraft ramp and facility size unless appropriate tracking is in place that tells the airport where the aircraft is parking and for which carrier the aircraft is flying.

2.2.11 THIRD PARTY DEVELOPMENT AND LEASING

As carriers pull back from owning or leasing property on an airport, the gap has been filled by third party developers typically in partnership with the airport. More recently cargo handling companies have become part of the equation. The handlers are now either financing the development or leasing the facility. This enables them to make better use of space and manage physical and human resources more effectively. This concept also lends itself to a "common-use" pricing structure in which the airport receives revenues on processed cargo rather than a square footage basis. If structured properly this kind of arrangement can reduce start-up costs and have a higher payout for all parties as the operation matures.

2.2.12 THE CARGO VILLAGE

Perhaps the most visible and discussed phenomenon is the emergence of the "Cargo Village." Despite its increasing popularity, this is simply a new name for an on-airport logistics complex. It can include virtually any elements of the air cargo industry, but for the most part, given restrictions on commercial development at most airports, is best focused on carriers, forwarders, customs brokers, and other directly supporting services as opposed to manufacturing and assembly. One of the fallacies in the industry is that such complexes will attract cargo. They are usually only successful if there is an existing or strong potential market. While they have a limited marketing appeal, their value, if properly constructed is to create functional proximities that will enable tenants and users to realize cost benefits and time savings. JFK has an ideal market for such a development provided it can be built and leased for rates that the industry will accept.

2.2.13 CENTRALIZED SCREENING FACILITIES

Because of the costs associated with screening belly cargo, independent contractors have begun developing certified screening facilities that are designed to service multiple small users including shippers, forwarders, and carriers. Using economies of scale, these facilities (best located on-airport) enable these users to reduce the cost of screening, or the issues associated with retrofitting their own facilities to accommodate the screening process.

2.2.14 GROWTH OF LOW COST CARRIERS

Low cost carrier JetBlue has developed a hub at JFK. Its narrow-body aircraft, high density seating, and domestic network limits its ability to carry air cargo. In 2010, it carried 24.9 percent of JFK's passengers but only 0.5 percent of its cargo.[1] JetBlue has alliances with American, South African, Aer Lingus, Virgin Atlantic, Jet Airways, El Al, and Lufthansa (which holds a 19 percent interest in JetBlue). By strengthening their passenger business, JetBlue indirectly helps them offer by-product space for cargo.

2.2.15 INDUSTRY ALLIANCES AND CONSOLIDATIONS

Airline alliances continued to evolve in 2000-2010. SkyTeam was established in 2000. Both the Star Alliance and OneWorld have continued to recruit new members. Several airlines have, in fact, left one alliance and joined another as strategies for growth create the potential for new partnerships. The alliances have particularly helped DTW, EWR, Minneapolis-St. Paul International Airport ("MSP"), Memphis International Airport ("MEM"), Washington Dulles International Airport ("IAD"), ATL and ORD obtain new international services. The alliances have contributed to the expansion of international flights at alternative airports reducing the need for many travelers to transit coastal gateways such as LAX or JFK.

Delta's strong position at JFK and its domestic feeder network strengthens other SkyTeam members at the Airport. Conversely, United provides strong traffic feed to the Star Alliance at EWR, but limited feed at JFK.

SkyTeam includes a cargo alliance among a subset of its members. This alliance has not had a significant impact on air cargo. The passenger airlines have largely ceded control of the market to integrators and forwarders. The forwarders' consolidation gateways and road feeder services provide them with traffic feed from points not served by their purchases of aircraft capacity. The gateways therefore serve as a substitute for airline alliances.

The 2000-2010 period, was characterized by mergers and consolidations. These included America West/US Airways (2005), Delta/Northwest (2008), United/Continental (2010), British Airways/Iberia (2010), Lufthansa/Austrian (2009), Lufthansa/Swiss (2007), Air France/KLM (2004), and others. The U.S. mergers have resulted in extensive corporate, operational and marketing integration. The European mergers created holding companies, with the original entities continuing as subsidiaries.

The decade also saw UPS acquire Menlo Worldwide Forwarding (and Emery), DHL absorb Airborne, and BAX Global be taken over by Shenkers –a major freight forwarder.

The United-Continental merger could lead to a network realignment. The reconfigured airline currently has hubs at both EWR and IAH. Their proximity could create redundancies. United has announced that it will shift summer-only Dublin/Manchester flights from EWR to IAH. The IAH-Buenos Aires flight will be transferred to EWR. Through acquisition of Continental's hub at EWR, United has obtained a very strong New York-centered network. The EWR hub could marginalize the Star Alliance services at JFK. The Northwest-Delta merger was a factor in the restoration of a nonstop JFK-Tokyo airports flight which Northwest had previously discontinued.

[1] Sources: United States Department of Transportation Reports 28DM and 28IM; Port Authority of New York and New Jersey.

The mergers have resulted in large losses of service at some secondary hubs such as Cincinnati/Northern Kentucky International Airport ("CVG"). At JFK, they prompted the consolidation of terminals, leases, gates, and counter space. They have not significantly affected total capacity or the availability of international services.

2.2.16 AIRPORT MARKETING

Since September 11, 2001 and the subsequent adverse impacts on airport and airline revenues, airports have increased their focus on cargo and cargo-related activities to augment cash flows. While most airports are not well-positioned to compete in the international market, the numbers alone create a competitive presence and a range of alternatives that did not exist prior to 2000. Through working directly with the airlines and government officials, a number of airports have been able to achieve increases in air services for both passenger and cargo.

2.2.17 EMISSIONS TRADING

The growing concerns about anthropogenic carbon dioxide and its impact on climate have prompted several governments to impose carbon taxes and emissions trading schemes. Although aviation is a relatively small source of greenhouse gases, it is growing rapidly. The European Union proposes to extend its ETS to aviation and include foreign carriers. The political and economic issues are very complicated. Each airline would be granted an initial quantity of carbon allowances, but must purchase the remainder. Most planners use a baseline of 30 Euros per tonne of carbon dioxide for each allowance. The cost of the allowance would raise the effective price of fuel by 12.56 percent if applied to the fuel prices during the week of November 7, 2011. Since an airline would be granted initial allowances and not all of a flight's path would necessarily be subject to ETS, the effective cost increase would be less than 12.56 percent.

The industry outside the European community has resisted this policy change. The added costs will lead to higher fares and air cargo charges which will reduce the growth of the industry. Changes will be particularly detrimental to the smallest commercial aircraft and short routes, where fuel consumption per unit of capacity is the highest. If implemented industry-wide consequences could affect JFK traffic, but would not directly impact the Airport. The European Union ("EU") recently issued a decision against exempting US and other non-EU carriers from the program.

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JFK AIR CARGO STUDY

NEW YORK CITY ECONOMIC DEVELOPMENT CORPORATION | THE PORT AUTHORITY NEW YORK & NEW JERSEY

Chapter 3 – Industry Due Diligence





Aviation Planning at the Leading Edge

CHAPTER 3
INDUSTRY DUE DILIGENCE

The Project Team conducted a survey and series of interviews with regional stakeholders supplemented by additional information from a parallel survey that was performed under the auspices of the New York City Economic Development Corporation ("NYCEDC"). The subjects covered included the following areas:

- Landside
- Airside
- Facilities
- Security
- Services
- Off-Airport Connectivity
- Regional Access
- Relationship to Newark & Stewart Airports
- Airport Costs and Regional Costs
- Ease of Doing Business
- Federal Regulatory Considerations
- Economic Development Considerations
- Critical Issues and Concerns

The objective of this element of work was to obtain informed opinions from key stakeholders in the New York Region regarding:

- The use and future operating requirements of the cargo operations at John F. Kennedy International Airport ("JFK" or "the Airport");
- How the Airport was and could be linked with the economic development goals of the City of New York ("NYC" or "the City");
- The regional industrial real estate context;
- Understanding other airports that either handle air cargo for the region or are considered competitors to JFK; and
- Existing and emerging issues regarding air cargo at JFK, along with potential solutions and priorities.

Survey Process and Findings

Because user input is a critical component in the design and development of air cargo facilities and working relationships, a set of questions was developed (see **Appendix B**) to identify operating requirements, necessary facility enhancements, areas of concern, and primary strengths of the Airport. Before the survey was initiated, presentations were made to the cargo community and the Team and/or The Port Authority of New York & New Jersey (the Port)/NYCEDC had the opportunity to discuss its relevance and explain its content to cargo personnel from most of the Airport's carrier population as well as a number of regional freight forwarders and customs brokers. The sessions were well attended and generated substantial dialogue and comment. In addition, the dialogues and comments

were discussed at the Airport's Air Cargo Committee meeting and participation was encouraged. A separate formal survey instrument was developed and reviewed for the NYCEDC which was mailed separately to the community at large. As the effort began, the Team was aware of the fact that peak shipping season would reduce participation in the outreach effort.

Phone listings for industry participants were obtained and in several cases corrected, and a series of one-on-one phone interviews was initiated with cargo station managers to develop the data that would provide critical feedback on operating and physical planning issues. With assurances of confidentiality, approximately 40 percent (21 of 50 targets) responded to the requests for interviews. In several instances respondents indicated that they had provided feedback to numerous other similar initiatives and had nothing more to add. Given the consistency of feedback, the overall responsiveness is acceptable and we believe reflective of the cargo community's perceptions. A narrative, rather than tabular, summation is particularly appropriate to avoid memorializing data analysis that will require additional scrutiny through the remainder of this study effort. The respondents include both on-airport carriers and off-airport allied service providers. Of the former, some operate freighters while others offer only belly capacity. Given these distinctions, some subject areas have overlapping interests while others must remain segregated. Given that this task is principally to inform the context for successive tasks, the narrative will largely adhere to recording the perceptions of operators willing to provide feedback but will intentionally limit analysis until justified. It should be noted however, that in some instances the Team has provided clarification of the feedback to: a) provide a better context for the reader, and b) address potential questions that the comment/feedback might raise. A broader context addressing those issues identified as critical will be provided later in this document.

3.1 LANDSIDE

Among on-airport tenants, a near-unanimous consensus suggested that JFK's cargo operations are more compromised by landside than airside challenges. While roadway access issues are historically problematic, truck queues on the airport were consistently cited when cargo operators identified the single biggest operational issue. Unfortunately, individual operators are incapable of mitigating the problem because the truck congestion is often derived from adjacent facilities, rather than their own. Tenants also report having to monitor trucks parking in their lots while waiting to serve other facilities until they can be accommodated, which is troublesome because the trucker being run off may also be their own recent customer.

Carriers were supportive of the Port Authority's plan to develop a multi-fuel service station and truck parking facility but frustrated by the lack of progress, given that the Port Authority authorized its construction in April 2010 and had presented the concept to enthusiastic responses in cargo facilities workshops in October 2010. There is universal concern about the lack of accommodations for truckers and belief that a modern "truck-stop" that provides food and washing facilities would dramatically enhance the quality of life of a critical element in the supply chain.

It is anticipated (but not demonstrated) that this will substantially mitigate the queuing issues which increase at peak shipping hours when trucks queue up for international cargo. However, notwithstanding that support for the fuel station, there is no consensus about the effect that improvement would have on roadway congestion. Tenants suggested that dedicated truck parking and marshaling yards must be developed but questioned how effective even that might be given the decentralized locations of cargo operations on and around JFK. Technology already common at major seaports may need to be deployed to provide effective communications between truckers and dispatchers at the terminals in

order to minimize localized roadway congestion in the parking lots of the warehouses. Nevertheless, truckers sometimes drive thousands of miles for a JFK pick-up or delivery and arrivals are frequently predicated upon variables beyond the drivers' control.

While declining air cargo volumes have reduced the strain on freighter ramp and warehouse space, no related easing of roadway congestion has been detected. In fact, some operators suggested that challenges may only be masked by reported tonnage decreases because the domestic segment of international shipments might previously have been handled entirely airside with transfers between domestic and international flights, but given security and other influences that have diverted cargo from domestic passenger flights to domestic trucking, air cargo volumes may have been lost even as demand for trucking at JFK proportionally grew.

There was considerable concern expressed about appropriately planned on-airport landside accommodations. Typical planning guidelines suggest that a depth of approximately 150 feet from the front of the cargo facility to the curb is needed to allow full-length tractor trailers to maneuver and dock without blocking the access roads or other docks. The issue of extensive truck queuing and delay on-airport was critical to many of the private sector organizations interviewed. One respondent noted, "We do a number of trips a day and can have substantial wait times." Queuing issues on-airport appears to stem from several sources, according to the interviews:

- Insufficient airline and handler staff at the on-airport warehouses can delay or lengthen the loading and off-loading times of trucks. As one interviewee commented, "Because of the economic slow-down, there is reduced labor at the facilities."
- Facility design does not provide sufficient capacity for accommodating truck queues. As a result trucks may back up on local access roads.

Off-airport in the cargo community, the conditions are considered far worse. Respondents indicated concerns regarding problematic accessing roadway geometry for large trucks, lack of truck bays, lack of employee parking, and operational issues when docked trucks physically block streets while loading. There is little that is seen possible as remedial action given the physical constraints that exist.

3.2 AIRSIDE

JFK has between 55 and 65 aircraft parking positions depending upon type of aircraft, at various leaseholds. A number of these are located at the facilities of carriers that no longer include freighter aircraft in their fleet mix. By comparison, based on reported airport statistics and Master Plans, Los Angeles International Airport ("LAX") has approximately 45 positions, Miami International Airport ("MIA") has 75 positions, Chicago O'Hare International Airport ("ORD") has 30 positions (to be increased to 47), and Hartsfield-Jackson Atlanta International Airport ("ATL") has 27 positions. In calendar year 2009, 85 percent of MIA's freight was transported on freighters, compared with only 54 percent at JFK which provides significant context to the disparity in needs for freighter ramp between the two international gateways. By comparison, about 58 percent of international cargo at ORD was transported on freighters – higher still but more comparable to JFK.

There were no concerns raised regarding airside capacity. This is considered to be due in large part to the reduced use of freighters at JFK. This is in part a result of less overall cargo, more trucked cargo, but in large part to the greater reliance on belly capacity in wide-body aircraft. Given the lack of ramp congestion, there was little comment on the

condition of the aprons or their general accessibility from the airside. Historically, a percentage of the available ramp capacity was absorbed by equipment storage but even in peak demand years, apron availability was not an issue. One concern, however, that was raised was whether ramp is optimally located. A broader question surfaced about whether the Port Authority would be positioned to keep pace with demands of next-generation freighters.

3.3 FACILITIES

Carriers were asked to estimate anticipated growth for 2012. Respondents indicated that any growth would follow generally forecast totals, and that nothing unusual, barring some anomalous activity, was anticipated. Carriers indicated very little demand for additional on-airport capacity. This was anticipated given the industry-wide slow down, and the reduced tonnage volumes at JFK.

Analogous to JFK's ramp, demand for JFK's facilities capacity – at least on paper – has been affected by annual cargo tonnage having fallen about 26 percent between calendar 2000 and 2010 (inclusive). By a considerable margin, this decrease was more severe than for the other three largest U.S. international gateways: LAX (-14.3 percent), ORD (-6.3 percent) and MIA (+11.8 percent), while (in square footage reported in Air Cargo World's annual Airports Directory), JFK's total cargo warehouse inventory exceeds by at least one million square feet that of any of the other three gateways. Not only has warehouse demand been affected by reduced volumes but also by the predominance of third-party handling that scarcely existed when many facilities were designed. These handlers get greater utilization from facilities and equipment by handling multiple customers and daily flights, in space that may have previously been inefficiently occupied by individual carriers with considerable down time.

It was noted that many of the existing facilities are dated and in many instances inefficient because of height, column spacing, and/or configuration. Nevertheless, despite the dissatisfaction with the older facilities, the community recognizes that as fully amortized buildings, the rents are lower than in new facilities. As a result, carriers and handling companies will accept operational inefficiencies as a trade-off for lower rents. Asked whether their current capacity at JFK is adequate for current and near-term needs, on-airport tenants answered affirmatively or even suggested a surplus. Nonetheless, most were unsatisfied with their current facilities. While labeling JFK's cargo facilities as an "embarrassment" for a landmark gateway, the grievances were much more operational than aesthetic. Concerns were not limited to the quality of individual facilities but also (as noted in the *airside* section) that synergies of being in a gateway are all but lost by the fact that facilities are spread rather than being in a cargo village – a concept of which they are supportive. It must be noted that the comparison here was being made to Frankfurt and to Asian gateways rather than U.S. gateways because the same deficiency could as easily be applied to MIA and LAX.

The Team noted that many of the facilities and their grounds are not well maintained. Discussions indicate that this is due in part to high vacancy rates, lack of tenant staff capacity to handle the required maintenance, or a belief that the Port Authority should be responsible. The overall result is an unattractive environment in the cargo community.

Off-airport facilities typically house the supporting business infrastructure for cargo rather than the carriers. Remote locations are utilized for the most part because of the lower property rents. However, operating costs are higher because most of the warehouses cannot accept larger vehicles and have limited docking capacity. In many instances facility heights limit stacking and constrain operations. Several respondents indicated that an

on-airport location with greater capacity would enable them to expand their business and increase volume. While the potential to increase volumes is unsubstantiated, there are clearly operating advantages to being in a modern, on-airport facility. These would include internal building operations with the ability to introduce material handling systems, stack and sort freight more efficiently, and connect to the carrier facilities more efficiently.

The continued existence of possibly unusable building capacity is perceived as unattractive and detrimental by cargo operators, as well as by prospective commercial real estate developers. Even more detrimental, prospective developers perceive the requirement to capitalize not only new construction but also demolition of existing facilities, which is challenging, especially in an industry with a decade's decline having already discouraged financing. Developers of on-airport facilities also perceive the Port Authority's unused capacity as potential competition that could jeopardize their ability to sustain new investment.

3.4 SERVICES

In terms of network connectivity, such as the direct destinations, and frequencies and mix of belly and freighter capacity, JFK remains preeminent and this backbone of air service sustains allied services that would be the envy of would-be alternative gateways. Because of its importance in the air cargo industry, major forwarders must have a presence in the New York market, while trucking and ground handling companies that support the air cargo industry are compelled as a matter of derived demand.

With regard to services, several issues are considered important by the community. The first is the provision of a centralized cargo screening facility that could support the off-airport forwarder community. A screening operation for a standard tractor-trailer would require about 5,000 square feet. This allows for the cargo to be off-loaded from the truck, broken down for screening, run through the screening operation and built up for delivery to the airside. For smaller carrier operations and most forwarders with their own facilities, in addition to the cost of the equipment, the 5,000 square feet would represent a large piece of their warehouse capacity, and introducing this function can create operating constraints. A Certified Central Screening Facility can provide smaller users with a lower cost option to ship through JFK. Private operators believe that such a function can be monetized profitably and introduced into the JFK operation.

A second major area of concern for on-airport tenants was responsiveness from the Port Authority. The process of gaining approval for leasehold improvements was generally criticized, although not without at least one "silver-lining." One carrier observed that approval from the Port Authority had been so long in coming that the industry had lapsed well into the ongoing recession and the planned expansion was no longer necessary. Delays were more symptomatic than actually being the issue, as tenants suggested that the chain of approvals from the Port Authority seemed to be extremely difficult to negotiate. The word "one stop shop" for permitting was cited repeatedly in tenants' "wish lists."

The competitiveness of ground handling at JFK was raised as a problem in that tenants questioned whether the amount of competition has engendered an environment in which handlers have been required to perform more services for lower rates. For both the Port Authority and other regulators, managing that competition should be limited to ensuring that operators meet safety and security standards, but service quality and rates should be left to handlers and their customers to address through their own service level agreements.

The most commonly requested service improvements were those (already documented) relating to accommodations for trucks and their operators. Less frequent requests were made for possible temperature-controlled services/facilities but these are typically privately operated. Apart from making space available for development, the Port Authority would probably still be well advised to consider the willingness of a private developer or operator to provide such resources as a referendum on their viability. It should be noted that in the early 1990's, the Port Authority developed the largest on-airport climate controlled facility in North America that was a failure because individual carriers maintained their own cooler capacity.

3.5 SECURITY

Rather than the congestion feared when 100 percent screening of enplaned international belly cargo was initially announced, the requirement has (at least to date) served to further reinforce the advantages of traditional gateways because cargo operators sought to capitalize their investments in technology and training by pushing as much volume as possible through fewer portals. Mentioned by both forwarders and carriers in the interviews, the ability to perform screening at certified cargo screening facilities (CCSF's) was critical to minimizing the impact at JFK and other major gateways where transcontinental belly capacity is essential. Admittedly, the stress of the heightened requirements was also reduced by the volume reductions resulting from recessionary pressures.

Notwithstanding the relative nonevent that accompanied belly cargo screening, few in the industry believe that an eventual requirement to screen all cargo (including that carried on freighters) is anything but inevitable. Given concerns about chain of custody, some also believe that with the right technology, the screening of all air cargo at the point of departure (rather than off airport) may become compulsory.

Consequently, it was not surprising that operators raised the possibility that a more long-term vision of cargo screening may be required than what has been required to date. Discussion turned to past proposals for a "car wash" screening operation that, by some accounts, had enjoyed enthusiasm but not support from the Port Authority. Oddly "car-wash" is the term of art that has caught on for a centralized, common screening facility. Basically a truck will drive up, unload its cargo for screening, and pick it up at the opposite end – screened and ready to go. (See additional discussion under Services above.)

3.6 OFF-AIRPORT CONNECTIVITY

As the most mature of the international gateways, JFK has seen substantial development all around its perimeter. The build-up of cargo support facilities in Springfield Gardens and immediately east of the Airport in Nassau County creates a concentration of truck traffic that makes connection to the on-airport facilities difficult from a pure physical perspective. Trucking activities vary substantially, but largely fall into five categories.

- Deliveries between airports (JFK, Newark Liberty International Airport ("EWR"), Philadelphia International Airport ("PHL"), and others)
- Deliveries between CFSs
- "Hot shots" for time-sensitive priority movements
- Alternative ground-based transportation for air cargo carriers
- Deliveries between customers, carriers, and CFSs

In addition, third party logistics providers ("3PLs") and trucking operations may pick up or drop off at CFSs or airline facilities on behalf of their regular customers. Indicated operating concerns include:

- Delays are encountered at the CFSs because the facility has not yet broken down loads from a container even though the Automated Manifest System indicates that the shipment is ready for pick up.
- The older buildings outside the airport (and several of the on-airport facilities) were not designed to accommodate industry standard 53-foot trailers. As a result, trailers may block sidewalks and jut into City or airport streets. Security and theft concerns continue for the area surrounding the airport.
- While newer buildings exist, the lease rates are too high to compete with operations in the older buildings.
- Drivers generally must have transportation worker identification ("TWIC") cards, which can be more expensive.

3.7 REGIONAL ACCESS

Context

JFK has been a key air cargo hub for decades, having served as a major international gateway for air freight moving between Europe and North America since the airport opened in the 1940s. The air cargo industry has undergone a transformation in recent decades and JFK's role in the global supply chain has changed for a number of reasons. At the same time, the roadway network in the immediate vicinity of the Airport, as well as through the greater New York City metropolitan area, has become increasingly constrained. Population growth, suburban development, and the aging of the region's highway infrastructure have all played important roles in these changes, and have had adverse impacts on regional highway access to and from JFK.

In response to these changes and the threats they present to the viability of JFK as an air cargo hub, various public agencies have undertaken efforts in recent years to document the challenges faced by the Airport itself and other industries that rely on it for air cargo transportation needs. In addition, the air cargo industry in the region has received heightened attention because of the growing importance of freight transportation in general transportation planning efforts. Key drivers of these planning efforts and the related have included the Port Authority, the New York Metropolitan Transportation Council ("NYMTC"), New York State Department of Transportation ("NYSDOT"), New York City Department of Transportation ("NYCDOT"), NYCEDC, and various stakeholder groups.

A comprehensive review of existing documentation related to air cargo issues in the Region was conducted for this study. These documents contain a wealth of information about stakeholder concerns, and a number of common themes have been identified. The primary resources used for this effort include the following:

- JFK Air Cargo Alternatives Inventory & Assessment (Port Authority of NY & NJ, 2005)
- NYMTC Regional Freight Plan: Task 8 (NYMTC, 2003)
- Regional Qualitative Freight Research (Port Authority of NY & NJ, 2010)
- Freight Facilities and System Inventory (NYMTC, 2000)
- JFK Air Cargo Truck Movement Study (URS Corporation, 2002)
- Southern Brooklyn Transportation Investment Study (NYMTC, 2003)

A number of key themes were identified in these studies related to regional access to and from JFK from an air cargo industry perspective. These have been organized into the following categories: (1) infrastructure, (2) operations, and (3) policy/institutional.

3.7.1 INFRASTRUCTURE

One of the defining characteristics of JFK is its location in the New York City metropolitan area. Situated in southeastern Queens near the Nassau County line, JFK was constructed in an area that had been an attractive location for an airport due to the low intensity of development in the surrounding area and its distance from the commercial hub of New York City in Manhattan. Over time, this "advantage of place" has diminished as the areas surrounding the airport have been developed, as population and employment on Long Island have grown considerably over the years, and as much of the warehouse development in the New York City region has occurred in areas not readily accessible to the Airport (e.g., northern New Jersey, Rockland and Orange Counties, Connecticut).

From an air cargo industry perspective, one of the primary constraints in today's environment is the lack of access routes that are suitable for large trucks. Locally, the only limited-access highway route to JFK is the Van Wyck Expressway (I-678), with secondary "through" truck routes that include Atlantic Avenue, North and South Conduit Avenue, Springfield Boulevard, and Francis Lewis Boulevard. Regionally, the key limited-access freight corridors include the Long Island Expressway (I-495), the various segments of I-95 (Cross Bronx Expressway, George Washington Bridge, and the New Jersey Turnpike) and the Gowanus Expressway / Brooklyn-Queens Expressway combination (I-278). For large trucks entering the JFK area from west of the Hudson River, the most commonly used route is I-95 over the George Washington Bridge, to the Cross Bronx Expressway, then over the Bronx-Whitestone Bridge to the north end of the Van Wyck Expressway. The lack of alternative limited-access routes for trucks involved in freight movement for air cargo at JFK effectively limits the use (for these trucks) of many technology-based improvements that have been implemented in the region over the years, including NYSDOT's extensive Internal Tolling System ("ITS") infrastructure in the region.

The I-278 corridor is particularly challenging for JFK truck access due to its deteriorating infrastructure (particularly the *elevated* section of the Gowanus Expressway through Brooklyn) and the non-standard geometric features on the segment through downtown Brooklyn. These existing design constraints include *narrow lane widths, short merging* and *weaving* sections, limited sight distances, and the low vertical clearance (12'-0") along the *triple cantilever* section under the Brooklyn Bridge that requires trucks to exit to local streets. The I-278 corridor also has one of the inherent characteristics of many regional highways in New York City – elevated and depressed roadway segments – that make upgrades and rehabilitation projects so difficult and costly.

The location of JFK in southeastern Queens, coupled with the physical limitations of the I-278 corridor through Brooklyn and Queens, point to an ongoing need for a limited-access highway connection between the Verrazano Narrows Bridge and the JFK area. Trucks are not permitted along the Belt Parkway, but this roadway serves as a key link for motorists traveling to JFK from points west of the Hudson River. Trucking industry representatives have identified this as one of the major needs for the Region.[1] This, coupled with a second east-west interstate highway across Long Island that has been highlighted as a regional need by the trucking industry, would help improve mobility through the entire region for trucks.

[1] PANYNJ Qualitative Freight Research, Industry Summaries

In addition to the east-west connection through South Brooklyn and Queens, another major roadway infrastructure "gap" identified by many stakeholders was the extension of the Clearview Expressway (I-295), south from its current terminus at Hillside Avenue in Queens Village. This would provide a connection through the Springfield Gardens area to JFK, and would serve as a second limited-access route to the airport from the north. The extension of the Clearview Expressway to JFK and the development of a major east-west truck corridor along Route NY-27 through Brooklyn and Queens were two key infrastructure improvements identified in the NYMTC Regional Freight Plan (2003).

Another important limitation of the regional highway network is that JFK is not directly accessible via limited-access routes where 53-foot trailers, which have become increasingly common in the nation's truck fleet, are permitted. This is a historical legacy of the region dating back to 1982, when 53-foot trailers were permitted under the Federal Surface Transportation Assistance Act ("STAA") of 1982. Because the City never adopted the STAA-designated truck network, 53-foot trailers are only permitted on limited segments of the regional highway system to accommodate movements through the City. These roadway segments include I-95, the segment of I-295 (over the Throgs Neck Bridge) between I-95 and the Long Island Expressway (I-495), and the Long Island Expressway from I-295 to the Nassau County Line.[2] The Van Wyck Expressway (I-678) is not included with these segments. The lack of redundancy in this system has also been identified as a point of concern, since the Van Wyck is the only limited-access route for trucks to/from JFK and it has its own operational constraints. But beyond the immediate vicinity of the Airport, some air cargo industry representatives acknowledge that the highway network is extensive and allows for reasonably efficient travel during off-peak periods when congestion is not a problem.

Based on observations and anecdotal information from various industry representatives, the accessibility of 53-foot trailers into the JFK area is a critical issue that is frequently ignored even though these trucks are subject to citation and the increased costs associated with this risk. Access for 53-foot trailers is critical for the air cargo industry because it allows the industry to get pricing from truck carriers based on larger economies of scale. A 53-foot trailer, for example, can accommodate up to ten LD3 air cargo containers as opposed to the maximum load of eight in a 48-foot trailer. This represents a 25 percent increase in capacity for the truck movement, and helps minimize trucking costs for air cargo shippers while also potentially reducing individual truck movements through the City. Some local trucking firms that make frequent trips to JFK have dedicated truck fleets that meet these size restrictions

While there is little, if any, interface between air cargo carriers and railroads for freight transportation due to the markedly different logistics needs of the customers these industry subsectors typically serve, there is a specific area in the industry where freight rail access into the JFK area has been identified as a potential asset. This involves the repositioning of empty air cargo containers from other air cargo hubs in North America (e.g., Dallas or Chicago), where inbound cargo has been moved from Asia to JFK for outbound moves to Europe. These empty air containers are sometimes moved elsewhere in North America by rail in domestic 53-foot intermodal containers. The movement of empty containers in the Chicago-to-NYC market began to attract attention in the industry when Asian carriers began diverting cargo from New York as a cost-saving measure in recent years.

[2] NY Vehicle and *Traffic Law* Section 385(3)(b)

Legally permitting 53' trailers on the Van Wyck is only one among several significant JFK access issues that have been extensively studied by City and State agencies which this new report should acknowledge. These include strategies to counter worsening congestion on the Van Wyck Expressway, the lack of a direct through-truck route across South Brooklyn, and congested and inadequate east-west roadways comprising the Rockaway Boulevard/Nassau Expressway Corridor. EDC led an interagency working group that examined each of these issues and possible remedies in concert with a JFK Access Task Force convened by Deputy Mayor Dan Doctoroff circa 2006, as highlighted below.

- **VWE Congestion:** Several strategies have been studied since at least the 80's. The interagency team developed plans for a pilot project to close up to four on or off ramps on the southern portion of the highway, to reduce congestion caused by weaving and accidents. Anticipated community concerns led to whittling down the candidates to one and then none, despite support of transportation agencies and NYPD. The Doctoroff task force also endorsed fully funding NYSDOT's Kew Gardens Interchange improvement project and other potential improvements to the existing highway. One proposal broached but set aside called for a NYSDOT-led corridor study to evaluate potential as a long-term goal of VWE capacity expansion and possibly a tunnel extension of the Clearview Expressway (encouraged by RPA). While these are costly and complex options, they recognize that the existing highway network lacks the capacity to support efficient mobility for the airport and other transportation needs in SE Queens and nearby communities dependent on the VWE corridor.
- **Southern Brooklyn Through-Truck Access:** A major obstacle for efficient cargo access to JFK and other trucking activity is the lack of a direct route for through-truck movement across Brooklyn between the Verrazano-Narrows Bridge/BQE and JFK. This has been highlighted in a series of planning studies by NYSDOT, NYMTC, and NYCDOT since the 80's, without progress. Lack of a more direct legitimate truck route forces circuitous trips to travel to and from JFK and other points along the southern portion of geographic Long Island. Several specific corridors have been considered without resolving to implement any significant improvement. In conjunction with the Task Force effort, EDC led development of a well-scoped pilot project to allow small trucks on the Belt Parkway. NYCDOT ultimately opposed the pilot project, citing traffic safety concerns that it maintained could not be addressed without substantial capital investment. Allowing small trucks on the Belt would be a significant improvement for JFK cargo access, as survey data show a significant percentage of JFK-cargo trips are made with commercial vans or small trucks.
- **Rockaway Blvd/Nassau Expressway Corridor:** The roadway network along the northern border of JFK is heavily used for local circulation in SE Queens and travel to and from nearby Nassau County towns. Users include air cargo and airport-related businesses. Congestion is worsening on Rockaway Boulevard. The corridor includes fragmented portions of a planned Nassau Expressway project that would have provided a continuous highway route through the area. Previous work by NYC City Planning and others points to advantages for airport access and local mobility in implementing one or more additional expressway segments, short of a full-length highway. NYSDOT is completing a SE Queens Corridor study that emphasizes affordable traffic operations improvements, setting aside prospects for significant capital improvements. Project plans along the corridor spur piecemeal deliberations among EDC, PANYNJ, NYSDOT and NYCDOT in an effort to implement site-specific fixes to accommodate new projects while minimizing added congestion. The NYSDOT assessment offers a timely opportunity to convene a State-City-PANYNJ working group to consider a coordinated and phased approach to improving traffic flow and preparing a realistic but meaningful agenda for capital improvements.

3.7.2 OPERATIONS

One of the important trends in freight transportation in recent decades in the Region has been the development of major warehousing and distribution centers in points west of the Hudson River. Older industrial sites include the Meadowlands and Raritan Center in New Jersey, and they have been supplemented more recently by industrial development in Orange County (NY), the Cranbury area at Interchange 8A on the New Jersey Turnpike, and eastern Pennsylvania. This has been driven primarily by lower land costs in these areas and availability of larger land parcels needed for large industrial buildings. The regional implication for the air cargo industry is that much of the air cargo moving through JFK is being shipped to regional distribution centers located far from the Airport itself, and accessible from JFK via an increasingly congested highway network.

In general, there is a perception that this is an old, congested region where land uses and transportation infrastructure are not suited to accommodate freight transportation demands as well as they did in the past. Roadway congestion is a recurring problem in this region, and it has serious implications for air cargo in terms of increased cost and reduced reliability. Most of the truck routes used for travel to and from the JFK area are congested for large portions of a typical day, and as the region has grown over the years this congestion has become commonplace even in outlying regions. Interstate 95 is identified as the most congested corridor in the nation in recent national reports on congested roadways, and other truck corridors in the City experience frequent recurring congestion throughout long periods of a typical day.[3] Frequent congestion is also a problem on local truck routes in the vicinity of JFK, including Rockaway Boulevard, Hillside Avenue, and Woodhaven Boulevard. Curb parking along some of these local routes has been identified as a constraint for truck movements.

The Kew Gardens Interchange, where the Van Wyck Expressway intersects the Grand Central and the Jackie Robinson parkways, has been identified in a number of sources as a key bottleneck along the I-678 corridor. North-south truck traffic is impeded by the roadway configuration in this area. The Van Wyck Expressway has three lanes per direction north and south of the interchange, but only carries two lanes through the interchange itself.[4]

JFK air cargo operations have indirectly benefitted from an important transportation project that was built to accommodate passengers, not freight. The construction of the JFK AirTrain along the Van Wyck Expressway corridor, which was completed in 2002-2003, has provided an important transit alternative for airline passengers and JFK employees who might otherwise drive to the airport along this congested roadway. In addition, the project included a number of improvements along the Van Wyck Corridor, including bridge rehabilitation work and changes in *merge* sections and ramp taper lengths, that helped improve traffic flow at choke points along the route.

For truck operators who are not familiar with New York City, it has been noted that way-finding signs to the Airport and its surrounding environs from key entry points into the City such as the George Washington Bridge and Verrazano Narrows Bridge are seriously lacking. Insufficient signage for height restrictions and other truck size limitations were also

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[3] **INRX National Traffic Scorecard**, *2010 Annual Report: 100 Most Congested Corridors*, http://www.inrix.com/scorecard/Top100Corridors.asp

[4] Some of the constraints at the Kew Gardens Interchange will be addressed through the ongoing interchange improvement project that was started in late 2010 and is expected to be done in a series of phases through 2015.

identified as a problem along some of the secondary truck routes. This has been identified as an operational constraint for trucks in a number of studies conducted in recent years in the Region.

From an air cargo industry perspective, one fairly unique element of the Region is that the origin/destination pairs for trucks moving air cargo to and from JFK tend to be so common (e.g., New York to Philadelphia, New York to Chicago, etc.) that air cargo carriers and third-party logistics firms contract with motor truck carriers for these hauls under a flat rate system. This helps streamline the contracting process for trucking services in this region.

3.7.3 POLICY / INSTITUTIONAL

A number of studies in recent years have addressed the possibility of improving mobility access for trucks across southern Brooklyn and Queens. The Linden Boulevard truck route and a potential east-west roadway were discussed previously in the *Infrastructure* section, but another partial solution to this impediment would be allowing smaller commercial vehicles to use the Belt Parkway. NYCDOT has already implemented this type of arrangement for three-axle trucks less than 12'-6" in height on the short segment of the Grand Central Parkway between the Brooklyn-Queens Expressway and the RFK Bridge. While a similar restriction on the Belt Parkway would have limited direct value for large trucks hauling freight to and from JFK, this alternative route for smaller trucks traveling to and from the west would likely free up some capacity on other congested routes that they currently use. The use of High-Occupancy Vehicle ("HOV") lanes by trucks during overnight hours, and by small trucks during peak hours, has also been explored in a number of studies.

Problems associated with recurring congestion along routes used by trucks traveling to and from the area around JFK have been discussed previously in this document. For local streets, this is an area where the competing needs of through traffic and local access is magnified by the size of the vehicles using the routes to move freight. Many of these local routes have peak-period parking restrictions aimed at improving traffic flow on these corridors; serious enforcement is necessary to fully realize the benefit of these restrictions as they relate to improving peak capacity.

Coordinated toll pricing management was identified as a policy issue in the NYMTC Regional Freight Plan (2003) to help improve truck mobility and alleviate congestion. This does not apply exclusively to air cargo, but it does have some implications for trucks moving freight east of the Hudson River. High tolls and the use of single-directional tolling in the Region result in less-than-ideal operating characteristics for both auto and truck traffic; this is exacerbated by the substantially higher tolls paid by truck operators at many bridge and tunnel crossings in New York City. These tolls provide a financial incentive for motorists and trucks (where feasible) to use non-tolled bridge crossings, and the one-directional tolling systems on the Port Authority bridge/tunnel crossings (NYC-bound direction) and the Metropolitan Transportation Authority ("MTA's") Verrazano Narrows bridge (westbound direction) encourage a "circular" movement of vehicular traffic between some origin-destination points.

JFK trucking service and issues must be considered both within the broader NYC context and then within the airport-specific framework. In recent years, the City has become known as a "specialty" market for truck pick-ups and deliveries. This designation, according to the discussions, is a result of the congestion, tolls, and regulations that have increased the time and cost involved in freight movement within the five boroughs. Congestion results in unpredictable travel times and reduces the number of revenue trips that a truck can make within the federally-regulated hours of service. Further, the City is often considered a

one-way revenue trip; it can be difficult to obtain revenue loads inbound and outbound. Because of the real and perceived difficulties in serving the City, many drivers are reluctant to make the trip. As a result, a smaller number of trucking firms serve the City and can charge higher rates for the service. This has placed the regional air cargo industry at a disadvantage as compared to an airport like O'Hare International Airport ("ORD") which has the lowest trucking rates in the industry. Because of the time delays and additional costs associated with serving JFK, many trucking firms charge a "JFK access fee."

However, JFK also offers a unique opportunity for truckers serving the City – cargo at the airport is a revenue outbound movement: this means that trucks can be filled in both directions, which is rare. Accordingly, some companies will arrange to drop off cargo elsewhere in the City before going to the airport to pick up return loads.

3.8 RELATIONSHIP TO NEWARK AND STEWART AIRPORTS

Several carriers referenced Newark Liberty International Airport ("EWR") but with limited interest. A decade's decline in tonnage has alleviated some of the pressure for carriers to consider moving operations from JFK where – in spite of its challenges and costs – the air cargo industry will still find all-important airside connectivity unmatched in the region. Justification for an all-cargo (or cargo-intensive) alternative such as Stewart International Airport ("SWF") is further mitigated by the relatively light interest in EWR as a superior alternative to JFK. Carriers recognize that EWR offers some operating advantages compared with JFK (chief among those are the absence of a Hudson River Crossing and virtually immediate access to the National Highway system). However, carriers suggest it is basically the region's integrator airport where FedEx can sustain itself due to its internally generated volumes and resources but is an inferior option for carriers and forwarders that have any interest in operating synergies with other operators. Essentially the ability to connect with a diverse range of other carriers is more limited at EWR.

Beyond FedEx, EWR's cargo operations are driven by large niche demands such as New Jersey's pharmaceuticals industry, as well as by belly capacity from carriers such as TAP Portugal that do not serve JFK. Notably, some major forwarders that once operated twin facilities at both EWR and JFK have relegated the former to offices while concentrating their regional warehouse operations in proximity to JFK.

SWF has always been problematic for cargo because the regional market it serves cannot generate volume on a sustained basis sufficient to achieve desirable pricing economies. The use of SWF is also complicated by the absence of forwarders, the distance from the City, and the inability to interline cargo with other carriers.

Operators suggested future decisions are less likely to be between JFK and another New York-area alternative and more likely to be between the City and another regional gateway, such as Philadelphia. Multiple operators reported having diverted cargo (but not specific flight operations) from JFK to PHL for shippers that fall geographically into New York's airport system market. Carriers and forwarders agreed that unique demand drivers such as Wall Street and its requirements for time-sensitive business documents would likely always require a presence in the market (even if only for belly-rich passenger carriers) but that international freighter operators no longer consider New York an inherent first option – they cite AirBridge Cargo's recently initiated U.S. service at Chicago and other carriers previously abandoning New York for alternate established gateways and other smaller airports such as PHL, Washington Dulles International Airport ("IAD"), and Toronto Pearson International Airport ("YYZ").

3.9 AIRPORT COSTS AND REGIONAL COSTS

Carriers identified JFK as the most expensive airport in their U.S. systems. While conceding that many costs of doing business in the market are beyond the influence of the Port Authority, carriers noted that costs have ballooned so that interest in cost-control seems to have been wholly lost. Carriers acknowledged that market benefits of serving New York still compel their presence but that cost-benefit margin has been closing since at least the 1990's.

Some costs – such as the requirement that developers absorb demolition costs before beginning new development or that the tenants forward 10 percent of their revenues for any subtenant leases – are covered in other elements of this narrative. While understanding the Port Authority's need to generate revenues, cargo operators perceived that some charges seem excessive and undercut the Port's own long-term financial well-being by increasing the cost burden on tenants already struggling. Tenants also noted that the layering of fees charged by the Port Authority imposes a disincentive to being on-airport versus locating near but off-airport.

In the face of this, there is a strong desire among forwarders and customs brokers to locate on-airport provided the rental structure is not prohibitive. The cost per square foot to lease property on JFK is the highest in the country. As a result, third-party builders must impose high rents to cover their costs, making vertical rents in many cases prohibitive. This, in combination with the short lease terms, makes it extremely difficult for third party development.

Cargo operators noted that background checks and badging of employees impose costs of business that seem superfluous. While not contesting the safety and security objectives that make background checks and badges necessary, operators suggest that the latter provides a perfect example of how inefficient processes impose costs. Tenants not only absorb the cost of the actual badging but routinely must pay employees for three to four hours of labor while waiting at the badging stations. The ability to book appointments for badging would accomplish the same function without costing employers hours of labor each time an employee requires a new badge.

3.10 EASE OF DOING BUSINESS

There is a general perception in the regional industry that the Port Authority is non-responsive to cargo issues. Respondents indicated a lack of new facility development, decaying older facilities, and overall appearance and aesthetics. In a number of instances, this outreach effort was cited as an example of "what is wrong" – lots of surveys and nothing produced as a result. "Lip service" was a frequently used phrase. Several respondents indicated that the City had no understanding of air cargo and the benefits it brings to a regional economy. The new impound lot on Rockaway Boulevard was cited as a clear example of the City's lack of appreciation for air cargo and as a clearly lost opportunity to integrate on- and off-airport cargo activity, or bring in functions that could grow the market through new products or enhanced amenities such as a truck service center.

Respondents also indicated that administrative delays for all functions can be severe. Several developers indicated substantial losses because of canceled development solicitation processes, and excessive delays in negotiating leases and amendments. Indications are that this is due in some measure to the split in responsibilities for contracts and leases

among financial, legal, and properties staff. While confidentiality precludes investigation of the statements, historical perspective supports the fact that the lease negotiations and the documents themselves can be cumbersome.

3.11 STATE, CITY, AND FEDERAL CONSIDERATIONS

The Port Authority was created in 1921 under a Federal Charter to function as a bi-state agency charged with responsibility for major regional transportation operations that typically transcended or connected the borders of New York and New Jersey. To manage the agency, governors from both states appoint six commissioners to overlapping terms. The intent was to eliminate the possibility of a single state bias affecting the evolution of regional long-term transportation strategy and development. Over its existence, the Port Authority has become one of the few public agencies and airport authorities with the legislated authority to cross subsidize transportation projects and in essence remove aviation revenues from the airports. This entitlement enabled the Port Authority to use revenues from its other facilities to subsidize infrastructure and facility development at the airports. Subsequently some aviation revenues were diverted back to cover investment in less than profitable transportation facilities. This ability to shift revenues to serve the public good had several major results:

1. It masked the profitability (or lack thereof) of transportation operations and created for the public the impression of a "richer" Port Authority.
2. It covered a number of the financial challenges faced by the aviation department and JFK in particular when the economy weakened.
3. It also minimized the involvement of New York State in financial participation and support for commercial aviation projects.

In 2004, as the current Transportation plan was beginning to take place, the New York State Transportation Federation was created to address the State's long-term transportation needs. The Port Authority, despite its range of responsibilities, was not included. This lack of focus on commercial aviation is reflected in the New York State Transportation Plan which has approximately as much language dedicated to bicycle paths as it does to Port Authority facilities. The only defined initiative that impacts JFK was to work with New York City on addressing the issue of enabling 53-foot tractor trailers to operate. The failure to advance this issue was the only critique from stakeholders that reflects on the State, which from an air cargo operator's perspective is essentially uninvolved.

New York City holds the Master Lease for JFK, and surrounds the Airport geographically. The area around JFK accommodates substantial properties dedicated to air cargo and related logistics operations. Nevertheless, the City has no governance responsibilities because of the Port Authority's status as a bi-state agency. (The City does work closely with the Port Authority, on fire, police, and public safety issues, but these are in a much broader context and not a part of this analysis). As a result, municipal transportation planning has virtually no discussion of airport-related initiatives. The only focused initiative is to address the same issue as the NYS DOT – the use of 53-foot tractor trailers. Stakeholders again refer to the 53-foot issue as an issue generated by the City, but they also indicate a feeling that there is tension between the City and the Port Authority, which limits their willingness to cooperate. There is also a perception that the City has very limited understanding of aviation and airport issues and looks at JFK solely as a revenue source.

It is interesting to note that in the transportation plans for both the City and the State, there is one common initiative – addressing access issues for 53-foot tractor trailers – and as reflected by the outreach responses – there has been no progress.

The primary contact with the air cargo community is at the federal level. U.S. Customs and Border Protection ("CBP") have two primary roles in the movement of air cargo – facilitation and interdiction. There were no indications of issues with the operation at JFK. From their perspective, CBP indicated that there are currently no major operating problems at JFK. Under the new federal structure, the clearing agencies including Department of Agriculture have been incorporated under CBP. This has given CBP greater flexibility with staffing through cross-training and eased coverage concerns that existed throughout the late 1990's. Despite the decreased cargo activity at JFK, staffing has remained relatively stable.

Belly cargo (about 50 percent of JFK's total volumes) is typically screened at the cargo warehouse. The CBP office is staffed eighteen hours per day seven days a week, with additional on-call capacity during the off hours between midnight and 6:00 a.m. for clearance. Interdiction is full-time – all the time. This arrangement appears to be working well with no problems indicated with clearance processes by any carrier. CBP appears both knowledgeable on, and responsive to cargo related issues, and indicated strong interest in participating in future planning efforts to ensure their ability to plan appropriate staff usage to meet the Airport's needs.

CBP raised several points as information and for future planning consideration.

- Consolidating as much of the international carrier activity in a single area would reduce their on-airport travel time and expedite inspection and clearance.
- Providing an Examination Area in the cargo facilities with an adjacent staging area could substantially reduce delays and operating challenges. The area would be approximately 500 to 1,000 square feet with a small office and a protected (from weather exposure) area for goods examination. Most facilities do not have a formal designated area for CBP inspection.
- JFK is one of the most advanced airports in North America for automated Customs clearance and virtually all industry partners participate. Nevertheless, there is some concern that because of turnover there is a loss of expertise among ground handlers and carriers. CBP is working with Kennedy Airport Airlines Management Council ("KAAMCO") and the Brokers Association to introduce training to address this.
- One of the emerging issues is the introduction of radiation screening portals for inbound cargo. Concentration of international carriers in a single location would facilitate the location of these portals and potentially reduce the total number required (and the associated costs). CBP is coordinating with Port Authority Police on this but the locations of the portals should be considered in future layout plans.
- Lastly, there are issues with Customs' current facility which was built in 1992. Based on federal guidelines it is non-compliant with security requirements (promulgated post September 11, 2001) for what the General Services Administration ("GSA") categorizes as a Level 4 building. In the event the facility cannot be satisfactorily retrofitted, it may be necessary to develop a new building for the CBP operation. Customs would prefer that this facility be co-located with the majority of their customers.

The Transportation Security Administration ("TSA") is considered a matter of concern by the shipping community. Difficulties in communication, delays in processing and short staffing, were all raised as issues. These, however, are not unique to JFK. The 100 percent screening of belly cargo has progressed without major problems, but a substantial portion of JFK's cargo flow is in freighters, which reduces some of the demand. A bigger and still unaddressed issue is inbound belly freight from a point of origin where security screening is not considered to meet TSA standards.

As a gateway airport JFK could be in the middle of a substantial number of problematic shipments if the issues cannot be resolved. The TSA has extended the deadline indefinitely for imposition of this requirement.

3.12 ECONOMIC DEVELOPMENT CONSIDERATIONS

Because of the economic downturn there was greater interest than would be anticipated in job development and economic recovery. Effective economic development, according to some of the interviewees, builds on the existing strengths of the City and improves those characteristics most needed to attract additional businesses to the area. The comments received were in three areas:

- **Expectations for economic development that could accrue to the region as a result of expanding air cargo operations at JFK**. Growth in JFK cargo activity could generate jobs in third party logistics, air cargo, trucking, and distribution center activity in the region. It was noted that the number of third party logistics providers (including freight forwarders, consolidators, and customs house brokers) is substantial and increased cargo would mean more job opportunities.
- **Economic development initiatives by the City that could support international air cargo development at JFK.** The economic development activities most related to cargo development at JFK should include efforts to publicize JFK as an international hub that is a safe, secure, and cost effective place to do business. An additional consideration is the pursuit at JFK of the development of a Center for Excellence and Innovation for air cargo logistics. A last theme was the creation of a comprehensive Port Authority / City strategy to grow direct and indirect international air cargo.
- **The need to have economic development agencies also focus on the retention, expansion and attraction of new manufacturing and production operations to the region that would use air cargo services at JFK.** There is a strong belief that two things will help recapture/grow the region's air cargo business. The first is reduced costs for doing business at JFK – this is largely a Port Authority function. The second is more a City issue. The belief is that most economic development efforts are geared towards attracting office and service functions, rather than manufacturing or production facilities which typically are more likely to require air cargo services from the local airport. These functions might include such operations as critical parts manufacturing, medical kitting, electronics repair, etc.

3.13 CRITICAL ISSUES AND CONCERNS

The NYCEDC also conducted a survey that requested respondents to rate areas of concerns about their current and future ability to manage their cargo operations at JFK and provide additional comments as appropriate. The results confirmed the feedback received from the community generally and are discussed below. The issues in the survey were presented in a matrix and respondents were asked to rate each item. The issues are listed below as they were in the survey. Users were asked to rate the following areas as "Very Weak, Weak, Strong, and Very Strong."

- Quality of warehouse space
- Quality of office space
- Quality of GSE space
- Condition of aircraft ramp
- Availability of Parking
- Availability of truck bays
- Condition of airport roads
- Municipal services
- Other

The Issues

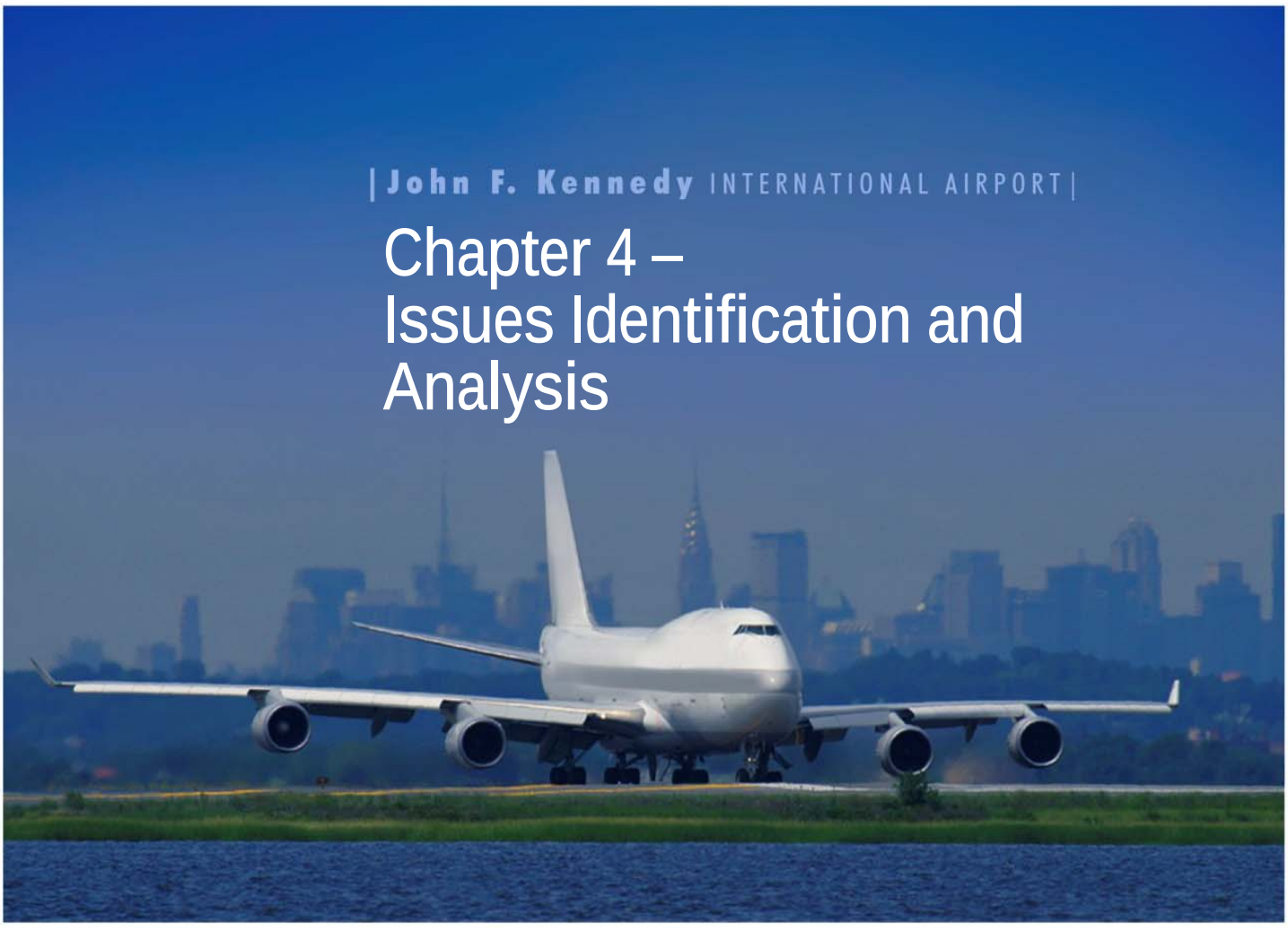
The number of responses was fairly limited (31) but confirmed the independent outreach efforts of the Consulting Team. Emerging as areas of major concern were:

1. The cost of doing business at the Airport and in the City
2. Access and maneuverability for trucks - on- and off-airport
3. Dated or sub-standard cargo facilities

Most respondents indicated that airport access, airport roads, and truck queuing were also critical issues directly impacting existing operations. (Through personal observation, the Team confirmed substantial queuing and access issues at these sites). Of significant import was the indication that 25 percent of the respondents plan to expand their facilities in the next five years (space permitting), and 16 percent expressed an interest in relocating to an on-airport location. These and other issues are discussed at length in the Critical Issues Chapter.

JFK AIR CARGO STUDY

NEW YORK CITY ECONOMIC DEVELOPMENT CORPORATION | THE PORT AUTHORITY NEW YORK & NEW JERSEY



Chapter 4 – Issues Identification and Analysis

L&B
Aviation Planning at the Leading Edge

CHAPTER 4
ISSUES IDENTIFICATION AND ANALYSIS

The preceding Chapters have developed a perspective of John F. Kennedy International Airport ("JFK" or "the Airport") and the surrounding Region as seen through the eyes of the air cargo industry and the regional stakeholders. Those observations and inputs have been supplemented by the experience and analyses of the Team in order to identify, evaluate, and address the critical issues, and challenges facing New York City ("NYC" or "the City") and the Airport in meeting their goals for growth.

Currently the Airport and the Region are experiencing declines in:

- Cargo market share and tonnage
- Airport revenues
- Cargo-related jobs
- Off-airport tax base

The initiatives that are recommended for implementation must address the critical issues contributing to the deterioration of the regional market. For purposes of this document a critical issue is defined as a business practice or policy, physical condition, operating environment, or perception that could or might impact the ability of the Airport or the Region to provide an optimum environment for air logistics. Many of the concerns that the Airport must address are not unique to JFK but rather reflect evolving industry dynamics associated with mature gateways. Others are very specific to JFK and the Region so comparisons elsewhere in the industry may not be appropriate.

4.1 THE CRITICAL ISSUES

The concerns that have been identified are both airport–specific and farther reaching into the broader City area. There are two major considerations that the critical issues point to that must be addressed. The first is ensuring that the Airport provides modern services and facilities from which to conduct business. The second is optimizing access to the Airport to further reduce the cost and time of shipping. After reviewing the issues, and concerns raised by the different constituencies, and the analysis of the Strengths, Weaknesses, Opportunities and Threats ("SWOT"), the following issues have been identified as *most critical* to the future growth and success of the regional air cargo operations at JFK:

1. The future impacts of the potential runway alternatives and land requirements of aviation support elements, and the need for a conceptual development plan that allows for phased, fiscally prudent development of modern, cost-effective air cargo facilities.
2. Trucking access issues to include permitting of 53-foot tractor-trailers on the Van Wyck Expressway and connectivity between on- and off-airport cargo facilities.
3. A cost reduction program for tenants, and users of on- and off-airport facilities that includes rates and charges that balance risk and reward for potential partners. The financial package should include a comprehensive City and Port Authority incentive package focused on air cargo that is consistent with FAA guidelines.
4. Competitive and modern leasing policies and practices to further encourage private partnerships and third-party development of on-airport cargo facilities.

5. Infrastructure financing strategies for off-airport facilities.
6. An aggressive rebranding and marketing campaign for the Airport and Region's air cargo facilities, and services that stresses both new initiatives and physical planning.

4.2 ISSUES IDENTIFICATION

The issues that are listed above have been identified through a series of interviews and meetings, review of historical information and secondary source documents, and the Team's years of experience in the industry. The primary segments whose input was considered include:

- Stakeholders
- The Client
- Industry Experts

That information and the analyses completed in the planning effort produced the SWOT analysis that follows. These results will also form the basis of the recommendations and implementation plan.

4.2.1 STAKEHOLDER PERSPECTIVE

1. The cost of doing business at the Airport and in the City. While historically New York has been considered an expensive place to do business, the costs at JFK are higher than virtually all other airports that handle large volumes of air cargo. In a comparative cost analysis conducted several years ago, that included costs other than leasing; JFK was 20 percent higher than Hartsfield-Jackson Atlanta International Airport ("ATL"), and 40 percent higher than Chicago O'Hare International Airport ("ORD"), Miami International Airport ("MIA"), and Los Angeles International Airport ("LAX"). Of potentially greater concern, is that (as substantiated by discussions with tenants and users) many parties believe that costs are high in relation to the quality of air cargo services provided, i.e. that the net value is low.
2. Leasing and property costs at the Airport. The ground rents for property at JFK are among the highest in the industry. The problem is exacerbated by competing gateways with ground rents (on older leases) of less than $0.25 per square foot and medium-sized airports where ground rents are sometimes waived. The Port Authority is perceived to have shorter lease terms and more complex documents than other airports. Most comments in this area indicated that it was difficult to negotiate lease and development terms which recognize the new business environment, and balance risk and reward.
3. Access and maneuverability for trucks on- and off-airport. The Van Wyck Expressway is often mentioned in discussions of access. However, the operators believe that the difficulties of accessing and maneuvering around the off-airport facilities in Springfield Gardens, and many on-airport leaseholds are more serious. The regional cargo operations are the most mature in the industry. There has been substantial growth and development both regionally and on the Airport. The older facilities cannot accommodate modern trucks. The City restricts the use of 53-foot tractor-trailers in most areas. This, the primary vehicle for long-haul cargo movements, is critical to most gateway airports. Both New York State and New York City have indicated plans to address this constraint. To date, no strategies for going forward have been identified despite the fact that such vehicles are often used by the industry to access JFK.

4. Trucking firms face unique costs when serving JFK. Tolls, special access fees, the length of time to make deliveries and pickups all contribute. Virtually all trucks serving the airport from locations outside of the City must pay tolls to use the roadways. These tolls have all been increased in recent years. In addition, trucking firms incur costs associated with congestion which reduces the number of revenue trips that they can make; are ticketed for blocking streets, incur waiting times at JFK air cargo facilities that similarly increase costs; often need to have drivers and staff who have taken Department of Homeland Security ("DHS") tests and been placed on special lists which identify those authorized to transport certain materials; and must find drivers willing to serve the City market place.

5. Dated and sub-standard cargo facilities on-airport. The Port Authority categorizes approximately 6,100,000 square feet of buildings as cargo facilities. By its own definitions (supported by this analysis), 3.8 million square feet or 63 percent do not meet current industry standards. The unused and vacant facilities create a problematic environment for marketing and new business development. Some ostensibly "viable" facilities are poorly configured to support current air cargo needs.

6. The Tenant Alteration Process. The issue of tenants making routine improvements to facilities, or in some way modifying their configuration, has been a long-standing issue at JFK. This is due in large measure to the multi-tenant nature of many buildings, and is complicated by the age of some buildings. Obviously, some "alterations" are more substantial than others and require a more extensive review. The issues are the time it takes to get appropriate reviews and approvals in place, and the relative level of complexity of the approval process – i.e. should relocating an outlet require the same level of scrutiny as moving a wall?

7. Multiple locations on-airport for cargo facilities. Respondents with multiple pickups or deliveries expressed concern about how the cargo facilities are spread over four zones and the resulting time it can take for inter-facility transfers. This, however, is a two-edged sword. A number of stakeholders expressed concern that concentrating too much cargo in a single zone could impede trucking activity. A 2011 Airports Council International-North America ("ACI-NA") survey indicated that there are no domestic gateways in which cargo is concentrated in a single area. Connectivity between cargo zones, therefore, begins to emerge as a potential issue. Elimination of Zone A for cargo would eliminate some of this concern.

8. Historical resistance to freight forwarders locating on the Airport. There is substantial interest among freight forwarders and customs brokers for on-airport facilities. They would benefit from tighter security, better trucking operations, proximity to their customers and some marketing benefits. Building 80 had held many such tenants before they were displaced because of the building's age and condition. Ironically it was the age and configuration of the building that precluded its use for other purposes. The poor condition resulted in attractively low rents for tenants who could not otherwise afford to be there.

9. An issue yet to be defined, but critical to future cargo operations at JFK, is the potential addition of a new runway and supporting infrastructure. While: a) the actual need, b) the timing, and c) the preferred option are still undetermined, a number of alternatives are being examined. Currently, of the twelve options that have been identified to date, there are five that could impact the capacity of land available for cargo operations. Physical planning, therefore, must also weigh the business implications of this operating requirement in terms of development, leasing, and future revenues.

4.2.2 THE CLIENT PERSPECTIVE

The Client Perspective is unique in that it comes from two separate sources, the Port Authority and the Economic Development Corporation. These organizations have somewhat different concerns but a common goal – to restore vitality to the JFK cargo operation to maximize the regional economic benefits.

1. Identify and address the loss of air cargo from JFK. Evolving industry trends and the recent economic downturns have diverted cargo from JFK. The loss at this airport has been greater, and the recovery slower and weaker than at other gateways. JFK has experienced declining volumes and traffic shares on most routes. Arresting and reversing this trend is the most important issue facing air cargo at JFK.
2. The restriction on 53-foot tractor-trailers on the Van Wyck Expressway. The difference in capacity between a 53-foot trailer and the permitted 48-foot trailer is the ability to carry an additional cargo pallet. This represents a 25 percent difference in the amount of cargo volumes delivered to the Airport and its environs by the vehicle. However the cost of the driver, fuel, and tolls is virtually the same for the trucker/shipper.
3. Any loss of air cargo could adversely impact the profitability of passenger flights. Gross passenger seat capacity, frequencies, the range of nonstop destinations, domestic-international connecting traffic, and the number and diversity of airlines serving JFK could suffer.
4. The loss of cargo from JFK has had an adverse impact on the regional job market. While there is a correlation between jobs and cargo activity, it is not clear if truck substitution for air cargo shifted the job base or, if it diminished proportionate to the loss of air cargo tonnage.
5. The condition of the on-airport cargo facilities. It is recognized that the Port Authority is exploring new development options. (NOTE: The clients believe a development plan should be in place that will foster strategic as opposed to incremental growth.)
6. Controlling costs of replacement facilities. Acknowledging that new facilities must be built, it will be important to implement leasing policies that enable the development of facilities at costs that the market can sustain. Part of the challenge will be maintaining levels of service within a new cost structure.
7. Access to the Airport. The off-airport cargo community needs effective connectivity to the JFK Cargo Zones. The goals of this analytical effort include increased leasing revenues for the City and attracting new businesses and jobs to the Region. The more immediate concerns on access are reduced time to the carrier facility and reduced traffic on the access roads.
8. Enhancement of Airport Revenues. Airports have an FAA obligation to be financially self-sustaining. For JFK, given the age of its infrastructure and facilities, this mandate is challenging. It must bear accelerating maintenance costs in old and inefficient buildings and the need to develop modern facilities.
9. Cargo village development and impacts. The issue is whether sufficient capacity exists on-airport to incorporate the development of a “cargo village” that will accommodate supporting and ancillary businesses and services into a working community. A corollary to this is the ability to identify adaptive reuse of off-airport facilities/properties that could become available through a focused relocation effort in creating the cargo village.

10. Incentives. The challenge is to identify incentives beyond those that are normally provided by the City and New York State that could be used to retain and attract air cargo business to the Airport.
11. The role of the Port Authority and other entities in marketing JFK to incumbent and prospective airlines. There is a lack of joint marketing for air cargo in the region between the Port Authority and the City. An integrated program incorporating private partners exists at a number of domestic airports.
12. A significant challenge will be the identification of funding for significant infrastructure investment in common taxiways and power/utilities to support parcel development, and off-airport modifications. The monies must be allocated such that they do not overburden development partners.

4.2.3 INDUSTRY ISSUES

The issues of the industry at large are similar to those expressed by the regional constituencies and the Client. However, several perceptions about the City and JFK must be addressed.

1. Cost of doing business. JFK is considered the highest cost airport for cargo operations in the U.S. The combination of labor costs, regional toll roads, JFK rates and charges, taxes, and property costs are considered disincentives for doing business in the Region.
2. Constrained Access. Located on an island, JFK is unusually positioned to be a gateway airport. There are physical and regulatory concerns regarding cargo access to the Airport from points west, largely limited to the Van Wyck Expressway. This is because of the levels of traffic during peak periods and the restriction on 53-foot trucks. As a result, businesses, where possible, have adjusted delivery and pickup times to off peak periods to avoid congestion. A larger concern is the restriction on 53-foot trucks (discussed above).
3. Port Authority Business Policy and Practice. Elements of Port Authority negotiating positions are not perceived as balancing risk and reward. Part of the issue is a perceived lack of transparency in the fee structures. A second element is the risk-avoidance negotiating positions that tend to limit flexibility. Other elements that were raised include the issue of residual value, payments due on ground leases several years before a building is ready to lease, competition from existing facilities, and the length of the lease.
4. Security and Theft. The government's focus on Security is on anti-terrorism. The aviation industry itself is just as concerned with anti-theft. There is a widespread misperception that theft is an issue at JFK. There are no indications from the Port Authority or from regional stakeholders that this is the case. The opposite is true as off-airport businesses are interested in on-airport locations which they believe is both safer and more secure. Nevertheless, security and theft should be addressed in marketing material.

4.3 STRENGTHS, WEAKNESSES, OPPORTUNITIES, AND THREATS ("SWOT")

This effort has produced a plan to enhance the City's and the Airport's leadership in the global air cargo market. Its components include the physical planning, business, and marketing issues that are key drivers of the Region's performance in the industry. A rigorous and effective method of summarizing issues is the development of a SWOT analysis. This section addresses Physical Planning, Business and Finance, and Marketing elements.

4.3.1 PHYSICAL PLANNING

Strengths

- The aeronautical infrastructure of JFK can support any aircraft operating and can enable carriers to serve any geographic region.
- Immediate roadway access from Springfield Gardens and Nassau County to the Airport is acceptable.
- Currently, there is existing physical capacity to accommodate long-term cargo growth.
- Ability of the aeronautical infrastructure to accommodate Code F aircraft.

Weaknesses

- Most existing cargo facilities at JFK were designed and built years ago for different types of operations and are considered non-viable for modern tenants.
- Much of the internal facility access was planned for smaller trucks and cannot effectively serve the larger vehicles used today.
- Truck access from points west is costly and largely restricted to the Van Wyck Expressway – a historically congested roadway.
- There is no defined strategy for enabling access for 53-foot tractor trailers.
- Abandoned and aging facilities convey poor aesthetics and a negative business image.
- The split of cargo over four areas and 30 facilities complicates routing and way-finding.
- Connectivity between Cargo Zone A and other zones is limited by the Van Wyck Expressway which passes between them.
- Cargo Zone C is constrained by Runway Protection Zone ("RPZ") requirements.
- There are no on-airport facilities suitable for freight forwarders, customs brokers, and other supporting elements of the air cargo industry.
- The Airport is located on an island which restricts access and adds costs.
- Jamaica Bay and associated wetlands restrict surface access and pose environmental constraints.
- Space around the Airport is built-up and constrained.
- Much of the off-airport facilities and local roads are ill-suited for modern cargo operations.

Opportunities

- The vacant facilities on-airport and the underutilized capacity could provide staging that will facilitate a strategic redevelopment of the cargo infrastructure.
- The potential capacity could accommodate the creation of an on-airport cargo village for freight forwarders and customs brokers.
- Mechanisms exist for creating and marketing a "cargo village" that builds on existing businesses in the area.
- Relocation of smaller off-airport supporting businesses to the cargo village could enable the City to redevelop portions of the area to accommodate new businesses that could enlarge the regional shipping base.
- The momentum behind increasing cargo operations could generate support for modifying the legal restrictions on 53-foot tractor trailers in the City.
- Aircraft ramps are under-utilized at many facilities which are vacant or have a tenant base that no longer includes carriers that fly freighters.

Threats

- If other cargo zones cannot be developed, a strategic decision to discontinue the use of Zone A for cargo would dramatically reduce on-airport capacity to accommodate future growth.
- The construction of a new runway could have a substantial impact of future cargo capacity.
- A new runway could require an RPZ that would have an adverse impact on off-airport buildings to include their demolition. This could force tenants to relocate outside the City, or in a worst-case scenario, outside the Region and utilize another airport for their cargo operations. These runway alternatives are currently under consideration as part of another study.
- The expansion of cargo screening requirements could require additional capacity in existing cargo facilities.
- Increasing traffic growth will impact truck access from points west potentially constrain future demand.

4.3.2 BUSINESS AND FINANCE

Strengths

- The existing cargo operations, that include ground and building rentals, would create substantial revenues for the Port Authority and for the City.

Weaknesses

- The Airport fee structure is considered to be among the highest in the industry, and affects interest for new entrants and expansion for existing tenants. Comparisons to other gateways confirm this.
- The lack of a tiered pricing structure limits the potential cargo tenant market (freight forwarders, customs brokers) and the potential revenue stream to the Airport.
- The typical 25-year length of the JFK leases, historically used for cargo development projects, makes it difficult for third parties to amortize investment without requiring high rents from tenants.

- The negotiation of new leases (or virtually any business agreement) with the Port Authority is considered long and arduous by the industry.
- The toll structure on the bridges and tunnels, necessary to access JFK, add additional costs to trucking.
- The general City traffic and restrictions on 53-foot trucks have led numerous trucking companies to add trucking access fees for trips to JFK.

Opportunities

- The physical redevelopment of the zones would enable the implementation of a tiered pricing structure.
- A comprehensive redevelopment plan could be linked to market triggers and a new approach to development leasing policies.
- A redefined physical infrastructure with fewer facilities could reduce the workload for Port Authority Aviation, Legal, and Financial staff.
- Consolidated and modern development would reduce operating and maintenance staff costs.
- Modifications to the ownership/management models could reduce the areas, for which Port Authority maintenance and operations staff are responsible.
- Modified rental structures would increase demand for on-airport property.
- The expiration of a large number of leases in 2015 can facilitate phasing of new construction.

Threats

- Future development may require modifications to the Master Lease. Failure by the City and the Port Authority to address partnership options may result in lost business and revenue.
- A new runway could have severe impacts on the availability of revenue-generating land on-airport.
- Managing current tenants and maintaining levels of service while phasing in new development could be a challenge. Failure to develop a timely implementation plan would delay development.
- Proposed modifications to the existing land use may require FAA review.

4.3.3 MARKETING

Strengths

- The Gateway stature of JFK and all related legacy benefits is an attraction to the industry.
- The diversity of markets served and the number of airlines serving the Airport create strong consolidation opportunities and shipping synergies.
- The location in the City, with its large consuming base, is attractive for imports.
- The strength of the origin and destination passenger market creates belly cargo opportunity.

- From an air service perspective, JFK has a good location in the Northeast to accommodate U.S.-Europe flights and serve all of U.S. as hinterland.
- The scale of operations and network connectivity retain and attract allied services and regulatory agencies, which are difficult to replicate at would-be alternative gateways.

Weaknesses

- The location in the City carries a perception of congestion and high costs.
- There is a perceived lack of City support for the Port Authority by the industry.
- There is an absence of regional manufacturing and assembly which could generate additional air cargo.
- There is a perception of crime at the Airport and in the Region.
- The appearance of the cargo areas creates challenges for marketing site visits.
- Many cargo facilities are obsolete and ill-suited to modern operations.
- The industry has concern over fee structures at JFK.
- The Port Authority has a reputation for difficult lease negotiations.
- There is a lack of hub carrier/alliance committed to the Airport as its primary gateway. (Delta is very large at JFK, but its services are still focused on Atlanta.)
- JFK has a relatively distant location on the U.S. landmass and limited hinterland for services to Asia and Latin America.

Opportunities

- There are new development options for state-of-the art cargo facilities.
- The City and the Port Authority are working to create a new and stronger partnership.
- There is enhanced focus on the need to deal with 53-foot tractor trailers.
- A simplified business structure and lease documents can attract more private development.
- The growth of Aircraft, Crew, Maintenance, and Insurance ("ACMI") operators creates potential new markets.
- There are emerging and growing global markets to include Africa, South America, the Middle East, and Central Europe.
- The introduction of the 787 and A350, allowing nonstop flights on ultra-long, low density routes could extend JFK opportunities to long-range markets.
- The addition of new services such as cargo screening, tracking, etc. can create cost savings for potential new entrants.
- Potential depreciation of the dollar could stimulate outbound traffic and yields.
- Development of on-site and off-airport air-dependent businesses e.g.: cut flowers, diamonds, seafood, etc. could create new markets.
- Increasing local production and processing could help trucking firms optimize their capacity.
- The diverse regional population base provides global links for international trade and commerce.

Threats

- Competitors will continue anti-JFK marketing.
- Liberalization of the market creates new opportunities for competitors.
- Further development of interior gateways, with seamless domestic-international connections could pull regional traffic away from the City.
- Airline mergers and changes to alliances may strengthen other gateways.
- Escalating fuel costs may be particularly detrimental to pure freighter services.
- Recession in Europe – the traditional stronghold of JFK – could weaken the air cargo market by creating a shift to ocean borne cargo.
- Continued fragmentation of the belly cargo market may pull more traffic from JFK.
- The introduction of the 787 and A350, would allow nonstop flights to by-pass New York.
- Maturation of the North Atlantic Routes could constrain growth.
- Changes in airline-forwarder relationships may encourage greater use of non-gateway flight capacity.
- Delays in implementing changes to business policies could create disincentives for new development.
- Failure to modify infrastructure and facilities could drive tenants and users out to more economical airports.
- A lack of a proactive partnership between the City and the Port Authority could result in lost opportunities.
- A failure to modify trucking restrictions will continue to constrain growth and deter traffic.
- An anomalous occurrence such as terrorism, or natural disaster or a seminal shift in the industry because of an issue such as fuel cost escalation could foster modal shifts.

4.4 TARGETED THROUGHPUT METRICS

As discussed in Chapter 6, there are a wide variety of variables that impact throughput at an airport. For JFK the throughput calculation, which is the annual tonnage handled, divided by the available warehouse square footage, is very low. This is due in part to the amount of non-useable square footage, falling cargo volumes, and unreported cargo that is moving on trucks. A consideration related to falling cargo volumes and throughput, is that some carriers have made strategic decisions to change their business models and avoid JFK but despite route changes are still locked into long-term leases for more space than they need. JFK has historically been considered an unconstrained airport for cargo development. This enabled the industry and the Port Authority to develop cargo facilities over six decades in a relatively flexible fashion. Current regional system capacity planning scenarios include the potential for new runway additions to JFK. As of May 2012, there are a number of options that are emerging for the runways. The runway alternatives in combination with the planned reduction of cargo activity will require that future planning for cargo consider the facility to be land-constrained at JFK.

Recent throughput planning for traditional (one-story) cargo facilities in Dubai, Abu Dhabi, and Mumbai consider building automation, more sophisticated Customs clearance (since most of the cargo is international), and centralized cargo handling as major elements in determining building efficiency. As discussed later in this document, efficiency is best calculated by examining the way cargo arrives at the airport – by belly or freighter – and if it is domestic or international. In some instances recommendations have been made to negotiate throughput targets into airline operating agreements, but no airports, to the Team's knowledge, have taken efficiency management to this level. Modern planning is built around the forecast tonnage and the capacity of the physical envelope and the facilities to meet the demand in a cost efficient manner.

In Dubai and Abu Dhabi, the unique transfer operations that are the core of their business require a throughput in some facilities of six tons per square foot ("tpsf"). Their more traditional operations are targeted for 1.5 tpsf. Because of the recent downturns in air cargo, virtually every major gateway in North America is operating below capacity. More mature U.S. gateway airports which have historically been targeted for a one-to-one ratio are below this generic target. MIA and LAX operate at approximately .7 tpsf, while ATL is approximately .4 tpsf. JFK, figuring only viable buildings into the calculation, is about .55 tpsf. It is important to note that these numbers (with the exception of MIA that has been sustained by the Latin cargo market) are substantially lower than they were in 2005, and JFK's volumes are about the same as they were in 1990. The future physical plan for JFK would be structured to meet the forecast tonnage requirements and any unique operating needs of the carriers. The key element is to design the plan that would enable the Port Authority to introduce new facilities with direct links to market triggers. This is essential to optimize the cost-benefit of new cargo facilities and infrastructure.

4.5 PERFORMANCE MEASURES

4.5.1 GOALS

At a business level, the Airport's air cargo business is driven by goals that serve as the basis for management and planning decisions. These then form the foundation of performance measures and benchmarks that can assist the Port Authority, the City, and regional stakeholders in better understanding how the air cargo program is working, its success in meeting goals and objectives, and what the issues are that need to be addressed.

The following represent the goals for air cargo at JFK and in turn form the basis of performance measurement.

1. To ensure that cargo facilities and operations reflect the highest levels of security and safety.
2. To provide the air cargo industry with state-of-the-art facilities that enable carriers to sustain and grow their regional business.
3. To attract and accommodate new carriers and supporting business infrastructure to JFK and the Region.
4. To optimize the use of available property allocated to air cargo.
5. To generate revenue commensurate with the resources allocated to air cargo facilities and services.
6. To provide tenants and users of cargo facilities with high levels of customer service.

To help move airports toward a common performance benchmarking "language" for air cargo, the ("ACI-NA") developed a listing of more than 100 potential measures that are currently, or could be utilized by member airports. Because airports and their cargo functions differ so dramatically, this realistically provides a number of relevant options that can provide the Agency (at different levels), the City, and industry stakeholders with measures, best suited to their individual operation and management requirements. These include "internal measures" to assist airport management in better managing day-to-day activities, and "external measures" focused on reporting to outside constituents on the cargo element of the business.

The benchmarks help to create specific criteria that enable reviewers to:

- better understand and manage the business elements of air cargo as it relates to airports,
- anticipate potential problem areas or issues to be more responsive to the service requirements of tenants and users, and
- select performance measures that are most meaningful to reflect airport performance accurately to governing bodies.

The use of performance measures to compare one airport to another has limited utility in terms of air cargo. The variables are so extensive and the industry dynamics so volatile and subject to anomalies that any results based on other than gross data (such as total tonnage) could prove useless. It is particularly important in establishing performance measures that those which are adopted are not forced or inappropriate. They should address specific airport needs and not attempt to compare (for example) cargo functions at major gateways to small domestic operations at inland airports. Measures that have some meaning across airport lines typically are very broad and have limited use from a management perspective. The performance measures therefore need to focus on specific aspects of JFK air cargo operations that are relevant to the Port Authority and the City.

4.5.2 PERFORMANCE BENCHMARKING DEFINED

Performance benchmarking is the process of identifying best practices, understanding their meaning in relation to business, and adapting these practices to help organizations improve their performance. The comparison to a defined data set can provide an airport with comparative opportunities to establish performance goals with standards and measures that would be considered a performance benchmark. Over designated time frames, benchmarking can improve operating levels and lead to improved organizational efficiency and performance. Measures have different levels of importance to stakeholders in the cargo function. These include airport commissions, shareholders, employees, airlines, customers, the public, members of the local community, government agencies, industry organizations, ground handling agents, freight forwarders, surface transportation providers, U.S. Customs Brokers, and other related vendors and service providers.

4.5.3 CONDITIONS OF MEASUREMENT

Effective benchmarking relies on focusing on what *needs* to be measured and the processes involved when measuring core practices and competencies. Measures must be accessible, reliable, dependable, and accurate.

- Accessibility refers to the ability of data to be obtained and gathered on a reasonable basis. This is perhaps the most challenging aspect of many potential cargo measures for which data are frequently tracked and reported very differently or not at all by many of the smaller but critical businesses that are part of the industry.

- Reliability ensures that what is measured is truly what is intended to be measured.
- Dependability provides a consistent result throughout the measurement process or designated time frames.
- Accuracy provides that the measurement process achieves its objective.

It is important to note that benchmarking is not a one-time event. It must be ongoing to address improvement and that best practices are regularly targeted.

4.5.4 MEASUREMENT REVIEWERS

Included below are listings of potential measures that are recommended. Not all of these would be meaningful to every airport. The key is that airport managers utilize measures that most clearly relate to their own management needs, and internal and external reporting requirements. The measures that have been recommended here focus on business and relevant service elements of air cargo.

Measures are suggested for two separate constituencies. It is important to note that as these constituencies change and/or the industry evolves, the areas of focus (and appropriate measurement mechanisms) may shift.

Internal:

1. Senior staff at both JFK and in the Port Authority Aviation Department Offices. These measures should address comparative performance, service issues and responsiveness to business and operating requirements.
2. Port Authority Executive Staff. These measures address overall financial and business performance and issues that may have interest to outside constituencies.

External:

3. New York City. These measures address comparative performance, new business development, and revenue generation.
4. Stakeholders. These measures help demonstrate and improve service, appearance, and understanding of the challenges and achievements of the Airport.

It should be noted that these measures are not meant to be all-encompassing. The listing developed by ACI-NA offers a very comprehensive listing of measures that are of value to different business and operating units. The listing can be reviewed and unit-specific elements chosen. Those measures included below have been selected to provide feedback considered most relevant to the specific constituency. The Team was also sensitive to the fact that too many measures are often looked at as needless administrative oversight and receive less attention than well-targeted and more selective measures.

4.6 BENCHMARKING JFK

In July 2005, the Air Cargo Committee of ("ACI-NA") attempted to refine the large listing of measures by surveying a wide range of constituents that included airports of varying sizes, developers of air cargo facilities, consultants, and various supporting services. The effort identified what were considered to be the top ten generic measures that could be used to compare air cargo performance across airport lines. These are listed below.

This information is helpful in identifying a broad industry-wide perspective, but still, without linkage to airport goals, provides little insight into what would be the best and most informative choices for an individual airport.

These are the "Top Ten:"

1. Tons of cargo enplaned and deplaned (annual).
2. Tons of cargo enplaned and deplaned (annual) – International Belly vs. Freighter.
3. Tons of cargo enplaned and deplaned (annual) – Domestic Belly vs. Freighter.
4. On-airport warehouse square footage (total).
5. Number of direct jobs created from cargo activity.
6. Average time required for international air cargo to clear customs.
7. Warehouse throughput per square foot.
8. Efficiency of cargo area access. (survey of users and tenants)
9. Efficiency of aeronautical infrastructure. (survey of carriers and handlers)
10. Warehouse occupancy/vacancy percentage.

Several of these measures, particularly those dealing with gross tonnage figures are in common use throughout the industry today and serve as valid volume comparisons. However, the volume numbers do little to benchmark the efficiency or effectiveness of one airport's operation versus another's. For JFK, given the importance and size of its cargo operations, two sets of measures have been developed. The first is for the Airport to use in the day-to-day management of the cargo function. These are the internal measures: they reflect feedback from existing tenants measured against airport goals, and are more narrowly focused. The second set reflects broader reporting issues that are most appropriately used for external reporting and to compare JFK performance to other *comparable* airports. These recommended measures have also been derived from the goal structure of the cargo program.

The measures and benchmarks should be structured in such a way that the Airport will be able to develop data that will enable management to better understand existing cargo operations and proactively manage future cargo growth strategies. They are listed in a suggested priority order. Airports have historically tended to focus on macro-measures that are more generic–tonnage, operations, etc. All of the following measures can be implemented without major problems. The decision of who will perform the measures, exactly how they will be measured, and to what standards will depend on the creation of such standards by the Port Authority and their operating partners. Establishing such standards prior to the acceptance of critical elements of the Air Cargo Plan is premature.

4.6.1 INTERNAL MANAGEMENT MEASURES AND BENCHMARKING

1. **Volumetric measures.** These are the typical measures used throughout the industry dealing with tonnage and operations. They can be subset into inbound-outbound, domestic-international, and freighter-belly cargo. Reports should be structured that data can be used to identify trends, anomalies, and planning issues, as well as providing routine reporting data. It should be noted that this number must also (in the case of the Port Authority) be looked at in conjunction with regional market share because of the presence of Newark Liberty International Airport ("EWR").

2. **Cargo revenue generation**. The ability of the Airport to generate revenue from cargo is important. Realistic targets should be based on a methodology that considers tenant and user operating conditions, value for services provided by JFK, and coverage of Airport cargo operating costs. These targets can be subset into landing fees, fuel flowage fees, leasing revenues, percentage agreements, and other cargo-related fees.
3. **Occupancy rates of cargo facilities.** Recognizing that revenue generation is an important issue for management, occupancy/vacancy rates of the facilities should be monitored on a regular basis. The rates should be linked to overall occupancy *and* revenue targets that would be met as a result of leasing.
4. **Utilization of cargo facilities**. Management should establish utilization ratios that reflect targeted throughput for cargo facilities. Effective management of tenant occupancies is far more cost effective than the development of new buildings. Monitoring cargo building throughput on a quarterly basis would help management to identify the need for new space or opportunities to relocate tenants on a timely basis. It would also enable management to identify underutilized facilities.
5. **Availability of cargo facilities and infrastructure to meet demand.** It is critical, particularly in growth scenarios, that new infrastructure and facilities be timed to come on line, or older facilities become available to meet demand. This requires the establishment of development triggers and close management of the leasing portfolio.
6. **Utilization of the land envelope.** The scarcest resource available to the Airport is land. The amount of unused property available for cargo development is an important aspect in measuring present and long-term capacity.
7. **Compatibility of facilities and infrastructure with tenant needs.** The mere availability of cargo facilities is not enough. Warehouses that cannot accommodate throughput, screening, or storage requirements will heighten levels of tenant dissatisfaction and in some instances will cause tenants and users to seek other airports. The same is true if tenants cannot access ramps that they require, or lack sufficient truck courts or truck bays.
8. **Levels of tenant satisfaction.** The size of the regional cargo community warrants attention to the needs of this enormous contributor of revenue and jobs. Communications, responsiveness to tenant operating and maintenance needs, as well as administrative effectiveness are elements of business with which tenants and users are concerned.
9. **Efficiency of landside access and egress**. Cargo is inter-modal. An efficient operation must accommodate trucking requirements to and from the Airport and to and from the cargo facilities. Many critical elements of the JFK cargo operation are located off-airport. Time from off-airport facilities to on-airport properties is a vital criterion as is the ability to exit the airport to the highway system and proximate regional destinations.

10. **Reported incidents of theft.** While a great deal of focus is given to anti-terrorism, a major concern for the cargo industry is theft, which affects insurance premiums and can result in penalties to parties involved in the movement of goods. Management can help control theft through effective building planning and design, appropriate physical separations, and assigned security personnel. An alternative measure is the dollar value of goods lost to theft. While this is a reasonable measure it should reflect any incident as a percent of total dollar value of Airport traffic. Otherwise it can be substantially skewed by a single incident and not reflect the effectiveness of a designed program.

4.6.2 EXTERNAL MANAGEMENT MEASURES AND BENCHMARKS

1. **Regional Economic Impact.** The total impact of the air freight business on a region is frequently surprising and often justifies investment beyond pure cost/benefit analysis.
2. **Job generation**. Part of the justification for investment in cargo operations is the number of jobs generated by cargo. This could be a subset of Economic Impact but can stand alone.
3. **Volumetric measures**. These are the typical measures used throughout the industry dealing with tonnage and operations. They can be subset into inbound-outbound, domestic-international, and freighter-belly cargo. Reports should be structured so that data can be used to identify trends, anomalies, and planning issues, as well as provide routine reporting data.
4. **Investment in cargo facilities and operations**. Cargo is typically a lower profile aspect of an airport's operation than the passenger business. It can, however, generate substantial benefits. It will be important to be able to indicate levels of investment in cargo to put generated benefits in context.
5. **Cargo Revenues.** This number can be expressed in total or as a percentage of total airport revenues. Total revenue should include landing fees, fuel flowage fees, leasing revenues, percentage agreements, and other cargo-related fees.
6. **Total developed cargo facilities and infrastructure.** Airports, particularly those considered "gateways" are frequently compared based on their overall capacity for airside and landside cargo operations.
7. **Levels of tenant/user satisfaction.** The size of the regional cargo community warrants attention to the needs of this enormous contributor of revenue and jobs. Communications, responsiveness to tenant operating and maintenance needs, as well as administrative effectiveness are elements of business with which tenants and users are concerned. Tracking must lend itself to the formulation of key issue analyses and appropriate outreach and corrective initiatives.
8. **Appearance.** The aesthetics and overall appearance of facilities and the cargo zones in general are key marketing tools and for attracting new tenants or retaining existing ones.

Performance measures should provide meaningful information about what they are intended to measure. To inform the constituency effectively, measures should be triangulated when possible. By way of example, the effectiveness of a cargo leasing program is not best measured by the amount of square footage under lease. Management is usually interested in the revenues generated by the leasing program. It is, therefore, important to measure not just the amount of square footage but also the rate per square foot at which the property is leased. Similarly service improvements are important in the public sector, but the cost-benefit must be considered and where appropriate, alternatives evaluated.

JFK AIR CARGO STUDY

NEW YORK CITY ECONOMIC DEVELOPMENT CORPORATION | THE PORT AUTHORITY NEW YORK & NEW JERSEY

Chapter 5 – Competitive Analysis





Aviation Planning at the Leading Edge

CHAPTER 5
COMPETITIVE ANALYSIS

Airports compete. Passengers and shippers have many choices when it comes to moving from an origin to a destination. Like any rational economic agent, shippers and the freight forwarders who serve as their agents will more often choose the lowest cost option to meet an acceptable delivery date for moving air cargo. Given the multi-modal nature of air cargo, a shipper in Pittsburgh moving a piece of freight to Frankfurt will look at multiple options. Assuming air is the mode of choice, the Pittsburgh shipper will compare the total shipping costs of moving the freight through different airports that could include, in addition to Pittsburgh International Airport ("PIT") – Chicago O'Hare International Airport ("ORD"), Philadelphia International Airport ("PHL"), Memphis International Airport ("MEM"), Louisville International Airport ("SDF"), Boston Logan International Airport ("BOS"), and other New York airports.

The L&B Team and the client selected ten (10) airports for a competitive analysis including:

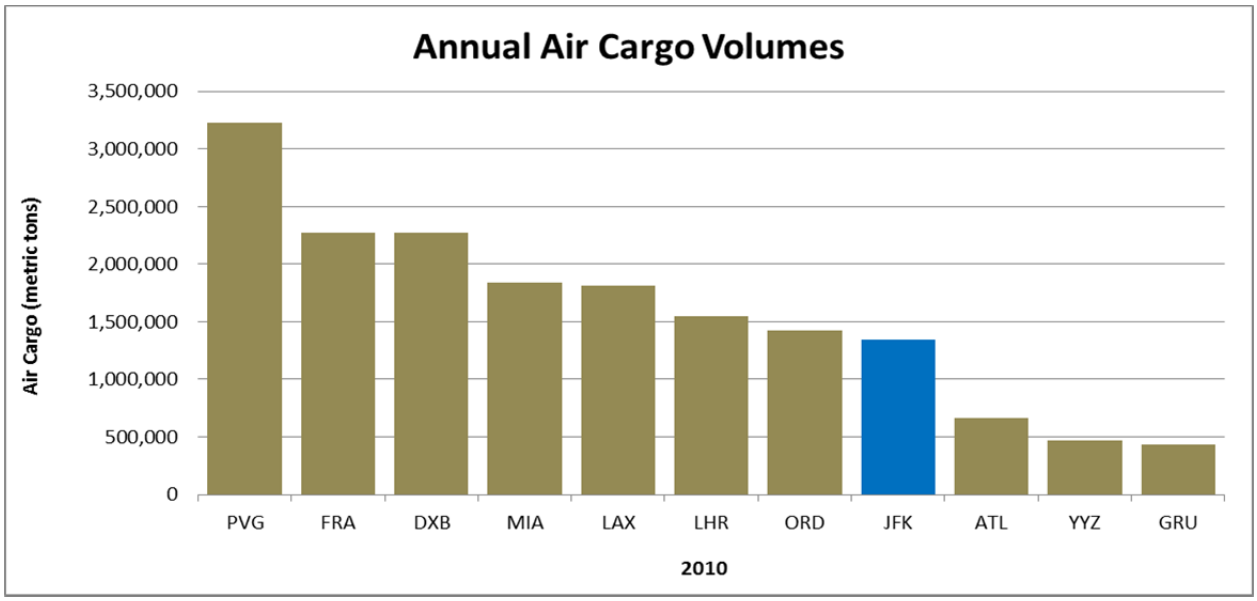
1. Hartsfield-Jackson Atlanta International Airport ("ATL")
2. O'Hare International Airport ("ORD")
3. Los Angeles International Airport ("LAX")
4. Miami International Airport ("MIA")
5. Frankfurt International Airport ("FRA")
6. London-Heathrow International Airport ("LHR")
7. Dubai International Airport ("DXB")
8. Shanghai Pudong International Airport ("PVG")
9. Toronto Pearson International Airport ("YYZ")
10. Sao Paulo Guarulhos International Airport ("GRU") Note: Participation by the original selection of Eldorado International Airport ("BOG") in Colombia was limited, leading to the agreed upon substitution of Sao Paulo.

The purpose of the competitive analysis is to help gain a perspective as to how JFK is positioned relative to these other facilities that, at some level, are comparable and to identify potentially applicable best practices. The first four airports – as domestic facilities - have the most relevancy as far as costs, and separate graphics have been prepared to represent the relationships. The other airports represent major national gateways and were looked at for operational comparisons as appropriate. It is important to remember that these airports are all very different with different business, operating, and ownership models so that comparisons are best made at a macro level, and in some areas comparisons have limited value without in-depth analysis. The data for the analysis were based on 2009 research from the Air Transport Research Society ("ATRS"). (Note that tonnage figures were based on year-end numbers developed by the Airport Council International ("ACI".)

This chapter includes a discussion of the operating challenges at JFK identified earlier and how these ten airports address the situation ***if*** comparable challenges exist.

Illustrated below in **Exhibit 5-1, *Annual Air Cargo Volumes***, is the annual air cargo tonnage by the ten selected airports and JFK International.

Exhibit 5-1 ANNUAL AIR CARGO VOLUMES



Source: ATRS; Landrum & Brown

5.1 COMPETING AIRPORT PROFILES

This section discusses how JFK compares to the airports designated for comparative purposes. For each of the ten selected airports, six profile elements were developed including:

1. **Capacity –** includes the number of runways and estimated annual air cargo volumes expressed in metric tons.
2. **Airport Statistics –** including operations (i.e., take-offs and landings) and metric tons since 2003.
3. **Fee Structure –** with a focus on signatory and non-signatory landing fees.
4. **Revenues –** including total operating revenue and the percent share of aeronautical revenues.
5. **Ownership & Management –** including city/county, state, authority, or other form of ownership.
6. **Notes and Observations –** with a focus on any related to air cargo development.

Integrators like FedEx and UPS pose a competitive challenge to operations at traditional U.S. gateways like JFK, MIA, ORD, and LAX. The combination of large fleets of aircraft and trucking assets attracts air cargo, both domestic and international, to and through their massive Midwestern sort facilities such as Memphis FedEx and Louisville UPS. Within the U.S. approximately 90 percent of all domestic air cargo and over 50 percent of originating international air cargo is now carried by the integrators. Most industry observers agree that the integrators' share of international air cargo will continue to rise. However, because of the growing importance of belly cargo, the traditional gateways should continue to prosper. The location of each of the selected airports is illustrated on a map for each profile.

New York John F. Kennedy International Airport ("JFK") - was ranked by the ACI 19th Overall in the world and 7th in North America for total cargo traffic in 2010. (In the Capacity section for each of the airports, the tonnage figures reflect 2010 volumes.)

New York John F. Kennedy International Airport
JFK
New York, New York

Fiscal Year End: Dec. 31, 2009

Capacity	
Runways	4
Annual Metric Tonnes Handled	1,340,000
Employees	325

Airport Statistics	2003	2005	2007	2009	2010
Air Operations	276,685	346,709	443,750	416,945	397,419
Passengers (000)s	31,735	40,884	47,717	47,323	46,495
Cargo (metric tons)	1,627,153	1,644,526	1,607,050	1,261,480	1,343,114

*2010 data from ACI Worldwide Airport Traffic Statistics

Fee Structure	
As of Jan 2009:	
Landing Fees	
Landing Charge MTOW	
Scheduled Carriers (per 1,000 lbs)	$ 5.30
Peak surcharge between 3pm-10p	$ 100
Min per takeoff	$ 25
Parking Charge	
First hour	free
Up to 100,000 lbs (for each additiona	$25
100,001-200,000 lbs (for each additional 8 hrs)	$40
Over 200,000 lbs (+ $12 per 25,000 lbs over 200,000 lbs)	$40
Passenger Charge (per departing passenger)	$4.50
Police Guard Charge (for use of police security for each 8 hr police	$ 1,265

Revenues	2009
Total Operating Revenue	$970,200,840
% Aeronautical Revenue	74%
% Concession Revenue	5%
Net Operating Income	$327,621,066
Passenger Facility Charges (PFC)	$ 91,069,337
Operating Margin	34%
Movements per Day	**1,142**
Daily Gate Utilization	1,099

Ownership & Management

The Port Authority of New York and New Jersey (PANYNJ) have operated New York John F. Kennedy Intrnational Airport since 1947 under a lease with the City of New York. PANYNJ's aviation department is responsible for the operating and development of the three New York airports - John F. Kennedy, LaGuardia, and Newark. The Port Authority is a financially self-supporting public agency that recieves no tax revenues from any state or local jurisdicition and has no power tax. It relies almost entirely on revenues generated by facility users, tolls, fees, and rents. The Govenor of each state appoints six members to the Board of Commissoners, subject to state sentate approval. Board Membrs serve as public officals without pay for overlapping six-year terms. The Govenors retain the right to veto the actions of Commisioners from his or her own state.

Notes and Observations

-In 2010 JFK was ranked by the Airports Council International 19th overall in the world and 7th in North America for total cargo traffic.

-In 2009, the Port Authority aimed at reducing delays by awarding a $376 Million contract to reconstruct and widen the Bay runway. The Bay Runway re-opened in June 2010 on time and on budget. During the closure of the runway, a state of the art flight departure managment system was used where the system would make sure only 8-12 airplanes were in line for takeoff at a particular runaway at any one time during peak hours. In July 2010, it was announced that the program will continue to be used for a year's trial.

- In April 2010, the Port Authority Board approved the construction of an environmentally friendly multi-fuel service station at JFK. The station will help JFK's important cargo business by providing full-service amenities for trucks and thier drivers.

Sources: Air Transport Research Society (ATRS); Landrum & Brown

Hartsfield-Jackson Atlanta International Airport ("ATL") – the busiest airport in the world. ACI ranked ATL 10th in North America for 2010 cargo traffic. The airport is Delta's global hub and that carrier flies about 50 percent of the airport's total cargo volumes in the belly of passenger aircraft. Their cargo activity levels do not place them in the World Top 30.

Hartsfield-Jackson Atlanta International Airport
ATL
Atlanta, Georgia

Fiscal Year End: June 30, 2009

Capacity	
Runways	5
Annual Metrics Tonnes Handled	660,000
Employees	618

Fee Structure	
As of July 2010:	
Landing Fees	
Signatory (per 1,000 lbs)	$ 1.07
Non-Signatory (per 1,000 lbs)	$ 1.52

Revenues	2009
Total Operating Revenue	$394,336,444
% Aeronautical Revenue	41%
% Concession Revenue	27
Net Operating Income	$215,773,444
Passenger Facility Charges (PFC	$166,911,292
Operating Margin	55
Movements per Day	**2,624**
Daily Gate Utilization	1,306

Airport Statistics	2003	2005	2007	2009	2010
Air Operations	898,488	967,714	981,402	957,860	950,119
Passengers (000)s	79,087	85,907	89,379	88,649	89,331
Cargo (metric tons)	800,820	767,897	730,730	571,255	659,129

*2010 data from ACI Worldwide Airport Traffic Statistics

Ownership & Management

Hartsfield-Jackson Atlanta International Airport is owned by the City of Atlanta and operated by its Department of Aviation. A management company operates and manages the terminal acitivies; the Central Passenger Terminal Complex (CPTC) lease stipulates that the signatory airlines are responsible for maintaining and operating the passenger terminal buildings. The signatory airlines contract out maintence and operation services to a third-party provider (a company primarily owned by the signatory airlines, with the city of Atlanta having a 7% share in the company). The City of Atlanta and the Department of Aviation are thus responsible for long-term strategic planning, including capital investment decisions.

Notes and Observations

-In 2010 ATL was ranked by the Airports Council International 10th in North American cargo traffic.

-In Jan 2009, ATL retains title of world's busiest airport

-ATL was the first US airport to be named Air Cargo Week's Airport of the Year. It also recieved Air Cargo World's Awards of Excellence.

O'Hare International Airport ("ORD") – the busiest airport in the Midwest. ACI ranked ORD 18th overall in the world and 6th in North America for 2010 cargo traffic. This facility has become JFK's main competitor for cargo operations and is in the process of adding 1,000,000 square feet of new cargo facilities and 17 wide-body parking positions.

Chicago O'Hare Airport
ORD
Chicago, Illinois
Fiscal Year End: Dec. 31, 2009

Capacity	
Runways	6
Annual Metric Tonnes Handled	1,420,000
Employees	1,193

Airport Statistics	2003	2005	2007	2009	2010
Air Operations	912,629	975,673	910,710	818,361	882,614
Passengers (000)s	69,509	76,581	76,182	64,398	66,665
Cargo (metric tons)	1,453,070	1,543,526	1,533,606	1,047,917	1,424,077

*2010 data from ACI Worldwide Airport Traffic Statistics

Fee Structure	
As of July 2010:	
Landing Fees	
Signatory (per 1,000 lbs.)	$ 6.28
Non-Signatory (per 1,000 lbs.)	$ 7.85

Revenues	2009
Total Operating Revenue	$591,474,459
% Aeronautical Revenue	66%
% Concession Revenue	16%
Net Operating Income	$102,027,067
Passenger Facility Charges (PFC)	$121,180,181
Operating Margin	17%
Movements per Day	**2,242**
Daily Gate Utilization	991

Ownership & Management

Along with Chicago Midway Airport, Chicago O'Hare International Airport is one of the two major airports compromising the Chicago Airport System. Both Airports are owned by the city of Chicago and operated by the Department of Aviation. The Department of Aviation is responsible for the management, planning, design, operation and maintenence of O'Hare and Midway. The Chicago Airport System is fully self-supporting and receives no local tax payers dollars. The O'Hare Modernization Program (OMP) is a $6.6 billion initiative designed as a long-term solution to the delays experienced by one of the world's busiest airports. Funded by airline-backed bonds, passenger facility charges, and federal Airport Improvement Program funds, the OMP is expected to reduce delays at the airport by 79%

Notes and Observations

-In 2010 ORD was ranked by the Airports Council International 18th overall in the world and 6th in North America for total cargo traffic.

-In July 2010, ORD welcomed Cathay Pacific's first round the world freighter to Chicago. The new route will continue to be operated twice weekly on Fridays and Sundays. Cathay will increase its Chicago-based Cargo Operations team by 33% to handle the new flights.

-In March 2010, ORD continued construction on phase one of the O'Hare Modernization program which includes the construction of the new runway 10C-28C, relocation of the FedEx sort facility and the construction of the two new railroad bridges.

Sources: Air Transport Research Society (ATRS); Landrum & Brown

Los Angeles International Airport ("LAX") - the principal air cargo gateway to Asia. ACI ranked LAX 14th overall in the world and 5th in North America for 2010 cargo traffic. The airport was adversely impacted in 2011 by the economic downturn and reduced trans-pacific shipping.

Los Angeles International Airport
LAX
Los Angeles, California
Fiscal Year End: June 30, 2009

Capacity	
Runways	4
Annual Metrics Tonnes Handled	1,810,000
Employees	3,292

Airport Statistics	2003	2005	2007	2009	2010
Air Operations	621,137	637,026	645,397	543,670	575,835
Passengers (000)s	55,307	61,244	61,534	56,547	58,915
Cargo (metric tons)	1,822,263	1,955,722	2,075,638	1,615,315	1,810,345

*2010 data from ACI Worldwide Airport Traffic Statistics

Fee Structure	
As of Aug 2009:	
Landing Fees (per landing)	
25 tons or less Permitted	$102
25 tons or less Non-Permitted	$128
Landing Fees (per ton)	
Over 25 tons Passenger Permitted	$4.07
Over 25 tons Passenger Non-Permitted	$5.09
Over 25 tons Cargo Permitted	$3.33
Over 25 tons Cargo Non-Signatory	$4.16
Commuters not using terminal apron Permitted	$3.33
Commuters not using terminal apron Non-Permitte	$4.16

Revenues	2009
Total Operating Revenue	$ 679,251,020
% Aeronautical Revenue	59%
% Concession Revenue	29%
Net Operating Income	$ 156,339,988
Passenger Facility Charges (PFC)	$ 103,982,511
Operating Margin	23%
Movements per Day	**1,490**
Daily Gate Utilization	1,324

Ownership & Management

The Los Angeles World Airports (LAWA) is an independent and financially self-sufficient department of the City of Los Angeles. LAWA owns and operates Los Angeles International Airport, along with three smaller airports in the Southern California region. LAWA is managed and controlled by a 7 member Board of Airport Commissioners. The Board is responsible for capital acquisition and development, operations, finance of development projects, rates and charges determination, and fees collection from airport users. An Executive Director administers LAWA and reports to the Board.

Notes and Observations

-In 2010 LAX was ranked by the Airports Council International 14th overall in the world and 5th in North America for total cargo traffic.

-In July 2010, many airlines decided to offer new air service or additional flights at LAX due to the slight upturn in the economy.

Sources: Air Transport Research Society (ATRS); Landrum & Brown

Miami International Airport ("MIA") – the principal air cargo gateway for Central and South America. ACI ranked MIA 12th overall in the world and 4th in North America for 2010 cargo traffic. Miami has survived the recession better than other North American airports because of the growth of Latin American activity.

Miami International Airport
MIA
Miami, FL

Fiscal Year End: Sep. 30, 2009

Capacity	
Runways	4
Annual Metrics Tonnes Handled	1,840,000
Employees	1,400

Airport Statistics	2003	2005	2007	2009	2010
Air Operations	381,247	377,630	382,714	348,487	376,208
Passengers (000)s	29,533	30,912	33,278	33,875	35,698
Cargo (metric tons)	1,594,012	1,783,067	2,056,402	1,709,754	1,835,793

*2010 data from ACI Worldwide Airport Traffic Statistics

Fee Structure	
As of Oct 2009:	
Landing Charge per ton: (A/C exceeding 15 tons)	$ 1.92

Revenues	2009
Total Operating Revenue	$502,455,000
% Aeronautical Revenue	68%
% Concession Revenue	21%
Net Operating Income	$164,701,000
Passenger Facility Charges (PFC	$ 61,756,000
Operating Margin	33%
Movements per Day	955
Daily Gate Utilization	919

Ownership & Management

Miami International Airport is operated by the Miami-Date County Aviation Department as a part of the Airport System (also including 3 general aviation and 2 training airports). The County operates the Airport System through the aviation Department with policy guidance from the Mayor, Board of County Comissioners of Miami-Dade County, Florida (the "Board"), and the County Manager. The Aviation Department is an Enterprise Fund of the County. The Department is self-supporting, using aircraft landing fees, fees from terminal and other rentals, and revenues from concessions to fund operating expenses. The Capital Improvement Program is funded by bonds, federal and state grants, and Passenger Facility Charges.

Notes and Observations

-In 2010 MIA was ranked by the Airports Council International 12th overall in the world and 4th in North America for total cargo traffic.

-MIA is the principle air cargo gateway for Central and South America.

Sources: Air Transport Research Society (ATRS); Landrum & Brown

Frankfurt Airport ("FRA") – has the highest air cargo airport traffic in Germany, and second highest in all of Europe. ACI ranked FRA 7th overall in the world for 2010 cargo traffic. There are concerns in Frankfurt that the new curfews will constrain future growth.

Frankfurt Main International Airport
FRA
Frankfurt, Germany
Fiscal Year End: Dec. 31, 2009

Capacity	
Runways	3
Annual Metrics Tonnes Handled	2,280,000
Employees	17,441

Airport Statistics	2003	2005	2007	2009	2010
Air Operations	458,865	490,147	492,569	463,111	464,432
Passengers (000)s	48,343	52,230	54,168	50,938	53,009
Cargo (metric tons)	1,650,601	1,963,142	2,169,025	1,917,227	2,275,109

*2010 data from ACI Worldwide Airport Traffic Statistics

Fee Structure		
As of April 2009:		
Landing Fees (Euro/ ton)		
Cargo/mail flights	€	0.79
Ferry/Helicopter flights	€	2.50
Minimum Charge:		
A/C up to 35 tons	€	150.00
Additional variable charges:		
A/C Passenger (per departing pax)	€	1.02
Freight & Mail (per 100kg/arrival and departure)	€	0.16

1 USD = 0.71968 EUR

Revenues	2009
Total Operating Revenue USD	$1,895,489,242
% Aeronautical Revenue	28.70%
% Concession Revenue	-
Net Operating Income USD	$ 230,321,696
Passenger Facility Charges (PFC	-
Operating Margin	12.20%
Movements per Day	**1,269**
Daily Gate Utilization	949

Ownership & Management

Fraport AG is the German transport company which operates the Frankport International Airport serving Frankfurt am Main. Fraport sold its 65 percent stake in Flughafen Frankfurt-Hahn GmbH to the German state of Rhineland-Palatinate to limit losses. Fraport sold the holding for a symbolic price of 1 euro (USD$1.29), effective from January 1, 2009, ending all financial obligations tied to Hahn. The Group is owned by the State of Hesse (31.52%), the Stadwerke Frankfurt am Main Holding GmbH (20.13%), Artio Global Investors (10.33%), Deutsche Lufthansa AG (9.93%), Taube Hodson Stonex Partners LLP (3.58%), Arnhold and S. Bleichroeder Holdings Inc. (2.98%), Morgan Stanley (2.94%). and other private or institutional holders (18.59%). Fraport holds shares in Frankfurt, Antalya, Lima, Burgas, Varna, Delhi, Xi'an, Cairo, and Hanover.

Sources: Air Transport Research Society (ATRS); Landrum & Brown

Notes and Observations

-In 2010 FRA was ranked by the Airports Council International 7th overall worldwide in cargo traffic.

-Construction of the new Northwest Landing Runway began in early 2009 and is expected to be completed in time for the 2011/2012 winter timetable

London Heathrow Airport ("LHR") – has the highest cargo traffic in the United Kingdom and third highest cargo airport traffic in Europe. ACI ranked LHR 16th overall in the world for 2010 cargo traffic. There are very real operational capacity-issues related to the runways which will constrain future growth.

London Heathrow International Airport
LHR
London, England
Fiscal Year End: Dec. 31, 2009

Capacity	
Runways	2
Annual Metrics Tonnes Handled Handled	1,550,000
Employees	5,407

Airport Statistics	2003	2005	2007	2009	2010
Air Operations	456,770	472,954	481,476	466,393	454,883
Passengers (000)s	63,469	67,915	67,855	66,037	65,884
Cargo (metric tons)	1,223,623	1,306,000	1,393,243	1,348,914	1,551,405

*2010 data from ACI Worldwide Airport Traffic Statistics

Fee Structure		
As of April 2010:		
Landing		
Peak: Over 16 ton		659.6 - 2,328
Off-peak & shoulder:		
Up to 16 ton	£	776
Over 16 ton		659.60 - 2,328.00
Super night peak		
Chapter 3 (-) (QC q/0.5) A/C	£	1,746
Chapter 3 A/C Base	£	1,940
Chapter 3 A/C High	£	2,910
Chapter 2 Non Certified A/C High	£	5,820
Min Charge on Departure (per departing flight)	£	220

1 USD = 0.64132 GBP

Revenues	2009
Total Operating Revenue USD	$2,721,224,208
% Aeronautical Revenue	55%
% Concession Revenue	20.10%
Net Operating Income USD	$ 199,117,770
Passenger Facility Charges (PFC	-
Operating Margin	7.30%
Movements per Day	**1,278**
Daily Gate Utilization	928

Ownership & Management

BAA Limited, the world's largest airport operator, owns and operates six UK Airports. In July 2006 BAA was taken over by a consortium led by Grupo Ferrovial, following a bid which valued the company at $20 billion USD. As a result, the company was delisted from the London Stock Exchange and was subsequently changed from BAA plc. to BAA Limited. Grupo Ferro vial, S.A. is an infrastructure and multinational Spanish company involved in the design, build, financing, operation and maintenance of transport, urban and services infrastructure. In March 2009, the Competition Commission ordered BAA to sell Gatwick, Stansted and one Scottish airport in order to improve competition in the UK Airports market. Gatwick was sold, but BAA has appealed against the Competition Commission decision for the sale of Stansted and one Scottish airport.

Notes and Observations

-In 2010 LHR was ranked by the Airports Council International 16th overall worldwide in cargo traffic.

-The construction of the new Terminal 2 continues with the completion of the first phase of its future satellite building completed in 2009. The terminal will be the new home of Star Alliance Airlines.

-Even though LHR operates at over 98% of its capacity with two runways, they announced in May 2010 that they will stop work on the planning application for a third runway.

Sources: Air Transport Research Society (ATRS); Landrum & Brown

Dubai International Airport ("DXB") – is the principal air cargo gateway for the Middle East and fastest growing airport for cargo. ACI ranked DXB 8th overall in the world for 2010 cargo traffic. Dubai is building the new Al Maktoum Airport with a capacity of 14,000,000 tons of cargo. The existing airport has substantial capacity issues and growing competition in the Middle East.

Dubai International Airport
DXB
Dubai, United Arab Emirates
Fiscal Year End: 2009

Capacity	
Runways	2
Annual Metrics Tonnes Handled	2,270,000
Employees	-

Airport Statistics	2003	2005	2007	2009	2010
Air Operations	168,511	217,165	260,530	295,203	307,283
Passengers (000)s	18,062	24,782	34,348	40,902	47,180
Cargo (metric tons)	940,595	1,333,014	1,668,505	1,927,520	2,270,498

*2010 data from ACI Worldwide Airport Traffic Statistics

Fee Structure	
As of 2009:	
Landing Fees based on MTOW	
4.5 - 45 tones (AED per tonne)	11.00
Over 45 tonnes (AED per tonne)	12.80
up to 4.5 tonnes (AED per tonne)	13.95

1 USD = 3.6725 AED (2009)

Revenues	2009
Total Operating Revenue	-
% Aeronautical Revenue	-
% Concession Revenue	-
Net Operating Income	-
Passenger Facility Charges (PFC	-
Operating Margin	-
Movements per Day	**809**
Daily Gate Utilization	671

Ownership & Management

Dubai International Airport was established in 1959 when the late Ruler of Dubai, HH Sheikh Rashid bin Saeed Al Maktoum, who ordered the construction of the first airfield. Dubai International Airport is owned and managed by Dubai Airports, who will also be responsible for the upcoming Dubai World Central Al Maktoum International Airport. Dubai International is Middle East's busiest airport and the fastest growing in the world. It has undergone much expansion adding a new terminal and two concourses that was completed in 2009.

Notes and Observations

-In 2010 DXB was ranked by the Airports Council International 8th overall worldwide in cargo traffic.

-Dubai's government is planning to construct a new airport in Jebel Ali termed Dubai World Central International Airport which is expected to be the fourth largest airport in the world by physical size. It is expected to be finished by the year 2017.

-The Department of Civil Aviation began US$4.1 billion expansion (2nd phase) construction in the first quarter of 2002 and completed by 2006. This phase includes Terminal 3, Concourse 2 and Concourse 3, which will be a dedicated facility for Emirates Airline. With completion of this phase, Dubai International Airport will have the capacity to handle close to 70 million passengers a year, its present capacity being 22 million.

-DXB is a hub for Emirates. 120 airlines operate from DXB, flying to 205 destinations worldwide.

-Won "Air Cargo Hub of the Year Award" at the Supply Chain and Transport Awards in Dubai and "best airport of the middle east" at the Asian Freight and Supply Chain Awards in Shanghai.

Sources: Air Transport Research Society (ATRS); Landrum & Brown

Shanghai Pudong International Airport ("PVG") – has the highest cargo airport traffic in China. ACI ranked PVG 3rd overall in the world for 2010 cargo traffic. The facilities have been planned to accommodate 6,000,000 tons of cargo annually.

Shanghai Pudong International Airport
PVG
Shanghai, China
Fiscal Year End: Dec. 31, 2009

Capacity	
Runways	3
Annual Metrics Tonnes Handled	3,230,000
Employees	6,636

Airport Statistics	2003	2005	2007	2009	2010
Air Operations	134,276	205,046	253,535	287,916	328,507
Passengers (000)s	15,064	23,542	28,921	31,921	40,582
Cargo (metric tons)	1,357,200	1,856,700	2,559,300	2,543,400	3,227,914

*2010 data from ACI Worldwide Airport Traffic Statistics

Fee Structure	
As of 2009: (fees are standardized for all Chinese Airports)	
Landing Fees (CNY)	(Fixed)
Up to 25 tonnes (fixed)	2,000
26- 50 tonnes (fixed)	2,200
51-100 tonnes	2,200
101-200 tonnes	4,200
Over 200 tonnes	8,600

1 USD = 6.8903 CNY (2009)

Revenues	2009
Total Operating Revenue (SIA)	$480,365,650
% Aeronautical Revenue (SIA)	97%
% Concession Revenue (SIA)	20%
Net Operating Income (SIA)	$113,475,568
Passenger Facility Charges (PFC	-
Operating Margin (SIA)	24%
Movements per Day	789
Daily Gate Utilization (pax)	892

Ownership & Management

Shanghai Pudong International Airport is managed by Shanghai International Airport Company Limited (SIA), a wholly government owned and funded company. To satisfy the needs of the operation of "One City, Two Airports", Shanghai Airport Authority was established officially in February 1998 upon the approval of Shanghai Municipal People's Government as a result of an important reform on the management of Shanghai airports. Since then, both Hongqiao International Airport and Pudong International Airport are under the uniform management and operation of Shanghai Airports Authority. As China's first largest listed airport company, Shanghai International Airport Co. Ltd. is a joint-stock limited company solely initiated by Shanghai Airports Authority. The new international airport in the Pudong New Area of Shanghai became operational on October 1, 1999. In October 2002, the corporation had successfully moved international and Hong Kong & Macao flight transfers from Honggiao Airport to Pudong Airport.

Notes and Observations

-In 2010 PVG was ranked by the Airports Council International 3rd overall worldwide in cargo traffic.

-The third runway opened in March 2008 and a forth runway is in its planning stage.

-Terminal 2 opened on March 26, 2008. T2 provides 40 million passenger of additional capacity.

-The long-term plan calls for a total of three terminals and five parallel runways, for a final capacity of 80 million passengers per year.

-Currently, Pudong International Airport is serving about 50 domestic and foreign airlines, connecting with over 70 international and regional domestic and overseas shipments. Terminal 2 is set to open in second half 2010.

Sources: Air Transport Research Society (ATRS); Landrum & Brown

Toronto Pearson International Airport ("YYZ") – is the busiest airport in Canada. Toronto competes with JFK on a very indirect basis. Cargo historically has been trucked south to JFK because of lack of international lift at Toronto. As wide-body passenger activity grows at YYZ, small percentages of JFK belly cargo disappear.

Toronto Lester B. Pearson Airport
YYZ
Toronto, Ontario
Fiscal Year End: Dec. 31, 2009

Capacity	
Runways	5
Annual Metrics Tonnes Handled	470,000
Employees	1,235

Airport Statistics	2003	2005	2007	2009	2010
Air Operations	370,996	409,645	425,500	407,352	418,051
Passengers (000)s	24,739	29,915	31,507	30,368	31,897
Cargo (metric tons)	287,666	410,000	505,608	439,130	471,337

*2010 data from ACI Worldwide Airport Traffic Statistics

Fee Structure	
In Canadian Dollars - as of Jan 2010	
Landing Fees (per ton MTOW)	
Fixed wing aircraft less than 19 tons	
Mon-Fri 7-10am & Sun-Fri: 2:30-9PM	$ 145.00
Non-peak periods	$ 82.50
Fixed wing aircraft greater than 19 tons	$ 30.48
Air Cargo per MTOW	$ 22.92

1 USD = 1.14153 CAD (2009)

Revenues	2009
Total Operating Revenue	$763,475,551
% Aeronautical Revenue	67%
% Concession Revenue	9%
Net Operating Income	$436,852,309
Passenger Facility Charges (PFC	$229,806,488
Operating Margin	57%
Movements per Day	**1,116**
Daily Gate Utilization	626

Ownership & Management

The Greater Toronto Airports Authority (GTAA) was incorporated in 1993 under Part II of the Canada Corporations Act as a not for profit corporation without share capital. On December 2, 1996, the GTAA signed a 60-year ground lease (with one renewal term of 20 years) with Transport Canada, transferring responsibilities to the GTAA to operate the airports within the region on a commercial basis, to set fees for their use, and to develop and improve their facilities. The GTAA is governed by a 15-member Board of Directors, with nominees from their four regional municipalities of Durham, Halton, Peel, York, and the City of Toronto, the Province of Ontario and the Government of Canada and from the Greater Toronto Area business and professional community.

Notes and Observations

'-In 2010 YYZ was ranked by the Airports Council International 13th in North America for total cargo traffic.

-YYZ has the highest landing fees in the world. The landing fees include the amortization of a high percentage of terminal and landside capital expenses in addition to all airfield amortization which inflates the landing fee beyond the typical airfield cost allocation methodology employed by most airports around the world.

-In June 2010, YYZ was recognized with the 2010 IATA Eagle Award for Most Improved Airport by airlines around the globe. The award is presented in recognition of an airport's outstanding performance in terms of airline satisfaction, cost efficiency, and continuous improvement.

Sources: Air Transport Research Society (ATRS); Landrum & Brown

São Paulo/Guarulhos International Airport ("GRU") – is the largest air cargo airport in South America and a strong emerging market. 2010 saw a stabilization in cargo activity that will soon see pressure on the cargo facilities to accommodate growth driven by the Olympics and the World Cup.

Sao Paulo/Guarulhos-Governador Andre Franco Montoro International Airport
GRU
Sao Paulo, Brazil
Fiscal Year End: Dec. 31, 2009

Capacity	
Runways	2
Annual Metrics Tonnes Handled	430,000
Employees	-

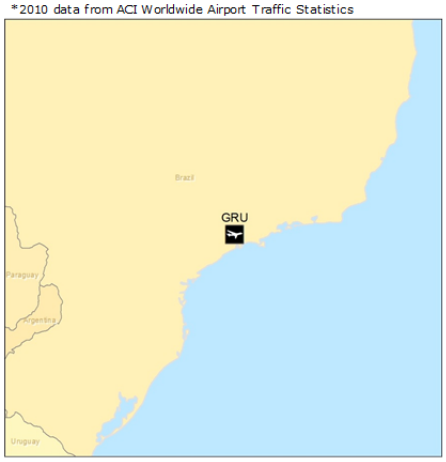
Airport Statistics	2003	2005	2007	2009	2010
Air Operations	139,038	154,339	187,960	209,636	250,493
Passengers (000)s	11,581	15,835	18,796	22,332	27,432
Cargo (metric tons)	504,135	575,411	557,934	435,250	430,850

*2010 data from ACI Worldwide Airport Traffic Statistics

Fee Structure	
As of 2009	
Landing Fees (per ton MTOW)	
International:	
Up to 49 tons	$ 2.76
50-89 tons	$ 4.12
Over 89 tons	$ 4.69
Min Charge	$ 15.71
Domestic:	
Up to 49 tons	(CLP 458)
Over 49 tons	(CLP 1175)
Min Charge	$2,254.00

1 USD = 483.9 CLP

Revenues	2009
Total Operating Revenue	-
% Aeronautical Revenue	-
% Concession Revenue	-
Net Operating Income	-
Passenger Facility Charges (PFC	-
Operating Margin	-
Movements per Day	**574**
Daily Gate Utilization	1,003



Ownership & Management

INFRAERO - Brazilian Airports is a governmental company with 37 years experience in Airport Operations and Commerical Management. It operates 67 airports, 81 Air Navigation Stations and 32 International Freight Terminals, which account for 97% of the regular air traffic in Brazil. The company holds airports located all over the country and has a nationwide work force of some 23,000 employees (both in the company and under third party contracts).

Notes and Observations

- In July 2010, Infraero implemented improvements to the cargo logistics Terminal at GRU in order to meet the spike in demand.

Sources: Air Transport Research Society (ATRS); Landrum & Brown

5.2 CRITICAL ISSUES COMPARISON

Earlier in the planning process, based on stakeholder, client, and industry feedback, and a Strengths, Weakness, Opportunities and Threats ("SWOT") analysis, the following critical issues were identified. It was agreed that where comparisons were applicable the ten selected airports would be used to help focus on adaptable best practices. Additionally, other potentially viable practices or policies would be identified as well.

Issue 1 A conceptual development plan that allows for phased, fiscally prudent development of modern, cost-effective air cargo facilities.

All of the airports have a Master Plan which guides their overall land use and operations. Domestically, ORD has conducted an evaluation of its cargo facilities and their capacity, and in conjunction with the O'Hare Modernization Program has planned for a redevelopment of their existing cargo facilities and a new 1,000,000-square feet cargo development with 17 wide-body parking positions in the Northwest Quadrant. The new cargo initiative has been bid and negotiations are underway for the development. This will add approximately 40 percent to ORD's current on-airport capacity. The development will follow the conceptual land use planning that drove the project.

LAX is currently evaluating the need for a new air cargo master plan that would lead to substantial redevelopment of most of their existing facilities. There are environmental constraints on airport development which is why Ontario International Airport ("ONT") may become more important in the future. A previously awarded bid for 1.5 million square feet of development at ONT was awarded and negotiated but no construction took place because of the economy.

MIA is fairly constrained and has not done a reuse plan recently. The airport is, however, in the process of adding a new 830,000-square feet facility that will offset some of the capacity issues. ATL is in the process of preparing an updated air cargo master plan. In the current configuration of its cargo facilities, the airport has the capacity to add about 125,000-square feet of additional capacity should it be required. A bigger issue at ATL is the availability of aircraft parking at peak times.

Internationally, London is constrained both airside and landside. There are no indicated plans for a redevelopment of cargo capacity, and plans for a new runway have been put on hold. If London Heathrow Airport ("LHR") is to grow its cargo well into the future, vertical development will be necessary. At FRA, the primary development issue has been the new runway. The negotiated tradeoff to reduce night flights via a curfew has reduced Lufthansa cargo activity and taken pressure off existing facilities. There were no indications that a conceptual plan or new cargo facilities are on the near horizon. YYZ has a long-term development plan that will provide them substantial new capacity when and if it is required. YYZ's cargo volumes are about one-third of JFK's.

Dubai has a comprehensive development plan for the new airport, Al Maktoum International Airport ("DWC") in Jebel Ali, Dubai. Because of delays on the relocation of some carriers from the existing airport, there will be some interim uses at the new facility but the indications are that the plan will be implemented. Similarly, PVG has an expansion plan for its cargo operations but it is much more general, focusing on broad space allocation rather than facility specific layouts. The facilities in GRU are very limited with only two buildings. The existing facility was recently improved but any major changes are on hold while privatization options are being reviewed.

The "cargo village" concept exists at the older airports in an informal sense. The natural dynamic of the logistics industry attracts supporting businesses to the airport environment. Freight forwarder and customs broker complexes have evolved at LAX, MIA, ATL, ORD, LHR, and YYZ just as they have at JFK. No plans to develop an on-airport village at JFK were identified. FRA has an on-airport cargo village. Both DBY and PVG have substantial planned cargo village's off-airport but with planned integrated access, operations, and security. At DXB the entire airport and cargo village complex is under the control of Dubai World Central while at PVG with a different political and business model, the City of Shanghai controls the leasing of the off-airport properties. It should be noted that despite demand, the development at PVG has not been successful because of construction design and proposed rental rates.

Issue 2 Trucking access issues and connectivity between on- and off-airport cargo facilities.

Of all the domestic airports, ATL has the least amount of congestion around the airport. There are, however, very severe access issues at the new cargo complex. The connecting road to the development has only one point for access and egress. Because of the limited depth of the truck court, maneuvering vehicles is problematic. The larger gateways, MIA, LAX, and ORD all have access issues because of regional ground traffic levels. A second major problem which exists at all domestic gateways is that older buildings have truck aprons planned for trucks that are 40 feet long or smaller, creating docking and operating issues. Future planning at JFK includes truck courts with a 150-foot depth to avoid these issues. No access issues were identified at YYZ.

Internationally, there is far more limited use of large tractor trailers. Nevertheless, the existing airport in Dubai suffers from access and operating issues. The older cargo facility at GRU has very poor access because of the depth of the truck apron and the roads around the airport where congestion is getting worse. PVG has the most efficient off-airport access with a controlled entry point designed for trucks, and with the capacity of 16 manned gates for both security and expedited clearance. FRA has a substantial cargo village on the south side of the aeronautical infrastructure. Access has been planned and incorporated into FRA's airport plan and reduces ground traffic and increases shipping efficiencies. A 1,000,000 square feet expansion is planned at FRA for the near future. LHR has no unique problems but offers no unique solutions to the access issue. YYZ has less ground traffic and access is good, although the traffic flows are more a function of volume rather than design.

A common concern among all the airports compared that impacts trucking operations is insufficient and/or poorly located auto parking for customers and employees. This often causes maneuvering problems on the truck aprons and delays in accessing the cargo bays. Future cargo facility planning at JFK should segregate trucks from autos. (Removal of auto parking from direct adjacencies to the warehouse has the added benefit of reducing theft).

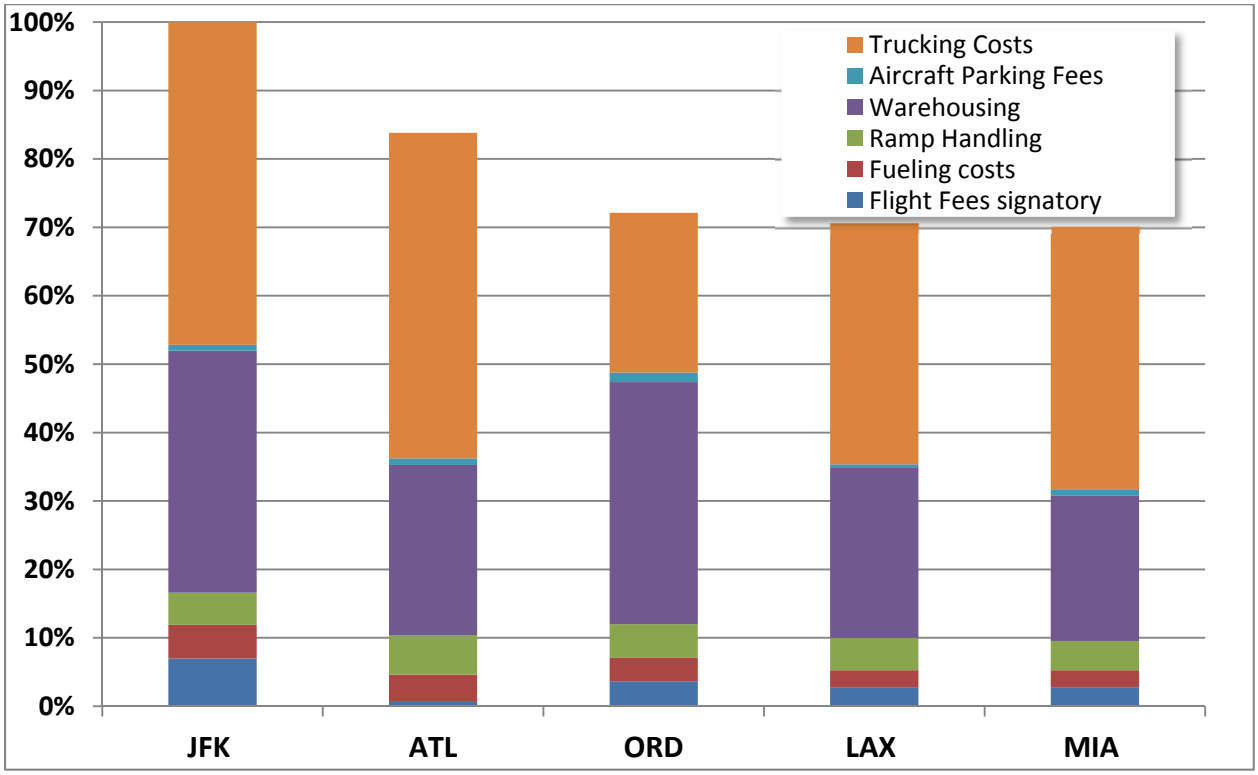
Issue 3 A cost reduction program for tenants and users of on- and off-airport facilities.

While the airports compared are sensitive to costs, there are no formal cost-reduction programs in place. LAX at one point had developed an incentive program linked to controlling costs at the proposed new cargo development at ONT, but it was never implemented. Part of the issue at these gateway airports is the impact of demand on pricing. Historically, capacity has been a concern at the major gateways and the environs. With demand high, pricing was a secondary concern on- and off-airport. The airport and local property owners were, therefore, in a strong negotiating position, and rates and

related fees remained high. U.S. airports operate under an FAA mandate to be financially self-sustaining by making the pursuit of revenues consistent with a higher "mission" for a not-for-profit operation. A number of secondary airports have added incentives to reduce landing fees and fuel flowage fees, where demand needs to be stimulated there is typically more flexibility in rate structures. DXB has been criticized for extremely high handling costs and has in fact lost business to neighboring airports in Sharjah and Bahrain because of fees and because of delays in handling cargo.

The most important comparisons for costs, however, remain with the domestic airports. To understand relative costs for an operation (exclusive of fuel costs and leasing which is driven in large measure by regional property costs), the Team developed a composite of the costs related to the handling of a 747-400 cargo freighter and the distribution of its cargo. A blended rate over a five-year period was used. Several airports requested that actual costs not be included because of on-going discussions with tenants and users, so an overview of the relative rate structures was prepared and is shown in **Figure 5.2-1, *Relative Cargo Operating Costs***, below. The domestic airports are shown as a percentage of JFK.

Figure 5.2-1 RELATIVE CARGO OPERATING COSTS



What is most significant about this comparison is that MIA, LAX, and ORD costs are approximately 70 percent of JFK. What this graphic also reflects is the impact of trucking on the overall cost of an operation. The difference between JFK and ORD is relatively small except for the trucking costs. Recent landing fee increases at ORD are included in the numbers. *The New York tolls, special access fees to JFK, the restriction on 53-foot trucks, and the proliferation of trucking competition in the mid-west give ORD a substantial advantage and strongly suggest that JFK needs to respond.*

ATL surprisingly, has the second highest costs, but as the graphic indicates this is due to the cost of trucking. ATL has less volume and fewer trucking companies to compete, which keeps rates higher than at JFK where, although labor costs are higher, greater volumes and competition because of the population base and the seaports provide mitigation.

More recently, as the economy has become more problematic and demand has declined, U.S. airports have begun to look at opportunities to generate additional revenues other than raising fees. The primary focus is the development of property for commercial purposes as well as for businesses that directly support cargo operations. None of the gateway airports has pursued this to date. MIA, LAX, and ATL have physical constraints that limit the ability to develop property. ORD has substantial property (equal to the size of JFK) available for this type of property development. If successful, this land use gives an airport the ability to reduce carrier operating costs, and generate substantial additional revenues. Based on the planning concepts and strategies in this Plan, JFK would have the opportunity to pursue this type of development which could help grow cargo, on a limited basis.

Issue 4 Competitive and modern leasing policies and practices.

Leasing rates outside of the U.S. are not relevant on a comparative analysis for JFK.

There are essentially four categories of properties on which an airport and municipality need to focus. For the air cargo industry, these categories each have a different value based on operating need. These are listed below from lowest to highest value.

1. Off-airport facilities – have no connection to aeronautical infrastructure. Access to a carrier-served air cargo operation is typically by truck.
2. On-airport facilities without access to the airside facilities - these facilities also do not have access to the airside, but their location on-airport gives them added value from marketing, operating, and security perspectives. These facilities have the benefit of airport policing and landside infrastructure including roadway geometry that facilitates trucking operations.
3. On-airport facilities with restricted access to the airside facilities – are typically designed for carriers that do not use freighters. The buildings have airside doors that are accessible via a tug and cart system although there is no adjacent ramp. There is additional value in these buildings because cargo can reach an aircraft without the use of a truck.
4. On-airport facilities with adjacent aircraft apron - are critical to large carrier freighter operations and to integrators like FedEx and UPS where the lack of adjacent ramp could cost money and time. From an aviation perspective, facilities with adjacent ramp and direct aeronautical access have the most value for cargo operations.

Of all the gateways in North America, JFK has the most available property, the most non-viable facilities, and the highest rent structures for cargo. Factoring in the generally higher property values associated with the City, this creates substantial challenges for leasing existing facilities and developing new ones on the Airport. The off-airport issues are to some extent similar – high rental rates and for the most part aging properties. Nevertheless, there is demand for both new and older properties off-airport. For U.S. gateways these areas, such as Springfield Gardens across from JFK, represent the domestic equivalent of a “cargo village.” They are attractive for customs brokers and freight forwarders and a range of other ancillary and supporting businesses for which proximity to an airport is very important.

Historically these off-airport facilities typically lease for about 40 percent of the rate for an on-airport air cargo facility with ramp. This relationship is fairly constant for all airports, large and small. The disparity in rates takes a potentially large leasing market of on-airport properties out of the picture. However, as the financial pressures on airports increase, more are beginning to explore new leasing policies and practices to encourage new tenancies and the expanded participation of third-party developers in the construction of cargo and commercial facilities. It is important to note that commercial facilities may, in certain instances, require the approval of the FAA. This is consistent with their responsibility to ensure the preservation of national aviation assets.

The comparative cost of airport gateway properties is illustrated in the following graphics. These figures represent average rates over the past five years based on information received from the airports, previous surveys, and document research. Because of requests from airports to maintain a level of confidentiality regarding specific rates, the numbers as indicated are relative with JFK expressed as 100 percent. **Figure 5.2-2, *Relative Airport Warehouse Rent Per Square Foot – No Ramp***, indicates a blended rate for properties that have no adjacent ramp. The significant factor is that JFK is at least twice the rate of other airports.

Figure 5.2-2 RELATIVE AIRPORT WAREHOUSE RENT PER SQUARE FOOT – NO RAMP

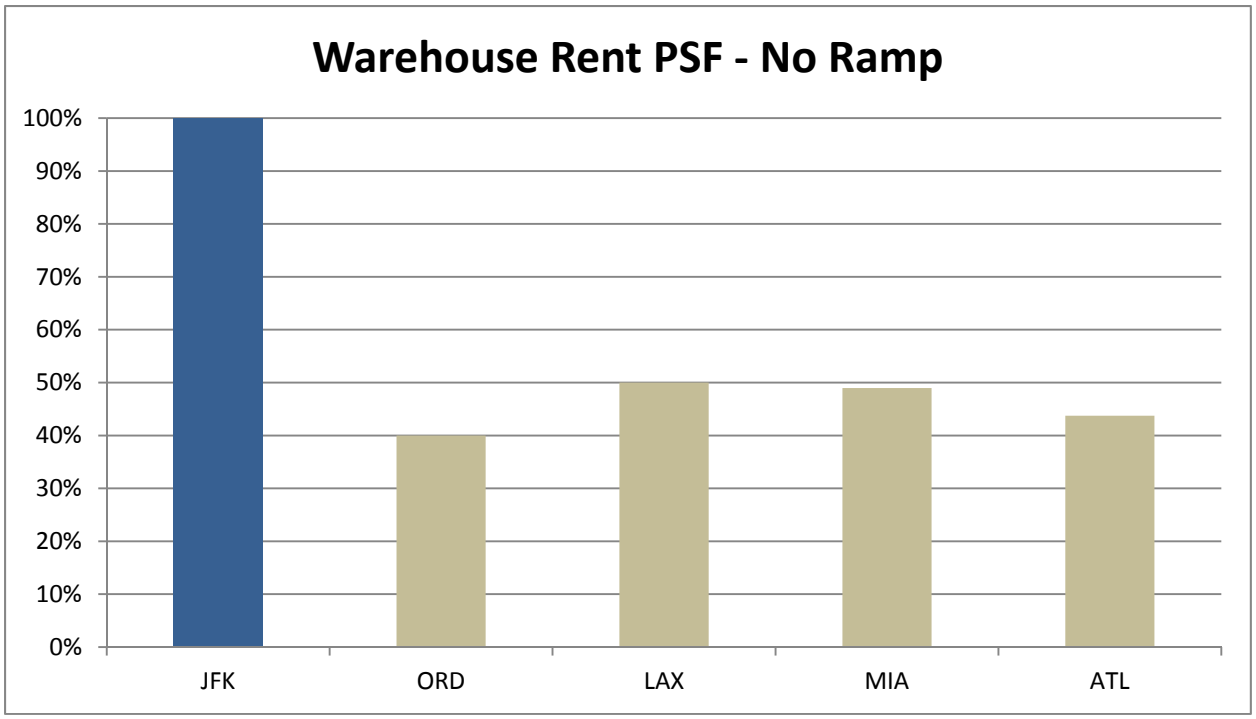
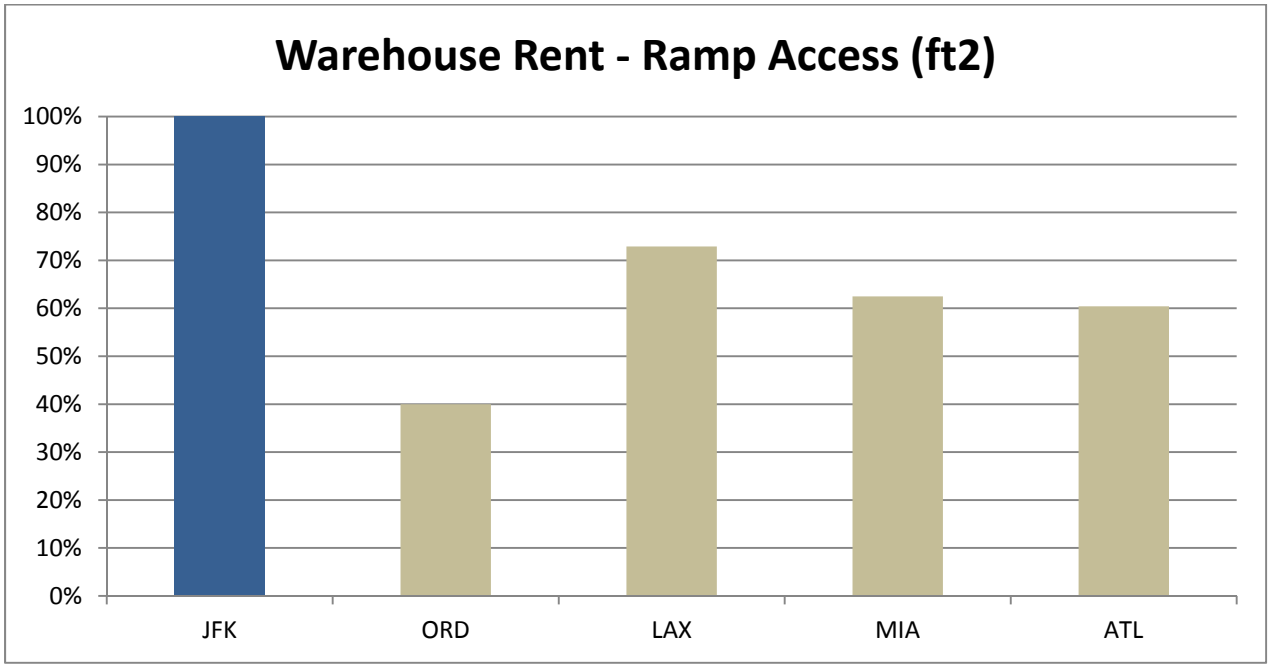


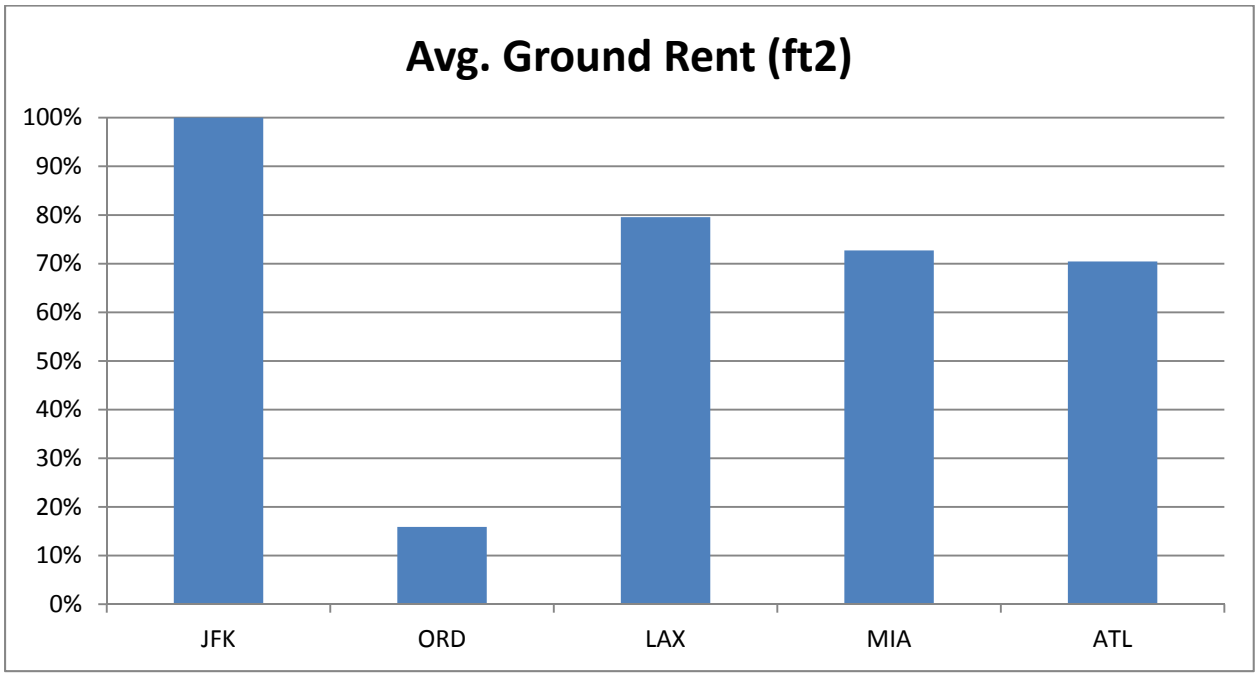
Figure 5.2-3, *Relative Warehouse Rent Per Square Foot – Ramp Access*, indicates a blended rate for properties that have adjacent ramps. The significant factor is that rates at JFK are much higher than the rate at other airports.

Figure 5.2-3 RELATIVE WAREHOUSE RENT PER SQUARE FOOT – RAMP ACCESS



The ground rent is the annual cost per square foot of land. In this category, JFK's differential with the other gateways is not as substantial but still is in the 20 to 30 percent range as compared to three of them. The ground rents at ORD as well as the warehousing rents are significantly lower. This is due in large measure to the business deals that the airport structured years ago to secure the tenancies of American and United Airlines, and a number of international carriers. This differential will decrease as leases expire and ORD implements more market-based lease structures. The ground rents are shown in **Figure 5.2-4, *Relative Ground Rent Per Square Foot***.

Figure 5.2-4 RELATIVE GROUND RENT PER SQUARE FOOT



The graphics clearly indicate that JFK is less competitive from a cost perspective in the area of facility and ground rents. ***Despite the presumed influence of the Region, the differential in the actual costs to the carriers and the other components of the logistics chain is a concern and should be addressed.***

There are other leasing and fee-related policy/practice issues that impact costs to carriers that differ from most other gateways.

1. Lease length for new development. Other comparative airport gateways are adding extension provisions to ground leases on new development that enable developers to amortize investments in new projects over 35 to 45 years.
2. Tiered ground rental structure. ORD and MIA have begun to implement tiered pricing for ground rents which essentially reflect the categories discussed earlier in this Chapter. Many non-gateway airports have moved to this type of approach to stimulate on-airport development and broaden the leasing market to include customs brokers and freight forwarders.

3. Residual Value. This is the potential leasing value or lost revenue stream of an empty building that a developer must pay in order to take a building down. For facilities that are viable this is a real number. For non-viable facilities this is an additional financial burden on new development that inflates the rental structure. This was not identified as a policy at any other gateway. The Port Authority has indicated that it has abandoned this concept.
4. Commencement of ground rent. Typically airports defer receipt of ground rental payments until construction is substantially complete or the date of beneficial occupancy. This has become fairly standard practice since September 11, 2001, and reflects sensitivity to the dramatic fluctuations in the marketplace for new facilities. JFK historically required rent payments commencing with the signing of the ground lease but has indicated that this will no longer be the case.
5. Common use facilities. This essentially is a facility built by a developer and leased to a handling company. Much of the revenue accruing to the airport is derived from a negotiated percentage of handling fees. This works if the basic ground rent takes what into consideration and rates are linked to volume discounts. JFK appears to be the only gateway with this arrangement, although ATL's most recent cargo facilities are all operated by handling companies.
6. Rent escalators. Most airports include an escalator clause on leasing agreements. Typically this is tied to a Consumer Price Index ("CPI") or other market-linked benchmark. This tie to market value has, in many instances, helped mitigate financial impacts on tenants. In some instances the adjustment is made after a five-year period. JFK appears to be the only gateway that has an either/or option which guarantees a rental increase every year regardless of trends in the market.
7. Percentage fees on cargo handling. Under this policy, cargo handling companies pay a percentage of their gross revenues to the Port Authority. Of the gateway airports, only MIA has a similar policy.
8. Percentage fees on subleases. This exists at only one other gateway airport other than JFK and is considered to be a good business practice. It is sometimes difficult to monitor and the scope of this comparative analysis effort did not probe this practice with the other airport regarding its audit practices.
9. City Partnerships. The cost of money is one of the keys to controlling the overall financial impact on tenants and users. Gateway cities are typically very supportive of air cargo development. The Atlanta Economic Development Corporation ("EDC") actively partners with ATL on marketing and financing cargo-related projects and other cities help sponsor cargo-related activities and their links to regional economic development. It is not unusual for the municipality to help fund cargo development or incentive programs to attract new business. The use of a city financing entity to help reduce interest rates would be of substantial benefit.

In summary, of the gateways, the Port Authority leasing policy appears to be the most risk averse, and the one most heavily slanted towards the Airport. The consensus from the development community is that the combined impact substantially inflates rental rates and related fees to tenants and users.

Issue 5 Infrastructure financing strategies for off-airport facilities.

Internationally the development of supporting cargo facilities is handled in a variety of ways. In GRU there is very limited related off-airport development. Customs brokers and freight forwarders typically have their own facilities some distance from the airport. Upon occasion there will be some grouping but nothing that would warrant a sponsored infrastructure development. In Dubai, the Emirate is developing a freight forwarder complex with a planned capacity of 120 million tons a year to support the seaport and DXB. In Shanghai, the City, in partnership with a developer, sponsored the creation of a 10 million square-foot Logistics Park with direct access to PVG. In Frankfurt such development has been incorporated into an overall airport development plan.

The off-airport infrastructure in North America, and around LHR, is similar in that it has developed incrementally, largely under the auspices of a diverse grouping of private property owners who either developed or purchased multiple properties and focused their use on air cargo support. The properties surrounding JFK are a clear example of how this business segment has evolved. In the instance of mature airport facilities, the surrounding roadways and the connections to the Airport are for the most part incompatible with modern operating requirements and equipment. JFK's positioning relative to other U.S. gateways is therefore comparable.

There are two broad issues that must be considered when looking at the financing of off-airport infrastructure. The first is with regard to the availability of funds. Typically federal funding would have limited applicability to an off-airport cargo project because of the levels of interest from the private sector. Provided there is a demonstrable need, other public funding sources such as the state or municipality must frequently choose (assuming that dollars are available) between investment in an off-airport facility or allocating funds to the airport. The fact that airports are not-for-profit organizations, as mandated by the FAA, has a substantial public impact that requires most controls and operating with a set of public service-oriented business goals, which makes the use of funds for off-airport project problematic.

The second issue in a mature environment is fragmentation of the real estate market. The challenge is to create a "development zone" to which any infrastructure funding mechanism or benefits/incentive package can be applied. This will involve a focused and strategic effort to integrate multiple private partners into a single property reuse or development concept, and the structuring of a combination of appropriate city benefits and incentives with other available funding options. These programs range from corporate self-funding to government grants. Often, off-airport infrastructure projects are funded with a combination of several of these programs.

Issue 6 An aggressive rebranding and marketing campaign.

This issue has two elements. The first is determining the new image of JFK and the second is marketing that image and related services, facilities, and amenities to an industry that has a fairly firm perception of JFK and the Region. The latter element is a common concern to virtually every airport and certainly to gateway airports. The first element – rebranding – is an area of potentially greater concern and far greater complexity that is, at least for the current time, unique to JFK. There are several reasons:

1. Cargo facilities are not typically the most aesthetically pleasing on an airport. At JFK the age of many of the facilities, the percentage of vacant buildings, the non-structured configuration and orientation of the buildings, and the overall condition of adjacent properties combine to give a fairly negative perception of the physical environment.

2. The cost of doing business in the City is relatively high to begin with. The cost of shipping through JFK is substantially higher than through every other airport in the U.S. This includes the total cost to handle and distribute cargo as well rental rates generated by leasing policies and practices.
3. The years of undeserved negative press on security have not been addressed and continue to cause misplaced concerns with the shipping community.
4. The quality of handling services varies from company to company and within companies from airport to airport. Issues with service at JFK are often tied to value – that is the quality of the service for the price. Because of the overall cost of doing business, local handling companies have, in the past, paid low wages and as a result the quality of the staff has suffered. There are no indications that this is the current situation, but the perception of less than optimum service exists in the industry.

The single most important thing however that needs to be done is the creation of an image and theme around which these other elements can be addressed. Of the other gateways, only MIA has created a real identity through conscious effort as the door to the South. ORD is the Midwest distribution hub and features its carriers on its website, and LAX is the connection to Asia. These affiliations are more through geography than conscious marketing focus. ATL talks about its new facilities because it lacks a geographic differentiator. JFK on the other hand is the gateway to a mature European market which does not entice new entrants. To be fair, with the exception of MIA, there is little "image" marketing by the gateways because the airports are known in the industry, and are typically an airport of choice for international trade. This is an opportunity for JFK to reestablish an image in the industry and redefine itself as a "new" cargo airport.

It is in the area of actual marketing that JFK substantially differs from other competitors. Internationally, DBX is perhaps the most aggressive largely because of the efforts of Emirates Airline which is owned by the government who also owns the airport. As a result DBX, through the carrier, is represented at every major cargo conference in the world and in a constant multi-media campaign. FRA, too, through its affiliation with Lufthansa is able to market itself fairly extensively in trade shows, and separately through other trade shows and conferences. Its website features air cargo and the facilities the airport offers. PVG is unique in that it offers its performance standards for industry review on the website, in addition to the other more standard descriptions of services and facilities. YYZ is very active in conferences and in marketing trips. Canadian airports frequently market together to economize on costs and present a set of alternatives to more traditional gateways into North America. YYZ's website is well constructed but the content does little to distinguish the airport. What is significant is that they have reduced landing fees for cargo operators by 47 percent since 2007. GRU is not particularly active in marketing internationally because of its very constrained environment and because of national privatization initiatives.

Domestically, all the competing gateways are active either directly or through the utilization of consulting services. ATL travels extensively for both marketing trips and conferences. They have had recent and frequent visits to the Middle East, Asia, Europe, South America, and Africa. They are also sponsoring in partnership with the City of Atlanta, The International Air Cargo Conference ("TIACA") event later this year in Atlanta. This is arguably the biggest and most important air cargo conference in the industry. MIA also has a substantial presence at conferences and in market-related travel. MIA's focus is primarily Latin America and they have been extremely successful due in large measure to geography. Marketing MIA has become less onerous over the past two decades as the Latin culture and business community have become deeply embedded in Miami and help extend and

strengthen the outreach efforts. MIA also sponsors and hosts the bi-annual Air Cargo Americas Conference which attracts as many as 9,000 participants from all over North and South America.

LAX has relied on consultants for the past fifteen years to assist with air cargo marketing. At one point they employed three separate firms working on different cargo marketing and development efforts. They maintain a focus on Asia and are active in conferences related to cargo development. ORD is less active than the other gateways at the staff level, but more active than any other airport at the executive level as far as conference participation and outreach. Staff travel budget is constrained and has been for the past several years. ORD instead relies on developers to handle a large portion of their marketing. With nearly 1,000,000 square feet of new facilities ready to come on line over the next five years, the private sector is marketing the new development and the airport heavily.

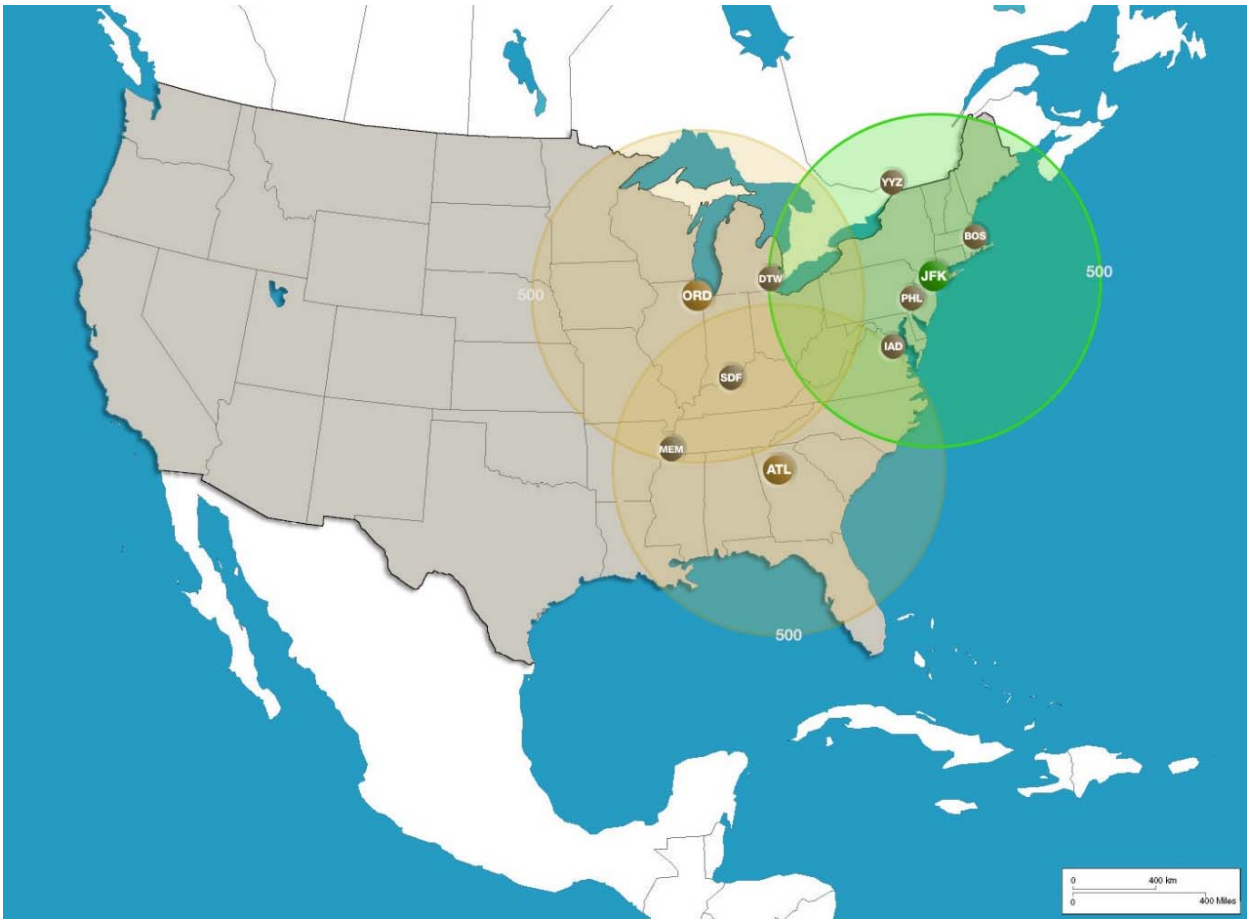
JFK is the only gateway airport without a marketing budget (other than employee salary) for air cargo. There is no participation in cargo conferences (other than the Airports Council International-North America ("ACI-NA") Cargo Conference), there are no international marketing or business development trips focused on cargo, and there is no recent updated marketing material. It is fair to say that over the past five years the New York market as well as the entire industry has suffered financial setbacks. Nevertheless, the rationale that in a down economy marketing is the first expense to be cut does not always pertain particularly when there is long change times involved with carrier route strategies. This has left JFK in a position from which it cannot proactively address the image issues it faces, or present opportunities to emergent carriers and markets.

5.3 THE CATCHMENT AREA

One of the key elements in a typical analysis of cargo potential is the identification of a "catchment" area – that is the geographic region that an airport's cargo operation supports in the movement of both inbound and outbound products. Most airports define this area as anything within a day's drive by truck, or roughly a circle around the facility with a radius of between 400 and 500 miles. The reality is that this is typically not how a catchment area should be determined. Other factors such as roadway systems, trucking costs, geography, and most importantly competing airports are extremely important. For JFK, the catchment area is both constrained, and paradoxically virtually unlimited.

From the perspective of geography, JFK is situated on an island which is a major factor in limiting roadway access. Secondly, the Airport's coastal location is bounded by the Atlantic Ocean which effectively cuts the catchment area in half. From a competitive standpoint **Exhibit 5.3-1, JFK Catchment Area**, illustrates the overlapping areas of JFK, ORD, and ATL – three of the five primary U.S. cargo gateways. (Note that Memphis International Airport ("MEM") the hub of FedEx, and Louisville International Airport ("SDF"), the UPS hub, are considered consolidator facilities as opposed to gateway airports. Both of these would have catchment areas that overlap that of JFK.)

Exhibit 5.3-1 JFK CATCHMENT AREA



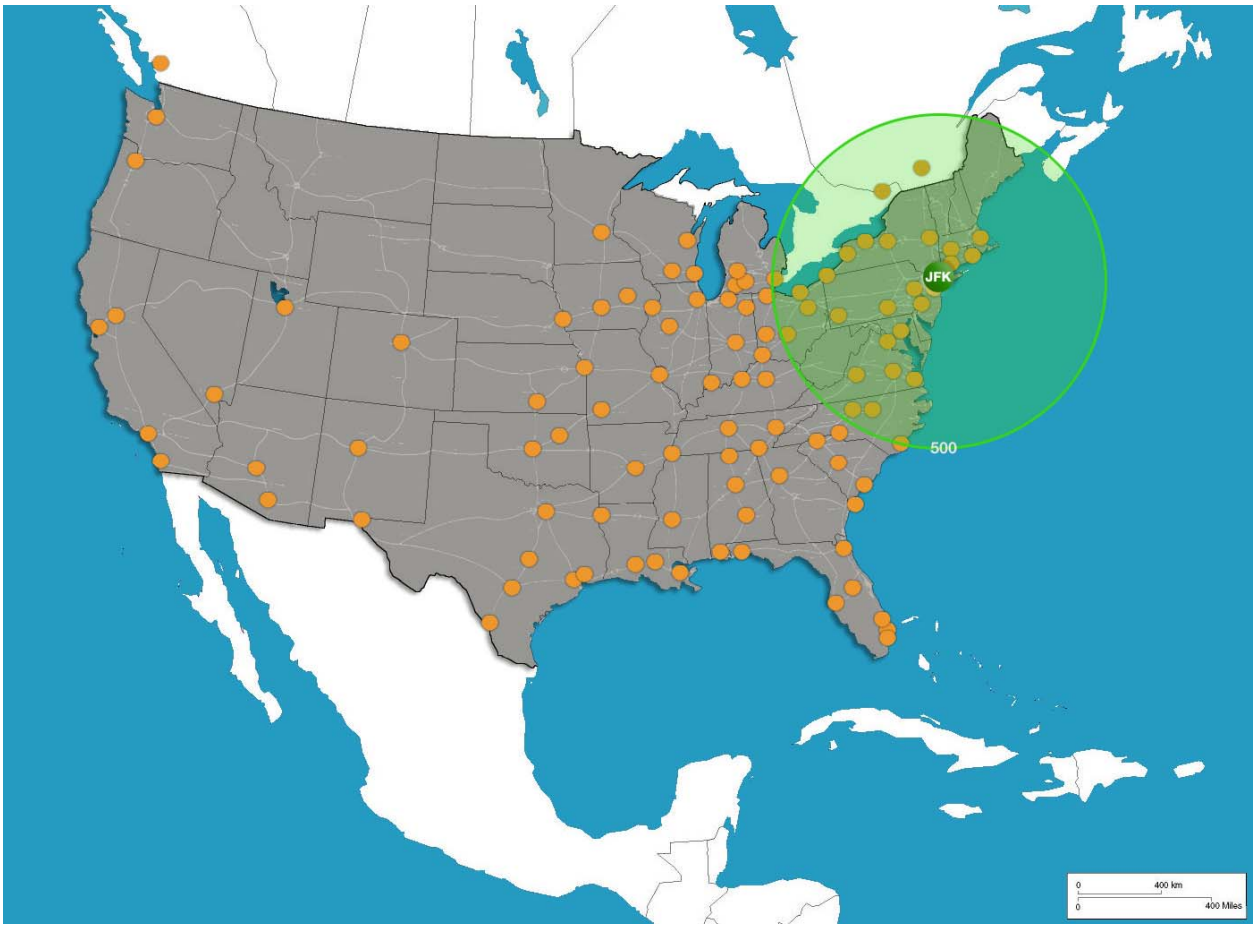
JFK Catchment Area Redefined

Within JFK's Catchment Area "circle" are other airports such as YYZ, PHL, Boston Logan International Airport ("BOS"), Detroit Metro Airport ("DTW"), and Dulles International Airport ("IAD") that compete for many of the same markets, and over the past ten years have expanded their services to do so more effectively. The Catchment Area expansion has come in the form of new belly capacity in wide-body aircraft. The result is that JFK's physical catchment radius is altered by the competing presence of these other airports. The overlap that exists among JFK, ATL, and most importantly ORD - is very important. As a result of the tightening finances in the air cargo industry there have been modal shifts to trucking from air on domestic routes. International air cargo operations also tend to seek the lowest costs that will still allow for time-definite delivery. ORD because of its regional concentration of trucking activity and location in the Midwest have lower costs that attracts air cargo that can be trucked east rather than cargo flown into JFK and trucked west.

Nevertheless, because of its diversity of markets and lift, as **Figure 5.3-2, *Trucking Service to JFK***, indicates, JFK attracts cargo from a wide range of markets. The Official Airline Guide ("OAG") provides a partial listing of trucking services (the dots in the graphic) of markets that connect with JFK. This illustrates that the region and the Airport attract shipments from an atypically broad region from points as far away as Miami and Vancouver. Forty points of origin *west* of Chicago are included in the map reinforcing the diversity of the markets that JFK serves and indirectly the potential for sustaining the Airport's perceived position for long-term growth in cargo.

This geographic dispersion reflects the powerful attraction of the JFK market for international shipping. It also demonstrates that JFK is driven by markets and routes by which commodities can reach a wide range of international locations, rather than by the commodities which are discussed in the following section.

Figure 5.3-2 TRUCKING SERVICE TO JFK



5.4 COMMODITIES

5.4.1 INTRODUCTION

This section examines the composition of JFK's air trade. It shows that JFK's air cargo includes a very wide mix of items that reflects the diversity of the American economy and the worldwide network of routes that serves the Airport as a major gateway facility. *While the traffic mix follows several patterns, no single group of commodities dominates traffic at the Airport or represents a high-potential target market.*

5.4.2 DATA ISSUES

Traffic volume analysis information came from the Department of Transportation's air traffic databases. These databases consolidate statistics that are submitted by the airlines serving all airports. A second source of data – the statistics prepared by the Census Bureau of the United States Department of Commerce was also used. This data is an assembly of import and export data for both quantity and product value by trading partner, port, true state of origin or destination, and mode (vessel or air). The export data include information on the export district through which the goods were exported and are compiled primarily from the Shipper's Exports Declaration forms filed with Customs and Border Protection ("CBP"). Import data is compiled from import documents filed electronically with CBP.

The Census Bureau produces several databases of differing levels of aggregation. No single database provides the true state of origin/destination, the commodity, port or foreign trading partner. This study's analysis used the Port Authority's databases for exports and imports. These express commodity flows by six-digit Harmonized Commodity Code, foreign trading partner, port of export or import, and mode (air or vessel). A less product-specific analysis using a two-digit code was considered but not utilized because the information produced would be very generic and not particularly useful in identifying targets for future marketing efforts. The work also examines trading flows by true state of origin or destination for the states nearest to New York City.

5.4.3 COMMODITY-DEPENDENT AIRPORTS

Each airport's air freight business reflects the specific local circumstances, particularly the manufacturing base. The inbound and outbound markets are often very different in commodities shipped, average yields, shippers, and seasonal patterns.

Single commodities or shippers dominate air cargo at many airports. A particularly common pattern involves developing nations. The airlines often have a steady flow of manufactured goods, unaccompanied luggage, machinery, and pharmaceuticals into the airport. However, the country may have a limited manufacturing base. Airlines will then obtain very low volumes of outbound traffic. They will often develop special commodity rates for certain items such as cut flowers, fruits, vegetables, or raw materials. These routes allow local producers to export perishables into the developing countries. This process has made Kenya a major supplier of foodstuffs to Western Europe. Colombia, Ecuador, and other countries in Latin America are important exporters of cut flowers.

China Airlines operated all-cargo flights to Nashville, TN primarily to serve a large Dell production facility. All-cargo aircraft carry hanging garments from the Far East to Rickenbacker Inland Port, south of Columbus, OH to the nearby warehouses of The Limited. In these instances, the airport's cargo traffic is dominated by one commodity and/or shipper. While certain commodities and shippers may dominate certain JFK flights, destinations or carriers, the scale and diversity of its cargo business means that no commodity is of unusually large importance.

5.4.4 AIR FREIGHT COMMODITIES AT JFK

Appendix C and Appendix D summarize the largest commodities by volume moving through JFK to every major world region. Although the Department of Commerce databases record traffic by nation, the appendices have consolidated the traffic by world region according to the following definitions:

Africa	All of Africa, including Egypt
Asia	Northern Asia, Russia, China, Japan, Korea, all nations south and east of Bangladesh including Indonesia and Brunei
Caribbean and Central America	Mexico, all continental nations north of Colombia. All island nations including the Bahamas, Bermuda, the Leeward and Windward Islands, etc.
Canada	All of Canada
Europe	Iceland, all of Continental Europe including the new nations of the former Soviet Union. Excludes Turkey
Middle East and Subcontinent	Turkey, Armenia, Azerbaijan, all of continental Asia west of China and south of Russia. All of Indian Subcontinent west of Myanmar and east of the Mediterranean, Red, Marmara and Black Seas.
Pacific	Australia, New Zealand, New Guinea and island republics in the Pacific Ocean
South America	Continent of South America, Falkland Islands, and Caribbean islands governed by countries in South America

Table 5.4-1, *Exports by Commodity*, 2010, summarizes the composition of air cargo exported through JFK. The top 15 commodities are ranked in terms of total weight transiting JFK. **Appendix C** provides detailed information by commodity and world area.

Table 5.4-1 EXPORTS BY COMMODITY, 2010

		Total U.S.		JFK Traffic		JFK Share	
		Value ($000)	Weight Tons	Value ($000)	Weight Tons	Value (%)	Weight (%)
30622	Lobsters and parts thereof	157,167	13,615	107,190	9,506	68.20	69.82
880000	Civilian aircraft engines and parts	40,778,272	55,697	8,399,672	8,403	20.60	15.09
490199	Bibles	635,403	24,434	227,366	8,308	35.78	34.00
848620	Machines manufacture semi-conductors	7,848,248	29,168	854,513	6,746	10.89	23.13
320619	Titanium oxide pigments	19,379	9,235	13,602	6,231	70.19	67.47
848610	Chemical-metal polishers	858,239	8,999	728,908	5,784	84.93	64.28
330499	Baby oils	494,986	14,881	177,914	5,255	35.94	35.31
854449	Electrical conductors without connectors	222,416	26,255	43,463	4,860	19.54	18.51
210690	Other food preparations	349,754	25,579	56,817	4,752	16.25	18.58
320890	Other paints, varnishes, ethylene polymer	58,674	19,913	10,967	4,678	18.69	23.49
382490	Fuel oils	614,078	40,391	54,973	4,272	8.95	10.58
330300	Colognes	393,111	7,976	204,777	4,260	52.09	53.42
841989	Glue pots	395,420	7,648	217,273	4,237	54.95	55.40
690919	Ferrite core memories	174,728	5,509	96,113	3,925	55.01	71.26
392099	Plate, film non-cellular plastic	347,720	5,643	250,267	3,904	71.97	69.19
	Other	339,009,032	3,135,064	70,313,403	465,517	20.74	14.85
	Total	**392,356,627**	**3,430,006**	**81,757,219**	**550,639**	**20.84**	**16.05**

Source: United States Bureau of the Census Ports Database

The table above highlights the importance of sea foods. Live lobsters are widely shipped by air because of a large value per unit weight and their perishability. Highly advanced technical items are also important, as evidenced by the large quantities of aircraft engines, machines for producing semiconductors, and computer core memories. JFK's air freight exports are of relatively high value, as shown by its greater share of the total value than the total weight. However these 15 categories do not represent the core of the market nor do they have unique points of origin or destination in volumes sufficient to justify a special marketing focus. Many new gateways have obtained international services and have diverted traffic from JFK. Historically, substantial amounts of seafood were trucked from Boston to JFK for shipment. Because of new capacity at BOS this is no longer the case. These new services at BOS are primarily a response to air passenger demands. The airlines, in general, have filled the by-product air cargo capacity by discounting, and attracting low value per unit weight items.

Table 5.4-2, *Imports by Commodity, 2010*, summarizes the commodity composition of JFK's imports. **Appendix D** shows detailed commodity-specific data by world area.

Table 5.4-2 IMPORTS BY COMMODITY, 2010

		Total U.S.		JFK Traffic		JFK Share	
		Value ($000)	Weight Tons	Value ($000)	Weight Tons	Value (%)	Weight (%)
847130	Motherboards	26,688,108	144,586	3,151,720	16,476	11.81	11.40
620462	Jeans, women's and girls'	590,851	35,316	265,389	15,295	44.92	43.31
980100	Articles Exported and returned	23,446,032	68,659	3,626,368	13,716	15.47	19.98
611020	Sweaters, of cotton, knit	852,666	37,938	299,219	12,628	35.09	33.29
844399	Printing machinery using plates	2,062,076	27,376	1,048,473	11,032	50.85	40.30
848180	Cocks, plumbing	1,027,478	74,086	87,221	9,612	8.49	12.97
30419	Fish fillets, frozen or chilled	808,624	97,587	74,286	9,566	9.19	9.80
620342	Jeans, men's and boys', o	334,177	21,766	140,989	8,647	42.19	39.73
300490	Specialized medicines for cancer	25,587,724	47,327	3,882,962	8,525	15.18	18.01
70960	Pimenta, fruits	64,624	26,634	14,052	6,651	21.74	24.97
640399	Dress shoes, leather upper	579,498	23,416	209,821	6,636	36.21	28.34
611030	Sweaters, of manmade fibers	475,220	20,182	148,292	5,614	31.20	27.82
711719	Brooches, other than precious	750,051	16,790	192,988	5,588	25.73	33.28
620520	Polo shirts, men's and boys	399,058	14,437	167,846	5,579	42.06	38.64
30212	Chum (dog) salmon	167,010	27,480	32,828	5,393	19.66	19.62
	Other	360,265,349	3,336,085	64,364,608	447,512	17.87	13.41
	Total	444,098,545	4,019,666	77,707,062	588,472	17.50	14.64

Source: United States Bureau of the Census Ports Database

The imports data show a large diversity of products. JFK has a relatively large share of clothing items because of its proximity to the Garment District. JFK's imports tend to be of relatively high value per unit weight; a pattern similar to its exports.

5.4.5 GEOGRAPHICAL PATTERNS OF WORLD TRADE AT JFK

The Census Bureau's foreign trade databases provide information about the true origins and destinations of cargo at JFK. **Table 5.4-3, *Exports 2010***, summarizes data for the top export destinations at JFK, ranked by weight.

Table 5.4-3 EXPORTS 2010 (All Countries)

	Total U.S.		JFK Traffic		JFK Share	
	Value ($000)	Weight Tons	Value ($000)	Weight Tons	Value (%)	Weight (%)
United Kingdom	30,491,536	240,780	8,076,363	43,347	26.49	18.00
China	27,313,429	276,580	4,015,301	41,460	14.70	14.99
Germany	25,630,081	214,237	5,022,734	39,643	19.60	18.50
Japan	26,384,774	258,268	4,402,799	35,023	16.69	13.56
South Korea	16,119,835	165,496	3,299,349	34,328	20.47	20.74
Hong Kong	17,341,321	145,120	6,462,491	29,235	37.27	20.15
France	17,490,690	118,607	4,483,953	21,356	25.64	18.01
Italy	6,958,012	63,867	2,161,749	20,709	31.07	32.43
Belgium	10,574,034	64,671	3,528,719	19,716	33.37	30.49
Taiwan	13,964,731	101,327	2,096,660	17,711	15.01	17.48
Singapore	16,275,593	127,278	1,566,912	17,573	9.63	13.81
Netherlands	16,840,634	108,151	2,139,239	17,134	12.70	15.84
Israel	7,863,936	35,285	5,820,609	17,109	74.02	48.49
India	8,625,407	62,595	4,665,680	14,302	54.09	22.85
Australia	7,950,553	92,739	1,463,772	10,945	18.41	11.80
United Arab Emirates	4,348,147	52,480	1,371,233	10,386	31.54	19.79
Saudi Arabia	2,385,986	34,485	846,218	10,268	35.47	29.78
Spain	5,164,001	33,542	687,911	9,980	13.32	29.75
Switzerland	18,588,199	41,742	7,135,332	9,774	38.39	23.41
Brazil	14,230,622	135,654	663,368	9,213	4.66	6.79
Other	97,815,106	1,057,101	11,846,827	121,427	12.11	11.49
Total	**392,356,627**	**3,430,006**	**81,757,219**	**550,639**	**20.84**	**16.05**

Source: United States Bureau of the Census Ports Database

JFK has a large share of exports to Israel. Its shares tend to be larger to Europe and to Asia. The small share of exports to Brazil reflects the dominance of the MIA gateway.

Table 5.4-4, *Imports 2010*, shows geographical patterns for JFKs imported air freight. JFK has a considerably higher share of the value of exports than their weight. Its shares of European imports tend to exceed those for Asia. It is particularly strong for imports from Bangladesh and Pakistan. The U.S has relatively few direct services to either nation.

Table 5.4-4 IMPORTS 2010 (All Countries)

	Total U.S.		JFK Traffic		JFK Share	
	Value ($000)	Weight Tons	Value ($000)	Weight Tons	Value (%)	Weight (%)
China	98,894,394	1,105,830	11,364,362	167,516	11.49	15.15
Italy	10,958,893	122,188	3,583,313	35,962	32.70	29.43
Germany	27,339,408	309,166	3,580,322	35,423	13.10	11.46
United Kingdom	23,272,128	172,904	3,930,352	28,490	16.89	16.48
Japan	32,292,025	252,957	4,416,116	28,072	13.68	11.10
India	11,515,182	113,082	5,104,587	25,740	44.33	22.76
France	17,667,276	132,786	3,715,319	22,570	21.03	17.00
Israel	15,264,391	56,958	9,134,293	18,183	59.84	31.92
Netherlands	8,397,570	73,330	983,997	15,739	11.72	21.46
Switzerland	14,641,861	55,596	5,745,339	12,708	39.24	22.86
Taiwan	15,175,022	104,667	1,740,320	11,344	11.47	10.84
Vietnam	1,260,882	52,602	227,797	11,006	18.07	20.92
Bangladesh	284,224	23,498	125,399	10,806	44.12	45.99
Pakistan	253,764	19,840	117,918	8,923	46.47	44.98
South Korea	17,841,739	93,640	660,583	8,729	3.70	9.32
Singapore	12,851,760	44,071	1,458,518	8,400	11.35	19.06
Thailand	8,671,585	71,335	918,660	7,758	10.59	10.88
Indonesia	1,778,274	38,716	245,182	7,508	13.79	19.39
Spain	2,342,433	25,222	548,615	7,200	23.42	28.55
Other	123,395,732	1,151,277	20,106,070	116,393	16.29	10.11
Total	**444,098,545**	**4,019,666**	**77,707,062**	**588,472**	**17.50**	**14.64**

Source: United States Bureau of the Census Ports Database

5.4.6 REGIONAL TRADING PATTERNS

Appendix E shows the total value of exports by product for a four-state region encompassing the states of New York, New Jersey, Pennsylvania, and Connecticut. The table and the underlying databases from the Census Bureau do not distinguish between goods moving by surface and by air. This region has several airports. JFK draws traffic from a larger area, particularly because of its strong forwarder consolidation gateways. This region has several large international air freight airports. Furthermore, the region's shippers, consignees, and forwarders use other airports outside the four immediate states, such as BOS, IAD, Baltimore/Washington International Thurgood Marshall Airport ("BWI"), Montréal Pierre Elliott Trudeau International Airport ("YUL") and YYZ. These distortions mean that the tables do not necessarily apply to JFK. Nevertheless, as the airport with the largest cargo volumes, JFK must inevitably reflect the diversity of the commodities shown in the tables. The direct discussions with JFK's airlines and the forwarders confirmed the diversity of exports and imports. Although certain products dominate certain routes, JFK has a well-diversified commodity base.

Appendix F summarizes export trade by metropolitan area. New York region accounted for the largest portion. In 2005, its share of the national total was 6.1 percent. This increased to 7.3 percent in 2008, but fell to 6.5 percent for the first half of 2010.

Appendix G shows total imports entering the four-state region by commodity. Crude oil accounted for the largest volume. It arrived by ship at refineries in New Jersey and Pennsylvania. Other items such as ornamental diamonds, jewelry, and gold have very high values per unit weight, and presumably arrived by air freight.

Appendix H summarizes import flows for the four-state region by trading partner. The largest partners, Canada and Mexico, belong to the North American Free Trade Agreement ("NAFTA") zone of 1994. Most of the imports arrived by surface transport. Almost all nations shown in the table have direct or nonstop services to JFK.

5.4.7 FUTURE TRADING PATTERNS

The total quantities depend on the overall competitiveness of JFK as an international gateway. Many important airline industry trends, discussed previously, will affect the quantity and characteristics of the air freight handled at JFK. These include bilateral agreements, international alliances, the growth of air services at competing airports, the consolidation gateways and road feeder networks of the freight forwarders, the types of aircraft serving JFK, passenger and air freight unit revenues, the efficiency of JFK's air freight infrastructure, and other factors.

Macroeconomic conditions will also prove decisive. Exchange rates will affect the ability of U.S. firms to compete in foreign markets. Although the last decade has seen the rapid growth of China as an importer to the U.S., this pattern is by no means permanent. Production costs in China are growing. The ongoing trade imbalance favors an appreciation of the Yuan. The Beijing government is seeking to promote domestic consumption, and also recognizes the vulnerability of its huge holdings of U.S. treasuries.

Eastern Europe, Latin America, and parts of South and Southeast Asia could become important suppliers of imports. Africa is also experiencing economic growth, and could emerge as an important source of manufactured goods. U.S. exports will likely consist of very high value manufactured items, pharmaceuticals, and any commodities embodying advanced technologies. The large U.S. foreign debt, budgetary deficit, and the industrialization of many previously stagnant economies could result in a depreciating

dollar. In the short term, the Euro will suffer from the untenable sovereign debts of certain member states. In the longer term, any move by Europe's "soft" economies to abandon the Euro will strengthen the currency as an international medium of exchange and an alternative to the Dollar as an international key currency.

Summary

JFK's cargo operation, from a commodities perspective, offers both positives and negatives. On the positive side, since the Airport does not depend heavily on one specific commodity, the diversification of product shipped through the Airport, helps insulate JFK from external events that could impact a core market or product. On a related vein, the diversity of lift in terms of destination and frequencies attracts products from virtually all over the U.S. The downside of diversification and the heavy interaction with trucked products and multiple shippers makes it extremely difficult to effectively track initial sources and final destinations of products. Additionally, because of the product diversification, isolating specific commodity-driven markets is difficult and a focus on emerging geographic regions appears more viable. What the analysis implies and discussions with the carriers confirm, is that declines and conversely growth are best addressed through a comprehensive focus on cost and regional service rather than specific market initiatives.

JFK's principal commodities do not differ substantially from the generic grouping of products that are typically shipped by air. They are of high value, light weight, and usually time-sensitive. These include perishables – seafood, flowers, fruits, electronics, textiles, machinery, engine parts, pharmaceuticals, and precious metals and ores. The six-digit analyses contained in the Appendices demonstrate the diversity of products and markets that typify a gateway operation. It is this diversity that may present an opportunity for the Region to pursue. Of these product categories, JFK is a national leader in precious metals and jewelry and textiles. A wide range of specific products pass through the Airport, and the Region, both inbound and outbound. Consolidating these smaller product volumes into a larger generic off-airport product center may enable the introduction of value-added services to include packaging, security, wholesale delivery, retail delivery, and display and exhibition. The critical element is that the effort would be service-driven based on generic commodity categories.

5.5 THE EVOLUTION OF ROUTES

5.5.1 THE UNITED STATES ECONOMY – SHORT TERM

Macroeconomic factors are one of the primary drivers of the routing of air freight. Directional balances of traffic and yields react quickly to exchange rates. A country suffering a devaluation of its currency may need to curb its imports, but its exports will become more competitive. Market forces then encourage airlines to adjust their rates.[1]

[1] Sometimes, airlines may be reluctant to change their published rates. However, their confidential contracts could be renegotiated, or escalation clauses may become active. Air freight offers considerable scope for adjusting the effective rate, such as allowing shippers of general merchandise to pay a special commodity rate designed to apply to bananas, or paying the rate for a single loaded container, but tendering a loaded container and a large quantity of bulk items. The airline can also absorb supplemental trucking costs or other charges.

Widespread growth of consumer credit and capital gains in household properties encourage strong consumption. From 2001 to 2007, most of the growth of the U.S. Gross Domestic Product ("GDP") resulted from strong consumer spending. Many of the goods were manufactured in, and imported from the Far East, fueling the rapid expansion of trans-Pacific air freight with a variety of partners – in particular China. In the process, the U.S. has experienced a growing deficit on its accounts and covered the imbalance by selling large quantities of U.S. treasuries to Asian central banks.

The economic downturn of 2008-2009 caused a widespread reduction in air freight traffic. The reduced tax revenues, large stimulation payments, growing entitlement expenditures, and the Iraq and Afghanistan wars exacerbated a severe federal deficit. Many countries now remain uneasy about their holdings of U.S. debt instruments. The U.S. current account deficit suggests that a depreciation of the Dollar may be forthcoming. If this were to occur it would favor outbound traffic but discourage imports. It could prove to be a substantial stimulus for U.S. manufacturing. These are concerns that potentially affect all U.S. airports and have no *unique* implications for JFK.

5.5.2 THE UNITED STATES ECONOMY – LONG TERM

Table 5.5-1, *Real World GDP by Region*, shows worldwide trends in GDP growth. The mature economies of the U.S., South Pacific (mostly Australia and New Zealand), and Europe have experienced a progressive slowing of economic growth. Their shares of world economic activity have fallen. Japan has displayed even stronger trends. However, Japan's data have been combined with fast growing economies in the remainder of Asia. In contrast, South America, Africa, the Middle East/Subcontinent, and Far East have experienced accelerating growth.

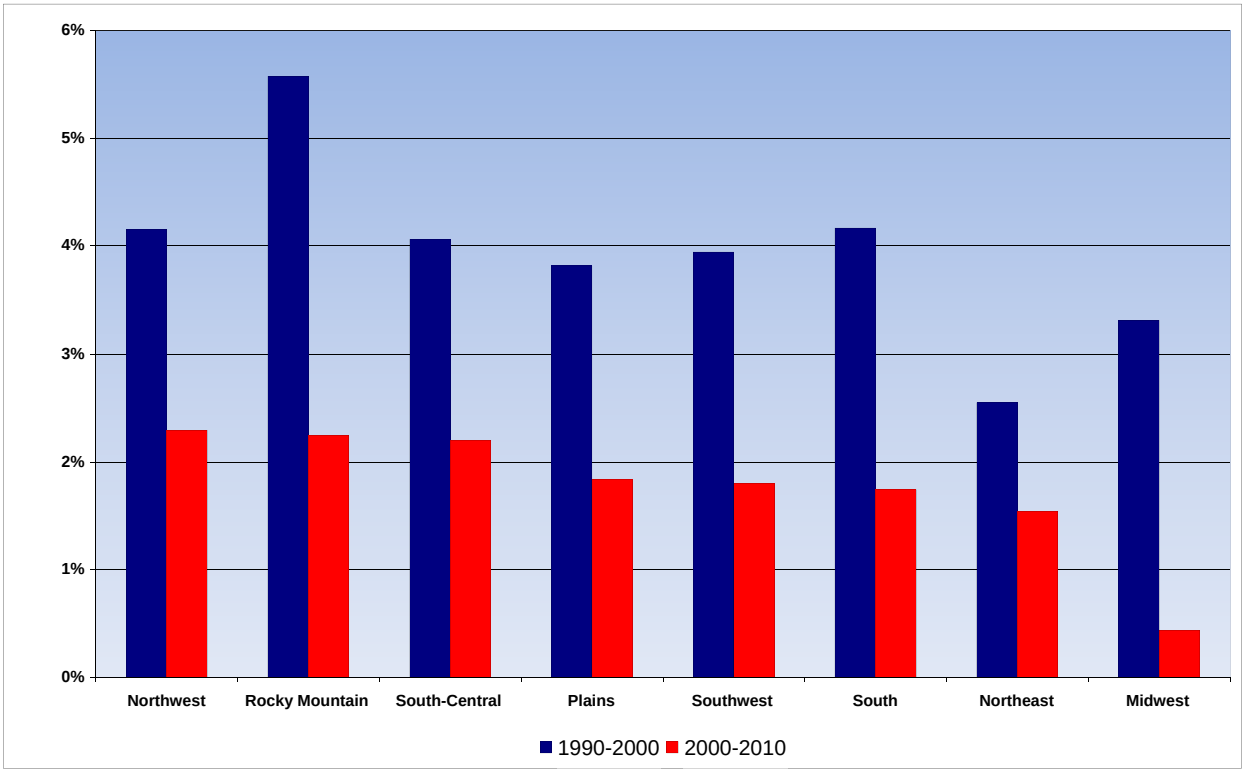
Table 5.5-1 REAL WORLD GDP BY REGION

	Share of World Total			Annual Growth	
	1990	2000	2010	1990-2000	2000-2010
United States	24.80%	23.63%	20.22%	3.11%	1.82%
Central America and Caribbean	5.49%	5.18%	4.50%	3.42%	2.26%
South America	6.25%	5.73%	5.85%	2.54%	3.45%
Europe	31.12%	30.86%	26.76%	2.18%	1.52%
Africa	3.92%	3.43%	4.05%	2.41%	4.88%
Middle East and Subcontinent	7.12%	8.01%	10.52%	4.93%	5.71%
Far East	19.75%	21.69%	26.71%	3.44%	3.81%
South Pacific	1.55%	1.47%	1.40%	3.18%	2.98%

Sources: World Bank, International Monetary Fund, Bureau of Economic Analysis. Calculations are based Purchasing Power Parity methodology.

Figure 5.5-1, *Regional Patterns in Real American GPD Growth*, portrays changes in real GDP by U.S. region over the last two decades. Growth rates for 2000-2010 have suffered from the 2008-2009 recession. The high unemployment, damage to the financial systems, and the declines in household net worth suggest that a full recovery from the last recession may require several more years. The reported rates for 1990-2000 benefited from the weak 1990 base, with the uncertainties following the Iraqi invasion of Kuwait.

Figure 5.5-1 REGIONAL PATTERNS IN REAL AMERICAN GDP GROWTH



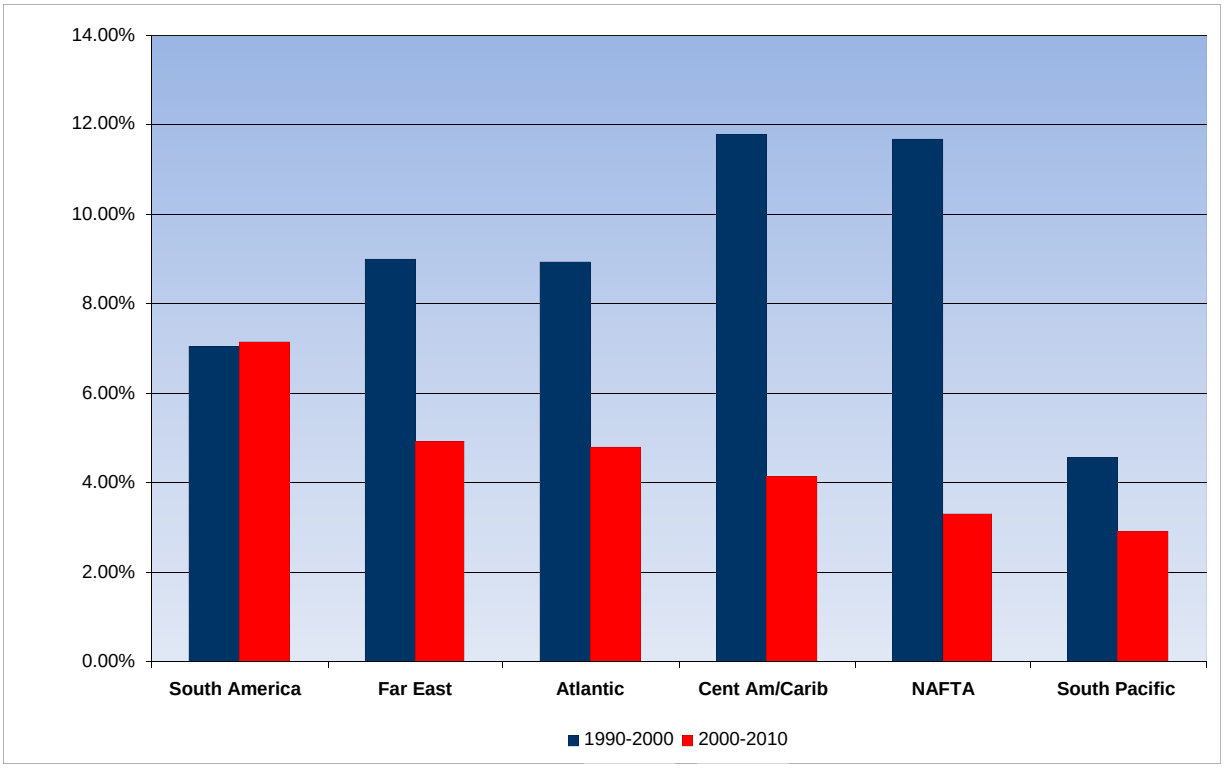
Source: Bureau of Economic Analysis

The lower 2000-2010 growth rates result both from the maturation of the U.S. economy, and the sluggish recovery from the 2007-2008 recession. The Northeast experienced the slowest growth over the 1990-2000 period while the industrial regions of the Midwest were particularly hard hit by the 2008-2009 contraction.

The low growth in the Northeast will suppress the development of air freight in the region. Traffic at the new inland growth centers will continue to expand, to reflect their region's growing importance.

Between 1990-2000 and 2000-2010 the growth of imports declined. The strong performance of transatlantic markets (totals do not include oil-producing states) have been favorable to New York and the U.S. as a whole. Europe-America traffic has been increasingly fragmented among many new interior gateways. Any depreciation of the U.S. Dollar arising from inflation, low interest rates, or debt servicing issues will suppress imports over the next decades. A revival of imports will depend on the restoration of household balance sheets. (**Figure 5.5-2, *Patterns in Real Imports Growth***)

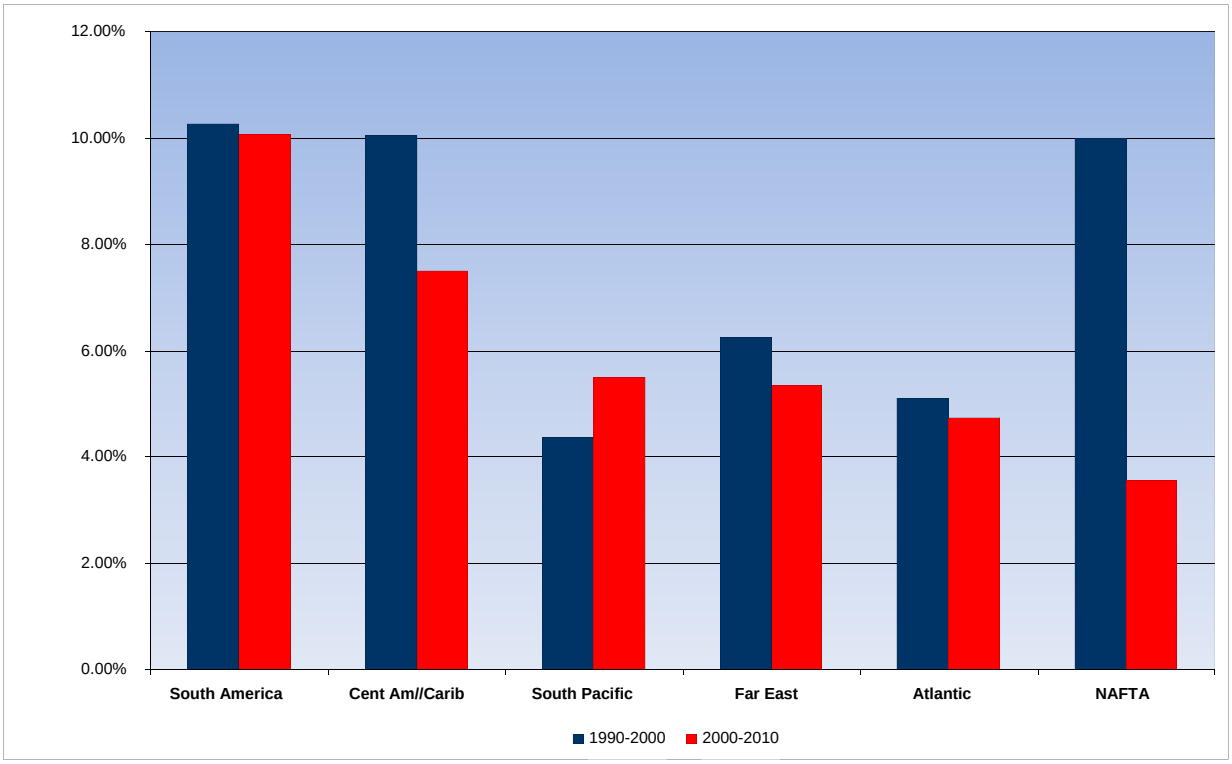
Figure 5.5-2 PATTERNS IN REAL IMPORTS GROWTH



Source: United States Department of Commerce

Real U.S. exports expanded more slowly in the period from 2000-2010 than in 1990-2000. South America was the only exception. The relatively low growth of transatlantic exports has led to reduced volumes of freight through many airports, including JFK – the primary gateway for that market. (**Figure 5.5-3, *Regional Patterns in Real Exports Growth***)

Figure 5.5-3 REGIONAL PATTERNS IN REAL EXPORTS GROWTH



Source: United States Department of Commerce

The last decade has seen the rapid emergence of China as an economic power. The advisory firm Intercedent has predicted that rising wage levels and an appreciation of the exchange rate will cause mid-tier manufacturing wages in China to reach parity with the U.S. minimum wage by 2017.[2] This could cause a shift in manufacturing to developing nations in Asia, Africa, and Latin America as well as repatriation of some functions back to North America.

[2] Toronto Globe and Mail, July 23, Andrew Hoitman, Made in China Takes on a Whole New Meaning

Methodology

This Section discusses how industry trends such as liberalization, new types of aircraft, and new cargo and passenger services help shape routing strategies for cargo and the resultant impacts on traffic at JFK and other airports.

The U.S. Department of Transportation ("USDOT") prepares and distributes high quality aviation databases. These are constructed from monthly reports on activity submitted by U.S. and foreign airlines, from which the USDOT then assembles key information. The databases report, among other items the quantities of cargo, passengers, and mail by flight segment and by the points of enplanement and deplanement. The databases report the operating carrier, not the carrier marketing the flight. For example, an Aircraft, Crew, Maintenance and Insurance ("ACMI") flight will be reported according to the aircraft owner rather than the airline that chartered the service. The reports provide no information about the road feeder services (how and from where the cargo arrives at the airport). They offer no insights on connecting traffic, whether from one aircraft to another or between aircraft and trucks. North America-Asia services do present analytical problems.[3] Despite these shortcomings, the USDOT databases are the most effective means to identify air freight transportation patterns

Four databases, listed in **Table 5.5-2, *Major Department of Transportation Databases Used in this Study***, provide route-specific data on cargo traffic and were of particular importance for this Study. The enplanement-deplanement databases provided most information about traffic flows. The flight segment databases include the type of aircraft, and offer valuable information about the air freight flows in the bellies of passenger aircraft and on all-cargo equipment.

Table 5.5-2 MAJOR DEPARTMENT OF TRANSPORTATION DATABASES USED IN THIS STUDY

Route	Points Of Enplanement And Deplanement	Nonstop Flight Segments
Domestic	28 DM	28 DS
International	28 IM	28 IS

[3] The databases pose major challenges for analyzing U.S.-Asia trade. Several carriers operate large sorting hubs in Anchorage. Shipments originating in the Lower 48 states that are off-loaded in Anchorage are recorded as domestic traffic with a destination of Anchorage. Many of these items are subsequently transferred to Asia-bound flights. The USDOT reports consider these items as international traffic originating in Anchorage. This greatly overstates Anchorage-Asia air freight traffic, and correspondingly understates the Asian traffic of many cities in the Lower 48. A carrier-by-carrier analysis examined total Lower 48-Anchorage and Anchorage-Asia traffic. The "true" Lower 48-Asia and Anchorage-Asia volumes were estimated by an allocation process.

Appendix I summarizes a route-by-route analysis of JFK's air freight. **Table 5.5-3, *Air Freight Route Definitions***, uses the following route definitions:

Table 5.5-3 AIR FREIGHT ROUTE DEFINITIONS

Region	Route Definition
Africa	All of Africa, including Egypt
Asia	The Soviet Far East, Mongolia, China, Japan, Korea, all nations south and east of Bangladesh including Indonesia and Brunei
Caribbean and Central America	Mexico, all continental nations north of Colombia. All island nations including the Bahamas, Bermuda, the Leeward and Windward Islands, etc.
Canada	All of Canada
Europe	Iceland, all of Continental Europe including Russia, the Ukraine, and Georgia. Excludes Turkey
Middle East and Subcontinent	Turkey, Armenia, Azerbaijan, all of continental Asia west of China and south of Russia. All of Indian Subcontinent west of Myanmar and east of the Mediterranean, Red, Marmara, and Black Seas.
Pacific	Australia, New Zealand, New Guinea, and island republics in the Pacific Ocean
South America	Continent of South America, Falkland Islands, and Caribbean islands governed by countries in South America

The table in the appendix shows:

- Two-way air freight traffic in short tons for the market as a whole and for JFK, with associated growth rates;
- Two-way traffic for other major airports. The airports chosen are based on two-way traffic volumes for 2010. There are no arbitrary "peer airports" since different airports are relevant for different routes.
- Total collective traffic volumes for those airports whose volumes are too small to be included in the table. This total can encompass literally hundreds of airports.
- JFK's share of total traffic;
- Outbound traffic as a percent of total traffic for the total route and for JFK;
- The Herfindahl Index calculated by gateway airport. This is the sum of the squared market share expressed as a percentage for each gateway. It measures the degree to which traffic on a particular route is concentrated through a single gateway airport. The maximum value is 10,000.
- The portion of the route's traffic carried by integrated carriers.

5.5.3 JFK PERFORMANCE, ALL ROUTES

The analysis of current and recent air freight traffic considers each route and several attributes of traffic and capacity. This section considers each attribute as it applies to all routes. The next section examines each route in turn.

Shares of Total Traffic

Table 5.5-4, *Performance Summary for JFK Airport – Cargo Movements 2000-2010*, summarizes JFK's 2000-2010 performance. Total international air freight fell by 22.9 percent over the full period. Total air freight for all U.S. airports grew by 11.9 percent over the ten-year period. JFK's market share fell from 18.9 percent in 2000 to 13.0 percent in 2010. JFK's traffic on every route substantially underperformed the market as a whole. There was, however, some clear growth. The Airport's Canadian traffic increased from new passenger services and integrated carrier traffic. Traffic to the Middle East and Sub-Continent benefited from new services by Emirates, Etihad, Jet Airways, Delta, and Qatar Airways.

Table 5.5-4 PERFORMANCE SUMMARY FOR JFK AIRPORT – CARGO MOVEMENTS 2000-2010

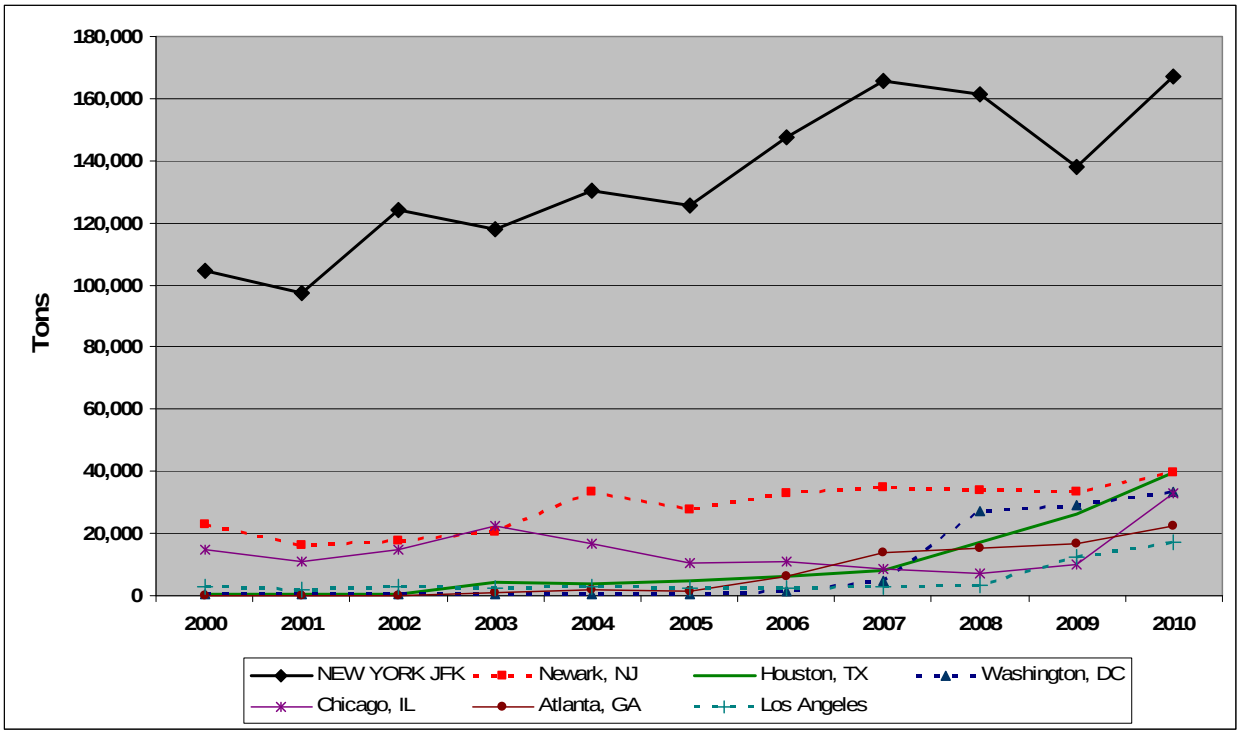
	Total Route Growth			Kennedy Traffic Growth			Kennedy Share		
	2000-2005	2005-2010	2000-2010	2000-2005	2005-2010	2000-2010	2000	2005	2010
Africa	-28.0%	86.8%	34.4%	-56.9%	65.7%	-28.5%	80.1%	48.0%	42.6%
Asia	59.0%	-0.1%	58.9%	-0.2%	-14.2%	-14.4%	20.3%	12.7%	10.9%
Caribbean/ Central America	-8.6%	7.2%	-2.0%	-11.3%	-43.4%	-49.8%	7.7%	7.5%	4.0%
Canada	139.8%	-21.1%	89.3%	36.5%	-15.5%	15.3%	2.3%	1.3%	1.4%
Europe	-5.4%	-7.0%	-12.0%	-16.7%	-18.6%	-32.2%	23.3%	20.5%	17.9%
Middle East/ Subcontinent	21.1%	110.3%	154.6%	20.2%	33.3%	60.2%	68.6%	68.1%	43.2%
Pacific	2.4%	-12.7%	-10.7%	-52.1%	9.5%	-47.6%	10.1%	4.7%	5.9%
South America	43.7%	-3.6%	38.6%	-18.0%	2.7%	-15.7%	7.8%	4.4%	4.7%
Total	13.3%	-1.2%	11.9%	-12.4	-12.0%	-22.9%	18.9%	14.6%	13.0%

Source: United States Department of Transportation Report 28IM, 28IS

The Port Authority's website shows a 26.0 percent decline in domestic and international air freight. No single airport has been capturing traffic to JFK's detriment. Rather, the last decade has witnessed the continuing **fragmentation** of international services and traffic that began in the late 1980s. Liberalization, hub-and-spoke systems, alliances, and aircraft well adapted for long, low density services have helped international services to proliferate from many gateways. Most new gateways individually handle relatively small volumes. Collectively, they created new patterns for air commerce to the detriment of established gateways such as JFK.

Figure 5.5-4, *JFK Shares of Total Air Freight 2000-2010*, traces the evolution of market shares for each route. JFK's share of traffic to Europe, Asia, South America, and other well established (but still growing) routes has experienced a modest decline. The Africa and the Middle East/Subcontinent routes are arguably the most dynamic international markets. Before 2000, non-stop service from the U.S. to either area was very limited, and the majority operated from JFK. Economic growth in both regions and the introduction of the long range B-777, have helped traffic, and services grow rapidly from JFK and other gateways.

Figure 5.5-4 JFK SHARES OF TOTAL AIR FREIGHT 2000-2010



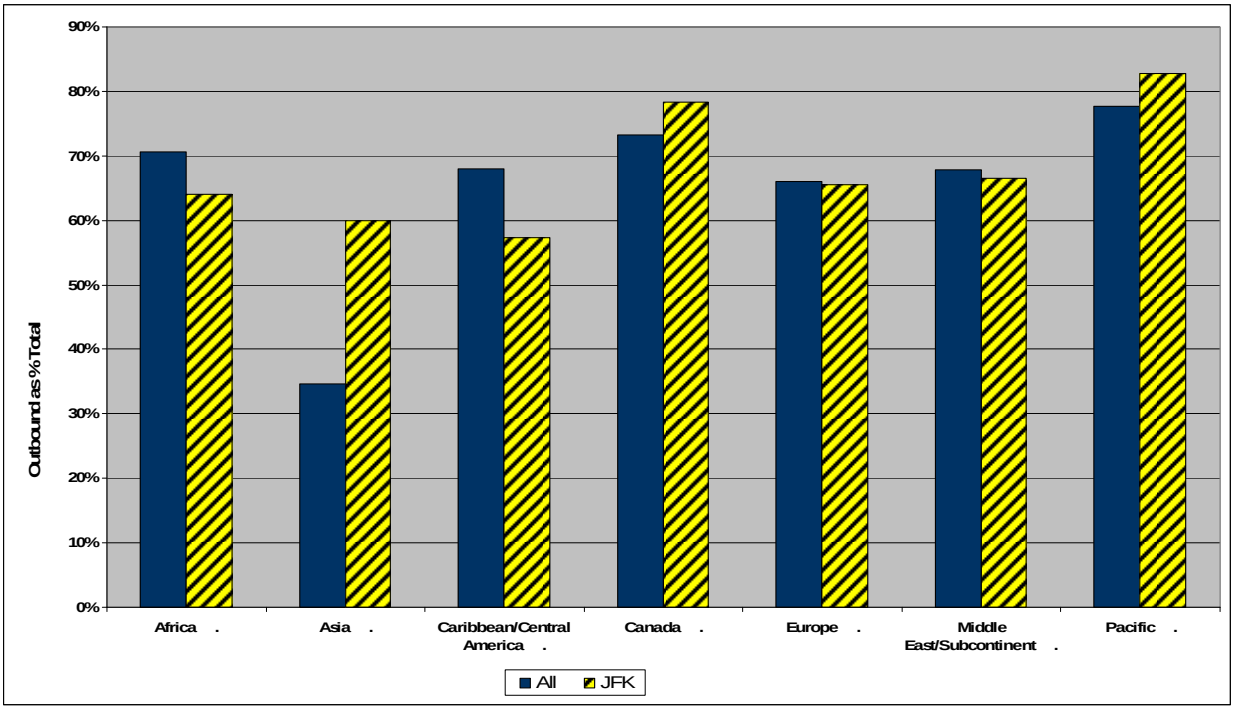
Source: United States Department of Transportation Report 28IM

Directional Balances

Few air freight markets have equal volumes in most directions. A weak backhaul can be especially detrimental to pure freighter flights, since they must cover all expenses and generate a profit from cargo alone. It can also represent an opportunity, since it indicates unused capacity.

Figure 5.5-5, *Air Freight Directional Balances: Outbound Traffic as Percentage of Tonnage – 2010*, shows directional balances in 2010 by route for U.S. international traffic and for JFK. Specifically, it depicts traffic in tons outbound from the U.S. as a percentage of outbound and inbound tons. A ratio of 50 percent shows a balanced route.

Figure 5.5-5 AIR FREIGHT DIRECTIONAL BALANCES: OUTBOUND TRAFFIC FROM U.S. AIRPORTS AS aPERCENTAGE OF TONNAGE - 2010



Source: United States Department of Transportation Report 28IM

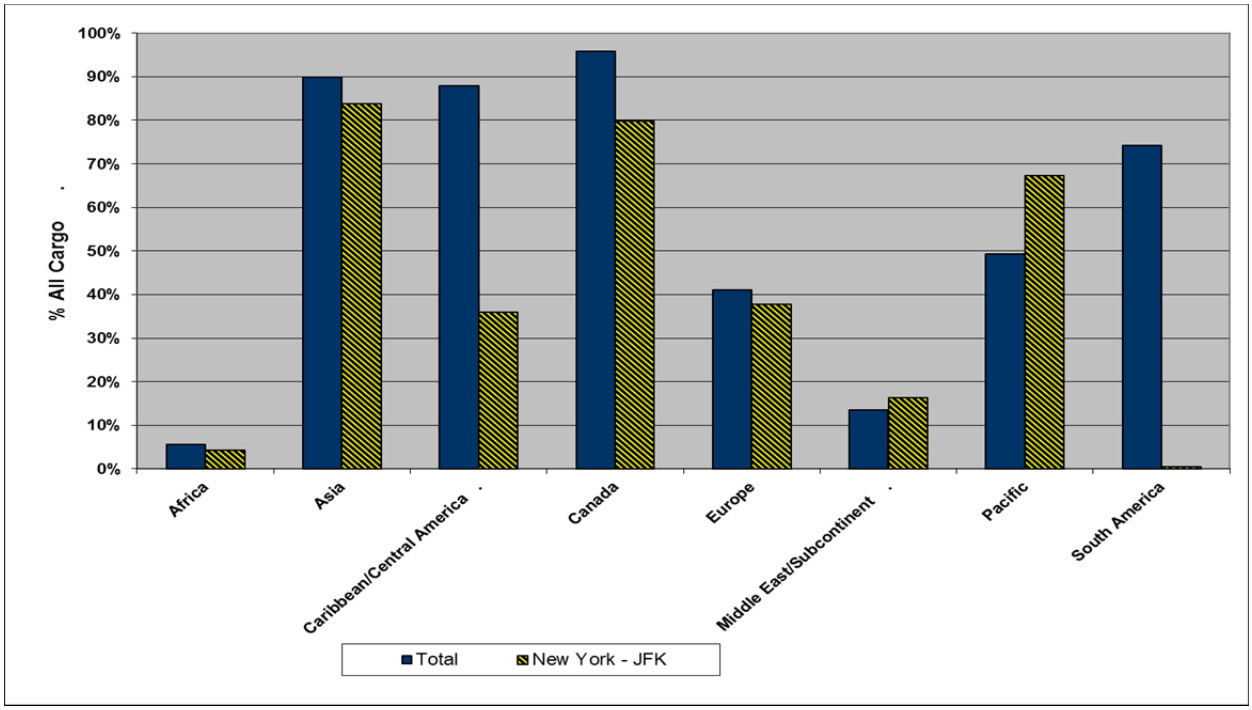
The volume measure understates the severity of a potential imbalance. An airline will discount capacity in the "weak" direction, and conversely may impose surcharges for the "heavy" direction. The weak direction can then suffer from both low volumes and low unit rates. The revenue imbalance could be even larger than the traffic imbalance. Sometimes, the airline can attract very large quantities of highly discounted traffic, and the weaker direction could involve greater volumes than those moving in the strong direction. The "true" measure of a directional imbalance is the revenues. *Unfortunately, directional revenue data for air freight is not available.*

JFK, to some extent, follows broad industry trends. Its services to Central America and the Caribbean tend to have weak outbound loads. Flights between the U.S. and Asia have, for several decades, carried heavy loads into North America. This reflects the strong U.S. demand for imports while outbound traffic is chronically weak. Canadian and Pacific routes carry heavy outbound but weak inbound loads.

Freighter Traffic

Figure 5.5-6, *Percentage of Air Freight on All Cargo Aircraft – 2010*, shows the proportion of international air freight (inbound and outbound) carried on all-cargo aircraft. A large ratio may indicate traffic flows that are too large to be accommodated in the bellies of passenger aircraft or a large quantity of time-sensitive, premium traffic that can command expensive freighter capacity.

Figure 5.5-6 PERCENTAGE OF AIR FREIGHT ON ALL-CARGO AIRCRAFT - 2010



Source: United States Department of Transportation Reports 28IM, 28IS, 28DM, 28DS

Geography is critical: African services are still developing, pure freighters are especially important for the petroleum drilling activity in the Middle East, and all-cargo aircraft are especially important for North America-Asia services. The very large quantities of inbound goods substantially exceed the capacity of belly holds on passenger aircraft. Therefore, the integrators, passenger airlines with belly space, passenger airlines that operate all-cargo aircraft, all-cargo airlines, and ACMI operators all play important roles. Several all-cargo operators help compensate for the limited space of narrow body passenger aircraft on routes to Central America and the Caribbean. Routes to Canada have experienced the same loss of belly capacity as domestic services because of the use of smaller aircraft.

General cargo typically moves by truck when possible to keep costs down. The large share of traffic carried by pure freighters results from the integrators' large presence and the limited belly capacities of U.S.-Canada narrow body and regional jet aircraft. Integrators and ACMI operators are active on the North America-Europe corridor. Airlines from the Middle East have been launching new services to North America. Both Saudi Arabian Airlines and El Al have long-established freighter services to JFK, and there are direct air services between New York and the Pacific. QANTAS offers through passenger flights using A330's and a twice weekly high capacity 747-400 freighter. This offering results in JFK's strong reliance on pure freighters to the Pacific. Several carriers operate all-cargo services to South America, mostly from Miami.

Market Concentration

In some industries, one company, one factory, or one geographical location can effectively control production and marketing. In other industries, activity is scattered among many producers, brands, and regions, and no one entity can obtain a commanding share of the market.

The "Herfindahl Index" is a complex mathematical index that measures the degree of concentration in an industry. The index equals the sum of the squared market shares expressed as percentages of use entity. It ranges from 0 (a totally fragmented industry) to 10,000 (a monopoly). The Herfindahl Index usually measures concentration across firms. However, a calculation of air freight shares for all U.S. airports over time can reveal aggregate processes that would not be captured in a simple peer group analysis. **Table 5.5-5, *Air Freight Concentration among U.S. Airports Herfindahl Index***, summarizes the results for each route.

Table 5.5-5 AIR FREIGHT CONCENTRATION AMONG U.S. AIRPORTS HERFINDAHL INDEX

Route	2000	2005	2010
Africa	6,551	3,372	2,923
Asia	1,313	1,154	1,103
Caribbean/Central America	3,102	3,098	3,057
Canada	670	983	2,406
Europe	1,041	916	825
Middle East/Subcontinent	5,033	4,905	2,287
Pacific	4,390	3,520	3,176
South America	6,157	7,252	6,893

Source: United States Department of Transportation Report 28IM

The concentration measures have increased for Canada because the integrators and their hubs at MEM, SDF, Indianapolis International Airport ("IND") and elsewhere are capturing growing traffic volumes. The scheduled passenger airlines have been reducing air freight capacity to Canada, mostly by operating smaller aircraft. Trucks increasingly carry much of the general cargo to Canada. All-cargo flights from MIA enable it to maintain its traditional dominance of South American traffic.

The other routes have experienced continuing fragmentation, with more U.S. cities obtaining nonstop international services. The new flights weaken the traditional dominance of a few large gateways such as JFK and LAX. The Herfindahl analysis indicates that JFK is not threatened by a few particular gateways that are surpassing it. Rather, its markets are becoming more fragmented, and it is losing share to many small and emerging gateways. Most of its new competitors are individually minor, but collectively they are substantial. Their growth is the result of international liberalization, domestic hub-and-spoke networks, airline alliances, and aircraft developed for low volume, long distance routes.[4]

[4] The very small Herfindahl scores for Africa are misleading. Total traffic volumes are very low even from the largest gateways. Over 80 cities had charter flights to and from Africa during 2000-2010. Total charter traffic was large compared to scheduled traffic. These conditions resulted in a very low Herfindahl score. U.S.-Africa scheduled traffic is heavily concentrated at JFK, IAD, ATL, and George Bush Intercontinental Airport ("IAH").

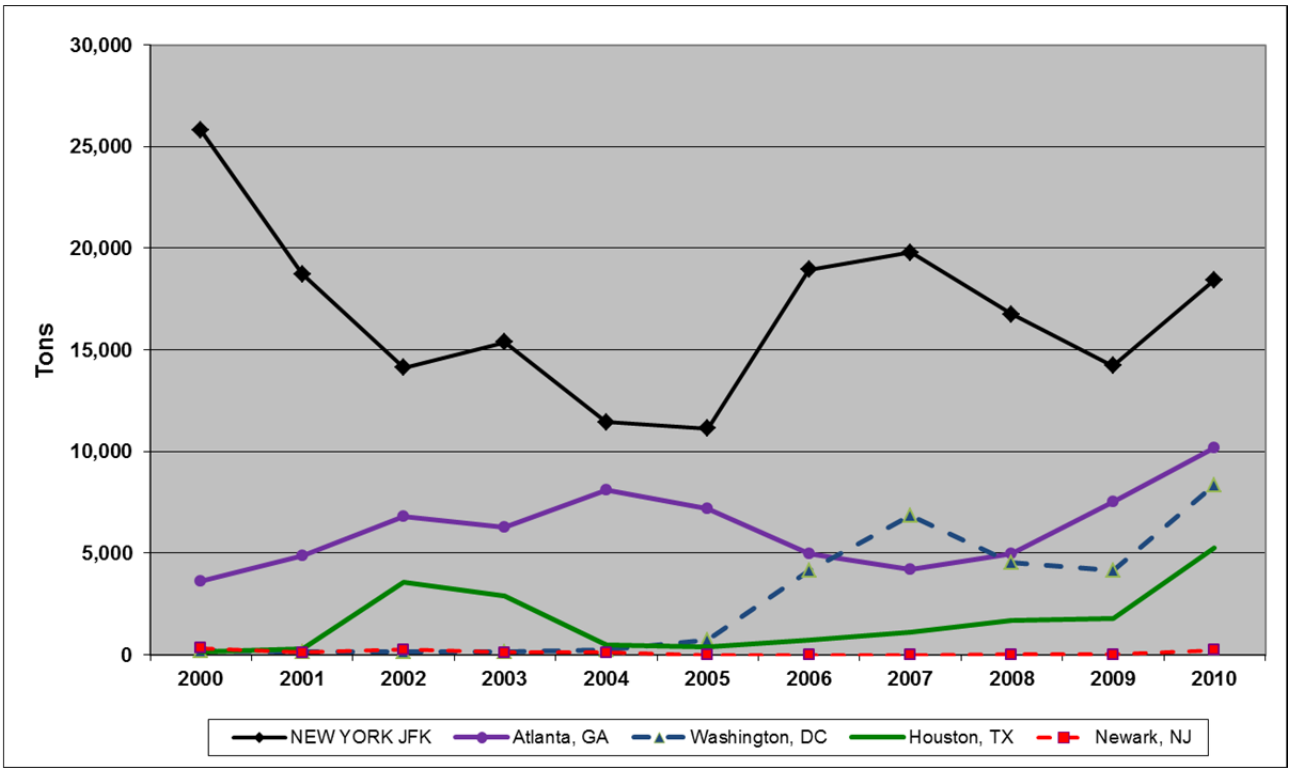
5.5.4 JFK'S ROUTE PERFORMANCE – 2000 TO 2010

This section examines JFK's air freight performance for each route from 2000 to 2010. The primary source of information is the DOT's monthly 28IM report. This report captures enplaned and deplaned passengers, air freight, and air mail.

Africa

JFK's traffic to-and-from Africa fell by 28.5 percent **(Figure 5.5-7, *Performance of Africa Routes 2000-2010*)**. This contrasts with a 34.4 percent gain for total U.S.-Africa traffic. Royal Air Maroc replaced its 747's with leased 767's that offered considerably less air freight capacity. Similarly, South African Airways now operates A340s instead of Boeing 747-400's on its routes to JFK.

Figure 5.5-7 PERFORMANCE OF AFRICA ROUTES 2000-2010



Source: United States Department of Transportation Report 28IM

African traffic has benefited from that country's economic growth, the widespread adoption of open skies agreements, and development of oil reserves. The 777 can operate nonstop U.S.-Africa services profitably with smaller loads than the 747-400. Since 2000, airlines have started new services to Africa from IAD, IAH, and ATL. In 2000, most U.S.-Africa services operated from JFK.

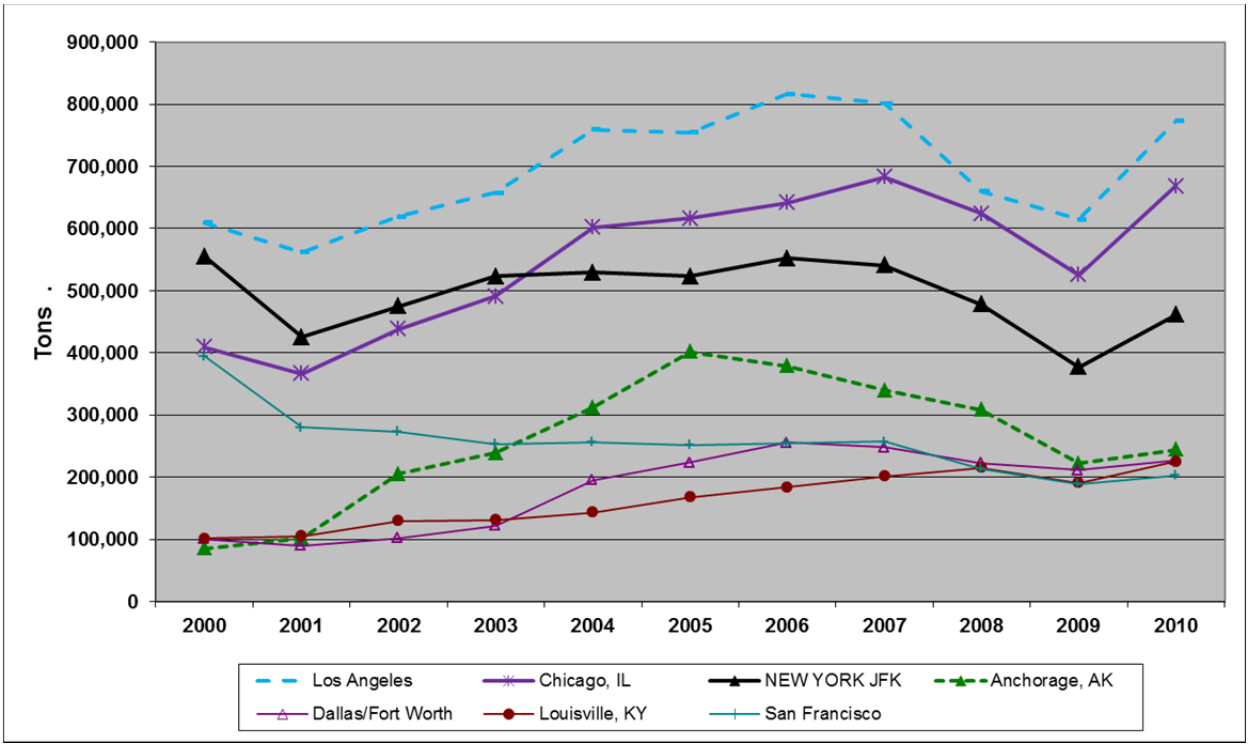
The graph shows African traffic for direct flights. However, large volumes of U.S.-Africa traffic continue to transit airports in Western Europe. The DOT reports attribute any such connecting traffic to the European airport and do not reflect the relationship to Africa for through-U.S.-Africa flights.

Asia

Figure 5.5-8, *Estimated Performance of Asian Routes 2000-2010*, summarizes traffic at the key gateways for U.S.-Asia traffic. JFK's traffic to the Far East fell by 14.4 percent between 2000 and 2010 despite a 58.9 percent increase in total traffic. The gradual liberalization of U.S.-China services has permitted ORD, Seattle-Tacoma International Airport ("SEA"), ATL, EWR, and other airports to obtain nonstop services to Beijing Capital International Airport ("PEK") and PVG. The Japanese liberalization of 1998 initiated an expansion that continued until 2005. UPS became a major presence after the 2000 award of China authority. Much of the growth of Anchorage results from the integrators' on-airport sorting facilities. The merger with Northwest Airlines helped Delta restore JFK-Tokyo International Airport ("HND") services and inaugurate a seasonal Salt Lake City International Airport ("SLC")-HND route.

Most of the Anchorage traffic consists of connecting shipments. The presence of the Anchorage transfer operations tend to overstate the traffic originating or terminating in Alaska as reported in the DOT's databases. The same process causes the DOT statistics to understate the Asian traffic originating or terminating in the contiguous 48 states and connecting at Anchorage.

Figure 5.5-8 ESTIMATED PERFORMANCE OF ASIAN ROUTES 2000-2010



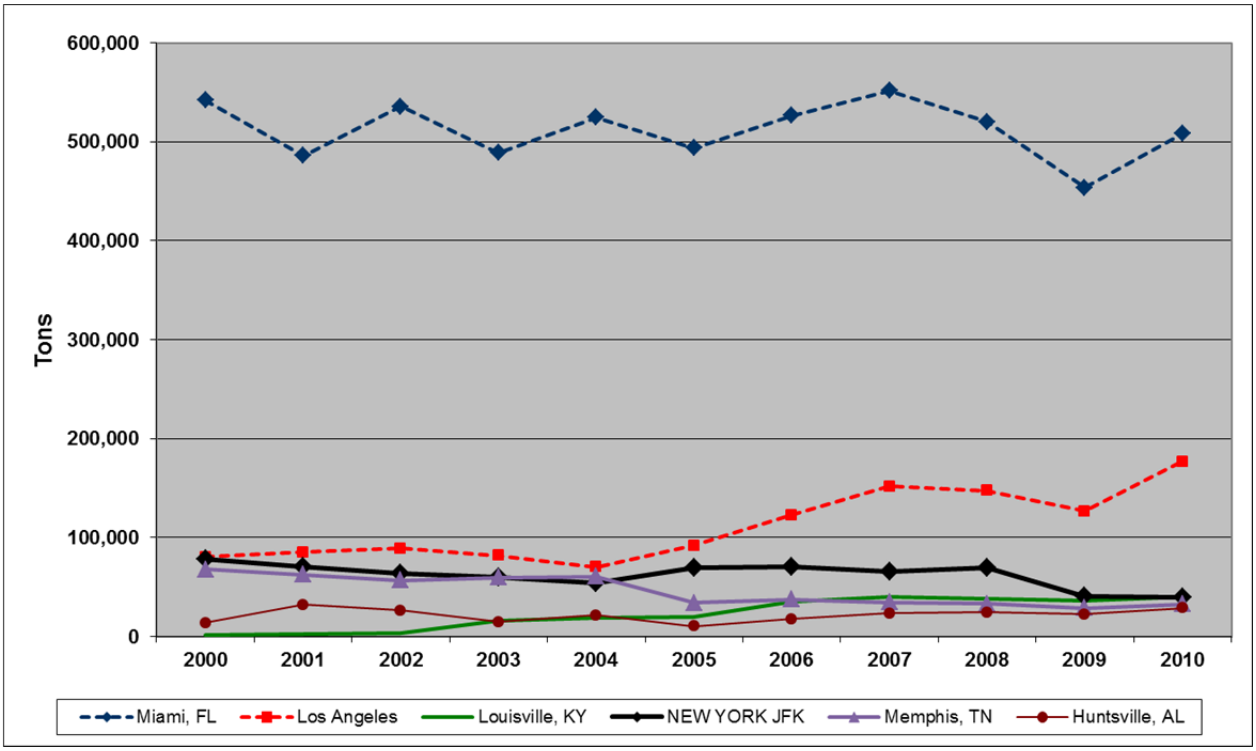
Source: United States Department of Transportation Report 28DM, 28DS, 28IM, 28IS,

Caribbean/Central America

JFK's international traffic to the Caribbean and Central America fell by 49.8 percent between 2000 and 2010 (**Figure 5.5-9, *Performance of Central American/ Caribbean Routes 2000-2010***). Total route traffic fell by 2.0 percent. These changes reflect the continuing fragmentation of international services. Charlotte, Atlanta, and other cities are obtaining new routes to the Caribbean, and diverting traffic from established services.

The North Atlantic Free Trade Agreement ("NAFTA") of 1994 stimulated U.S.-Mexico trade. By stimulating trade and traffic, it also helped expand U.S-Mexico air services for many city-pairs. The NAFTA agreement has therefore furthered the fragmentation of U.S.-Mexico cargo traffic.

Figure 5.5-9 PERFORMANCE OF CENTRAL AMERICAN/CARIBBEAN ROUTES 2000-2010



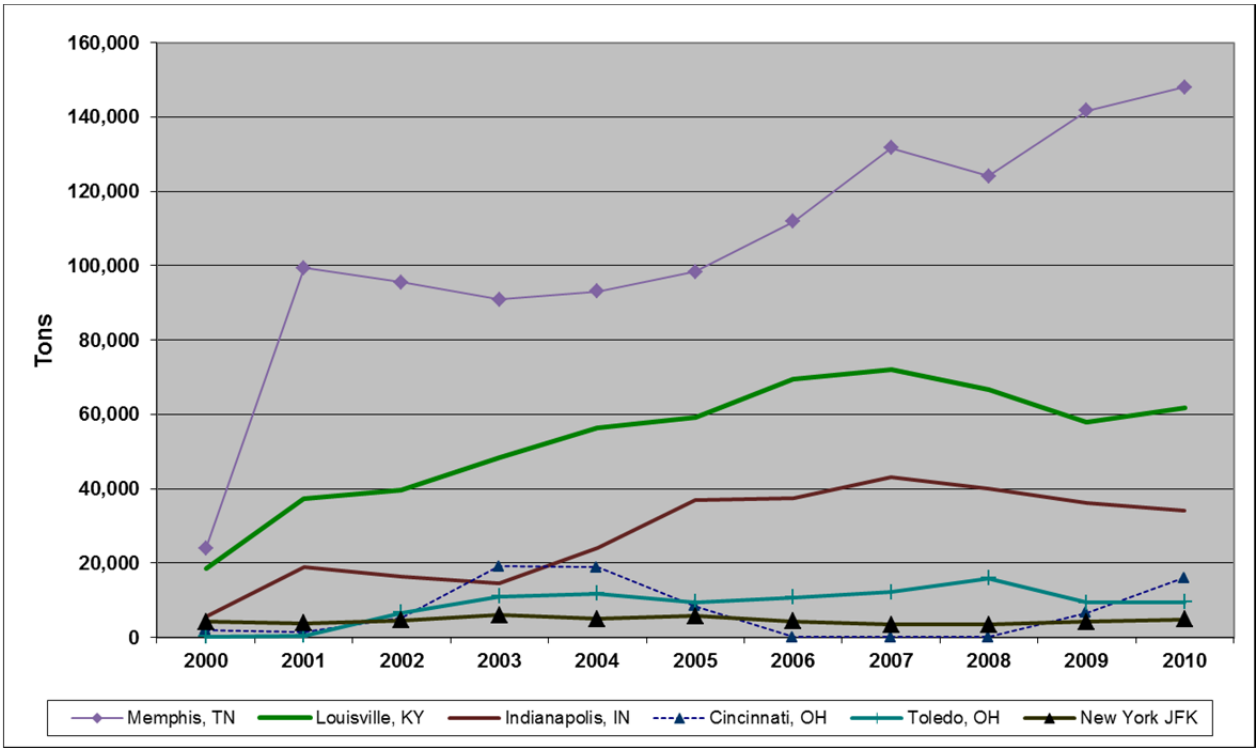
Source: United States Department of Transportation Report 28IM

LAX has pursued and obtained additional capacity to Mexico. Swiss-based Panalpina Group has a large gateway, at Huntsville International Airport ("HSV"), in Huntsville, AL and now supports new ACMI flights to the region. JetBlue has been expanding services to the Caribbean from JFK. However, it operates narrow-body A320 aircraft with limited cargo capacity.

Canada

Figure 5.5-10, *Performance of Canadian Routes 2000-2010*, displays U.S.-Canada airfreight traffic between 2000 and 2010. In 2010, JFK ranked 10th among U.S. airports in traffic to Canada. As discussed previously, the integrators have attracted most trans-border cargo traffic. The airlines have increasingly served trans-border routes with regional jets having little cargo capacity.

Figure 5.5-10 PERFORMANCE OF CANADIAN ROUTES 2000-2010



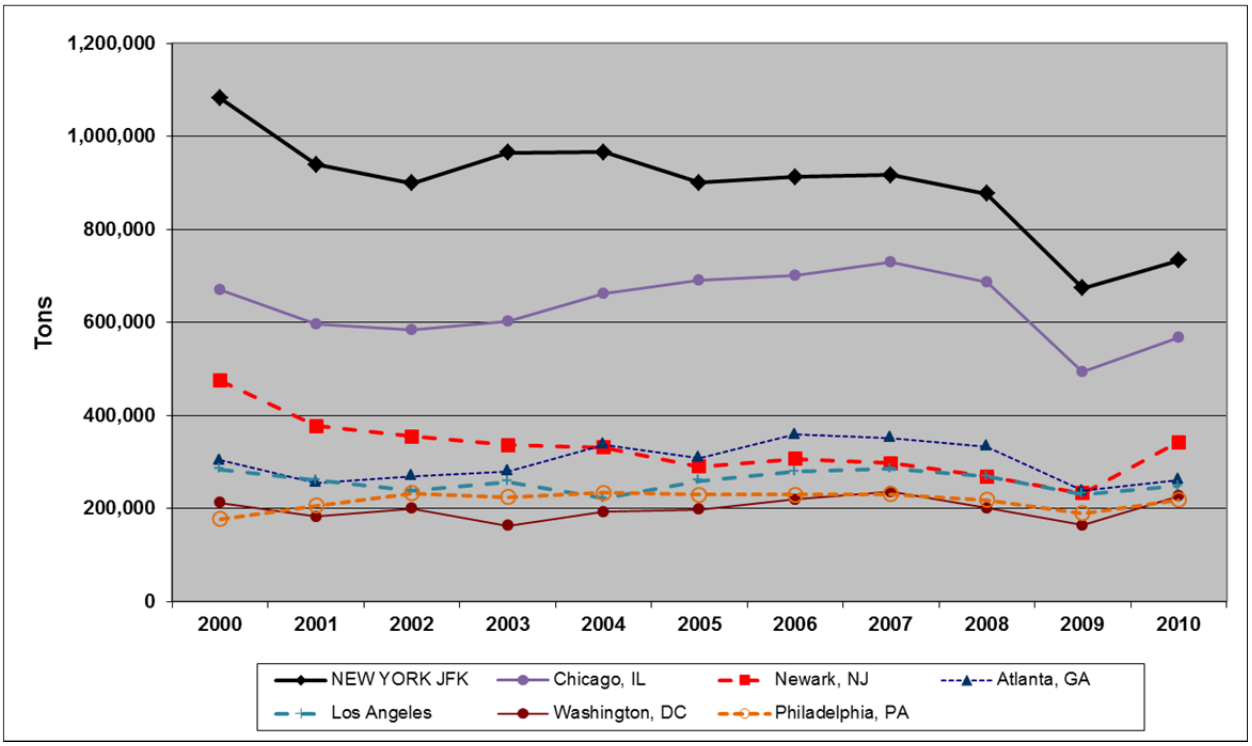
Source: United States Department of Transportation Report 28IM

Most New York City-Canada passenger flights operate from the EWR or LaGuardia International Airport ("LGA"). Relatively few Canadian flights operate from JFK, and most use regional jets that have negligible capacity for air freight. Cathay Pacific holds local rights on its New York-Vancouver-Hong Kong flight. One of the very few Canada-U.S. services operated either with a wide-body aircraft or a fifth freedom operator, this flight accounted for 16 percent of JFK's Canadian traffic in 2010. Substantial but unknown quantities of general cargo travel by truck between New York and the airports of YUL and YYZ.

Europe

Total U.S.-Europe traffic fell 12.0 percent between 2000 and 2010. JFK's traffic fell by 32.2 percent. **Figure 5.5-11, *Performance of European Routes 2000-2010***, summarizes traffic volumes at the leading gateways.

Figure 5.5-11 PERFORMANCE OF EUROPEAN ROUTES 2000-2010



Source: United States Department of Transportation Report 28IM

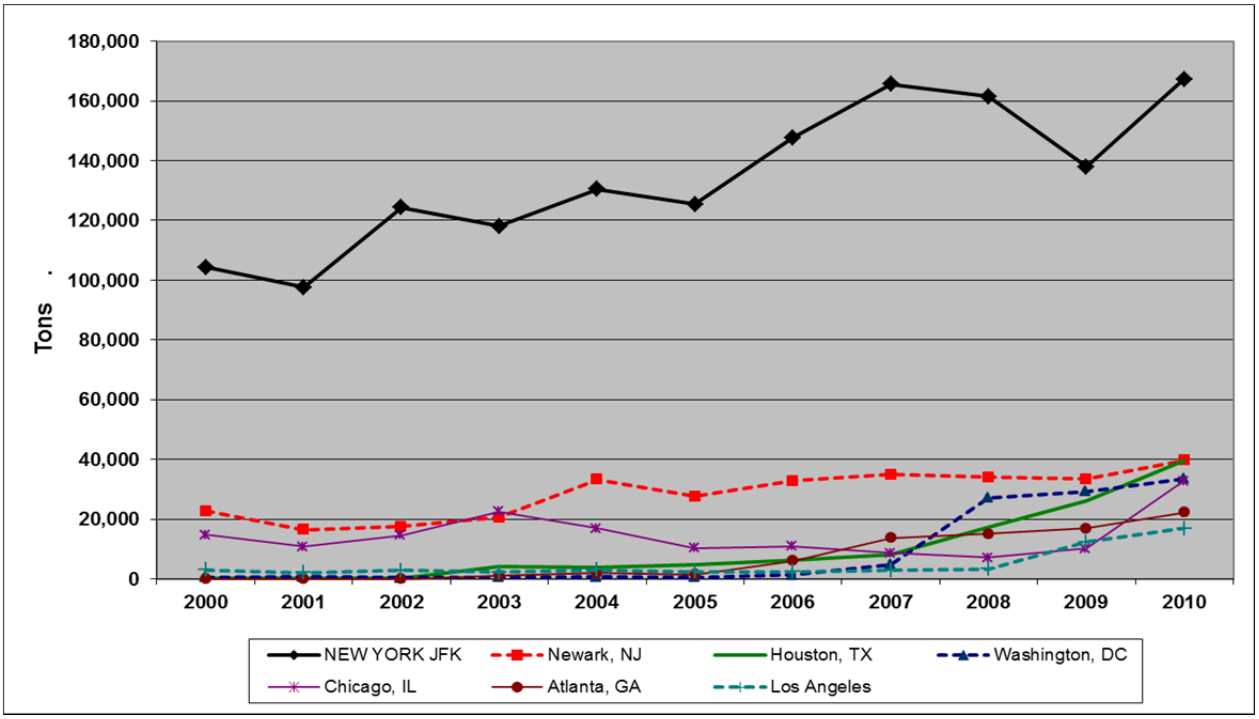
US Airways made a strategic decision to develop its Philadelphia-Europe services. Philadelphia's large population and its strong domestic feed make it an ideal gateway to Europe. Philadelphia International Airport's ("PHL") traffic grew by 23 percent. United followed a similar rationale at IAD. IAD-Europe air freight grew by 6.9 percent. IAH, MEM and Dallas/Fort Worth International Airport ("DFW")-Europe grew by 49.5, 44.8, and 22.3 percent, respectively. BOS's traffic fell by 25.9 percent. It illustrates the shift of traffic from traditional gateways to new interior hubs and integrated carrier hubs.

Traffic at the five largest gateways collectively fell by 23.4 percent over the past decade. U.S.-Europe services best demonstrate the proliferation of flights at non-traditional gateways. A previous section showed that in 2000, U.S.-Europe traffic was widely distributed over many gateways. International liberalization, domestic hub and spoke systems, twin engine wide-body aircraft with over water capabilities, and airline alliances had caused a dramatic dispersal of U.S.-Europe flights over many non-traditional gateways. This process continued, albeit at a decreasing rate, over the 2000-2010 period.

The Middle East and Subcontinent

Air freight traffic between the U.S. and the Middle East/Subcontinent grew by 154.6 percent between 2000 and 2010 (**Figure 5.5-12, *Performance of Middle East Subcontinent Routes 2000-2010***). Traffic at JFK grew by 60.2 percent. In 2000, the Airport already had several services to the Middle East/Subcontinent. Other U.S. cities obtained their first services to the Middle East and Subcontinent during 2000-2010.

Figure 5.5-12 PERFORMANCE OF MIDDLE EAST-SUBCONTINENT ROUTES 2000-2010



Source: United States Department of Transportation Report 28IM

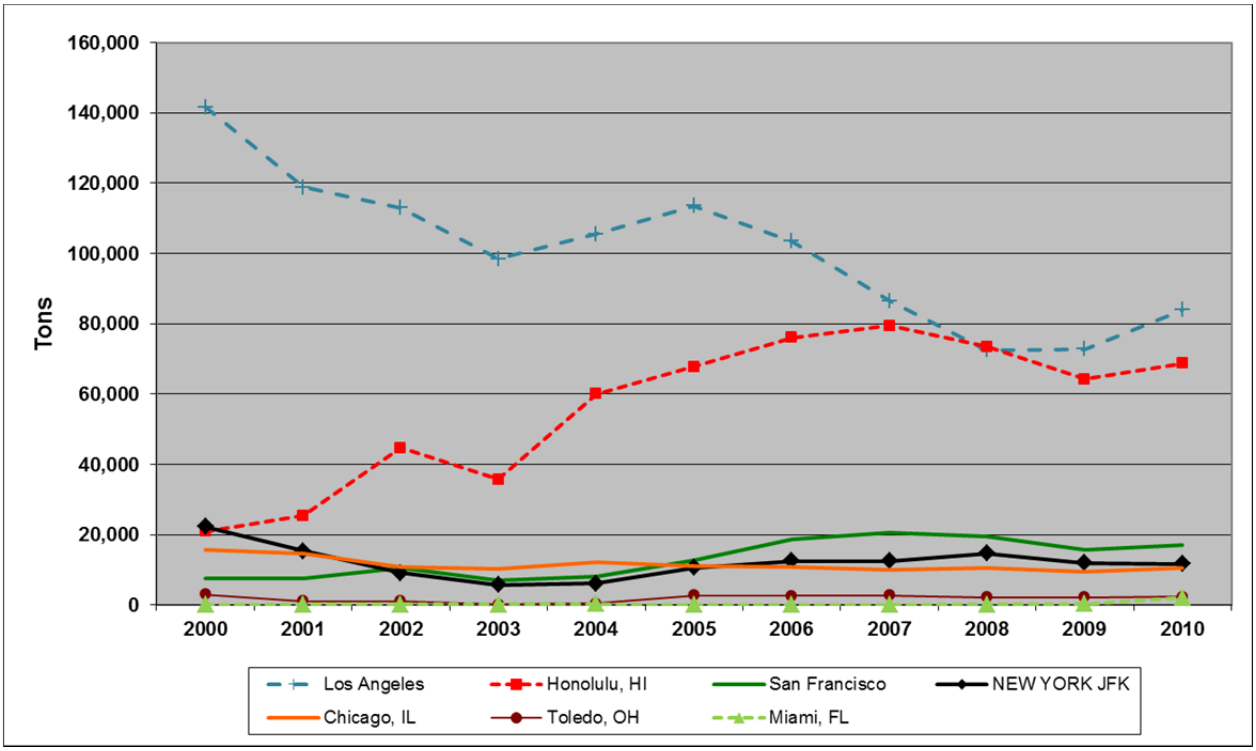
Three Gulf airlines, Emirates, Etihad, and Qatar Airways are developing their home bases into worldwide hubs, serving primarily sixth freedom traffic.[5] They continue their U.S. expansion beyond JFK, and one or more now serve Washington, Houston, Chicago, San Francisco and Los Angeles. Emirates will shortly start serving SEA and DFW. It has publicly said that it is examining further destinations. During this decade, American started ORD-New Delhi nonstop flights, and United offers nonstop flights to New Delhi and Mumbai from EWR. Turkish Airlines started nonstop flights to Istanbul from Washington and Chicago. Air India started nonstop JFK-Delhi/Mumbai services in 2007. Flights had previously operated via London. The airline started flights to EWR in 2002 and to IAD in 2009. United Airlines now offers nonstop flights from IAD to Kuwait and Dubai. Delta flies nonstop to Dubai from ATL. JFK arguably has the most diversified and robust services to the region. However, it is competing with many other airports for airline resources. Its margin of leadership is very narrow.

[5] "Sixth Freedom" traffic refers to an airline of Country A carrying passengers and cargo from Country B, through an airport in its home Country A, and onwards to Country B. For example, a passenger traveling from New York to Perth, Western Australia via Dubai on Emirates Airlines would be considered sixth freedom traffic. An airline serving sixth freedom traffic is therefore not limited by the size of its home market.

Pacific Routes

U.S.-Pacific air freight traffic fell by 10.7 percent between 2000 and 2010. JFK traffic fell by 47.6 percent (**Figure 5.5-13, *Performance of Pacific Routes 2000-2010***). The very long distances have confined nonstop U.S.-Australia/New Zealand flights to gateways in California and Hawaii. Any changes in air freight routing patterns could affect the performance of several airports.

Figure 5.5-13 PERFORMANCE OF PACIFIC ROUTES 2000-2010



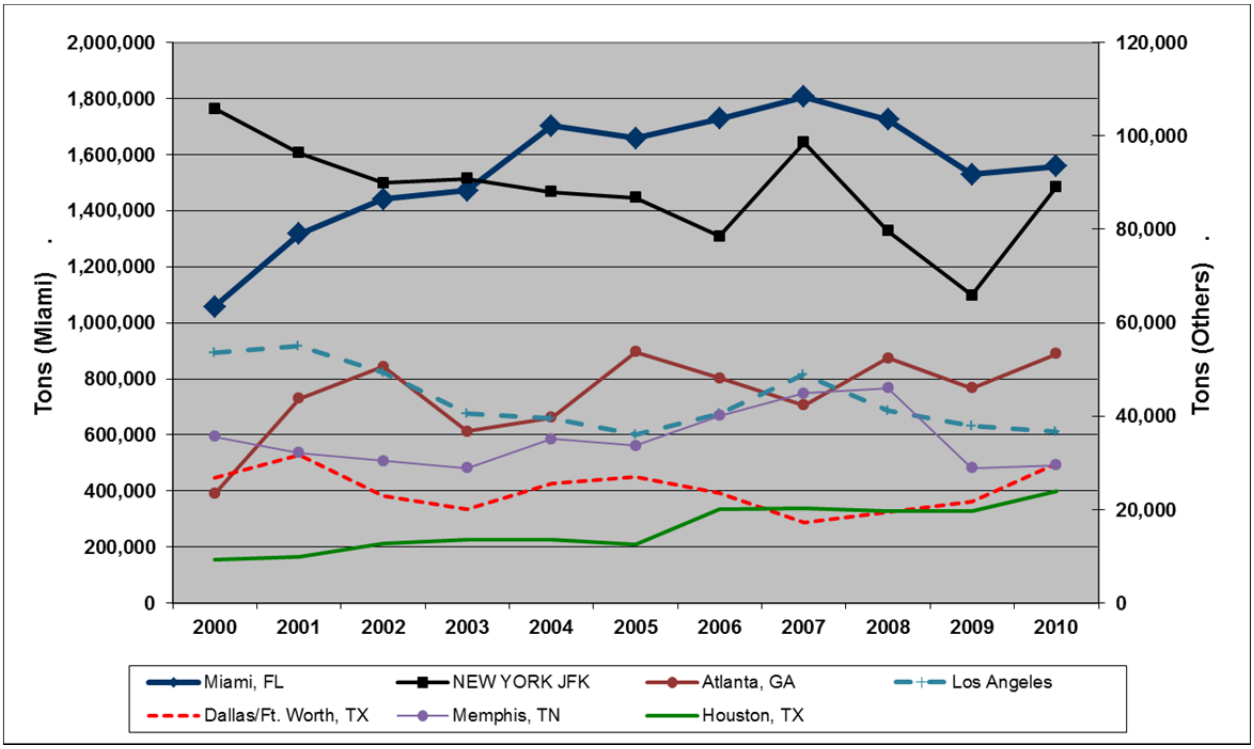
Source: United States Department of Transportation Report 28IM

During 2000-2010, the proportion of freight carried by all-cargo aircraft increased from 37.9 to 49.3 percent. ACMI carriers and integrators have been particularly active. This change has caused increasing quantities of air freight to be routed through Hawaii. Pacific routes are becoming progressively more fragmented. QANTAS inaugurated nonstop DFW-Australia flights in 2011, and United will use its 787's for nonstop IAH-Auckland services. QANTAS continues to offer through JFK-Sydney passenger and cargo flights.

South America

Figure 5.5-14, *Performance of South American Routes 2000-2010*, reflects MIA's dominance of U.S.-South America air freight. The left axis refers to MIA's traffic; the right to all other cities. During 2000-2010, total traffic grew by 38.6 percent. JFK's air cargo declined by 15.7 percent. ATL, DFW, and IAH grew by 127.5, 11.5 and 156.8 percent, respectively.

Figure 5.5-14 PERFORMANCE OF SOUTH AMERICAN ROUTES 2000-2010



Source: United States Department of Transportation Report 28IM

MIA's leadership results from its southeastern location, making it the closest major city to most parts of South America. It has a very strong community of interest with all parts of South America giving it cultural and social ties that reinforce business linkages. Several Miami-centered all-cargo operators such as ABSA Aerolineas Brasilieras and Cielos de Peru carry large volumes of traffic between Miami and South America.

Passenger services to South America are experiencing the same fragmentation of gateways as other routes. ATL, IAH, ORD, Charlotte Douglas International Airport ("CLT"), DFW and BWI obtained nonstop services to South America during 2000-2010. In 2011, Delta Air Lines inaugurated nonstop DTW-GRU flights. The all-cargo services based in Miami and its location ensure that gateway's air freight dominance for the foreseeable future.

Domestic Traffic

JFK ranked 15th in domestic air freight in 2010. The major and secondary integrated carrier hubs of MEM, SDF, IND, Oakland International Airport ("OAK"), ONT, and Cincinnati/Northern Kentucky International Airport ("CVG") ranked ahead of JFK. The Airport's volume of domestic integrated carrier traffic ranked 19th in the nation, compared to EWR's sixth place. Traffic at JFK was down 5.5 percent from 2003.[6] Excluding the integrators, domestic cargo fell 40 percent between 2000 and 2010.

5.5.5 SUMMARY

Between 2000 and 2010, JFK's cargo traffic declined both absolutely and as a share of total U.S.-international cargo. The decline results from:

- The growth of new international gateways throughout the U.S. This process in turn results from market liberalization, the growth of hub-and-spoke domestic route systems, strategic airline alliances, and the development of overwater twin-engine aircraft which can economically serve long, low volume routes.
- The development of hub-and-spoke networks in other countries. Airlines can often serve secondary U.S. markets as spokes, with no need for U.S. domestic traffic feed.
- The decline of domestic cargo services by the passenger airlines, particularly the increased usage of small aircraft operating on high frequencies;
- The growth of international services by integrated carriers;
- The growing use of road feeder services. Sometimes they feed air freight to JFK, but they also divert traffic to other gateways.

These trends arose during 1985-1995. They have continued to shape the air freight industry at JFK from 2000-2010.

[6] The domestic services of the integrated carriers were not included in the DOT's 28DM and 28DS reports until mid-2002.

JFK AIR CARGO STUDY

NEW YORK CITY ECONOMIC DEVELOPMENT CORPORATION | THE PORT AUTHORITY NEW YORK & NEW JERSEY

Chapter 6 – Air Cargo Capacity and Future Demand





L&B
Aviation Planning at the Leading Edge

CHAPTER 6
AIR CARGO CAPACITY AND FUTURE DEMAND

This Chapter has three sections. The First Section discusses the existing capacity of the four JFK Cargo Zones and the ability of the existing buildings and infrastructure to accommodate forecasted tonnages. The Second Section is the Forecast of cargo activity based on Port Authority of New York & New Jersey ("Port Authority") methodologies and an independent review of that methodology and potentially impacting market conditions that could affect the forecast numbers. The Third Section translates the Forecast into demand parameters for facilities and supporting airside and landside infrastructure.

6.1 CAPACITY

John F. Kennedy International Airport ("JFK" or "the Airport") continues to rank among the top ten cargo airports in the country and among the top 25 in the world in terms of the volume of cargo handled on an annual basis. In line with the information contained in this report, the Federal Aviation Administration ("FAA")'s forecast, and other industry forecasts, reported air cargo at JFK is expected (under an optimistic planning scenario) to increase to approximately 2,900,000 tons by 2040.

To meet this continued growth, the Port Authority must plan and prioritize future cargo development in an environment that is both evolving and constrained by the potential introduction at some future date, of an additional runway. To accomplish this, many factors should be considered to include the Airport and New York City's ("the City") business goals, future development plans, airport development constraints, stakeholder needs, facility utilization/allocation, off-airport development, and impacts to the region's roadway infrastructure. This Chapter assesses the Airport's existing capacity and future ability to meet the general facility requirements as a result of the projected demand, including both quantitative and qualitative factors that may need to be addressed.

An Optimistic Planning Scenario is typically used to evaluate capacity in the planning estimates for growth beyond what would normally be anticipated. This is particularly critical in an environment that requires a measured allocation of land resources under stringent federal, city, and agency planning guidelines. From a pure business perspective, it is also prudent to ensure that the Port Authority will have the facilities to accommodate future demand. As indicated earlier, global air cargo is forecast to increase over the next two decades. International and domestic cargo volumes are anticipated to grow at approximately the same rate with domestic accounting for between 18-20 percent of the total volumes. Freight traffic is expected to follow the trend of carriers utilizing belly capacity when possible. Over the past ten years, daily freight aircraft at JFK have decreased by almost 50 percent from 2000 to approximately 17 percent in 2011. As a result, the planned future utilization of property has far greater flexibility than anticipated over the past decade at JFK.

6.1.1 JFK CARGO ZONES

Currently the JFK cargo operations are located in four areas, categorized as A, B, C, and D (see **Exhibit 6.1-1, *JFK Air Cargo Zones***, below). In keeping with modern terminology these areas will be referred to as Zones for future discussion. Together they represent a total of 27,550,000 square feet (632 acres) of space designated for cargo or cargo-serving development. The reality is that much of the space is dated or represents a conversion effort from a different use that has resulted in an inefficient and/or vacant facility. This is not atypical of North American gateway airports (airports with large amounts of international and domestic air cargo) where development was initially driven by accelerating growth in a relatively unconstrained physical environment. However, the proportionate amount of such space at JFK exceeds that found at other gateway airports. This is because much of the air cargo infrastructure and facilities is the product of incremental growth rather than strategic planning.

From an aesthetic perspective, the Cargo Zones as a whole are displeasing. The vacancy levels, size, and configuration make upkeep difficult and expensive. The cost of doing business at JFK and in the City encourages tenants to settle for less than modern facilities and minimal operating conditions. The periods when many of the facilities were built were not overly focused on employee amenities and quality of life, nor did construction address the security issues necessary for the cargo industry today. As discussed in Chapter 4, access from the landside and airside to some cargo buildings is problematic. This creates landside queuing and maneuvering issues, and extended taxi time for freighter aircraft. The unstructured development has also created an environment in which Ground Service Equipment ("GSE") is spread over aprons creating safety and security issues.

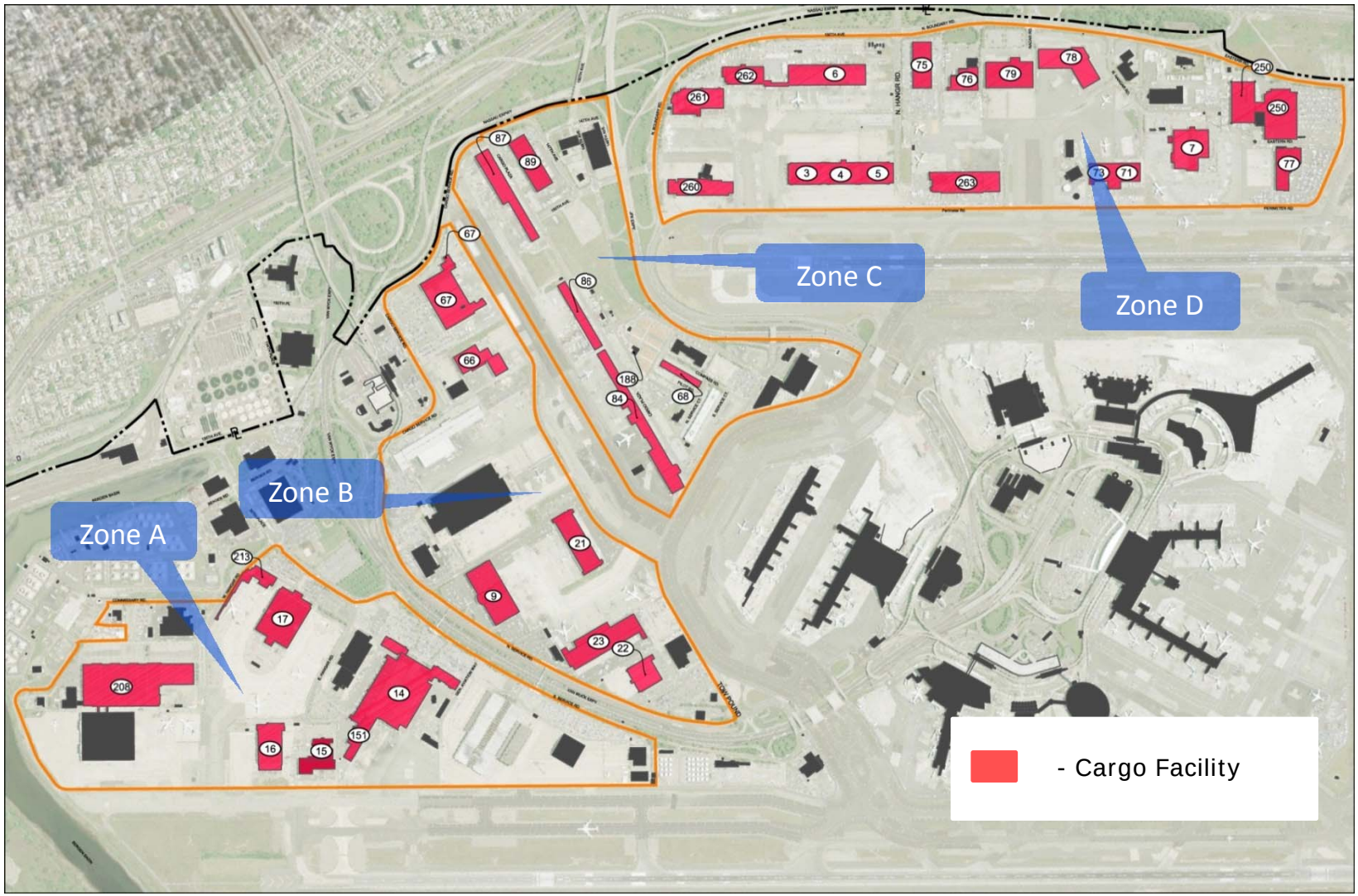
There are numerous instances of facilities where planning from a security and safety perspective should be substantially enhanced. Landside access to buildings, auto parking adjacent to airside infrastructure, and failure to separate cars and trucks are all elements of the Airport's cargo operation that can and should be corrected for operating, safety, security, and planning reasons. JFK suffers from being the most mature of the international gateways. It has been the proving ground for operating practices and new planning concepts. Virtually every international gateway in the industry has built its operation on lessons learned from JFK and other gateways as they emerged. Learned practices and planning concepts have enabled other gateway airports to optimize capacity under a variety of operating and physical constraints.

In estimating developable properties and future capacity in the Zones, the team used the leasehold calculations provided by the Port Authority through historical documents, facility audits, and reviews of the lease documents. In certain instances data were not available and the Team extrapolated dimensions from CAD drawings. The Port Authority has, through internal assessment of the facilities, assigned a value to the facilities, which considers their age, location, configuration, and size to determine their viability as a cargo asset.

Included in **Appendix J** is a detailed inventory of all existing on-airport Cargo Facilities at JFK.

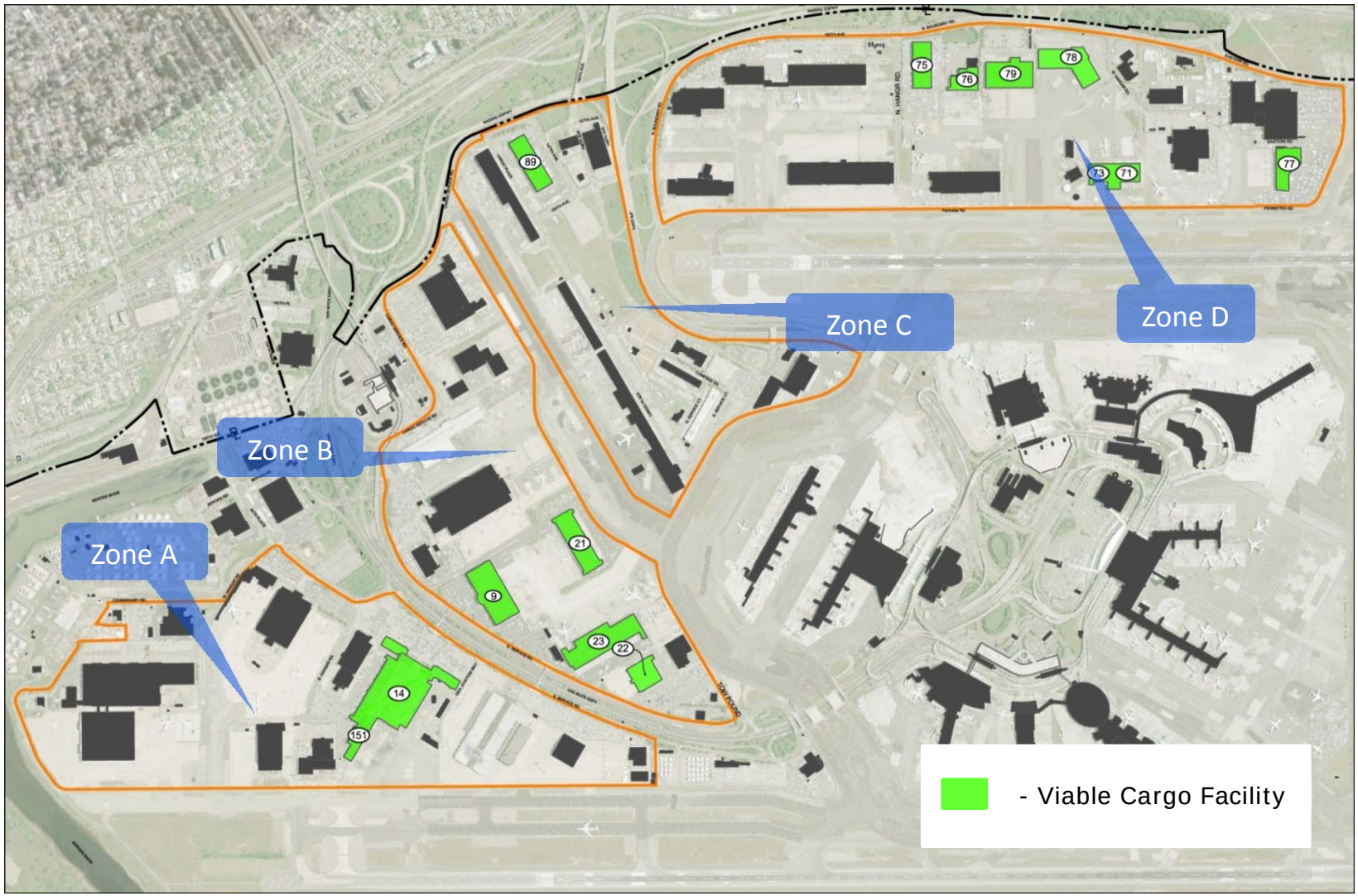
In **Exhibit 6.1-2, *Viable Cargo Buildings***, those facilities highlighted in **Green** are considered viable and have a continuing shelf life within the market.

Exhibit 6.1-1 JFK AIR CARGO ZONES



Source: Port Authority of New York & New Jersey, Landrum & Brown Analysis

Exhibit 6.1-2 VIABLE CARGO BUILDINGS



Source: Port Authority of New York & New Jersey, Landrum & Brown Analysis

Table 6.1-1, *Developable Land Areas*, below lists the different Zones and the total "developable" land remaining in each after the non-viable properties are removed. The balance is approximately 435 acres over the four sites.

Table 6.1-1 DEVELOPABLE LAND AREAS

Area	Total Developable Area (ft^2)	Remaining Developable Area (ft^2)
Zone A	8,751,681	6,628,655
Zone B	6,099,222	3,133,313
Zone C	4,135,537	3,041,977
Zone D	8,565,337	5,716,264

As part of this effort, the Team reviewed the evaluations of "viability" assigned by the Port Authority to the cargo facilities and found them to be reasonable. There are, in some instances, questions about broader issues such as airside and landside access, and building location, but nothing that impacts the core evaluation of the buildings.

In independent evaluations of facility and infrastructure viability there are some very basic criteria that the Team used:

- Ability of building capacity to meet demand. (This becomes less critical if alternative facilities are available.)
- Age of the facility. A facility more than 40 years old typically is incompatible with current industry operating practices.
- Physical configuration, particularly depth and relationship of airside to landside access.
- Depth of the truck apron.
- Compatibility of the aircraft apron and building operations.
- Security.

It is also important to note that many tenants are willing to settle for less than optimum facilities and operating conditions as a trade-off for the costs of newer cargo buildings.

6.1.1.1 Zone A

Zone A has only one viable facility – the Port Authority Administration Building and the JAL cargo facility. The size of the leasehold and the proximity of other facilities account for a substantial amount of land, which further due diligence will address as we move into the conceptual planning stage. For cargo development, this is the least desirable Zone, given its separation by roadway infrastructure from the other cargo Zones, the need that the Port Authority may have for other aviation support operations, and the aesthetic impact of cargo facilities and trucking operations along the main passenger access road. Nevertheless, given the current presence of cargo there now, and the impacts of a potential future runway addition on capacity in other Zones, it is important to consider the potential of Zone A. (See **Table 6.1-2**, ***Zone A - Existing Facilities***.)

Table 6.1-2 ZONE A – EXISTING FACILITIES

Building Number	Year Built	Sq. Ft. of Total Building	Aircraft Positions		Viable / Nonviable
			Wide Body Positions	Narrow Body Positions	
15	1958	148,453	0	2	Nonviable
16	Not Available	140,876	3	0	Nonviable
151	1956/1995	396,780	3	0	Viable
208	1969	556,100	0	0	Nonviable
Zone A Totals:		**1,242,209**	**6**	**2**	

Discussion

Building 15 is dated and has very poor trucking access. It is theoretically functional, but with an age greater than 50 years, the anticipated life span of the building is limited.

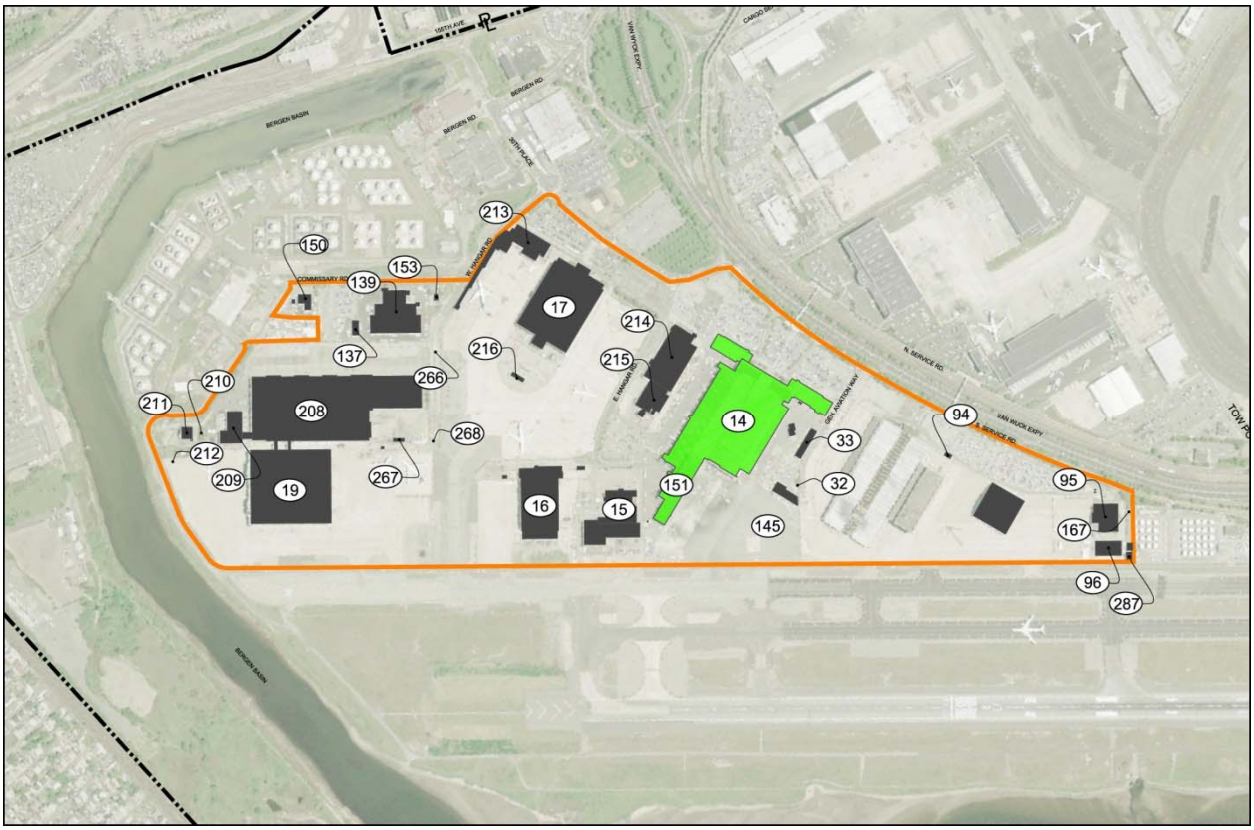
Building 16 should not be considered in the cargo facilities. It is a maintenance facility that was part of the Pan Am Base and has seen limited use over the past 20 years.

Building 151 was originally built to accommodate an expanded Japan Airlines operation and is in some ways the most modern and sophisticated cargo facility on the airport. It has with an efficient material handling system that gives it the capacity to handle very high levels of throughput. It is also notable in that it has nose dock capacity for freighters (which has not been utilized).

Building 208 is the former Pan Am maintenance base. It is useless in terms of cargo with no truck doors and no airside bays. It has been vacant since the collapse of Pan Am in 1991 and costs the Port Authority substantial annual dollars in upkeep. Over the years the Port Authority has received both solicited and unsolicited proposals to redevelop the facility, as well as Buildings 15 and 16, but no redevelopment has taken place. In 1992 an internal Port Authority analysis indicated that the building could be converted to a multi-tenant facility for freight forwarders for $25 million, but no action was taken.

Zone A, as depicted in **Exhibit 6.1-3, *Zone A***, has an aesthetic impact on the primary passenger access road – the Van Wyck Expressway. The design and façade of Building 151 are acceptable from this perspective but any new development must respect potential image impacts on arriving passengers. In a sense this is a first impression of the City. A second major issue is the need to minimize truck traffic on the passenger arteries. Future use of Zone A will need to consider how to separate trucking to the maximum extent possible.

Exhibit 6.1-3 ZONE A



6.1.1.2 Zone B

Zone B has the greatest percentage of viable facilities which for the most part are focused on domestic carrier cargo operations. This creates a potential opportunity for clustering domestic carrier cargo operations and the related landside support elements. (See **Table 6.1-3, *Zone B – Existing Facilities***, and **Exhibit 6.1-4, *Zone B***.)

Table 6.1-3 ZONE B – EXISTING FACILITIES

Building Number	Year Built	Sq. Ft. of Total Building	Aircraft Positions		Viable / Nonviable
			Wide Body Positions	Narrow Body Positions	
9	1955/1970	220,000	3	0	Viable
21	2003	172,100	2	0	Viable
22	1997	111,140	1	0	Viable
23	2003	262,515	4	0	Viable
66	1964	112,000	2	0	Nonviable
67	1965	267,750	2	0	Nonviable
Zone B Totals:		**1,145,505**	**14**	**0**	

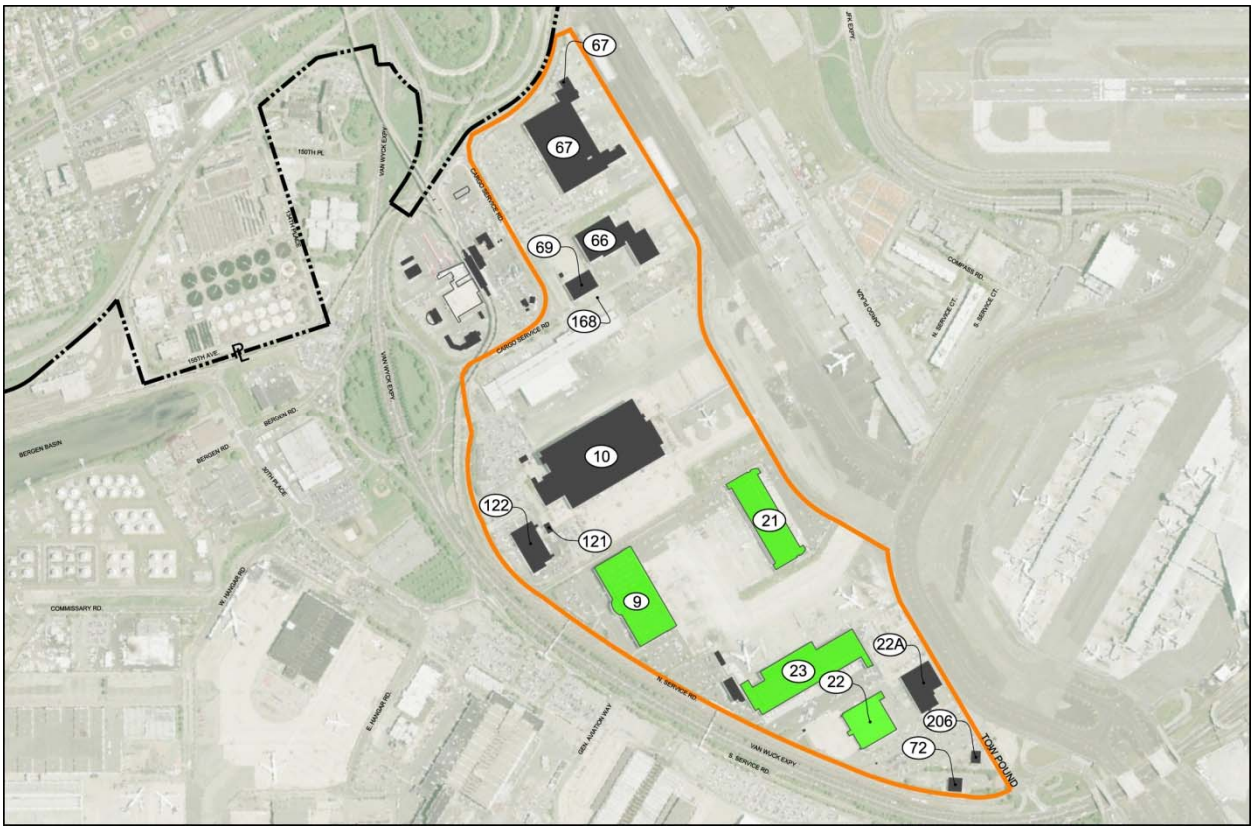
Discussion

Like Zone A, this cargo zone fronts the Van Wyck Expressway so, therefore, considerations must be made for aesthetics and the separation of truck traffic pertain. This makes access to Zone A an important consideration. With American, Delta, and United as primary tenants of Zone A, it reduces the current demand for aircraft parking and creates the opportunity for new configuration alternatives. An important consideration here, as for all Zones, is connectivity to the Terminal Area. Minimizing tug time to the cargo buildings is an important consideration. It will also be important to identify connection options to Zone C.

Building 66 is nearly 50 years old and was retrofitted in the late 1990's to add more warehousing and auto parking capacity. The truck court, because of the building configuration occasionally presents some maneuvering problems for full size tractor-trailers.

Building 67 was originally designed as the Pan Am cargo facility and has gone through several tenants. The facility is currently leased by Delta who retains it primarily because of the substantial parking capacity available for employees. It has been considered poorly configured for cargo by most tenants and has seen little use that utilizes its capacity for the past 20 years.

Exhibit 6.1-4 ZONE B



6.1.1.3 Zone C

Zone C has one viable building that was built for Danzas/AEI. The location of this facility is problematic because it constrains development on the eastern side of the site and overlaps potential development pads. This was detailed in independent developer proposals for site in 1994. (See below). The result is that a relatively small facility ties up creative development of more than 1,000,000 square feet. This is an example where "viability" as an operating facility has broader implications because of the impact on overall Zone functionality. (See **Table 6.1-4, *Zone C – Existing Facilities***, and **Exhibit 6.1-5, *Zone C***.)

Table 6.1-4 ZONE C – EXISTING FACILITIES

Building Number	Year Built	Sq. Ft. of Total Building	Aircraft Positions		Viable / Nonviable
			Wide Body Positions	Narrow Body Positions	
68	1963	34,210	0	0	Nonviable
81	1950	47,770	0	0	Nonviable
83	1950	142,800	4	0	Nonviable
84	1950	91,700	3	0	Nonviable
86	1960	76,124	3	0	Nonviable
87	1960	153,000	4	0	Nonviable
89	1994	105,000	0	0	Viable
Zone C Totals:		**650,604**	**14**	**0**	

Discussion

Zone C, often referred to as "the 80 series" has only one viable facility, and it is situated poorly (from a planning perspective). The location decision was based on a business concession to Danzas/AEI who wanted the building in a "visible" location. The remainder of Zone C is comprised of 50- to 60-year old buildings that lack the physical dimensions that the American Trucking Association ("ATA") suggests are appropriate for modern cargo facilities. Its appearance, rate structure, and physical short-comings reflect why it is considered the "low rent district" of the Airport. The landside infrastructure, which was appropriate in the 1950's cannot accommodate modern tractor-trailer maneuvering which blocks the main road servicing the facilities as they try to park. A Request for Proposal ("RFP") for the redevelopment of the entire site was issued in 1994 with two very strong proposals which would have modernized Zone C and increased its capacity. No award was made. The Airport would have incurred no cost to redevelop Zone C, and the buildings were fully amortized. Even at discounted leasing rates the buildings were generating revenue for the Airport they did not want to lose, even in the short term. Conditions, however, are now such that Zone C is largely abandoned.

Overall development in Zone C is constrained by the narrowness of the Zone and by the Runway 13L Runway Protection Zone ("RPZ") which limits development over a 38.68-acre area in the center of the Zone. Development within the RPZ is limited by the FAA to exclude anything that results in the gathering of people (i.e. buildings, auto parking, etc.). Connectivity to Zone C is satisfactory, but given the limited use of Zone C is not extremely important currently. As new development takes place, overall Zone connections with the

off-airport community and with other zones will be very important. Two buildings in Zone C are unique - Building 189 which is the VetPort and Building 80, which formerly accommodated a number of freight forwarders.

Building 189 houses a VetPort, which is considered an important service by carriers that handle animals. The building has had a history of poor management and suffered from a location that insulated it from the traveling public for whom a large portion of its revenue (for animal boarding) was targeted. There is a plan in place to relocate this service under a new operator to Building 78 in Zone D.

Building 80 was basically the only facility on the Airport whose primary tenancy was freight forwarders and customs brokers. This was the case for two reasons. First, dimensions and configuration of the building made it very difficult for carriers to operate and so it fell to the firms that had more limited space requirements. Second, the building, because of its age, was fully amortized and could be leased at a lower rate to tenants that could not otherwise afford to be on-airport. It is significant to note that the reaction of the air cargo community to the closure of this facility demonstrated there is a very strong interest in an on-airport location if the rental rates were affordable.

The other non-viable facilities include:

Building 68 is very narrow (100 feet) and has no airside access, limited trucking access, and is generally unsuitable for modern cargo operations. Its age and prospective maintenance challenges make retrofitting a poor investment.

Building 81 was partially demolished for a taxiway modification and has been vacant for a number of years. Its age and prospective maintenance challenges make retrofitting a poor investment.

Buildings 83, 84, and 85 are essentially one large, long, multi-tenant cargo facility. The original depths of the buildings – less than 100 feet – were expanded by various tenants in certain sections to better accommodate modern operations. The buildings have limited internal clearances and are 60 years old. The result is that the excellent airside access is underutilized. The landside operations are constrained by truck aprons that are about half of the recommended 150-foot depth.

Building 86 suffers from the same physical shortcomings as Building 80, built 10 years earlier. The building has no depth enhancements and all of the landside problems.

Building 87 was built in 1960 and has also outlived its useful life. Currently vacant, it did receive a partial depth enhancement that increased its utility in the 1980's. However, as the use of larger vehicles proliferated, the landside shortcomings grew increasingly problematic in large part because of its location at the head of the 80 series Cargo Plaza access.

Exhibit 6.1-5 ZONE C

6.1.1.4 Zone D

The Port Authority has indicated that their preference is for Zone D to be the focal point of much of the new development. We concur with this concept given the proximity of the facilities to the off-airport broker and forwarder community, the emphasis on international cargo, and the amount of existing viable property. For the off-airport cargo community (which by modern definition is a "cargo village,") Zone D is extremely important. Efficient physical connectivity has implications from both a time and cost perspective. Despite existing access points, the connections are currently problematic given the levels of traffic on Rockaway Boulevard.

Over the past 40 years a substantial amount of development has taken place in Zone D. For the most part, however, development has been incremental rather than strategic. The result is that a substantial portion of the acreage is functionally less efficient than it could be. The challenge is that the levels of congestion, occupancy, and activity make structured redevelopment difficult in the absence of a strategic long-term plan. (See **Table 6.1-5, *Zone D – Existing Facilities,*** and **Exhibit 6.1-6, *Zone D***.)

Table 6.1-5 ZONE D – EXISTING FACILITIES

Building Number	Year Built	Sq. Ft. of Total Building	Aircraft Positions		Viable / Nonviable
			Wide Body Positions	Narrow Body Positions	
5	1950	300,000	6	0	Nonviable
6	1953	200,254	0	2	Nonviable
7	1954	167,000	4	0	Nonviable
71	Not Available	62,500	0	1	Viable
73	Not Available	81,728	2	0	Viable
75	1987	200,000	0	0	Viable
76	1991	81,170	2	0	Viable
77	1991	230,500	2	0	Viable
78	1986	154,000	2	0	Viable
79	1993	181,000	2	0	Viable
197	1955	54,500	0	0	Nonviable
250	1976	671,250	0	0	Nonviable
260	1970	105,000	1	1	Nonviable
261	1971	174,056	2	0	Nonviable
262	1974	260,000	1	1	Nonviable
263	1971	167,603	0	4	Nonviable
Zone D Totals:		**3,090,561**	**24**	**9**	
Grand Totals:		**6,128,879**	**58**	**11**	

Discussion

Building 5 is a converted maintenance hangar built as part of the Buildings 3, 4, 5 Complex in 1950. As demand for aircraft maintenance facilities declined at JFK, the building was converted to cargo use and occupied by AEI (now Danzas since being relocated to Zone C). The age alone makes the facility problematic, but lack of maintenance and inappropriate configuration for cargo are major issues.

Building 6 is unusual in that it is an obsolete facility that is still in use (in combination with Building 262) as an important component of the FedEx operation. The building originally served as a hangar complex for Flying Tigers and Seaboard before the lease was acquired by FedEx. As a result, the configuration is not ideal and the age of the building (58 years) gives it a very short life expectancy. Nevertheless, FedEx currently runs a large operation out of the facility. A major inadequacy of the FedEx complex is the substantial requirement for trucking operations and employee parking. There is also concern about the reliability of the cargo volumes reported by FedEx. Because their operation has historically been almost two thirds truck-to-truck operations, there is only a limited correlation between their reported tonnage, calculated throughput, and actual physical requirements.

Building 7 is a decaying structure that cannot be used in its present condition or retrofitted for any viable purpose. For years it served as a base for Varig and Alitalia and was basically falling apart in the 1990's when those tenants vacated the facility.

Building 197 is a small building that was not designed as a cargo facility. Virgin Atlantic retrofitted the building in the mid-1990's for cargo use, adding a number of truck bays. The facility is currently leased to the U.S. Postal Service ("USPS"). This, therefore, represents another non-viable building that is being leased. A recent discussion with the USPS indicated that they will most likely not need this building in the future.

Building 250 is the USPS facility and the largest "cargo" building on the airport representing more than 10 percent of the total capacity. Because it has been configured for postal operations there are compatibility issues for traditional cargo operations. There is limited airside access and poor truck maneuverability. Nevertheless, the USPS indicated a desire to remain in the facility and is considering a $10,000,000 capital investment in the building.

Building 260 is considered obsolete and is more than 40 years old. It has a material handling system and a nose dock system that were installed by Korean Airlines but are not compatible with other carrier's operations. Retrofitting the building would be problematic from a cost benefit perspective given the building's age.

Building 261 was originally built by Lufthansa and very well-maintained during their occupancy. Mechanically the building is fairly sophisticated, but like many other cargo facilities there are difficulties on the landside. Truck maneuvering is constrained and private vehicle parking is limited. The building is now more than 40 years old and approaching the end of its usefulness.

Building 262 is heavily utilized as part of the FedEx operation. There are enormous demands on the landside infrastructure to accommodate the trucking volumes, and customer and employee parking. There is heavy use of the aircraft ramp, but the overall FedEx operation is more trucking oriented than air at JFK. The combined use of Building 262 and Building 6 to sustain the FedEx operation creates inefficiencies that would be best addressed in a well-configured new facility.

Building 263 is 40 years old. Its positioning is such that it requires that vehicles park next to the airside infrastructure which, in today's security-conscious environment, is not recommended.

Exhibit 6.1-6 ZONE D

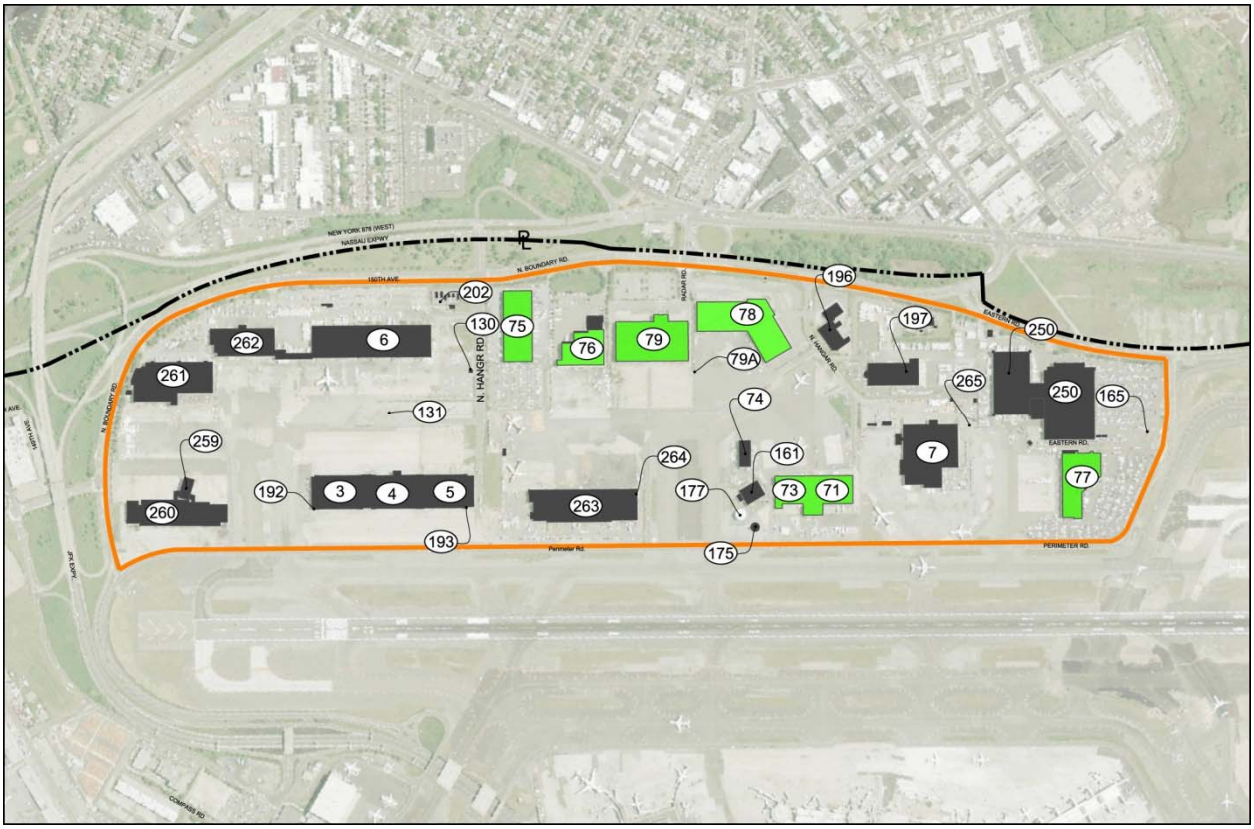


Table 6.1-6, *JFK Existing Cargo Facilities*, summarizes the existing cargo buildings at JFK. This table also identifies which buildings are considered to be viable and non-viable.

6.1.2 FACILITY REQUIREMENTS

Planning efforts should anticipate a more than doubling of air cargo volumes by 2040. It is essential to have in place, the facilities and infrastructure necessary to accommodate that growth. Phasing is essential to both encourage and meet the needs of tenants and users on a timely basis. Consideration of cargo facility planning is the type of air cargo to be handled, which determines the utilization of the facility used to process the cargo.

6.1.2.1 Space Utilization

Industry planning axioms indicate that processing one ton of cargo per square foot of warehouse per year is an acceptable norm for looking at an airport's cargo throughput in total. ***This ratio is a generic guideline for physical planning and is not typically applicable to individual carrier practices which can vary space requirements substantially.*** It does, however, help guide determinations of capacity requirements.

Warehousing and utilization figures can be somewhat misleading in that certain converted properties may be categorized as cargo facilities but in reality are considered inefficient or are not leasable. A classic example at JFK is the old Pan Am facility that includes a 556,000 square-foot building that has historically been classified as cargo, representing about eight percent of the airport's "cargo facility" space, and has been vacant for 20 years because of its configuration and lack of true cargo building amenities and requirements. Other facilities such those in the 80 series, may be leased and operating, but are dated and far less efficient than industry norms. In other cases, overall utilization ratios at airports globally are distorted by a very large facility allocated to a single carrier. A typical example of this is Hartsfield-Atlanta International Airport ("ATL"), where Delta has 472,000 square feet of warehousing in its building. This represents 37 percent of the available cargo space at ATL. Delta and Air France both use the facility and their combined tonnage represents 35 percent of the total cargo volumes for a utilization ratio of .65 tons per square foot – exactly at the overall Airport ratio of .65 tons. In other instances, the heavy leasing of cargo properties to handling companies also tends to make throughput more effective and reduce carrier concerns about warehousing. The bottom line is that space utilization, which translates into throughput, varies based on a number of factors including, but not limited to:

- Domestic throughput is generally faster than international.
- Certain countries of origins may require more detailed customs inspections slowing throughput (e.g., Colombia & Ireland).
- Time of arrival for international goods may delay processing through federal agencies.
- Authorized and fulfilled staffing levels of federal agencies affect the processing of international cargo.
- Perishables have a very high throughput.
- Customs Brokers may request that carriers use the airport warehouse to hold international cargo for several days for consignees.
- Delivery of cargo to consignees may include built-in delays based on retailing and/or wholesaling operations.
- Containerized freight typically moves through a facility faster than palletized freight.
- The age and configuration of a building may mitigate or enhance mechanization of throughput. A more modern building with higher ceilings and greater clear spans tends to be more efficient.

Table 6.1-6 JFK EXISTING CARGO FACILITIES

Zone	Building Number	Year Built	Site Area				Sq. Ft. of Warehouse	Sq. Ft. of Office	Sq. Ft. of Total Building	Aircraft Positions		Viable / Nonviable
			Site Acreage Total	Aircraft Arpon SQ Ft.	Truck Apron SQ Ft.	Auto Parking SQ Ft.				Wide Body Positions	Narrow Body Positions	
Cargo Zone A	15	1958	7	88,200	42,700	118,790	97,360	54,118	148,453	0	2	Nonviable
	16	Not Available	12	214,950	157,800	111,860	119,700	21,100	140,876	3	0	Nonviable
	151	1956/1995	21	304,150	188,820	85,000	294,064	75,043	396,780	3	0	Viable
	208	1969	23	0	0	170,000	394,000	223,750	556,100	0	0	Nonviable
	Zone A Totals:		**63**	**607,300**	**389,320**	**485,650**	**905,124**	**374,011**	**1,242,209**	**6**	**2**	
Cargo Zone B	9	1955/1970	12	101,700	111,620	186,400	200,000	20,000	220,000	3	0	Viable
	21	2003	18	420,060	63,730	160,920	154,890	17,210	172,100	2	0	Viable
	22	1997	22	105,000	101,330	141,650	95,000	14,060	111,140	1	0	Viable
	23	2003	24	474,354	157,140	162,230	236,263	26,252	262,515	4	0	Viable
	66	1964	11	238,550	64,210	85,460	97,900	14,800	112,000	2	0	Nonviable
	67	1965	19	223,320	60,200	390,430	196,200	108,450	267,750	2	0	Nonviable
	Zone B Totals:		**106**	**1,562,984**	**558,230**	**1,127,090**	**980,253**	**200,772**	**1,145,505**	**14**	**0**	
Cargo Zone C	68	1963	3	0	96,285	41,347	29,640	8,580	34,210	0	0	Nonviable
	81	1950	9	0	10,000	22,000	41,770	6,000	47,770	0	0	Nonviable
	83	1950	13	234,520	62,510	54,920	125,700	17,800	142,800	4	0	Nonviable
	84	1950	10	237,580	58,765	26,215	59,883	24,500	91,700	3	0	Nonviable
	86	1960	10	583,860	50,200	54,850	64,124	12,000	76,124	3	0	Nonviable
	87	1960	20	544,590	88,200	93,070	133,500	19,500	153,000	4	0	Nonviable
	89	1963	8	0	4,337	81,100	90,000	15,000	105,000	0	0	Viable
	Zone C Totals:		**73**	**1,600,550**	**370,297**	**373,502**	**544,617**	**103,380**	**650,604**	**14**	**0**	
Cargo Zone D	5	1950	9	665,970	45,480	0	270,000	30,000	300,000	6	0	Nonviable
	6	1953	27	487,910	234,290	220,110	188,014	12,240	200,254	0	2	Nonviable
	7	1954	25	597,000	24,000	121,000	105,000	62,000	167,000	4	0	Nonviable
	71	Not Available	Not Available	151,554	51,292	41,347	54,000	8,500	62,500	0	1	Viable
	73	Not Available	Not Available	150,390	57,430	54,559	59,600	22,128	81,728	2	0	Viable
	75	1987	10	0	90,500	249,460	100,000	100,000	200,000	0	0	Viable
	76	1991	10	174,070	68,780	124,990	64,970	16,200	81,170	2	0	Viable
	77	1991	15	234,040	51,230	276,320	107,329	138,409	230,500	2	0	Viable
	78	1986	14	237,980	126,600	90,880	139,000	15,000	154,000	2	0	Viable
	79	1993	15	302,675	57,210	202,020	144,858	36,163	181,000	2	0	Viable
	197	1955	4	0	126,845	167,740	49,500	5,000	54,500	0	0	Nonviable
	250	1976	21	0	90,990	524,930	311,900	359,350	671,250	0	0	Nonviable
	260	1970	14	289,800	98,500	62,550	75,800	36,400	105,000	1	1	Nonviable
	261	1971	12	306,035	61,520	91,170	141,406	60,478	174,056	2	0	Nonviable
	262	1974	38	254,810	118,600	20,820	88,435	18,000	260,000	1	1	Nonviable
	263	1971	11	146,370	50,700	214,670	79,000	37,000	167,603	0	4	Nonviable
	Zone D Totals:		**225**	**3,998,604**	**1,353,967**	**2,462,566**	**1,978,812**	**956,868**	**3,090,561**	**24**	**9**	
	Grand Totals:		**467**	**7,769,438**	**2,671,814**	**4,448,808**	**4,408,806**	**1,635,031**	**6,128,879**	**58**	**11**	

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Cost issues are just as important to leasing cargo space as the factors described in the previous section. Since cargo operates on small profit margins, a carrier will typically lease the minimum amount of space necessary to sustain its operations. As a result, most airlines historically tend to operate in environments that are very congested, particularly in the fourth quarter of the year when volumes peak. Nevertheless, they are financially driven to lease space that conservatively meets their needs. This inclination toward self-policing of space utilization is sometimes countered by other corporate objectives such as space "banking." Over the past decade the "banking" strategy appears to have disappeared along with carrier's needs to operate their own cargo facilities. Third-party developers are now frequently partnering with handling companies to develop facilities that house multiple tenants and rely on the economies of scale generated to control costs.

In a typical cargo facility, 10 percent of the space can be allocated to office and counter use and another five percent may be allocated to supply storage, and miscellaneous. More recently cargo screening requirements (should that operation be included in the facility) can add an additional 5,000 square feet to the operating requirements. The result is less useable space for cargo handling and a usage ratio that in practice pushes the one ton per square foot per year guideline higher. In combination, these factors argue for the inclusion of mezzanine office space in the development of new facilities. Most of these considerations were not factored into the planning of many of the JFK facilities either because of the absence of physical planning constraints, or the decade in which development took place.

As much as 20 percent of the freight moving through a cargo facility can be truck-to-truck - meaning that even though it is shipped on an air bill, it never gets on an airplane. As such it remains unreported to the airport and can complicate the planning process if it is not anticipated. The building capacity should be based on a utilization rate applicable to each tenant or principal leasee. An airport, wishing to evaluate space utilization and demand, can establish targeted utilization rates through negotiation with current and prospective cargo tenants. Two steps precede establishing tenant-specific utilization rates: specification of carrier categories and definition of utilization ranges appropriate for each carrier category.

The carrier categories listed below reflect the impact of the factors described at the beginning of this section on potential utilization rates:

- International passenger carriers as a group tend to have the most extreme circumstances leading to slower cargo processing, and as a result, the lowest utilization rates.
- Domestic passenger carriers would be expected to achieve higher utilization rates. Combination carriers (because of the overall volumes) would be expected to move cargo more efficiently than pure passenger carriers.
- Integrators, whose business models are built around expedited processing, represent the most efficient cargo processors and will achieve the highest utilization rates.
- Freighter carriers would be expected to achieve somewhat lower utilization rates than integrators, but higher rates than passenger or combination carriers.

The relative positions of these groups of carriers in terms of space utilization are presented in **Table 6.1-7, *Target Utilization Ranges by Carrier Grouping***.

Table 6.1-7 TARGET UTILIZATION RANGES BY CARRIER GROUPING

CARRIER GROUPING	UTILIZATION RANGE (Tons per Square Foot per Year)
International Passenger	0.75 to 1.00
International Combination	0.75 to 1.25
Domestic Passenger	0.75 to 1.50
Domestic Combination	1.00 to 1.50
Freighter	1.50 to 2.00
Integrator	2.50 and higher

It should be noted that these rates reflect those typically achieved in modern, efficient cargo buildings. Sophisticated material handling systems are not necessarily required for other than hub or integrator operations. A facility managed by a handling company can achieve these efficiencies for commercial carrier operations with effective management and operating practices.

The utilization ranges are based on a targeted minimum tonnage per square foot (TPSF), per year. Although many carriers presently have utilization rates below 1.00 TPSF, the Team's experience has shown that this is a minimally realistic number that should be acceptable to most carriers. The other ranges were derived by consideration of the relative utilization categories and based on recognized industry practice.

6.1.2.2 JFK Efficiency

A throughput calculation is a simple ratio - TPSF over a calendar year. As mentioned previously, a one-to-one ratio is the basic planning parameter, but in reality the targeted number for any airport varies substantially based on a wide range of variables. As the numbers below indicate, JFK has ample capacity particularly since several tenants are in buildings considered non-viable. The Team looked at the tonnage numbers for JFK for calendar year 2010 (1,392,864) and calculated the present throughput.

Building Status	Available SF	Gross Throughput
Viable	2,258,433	0.62
Non-Viable	3,870,446	0.28
TOTAL	6,128,879	

A second perspective was developed by looking at broad factors applicable to JFK. The overall Airport utilization rate for 2010 was about .28. This includes all cargo buildings not just those that are occupied. It would be inappropriate to assume that all carriers, even given the tremendous differences in their operations and markets, would or could consistently function at such a low rate. There may be circumstances in which the Airport may wish to be more flexible in order to accommodate anomalies in a tenant's performance, but for the most part, in the interests of prudent space allocation and management, tenants with less than a targeted TPSF should be considered for an alternate facility or a handling company. This would not pertain to tenants whose total throughput is greater as a result of a handling operation or sub-lease arrangement.

The diversity of circumstances influencing the productivity of a cargo building may lead to the establishment of a targeted utilization rate that falls outside of the proposed utilization ranges. However, the ranges should serve as useful frameworks for discussions with each tenant regarding a mutually acceptable utilization rate target.

6.1.2.3 Cargo Facility Planning Requirements

On-airport facilities should be planned to meet or exceed the standards for cargo buildings and infrastructure as promulgated in January 2001 by the McClier Aviation Group for the Air Transport Association ("ATA"). These criteria, shown below, are generic and may vary based on tenant operations. While the criteria may be preferred, they may not always be implementable because of physical constraints.

ATA Promulgated Cargo Facility Specifications

Trucking:	
Frontage:	Measuring approximately 130' – 150' from building to road
Separation:	12'6" from centerline of truck to centerline of truck
Parking:	
Autos:	300 square feet per auto, 150 spaces per acre
Ratios:	3 – 8 auto spaces per 1000 square feet of warehouse (based on operation)
Buildings:	
Depth:	150 feet
Spacing:	50 feet between columns
Height:	24 feet (minimum)
Office:	10 percent - 15 percent of the total square footage
Doors:	
Trucking:	10' x 10'
Container:	12' x 12'
Airside:	18' x 12' high. At least 2 per leasehold
Ramp:	
Setback:	Aircraft 50 feet from the building
Ratios:	
Freighters:	1.50 – 1.75 square feet of ramp per square foot of warehouse
Integrator Spoke:	1.75 – 2.50 square feet of ramp per square foot of warehouse
Integrator Hub:	2.50 + square feet of ramp per square foot of warehouse

Source: Facility Planning Guidelines, Air Cargo Facilities, McClier Aviation Group January 2001.

Projected cargo facility requirements for JFK will be calculated based on the forecast and operating parameters and used to propose future development requirements for air cargo facilities at the Airport. Working with both, the land envelope of JFK and off-airport opportunities, these requirements and recommendations will look to balance the need for future growth at the Airport and the NY Region, yet not overbuild. Future development should only occur when the market demands. Changes in market trends can speed up or slow down when new facilities will be needed. These facility estimates, along with the forecasts, should be used as a trigger for when to implement any future development. Based on the potential capacity of the designated cargo zones, there would appear to be no issues with the amount of available capacity for future development.

6.1.3 OFF-AIRPORT MARKET REVIEW

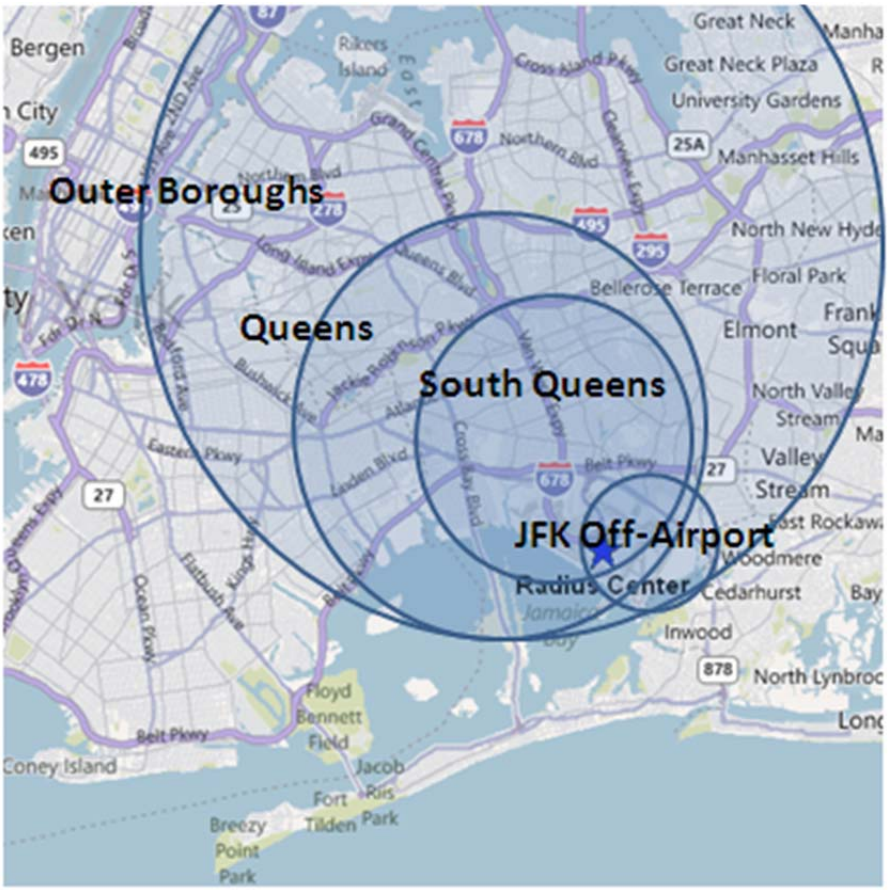
Global economic growth increased trade activity in 2010 and 2011 resulting in greater cargo movement through the nation's airports. Domestic cargo volumes increased by 11 percent in 2010 to 28.2 million metric tons. This is nearing the 2007 level of 30.4 million metric tons prior to the start of the recession. As a result of this increased trade, demand for industrial real estate near major U.S. airports has picked up as market fundamentals stabilized through 2011 with stronger demand projected for 2012.

JFK ranked 7th among U.S. airports in 2010, with 1.3 million metric tons of volume, a 17.5 percent increase over 2009. The 2010 volume represents 4.8 percent of North American market share. Geographic constraints have prevented any new development around JFK in years, resulting in fairly steady market conditions throughout the downturn and little fluctuation in vacancy rates.

6.1.3.1 Local Market Overview

JFK is located in southern Queens County, City of New York along the shores of Jamaica Bay. As depicted **in Exhibit 6.1-7, *Approximate Location of Each Industrial Sub-Market***, below, the off-airport market is a narrowly defined space within larger industrial real estate sub-markets.

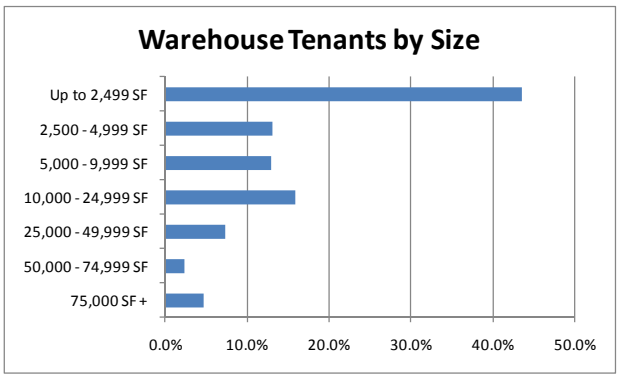
Exhibit 6.1-7 APPROXIMATE LOCATION OF EACH INDUSTRIAL SUB-MARKET

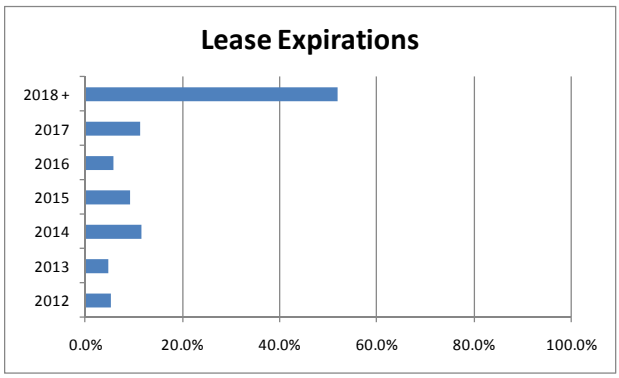


The Airport sits in the New York Outer Boroughs industrial submarket to include the Bronx, Brooklyn, Queens, and a small portion of Staten Island. During the fourth quarter of 2011, Outer Borough market vacancy was 5.4 percent with an average rental rate of $11.58 per square foot. One small building of 4,000 square feet was delivered during the quarter and an additional 38,130 square feet are currently under construction.

The total industrial inventory in the New York Outer Boroughs market area is 196 million square feet over 7,457 buildings. Warehouse space accounts for 96 percent of the inventory while flex spaces constitutes the remainder. Owner-occupants account for 820 of the buildings or 14 percent of the total inventory.

The graphs below indicate the composition of the warehouse tenants within the Outer Boroughs market and lease expiration dates for these tenants. Nearly 40 percent of the warehouse leases will turn over the next five years.





Within the Outer Boroughs market resides the Queens industrial submarket. The Queens submarket includes all industrial space in Queens County. The South Queens market constitutes the southern portion of Queens County to include the Airport and Greater Jamaica. Finally, the JFK Off-Airport industrial market is all land adjacent to the airport property in an area bordered by Lefferts Boulevard to the west, the Belt Parkway to the north, and Brookville Boulevard to the east.

The following chart details the inventory, vacancy, and rental rates for each of these markets:

Market	Existing Inventory # Bldgs.	Existing Inventory SF	Vacancy SF	Vacancy %	YTD Net Absorbtion	YTD Deliveries	SF Under Construction	Quoted Rates
NY Outer Boroughs	7,457	196,696,276	10,694,319	5.4%	(775,136)	18,925	38,130	$ 11.58
Queens	2,842	78,183,387	4,098,838	5.2%	59,322	10,700	8,130	$ 11.87
South Queens	536	12,604,450	749,426	5.9%	(52,965)	6,700	-	$ 11.57
JFK Off-Airport	180	5,966,381	420,666	7.1%	913	-	-	$ 11.28

Figure: Inventory, Vacancy, Absorption, Pipeline and Rents for Each Industrial Sub-Market – Q4-2011

6.1.3.2 JFK Off-Airport Industrial Market

The airport environs that service JFK consist of approximately six million square feet of cargo warehouse facilities. A detailed listing of each building and current availability is attached as **Appendix K**. Institutional investors own approximately 3.2 million square feet of these facilities: the remaining buildings are privately owned. These off-airport buildings accommodate a variety of users, small and large. It is estimated that 95 percent of this market caters to or services JFK in some capacity. This market is theoretically in direct competition to on-airport facilities for users who do not require on-tarmac access. **Exhibit 6.1-8, *Largest Owners in the JFK Off-Airport Industrial Market***, below depicts the owners of the largest amount of space in the off-airport market. The City's property is shown in **Exhibit 6.1.9*, Off Airport City Owned Land.***

This area caters specifically to users involved in trucking, food service, freight brokerage, government, Container Freight Station ("CFS"), logistics, assembly, packaging, office, freight distribution, and warehousing.

Use	Approx. S.F.	% of Market
Warehousing	1 Million	17%
Freight Distribution	3.455 Million	58%
Office	1.245 Million	21%
Other	300,000	4%

This JFK market was originally constructed when the Airport was named Idlewild Airport, prior to 1963. Because the early construction neither considered nor anticipated the substantial growth of the Airport or the growth of the freight and air passenger industry, most of today's buildings are extremely outdated and antiquated. Obviously, none of these can accommodate aircraft parking, and most represent smaller facilities, designed with smaller occupancies in mind. Additionally, most buildings have a 14 to 18-foot clearance that does not enable tenants to effectively stack freight, nor are they deep enough to allow for efficient cargo sortation. An additional problem is that many of these facilities exist in an environment that has difficulty accommodating modern trucking because of access, parking, and queuing issues. A recent exception to this is the 530,000-square foot development – the JFK Logistics Center located across from the Airport. The buildings within the complex meet all modern design specifications and have been designed with security in mind. Nevertheless, the developer's target market is the broker/forwarder community: most of the space is leased (99 percent) and is occupied by freight forwarders.

A major issue with off-airport facilities is the limited vehicular access and parking. Because of the congestion surrounding these buildings it is only in very rare instances that 53-foot trucks can utilize a facility, and then quite frequently when they do, the truck blocks the attendant roadway system. Yet despite the issues, these facilities are relatively well suited to a number of smaller users who require 5,000 square feet of warehouse, use 40-foot trucks, do not have a major need for parking, and are not inclined to pay the higher costs associated with the lease of larger, on-airport facilities, which are much costlier to design and build than a basic warehouse. As with on-airport space, the issue is not one of capacity, but of viable facilities, available at costs that the industry can bear.

Exhibit 6.1-8 LARGEST OWNERS IN THE JFK OFF-AIRPORT INDUSTRIAL MARKET

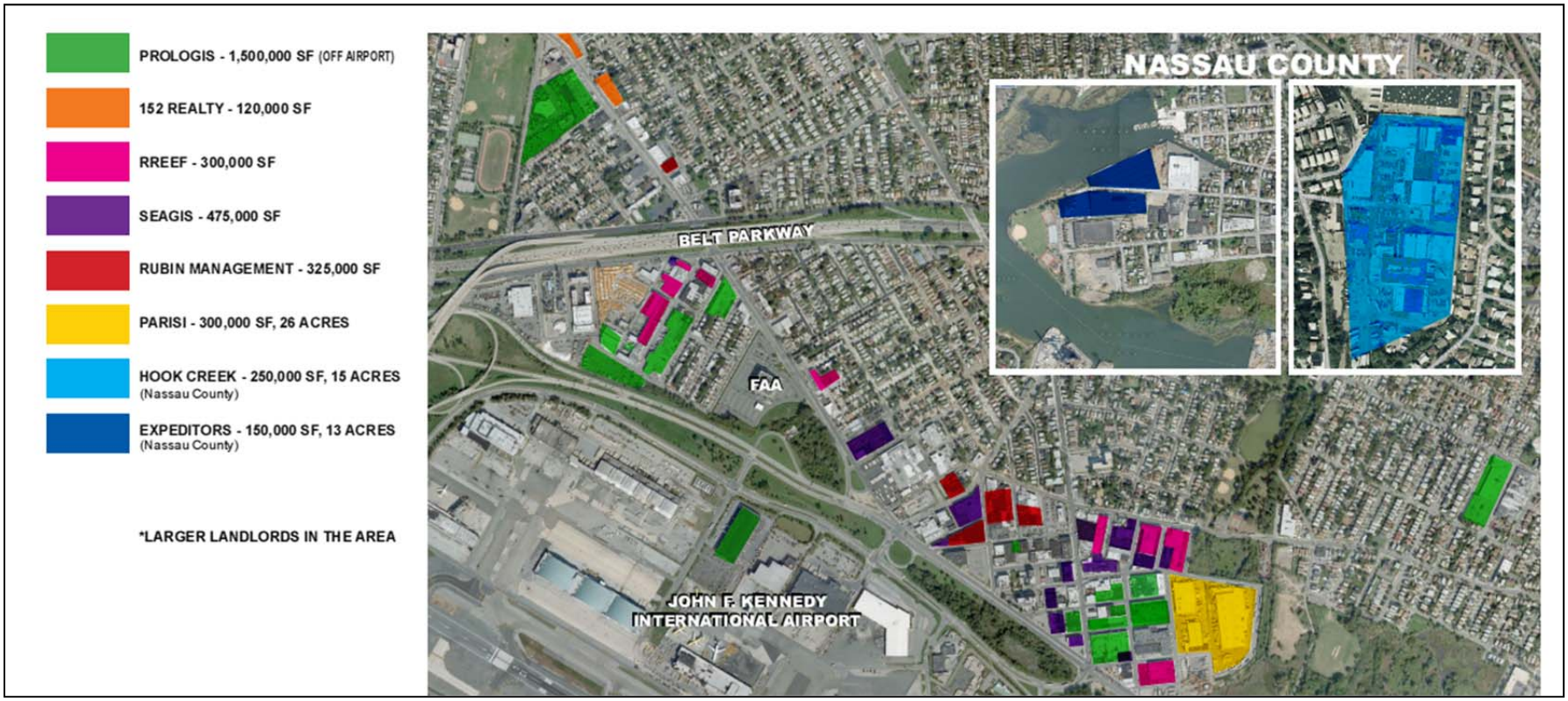
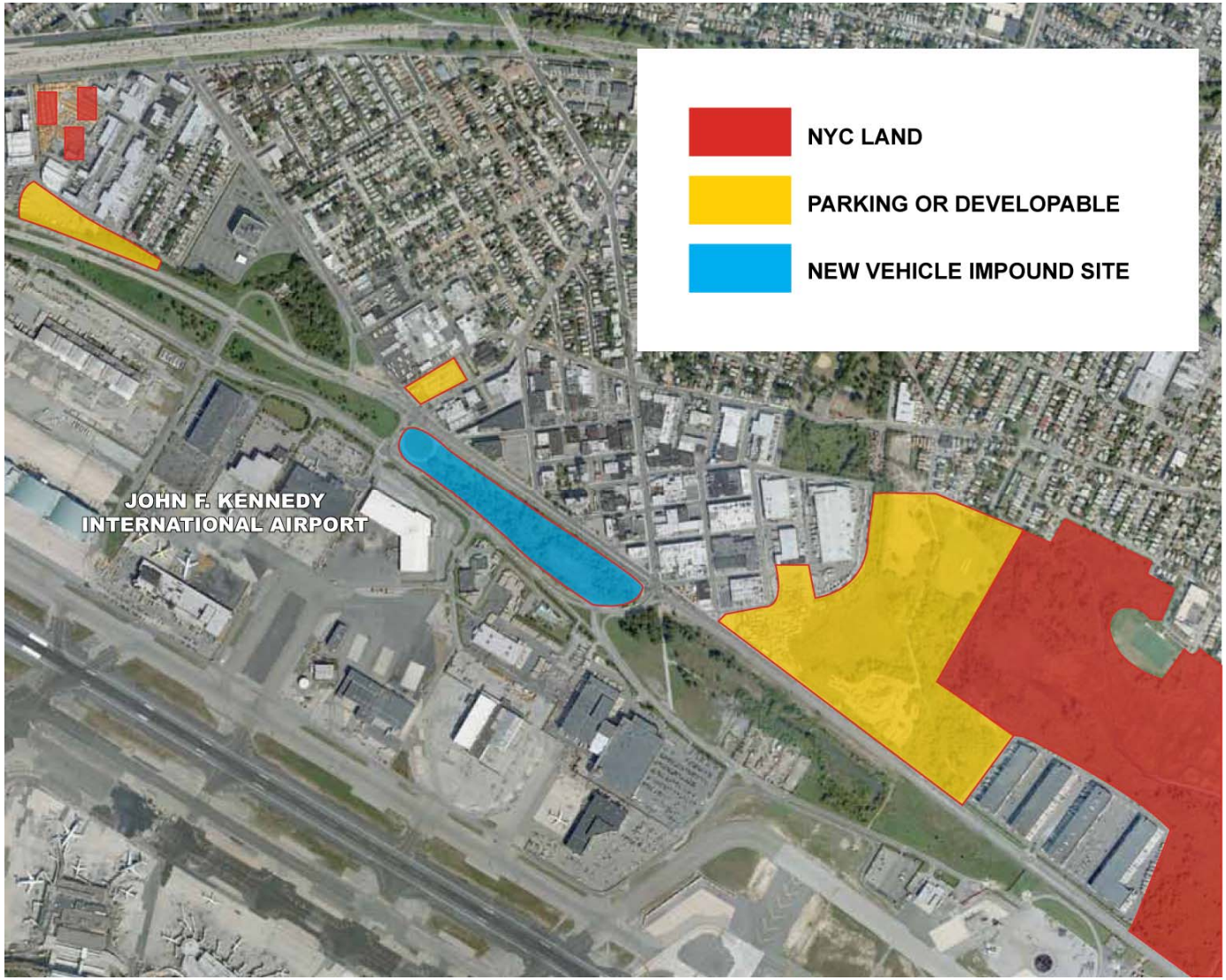


Exhibit 6.1-9 OFF-AIRPORT CITY-OWNED LAND



The development off airport evolved into today's market which is very difficult to change, almost unable to keep up with the area's continued growth and ever changing technology. Because of this, today's off-airport real estate market has evolved into three distinct classes of properties:

Class A: The only Class A buildings in today's market are in the JFK Logistic Center. This facility is the newest construction, delivered in 2002, servicing the airport. This is the only facility in the market that is completely fenced in, secure, and with gated entry. Rents are typically triple net ("NNN") at this property

Class B: There are several Class B facilities surrounding the Airport and located in Queens, the City, and Nassau County, Long Island. The estimated total is 850,000 square feet. These buildings were all built in the 1980's and 1990's, typically as build-to-suits with the exception of the Airgate Industrial Park.

Class C: Class C facilities comprise the vast majority of the market and are scattered between Queens and Nassau County. These buildings are typically dated with the majority of them using interior loading docks, mezzanine second floor walkup offices, lower ceilings, 50 percent non-sprinklered, and all with extremely limited parking for both cars and trucks.

The rental rates for this particular market, Class B & Class C, range between $8.00 and $12.00 per square foot NNN for warehouse space and between $16.00 and $28.00 per square foot gross for office space. This very large price variation is due to specific building amenities, i.e. American Disabilities Act ("ADA") compliance, loading, parking, second floor walk-up, and location. Lease terms tend to average five years with minimal tenant improvements offered. "As is" space is available for lease terms of less than five years.

Vacant land is scarce. Transactions are typically limited to small parcels that supply parking to industrial buildings renting from $3.00 to $5.00 per square foot net for dirt or pavement, or between $100.00 and $150.00 per vehicle per month and $350.00 per trailer per month. Assembling enough land to purchase for parking or a build-to-suit property typically is not a cost-effective scenario in the immediate market. Currently, only two vacant parcels exist, a 5.2-acre site owned by ProLogis with plans for an 112,000 square foot speculative development and an eight-acre school bus parking lot, currently being planned by a private owner.

6.1.3.3 2011 Transactions

Activity in 2011 was moderate, with 30 leasing transactions totaling 344,315 square feet and no sales transactions recorded. The average transaction size was 11,481 square feet but only 10 leases exceeded 10,000 square feet. The following chart identifies each transaction completed in 2011:

Address	Tenant	Size	Rent	Type	Leasing Company
145-20 & 145-40 157th St.	Mach II	4,238	$14.00	Warehouse	Jones Lang LaSalle (JLL)
150-10 & 150-30 132nd Ave.	Big Apple Express	800	$23.41	Office	JLL
147-35 Farmers Blvd	Associated Global	30,500	$14.00	Warehouse	NAI
230-79 Int. Airport Ctr. Blvd.	JRS Trucking	30,240	$19.50	Warehouse	JLL
230-79 Int. Airport Ctr. Blvd.	Lynden International	2,350	$29.00	Office	JLL
182-16 149th Road	OIA Int'l Logistics	3,020	$21.00	Office	JLL
182-16 149th Road	NY Ind. for the Blind	19,565	$14.00	Warehouse	JLL
154-09 146th Ave	Sea Big Express	521	$23.00	Office	JLL
154-09 146th Ave	Unique Logistics	2,219	$23.00	Office	JLL
154-09 146th Ave	*Kesco Container*	2,373	$21.00	Office	JLL
154-09 146th Ave	DO&CO NY	15,254	$13.00	Warehouse	JLL
145-20 & 145-40 157th St.	ICL USA	455	$21.37	Office	JLL
148-04 Guy R. Brewer	R&A Auto	7,000	$17.00	Warehouse	RML
154-09 146th Ave	Shine Express	1,033	$12.00	Office	JLL
149-40 183rd St.	DO&CO NY	33,000	$11.00	Warehouse	JLL
147-35 Farmers Blvd	*Not Available*	675	$24.00	Office	NAI
147-35 Farmers Blvd	*Not Available*	1,435	$24.00	Office	NAI
149-40 182nd St.	NACA	1,522	$22.00	Office	JLL
145-99 226th St.	Verizon	54,500	$11.41	Warehouse	JLL
149-35 177th St.	*Not Available*	6,066	$24.00	Office	NAI
145-20 & 145-40 157th St.	Kentra	345	$20.00	Office	JLL
145-20 & 145-40 157th St.	PMC Int'l	549	$20.00	Office	JLL
182-09 149th Rd	Aramex	17,028	$14.00	Warehouse	JLL
177-15 149th Road	*Not Available*	1,450	$24.00	Office	NAI
154-09 146th Ave	DO&CO NY	4,160	$12.00	Warehouse	JLL
147-45 Farmers Blvd	*Not Available*	1,300	$24.00	Office	NAI
150-15 183rd St.	Toll Global	50,500	$10.75	Warehouse	JLL
175-11 148th Rd.	*Not Available*	457	$25.00	Office	NAI
230-59 Int. Airport Ctr. Blvd.	GSA	11,686	$29.00	Office	JLL
230-59 Int. Airport Ctr. Blvd.	Forward Air	40,174	$22.00	Warehouse	JLL
Total		**344,315**			

Source: CoStar

6.1.3.4 Secondary Markets

The southwest Nassau County industrial market, consisting of Valley Stream, Lawrence, and Inwood is an established industrial market that also caters to JFK. The Region is easily accessible to JFK by Rockaway Boulevard, Nassau Expressway, South Conduit, and 147th Avenue. This secondary market is "only" considered when nothing is available closer to the Airport showing the extreme need for space. The same Class B and Class C rents apply to this market. The Nassau County industrial / commercial real estate market consists of approximately 55 million square feet. The segment of Nassau County serving the JFK market is less than 1 million square feet. The Nassau towns that primarily accommodate the JFK market include; Inwood, Lawrence, Valley Stream, and Freeport.

6.1.4 OFF-AIRPORT ROADWAY ACCESS

The four cargo zones at JFK are accessible via a number of off-airport roadways. As shown in Exhibit 6.1-1, the cargo areas are delineated by on-airport and off-airport infrastructure, as follows:

- Zone A is the westernmost cargo area, situated in a wedge-shaped area west of the Van Wyck Expressway and JFK AirTrain alignment, and north of Runway 13R/31L. It is mainly accessible from the Van Wyck Expressway (I-678) via Federal Circle, Bergen Road, and 130th Place.
- Zones B and C are located north and east of Zone A in the area bordered on the west and north by North Service Road and Cargo Service Road, and on the east by 150th Street and the JFK Expressway. These two zones are separated by a north-south taxiway that extends from Terminal 8 up to the Airport perimeter at Cargo Service Road and the Nassau Expressway alignment. Zone B is primarily accessed from the Van Wyck Expressway via Federal Circle and either North Service Road or Cargo Service Road. Zone C can be accessed either indirectly from the Van Wyck Expressway on the west (past Zone B), or more directly from the east via the JFK Expressway, 150th Street, and Cargo Plaza.
- Zone D, lies along the northeastern edge of the JFK perimeter, between Runway 13L/31R and Rockaway Boulevard. It is accessible from both the JFK Expressway and Rockaway Boulevard via the local roadways that serve the cargo buildings (Boundary Road and 150th Avenue).

A summary of the key roadways used for truck access to and from JFK is provided below. A regional highway map with major truck routes as designated by New York City Department of Transportation ("NYCDOT") is shown in **Exhibit 6.1-10, *New York City Regional Truck Routes***. All 53-foot vehicles are banned on these roadways.

The **Van Wyck Expressway (I-678)** is the main regional highway used by trucks to access JFK. It runs north from JFK to the Bronx-Whitestone Bridge, with regional highway connections to the Long Island Expressway (I-495) and to the Cross Bronx Expressway (I-95) via the Bronx-Whitestone and Throgs Neck Bridges. The Van Wyck Expressway is comprised of three travel lanes in each direction for most of its length, with parallel service roads along its length from JFK up to Queens Boulevard. As shown in Exhibit 6.1-9, one of the key challenges for large trucks accessing JFK is that the Van Wyck Expressway is not part of the designated highway network for 53-foot trailers. Additionally, there is a posted 12'8" vertical clearance under the Long Island Rail Road tracks just north of Atlantic Avenue.

Operationally, air cargo traffic along the Van Wyck Expressway is constrained by the frequent congestion along this corridor related to airport passenger traffic, as well as general vehicular traffic on this key link in southern Queens. The southernmost stretch of the Van Wyck Expressway had undergone an upgrade in conjunction with the JFK AirTrain project more than ten years ago, with a number of improvements to address substandard ramp taper lengths and weaving sections. However, congestion-related delays are exacerbated by closely-spaced entrance and exit ramps that connect the Van Wyck Expressway mainline and its service roads in both directions. On the regional roads outside the Airport, there are no opportunities for segregation of auto and truck traffic accessing the air cargo zones. The Van Wyck Expressway serves as the most direct truck route to Cargo Zones A and B, and provides indirect access to Zones C and D via the Nassau and JFK expressways.

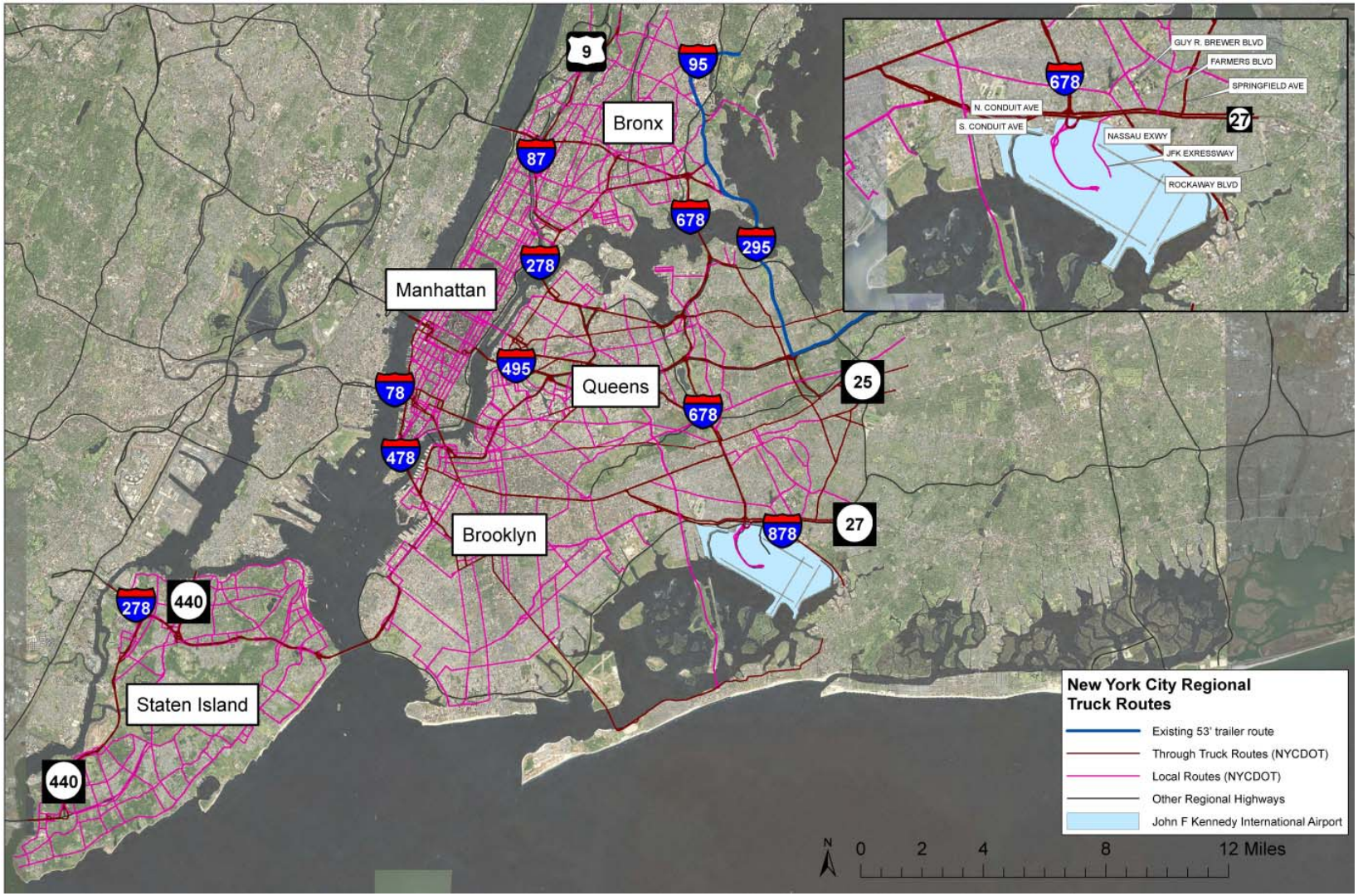
North and South Conduit Avenue ("Conduit avenues") extends from Atlantic Avenue in Brooklyn past JFK, and east to Nassau County. From Cross Bay Boulevard to the Nassau County line, Conduit avenues function as service roads for the Belt Parkway and Southern Parkway through southern Queens. They are designated as "Through" truck routes, and provide indirect access to the Cargo Zones via the Van Wyck and Nassau expressways. Additionally, Conduit avenues serve as a key access route for the segment of Rockaway Boulevard that serves the off-airport cargo area to the east in Springfield Gardens. The roadways are typically three lanes in each direction, with occasional entrance and exit ramps to and from the Belt and Southern Parkways. The roadways intersect key north-south roads in the area of JFK including 150th Street, Rockaway Boulevard, Guy R. Brewer Boulevard, Farmers Boulevard, and Springfield Boulevard,

The **Nassau Expressway (NY-878)** runs parallel to Conduit avenues along the northern perimeter of JFK. It comprised of three lanes in each direction for most of its length, and provides access to all four JFK Cargo Zones via the Van Wyck Expressway and JFK Expressway, and direct access to Zone D at North Hangar Road. The Nassau Expressway ends east of the airport at its intersection with Rockaway Boulevard, enabling trucks to use it to access the off-airport cargo facilities in Springfield Gardens.

The **JFK Expressway** is a secondary route (along with the Van Wyck Expressway) into the Central Terminal Area at JFK that primarily serves passenger traffic to and from the east on Conduit avenues and the Nassau Expressway. The JFK Expressway has three lanes in each direction along its length, and the alignment divides Cargo Zones C and D, as shown in Exhibit 6.1-9. Both cargo zones are accessible via the exit from the southbound expressway at 150th Street, with additional access to Zone C provided at South Cargo Road.

Rockaway Boulevard is one of the main east-west arterials in southern Queens. It is designated as a "Local" truck route by NYCDOT for most of its length from Atlantic Avenue through the neighborhoods of Ozone Park and South Ozone Park. East of the Van Wyck Expressway, the Rockaway Boulevard turns to the southeast and crosses the Conduit Avenue / Belt Parkway corridor. From this point southward, Rockaway Boulevard is designated as a "Through" truck route and is a key local access route for Cargo Zone D at JFK as well as the off-airport industrial development to the east in Springfield Gardens. In this area east of JFK, the Rockaway Boulevard is comprised of three lanes in each direction with left-turn lanes at key intersections serving on-airport and off-airport industrial areas.

Exhibit 6.1-10 NEW YORK CITY REGIONAL TRUCK ROUTES



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Guy R. Brewer Boulevard, **Farmers Boulevard, and Springfield Boulevard** are north-south arterials that provide access to the industrial areas east of JFK. All three boulevards are designated NYCDOT truck routes north of the Conduit Avenue / Belt Parkway corridor in Springfield Gardens, with Springfield Boulevard a "Through" route and the Guy R. Brewer and Farmer boulevards "Local" routes. South of the Conduit/Belt corridor the boulevards are no longer designated as truck routes, but Guy R. Brewer and Farmers boulevards carry substantial truck volumes in this area because they serve as key access routes through the Springfield Gardens industrial zone.

In the Springfield Gardens industrial area, Guy R. Brewer and Farmers boulevards are wide local roads with a single-travel lane in each direction and parking permitted on some blocks. The two boulevards are wide enough to accommodate large trucks, but truck mobility in this area is somewhat constrained by several factors including: (1) small blocks with large industrial buildings that have loading bays facing directly onto the adjoining sidewalk (large trucks backed into these bays impede the flow of traffic by protruding into the street); (2) tight turning radii at some intersections and driveway locations; and (3) angled intersections along Rockaway Boulevard to the west that limit the ability of large trucks to make tight turns.

The Importance of 53-Foot Truck Access

For large trucking shipments, particularly those that are long-haul in nature (such as those that that serve gateway airports), the 53-foot tractor trailer is the vehicle of choice for efficiency and cost effectiveness. A 53-foot flatbed trailer can carry five standard belly containers for cargo, while a 48-foot trailer can only accommodate four containers. Most wide-body air cargo containers used for international shipping have a 125-inch standard dimension for width (Note: the "width" of the container from an aircraft loading perspective would translate into the "length" of the container for loading in a trailer, because the 125-inch dimension exceeds the width of either a 96-inch or 102-inch box trailer). ***In an environment where trucking costs have become increasingly important, the constraint on 53-foot vehicles reduces trucking efficiency to JFK by 20 percent and raises costs correspondingly. This puts JFK and New York in a non-competitive position with other gateway airports.***

6.2 THE FORECAST

In developing planning scenarios, once the capacity of the existing facilities and aeronautical infrastructure has been determined, the next step in determining appropriate development scenarios is to estimate demand over the forecast period. The air cargo activity forecast creates a projected demand profile of air cargo tons and freighter operations for JFK. The results of the air cargo activity forecast indicates, for facility requirements and planning considerations, how annual air cargo tonnage and freighter volumes will drive future facility development both on- and off-airport.

6.2.1 FORECAST APPROACH AND METHODOLOGY

Forecasting aviation demand is not an exact science where the same approach can be applied at all airports. Each airport presents its own unique set of variables that need to be considered. In order to project air cargo demand at JFK many factors were analyzed including current aviation industry trends (particularly those appropriate to JFK), historical air service, and air cargo traffic trends.

Forecast activity levels in this study are projected in five-year increments over a 20-year planning horizon, with 2010 serving as the base year for the analysis. The forecast elements include annual air cargo tonnage and annual operations. Three forecast scenarios were adopted, analyzed and extrapolated, that include: (1) Pessimistic, (2) Moderate, and (3) Optimistic scenarios.

The Port Authority's annual air cargo tonnage forecast was used as the foundation of the analysis. Historical annual air cargo tonnage was provided by the Port Authority. The historical data was examined between belly and freighter tons and further segmented into domestic and international sectors. Historical operations (i.e., take-offs and landings) were provided by the Port Authority and were segmented between integrator and other freighter operations for both the domestic and international sectors as well. Once the data was segmented, key assumptions such as tons per operation and the belly-freighter mix were reviewed.

6.2.2 SOURCES OF DATA

Several sources of data were utilized in the development of the forecasts. As indicated above, the Port Authority provided historical air cargo tonnage and operations data as well as its annual air cargo tonnage forecast by scenario through 2030. These forecasts were used as the basis for the forecast analysis. The data were then segmented into international and domestic splits and divided between the categories of belly, freighter, and integrator air cargo.

The major aircraft manufacturers' forecasts including the *Boeing Current Market Outlook 2011-2030* and the *Airbus Global Market Forecast 2011-2030* were consulted for their assumptions and freighter fleet growth projections. Market growth rates and aircraft orders were used as a metric to better understand the potential growth and future of air cargo operations.

Finally, the *FAA Aerospace Forecast, Fiscal Years 2011-2031* was used to look at the FAA overall expected outlook of the air cargo industry and the FAA's projected domestic and international growth in terms of revenue ton miles on a system-wide basis.

6.2.3 HISTORICAL AIR CARGO VOLUMES

Summarized below is the historical air cargo activity at JFK. It shows how the Airport's traffic has evolved and will serve as the starting point for the development of the freighter forecasts. Air cargo activity provided by the Port Authority for JFK was analyzed for the years 2000 through 2010. The data included air cargo tonnage and aircraft operations data by airline and sector. As a result, data could be grouped into meaningful categories for analyzing historical air cargo activity at JFK in order to develop an appropriate set of assumptions on which to base the forecast. Air cargo activity was disaggregated into domestic and international sectors and then by airline type (i.e. dedicated all-cargo (other freighters), integrator carriers, and belly carriers. Airlines categorized as belly carriers were passenger airlines that transported air cargo in the belly compartments of passenger aircraft.

According to statistics published by Airports Council International-North America ("ACI-NA"), JFK ranked 7th among U.S. airports in terms of total air cargo handled in 2010, and 19th among airports worldwide. In 2010, JFK handled over 1.3 million air cargo tons with 82 percent of total air cargo handled outbound or inbound from international destinations.

Over the 2000-2010 horizon, international air cargo has evolved from primarily belly cargo to being an almost even split between freighter and belly. In 2010, an almost even 50/50 split occurred between freighter and belly international air cargo. **Table 6.2-1, *Historical Cargo Tonnage JFK***, presents the historical trends in air cargo activity at JFK. Overall there has been growth for freighter activity in both the domestic and international segments.

Table 6.2-1 HISTORICAL CARGO TONNAGE JFK

	Domestic			International			Total		
Year	Freighter	Belly	Total	Freighter	Belly	Total	Freighter	Belly	Total
2000	311,016	141,377	452,393	349,398	1,062,631	1,412,029	660,414	1,204,008	1,864,422
2001	262,080	126,084	388,164	303,899	829,435	1,133,334	565,979	955,519	1,521,498
2002	309,996	116,714	426,710	347,472	912,663	1,260,135	657,468	1,029,377	1,686,845
2003	340,563	120,235	460,798	370,993	908,252	1,279,245	711,556	1,028,487	1,740,043
2004	331,620	114,719	446,339	591,378	755,731	1,347,109	922,998	870,450	1,793,448
2005	293,731	108,555	402,286	789,566	529,074	1,318,640	1,083,297	637,629	1,720,926
2006	265,243	95,470	360,713	802,823	542,851	1,345,674	1,068,066	638,321	1,706,387
2007	265,772	90,345	356,117	752,481	548,761	1,301,242	1,018,253	639,106	1,657,359
2008	230,421	81,500	311,921	618,517	544,383	1,162,900	848,938	625,883	1,474,821
2009	180,723	59,763	240,486	428,495	492,932	921,427	609,218	552,695	1,161,913
2010	186,360	67,574	253,934	561,447	577,483	1,138,930	747,807	645,057	1,392,864
CAGR									
2000-2005	-1.1%	-5.1%	-2.3%	17.7%	-13.0%	-1.4%	10.4%	-11.9%	-1.6%
2005-2010	-8.7%	-9.0%	-8.8%	-6.6%	1.8%	-2.9%	-7.1%	0.2%	-4.1%
2000-2010	-5.0%	-7.1%	-5.6%	4.9%	-5.9%	-2.1%	1.3%	-6.0%	-2.9%

Sources: Port Authority of NY & NJ; Landrum & Brown

Historically, air cargo growth (and shrinkage) track with Gross Domestic Product ("GDP"). Additional factors that affect air cargo growth are fuel price volatility, movement of real yields, and globalization. Significant structural changes have occurred in the air cargo industry. Among these changes are air cargo security regulations by the FAA and Transportation Security Administration ("TSA"); maturation of the domestic express market; shift from air to other modes (especially truck); use of all-cargo carriers (e.g., FedEx) by the U.S. Postal Service to transport mail; and increased use of mail substitutes (e.g. e-mail).[1] Due to these industry-wide changes, domestic air cargo volumes at JFK have decreased from 452,393 tons in 2000 to 253,934 in 2010, a 5.6 percent average annual decrease.

6.2.4 TOP JFK CARGO CARRIERS

American Airlines and Federal Express have performed as the top #1 and #2 air cargo carriers at JFK in 2006 and 2010. Delta has shown significant increases to its air cargo tonnage at JFK, almost doubling from 51,510 tons in 2006 to 92,735 tons in 2010.

Korean Airlines had dropped in the rankings from 3rd in 2006 to 6th in 2010, as China Airlines (CAL) remained ranked as the 4th highest air cargo carrier in 2010. Notable additions to the top 10 carriers include Cathay Pacific and EVA. (See **Table 6.2-2, *JFK Top Cargo Carriers Comparison***.)

[1] FAA Aerospace Forecast Fiscal Years 2011–2031

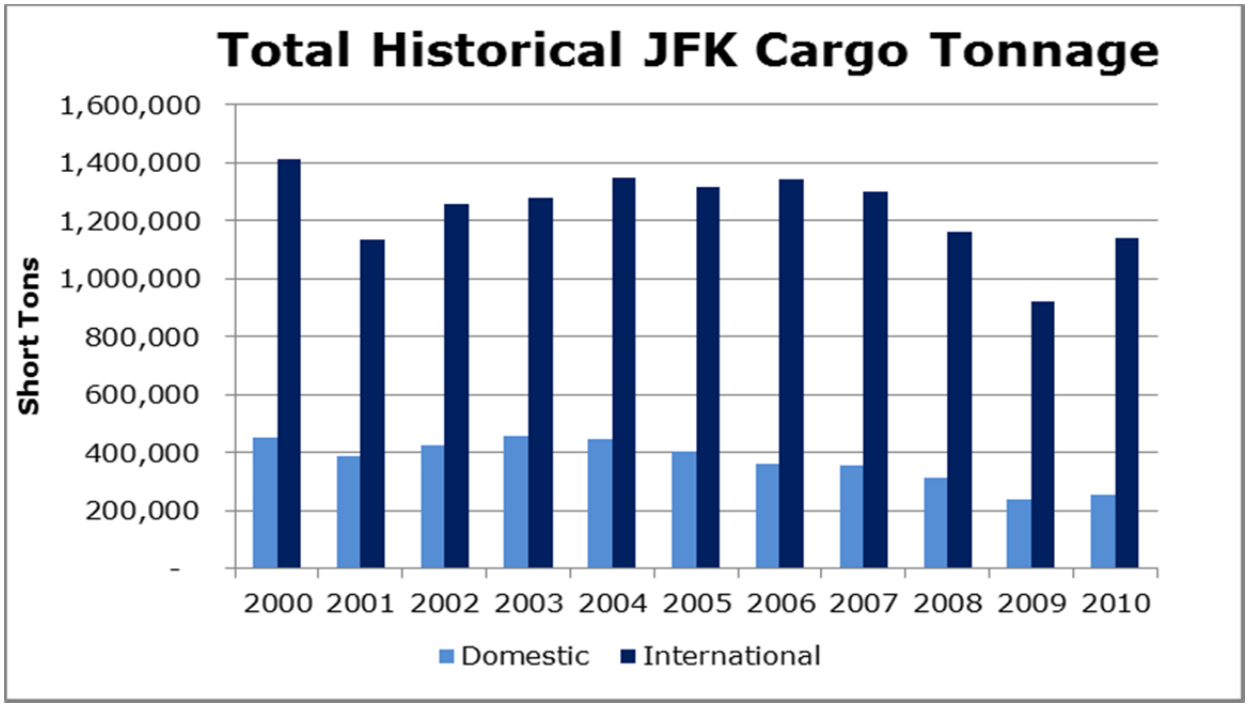
Table 6.2-2 JFK TOP CARGO CARRIERS COMPARISON

JFK Top Cargo Carriers (in tons)				
	2006		2010	
Rank	Airline	Grand Total	Airline	Grand Total
1	American	177,326	American	124,709
2	Federal Express	149,383	Federal Express	112,963
3	Korean	91,582	Delta	92,735
4	China Airlines (Cal)	72,313	China Airlines (Cal)	74,711
5	Asiana	66,623	Korean	70,959
6	Lufthansa Cargo	54,525	Asiana	57,277
7	British Airways	54,099	Cathay Pacific	53,234
8	Japan Airlines	52,315	British Airways	48,947
9	Delta	51,510	Eva	47,469
10	Air France	48,909	Lufthansa Cargo	38,846
	All Others	886,389	All Others	671,018
	Total 2006	1,704,974	Total 2010	1,392,868

Source: Port Authority of NY & NJ

Exhibit 6.2-1, *Historical JFK Cargo Tonnage – Domestic/International Split*, presents the historical trends of domestic and international segments of air cargo activity at JFK.

Exhibit 6.2-1 HISTORICAL JFK CARGO TONNAGE – DOMESTIC/INTERNATIONAL SPLIT

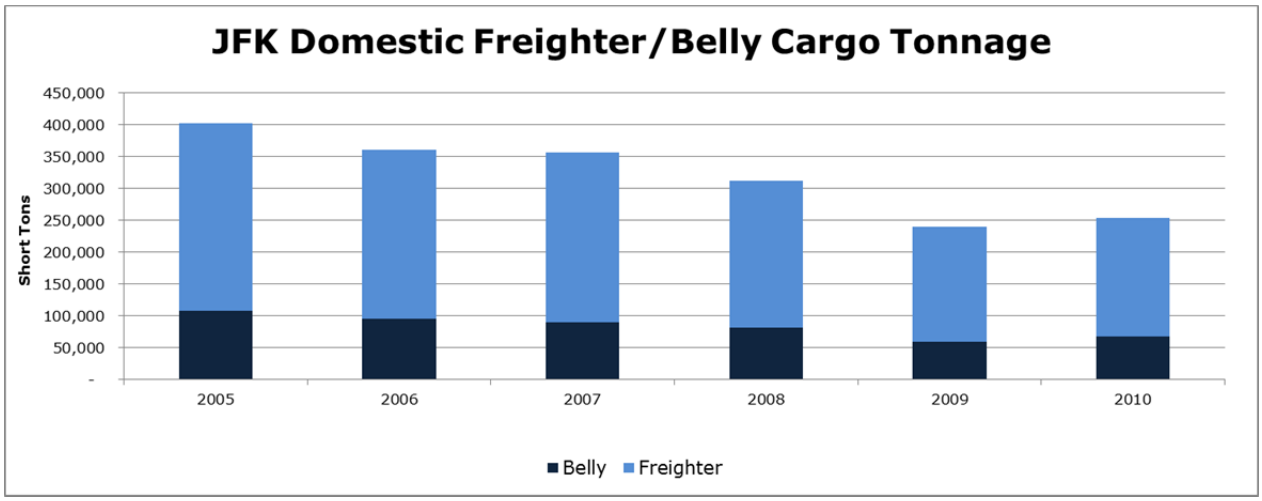


Source: Port Authority of NY & NJ

In 2010, over 1.3 million tons of air cargo was reported by airlines at JFK. Of this total, 253,934 tons were domestic and 1.1 million tons were international. The data provided by the Port Authority allowed for the disaggregating of these airlines operations into belly and freighter categories. *Note: There is a significant amount of air cargo that moves truck-to-truck within the Airport and is not reported to the Port Authority including, but not limited to, the FedEx ground operation at JFK which serves all of Long Island.*

Exhibit 6.2-2, *Historical JFK Domestic Tonnage – Freighter/Belly Split*, presents the historical domestic split between freighter and belly air cargo activity at JFK. The domestic freighter/belly mix was 73 percent freighter, 27 percent belly in 2005 and the mix had fluctuated slightly over the next five years. However, in 2010, the mix went back to roughly the same percentages, 73 percent freighter, and 27 percent belly.

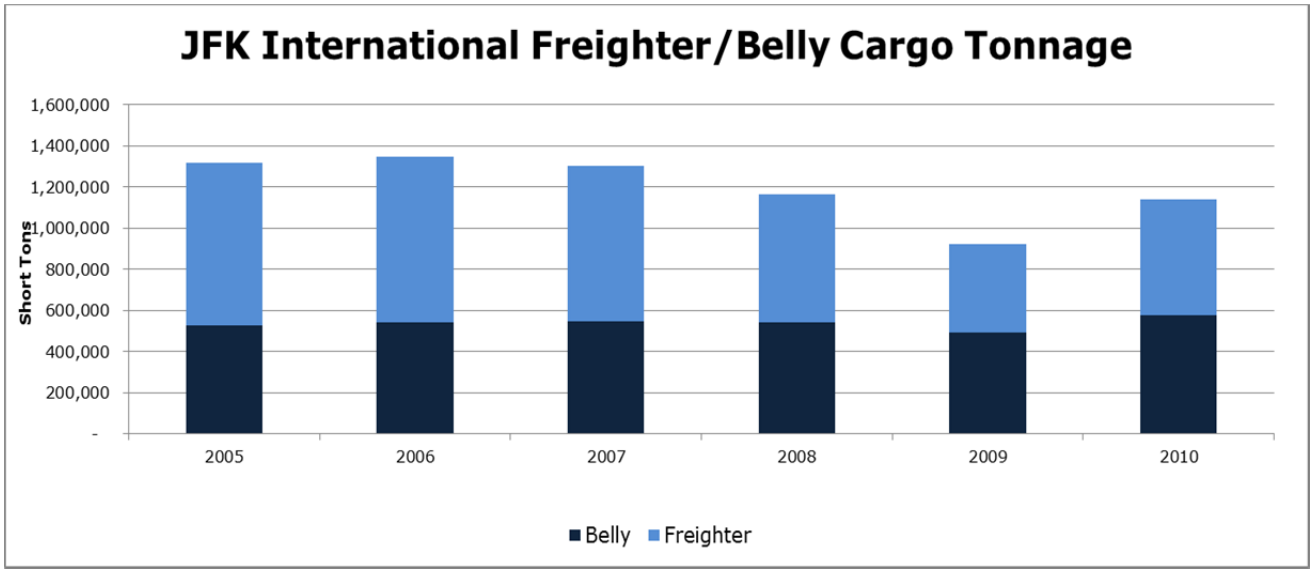
Exhibit 6.2-2 HISTORICAL JFK DOMESTIC TONNAGE – FREIGHTER/BELLY SPLIT



Source: Port Authority of NY & NJ

Exhibit 6.2-3, *Historical JFK International Tonnage – Freighter/Belly Split*, presents the historical international split between freighter and belly cargo activity at JFK. The international freighter/belly mix was 60 percent freighter, 40 percent belly in 2005, and has transitioned to a mix of 49 percent freighter and 51 percent belly in 2010.

Exhibit 6.2-3 HISTORICAL JFK INTERNATIONAL TONNAGE – FREIGHTER/BELLY SPLIT



Source: Port Authority of NY & NJ

6.2.5 AIR CARGO TONNAGE FORECASTS

The forecast of annual air cargo tons was provided by the Port Authority. The allocation between freighter and belly cargo reflects the historical percentages for each market segment. The freighter percentage of domestic tonnage has slowly grown from 73.0 percent in 2005 to 73.4 percent in 2010. This trend is expected to continue with freighter tonnage representing 75.0 percent of domestic tonnage by 2030. Conversely, belly tonnage will decline from 26.6 percent in 2010 to 25.0 percent in 2025. International freighter tonnage was 59.9 percent of the total in 2005, decreasing to 49.3 percent in 2010. The percentage of international air cargo carried on freighters is expected to increase during the forecast period, growing to 55.0 percent in 2030.

Each scenario is discussed below:

- **Pessimistic Forecast Scenario** – In this scenario, domestic air cargo tonnage is forecasted to increase from 253,934 in 2010 to 310,888 in 2030, an average annual growth rate of 0.7 percent. International tonnage is forecasted to increase from 1,138,930 in 2010 to 1,598,143 in 2030, an average annual growth rate of 1.7 percent. Total air cargo tonnage for JFK is forecasted to increase from 1,392,864 in 2010 to 1,909,031 in 2030, an average annual rate of 1.6 percent.

  This forecast results in domestic freighter tonnage increasing from 186,360 tons in 2010 to 233,166 tons in 2030, an average annual growth rate of 1.1 percent. Domestic belly tonnage is projected to increase from 67,574 tons in 2010 to 77,722 tons in 2030, an average annual increase of 0.7 percent. International freighter tonnage is forecast to increase from 561,447 tons in 2010 to 878,979 tons in 2030, at an average annual growth rate of 2.3 percent. International belly tonnage is forecast to increase from 577,483 tons in 2010 to 719,164 tons in 2030, an average annual growth rate of 1.1 percent.

- **Moderate Forecast Scenario** – In this scenario, domestic air cargo tonnage is forecasted to increase from 253,934 in 2010 to 389,794 in 2030, an average annual growth rate of 1.85 percent. International tonnage is forecasted to increase from 1,138,930 in 2010 to 1,809,565 in 2030, an average annual growth rate of 2.3 percent. Total air cargo tonnage for JFK is forecasted to increase from 1,392,864 in 2010 to 2,199,359 in 2030, an average annual rate of 2.3 percent.

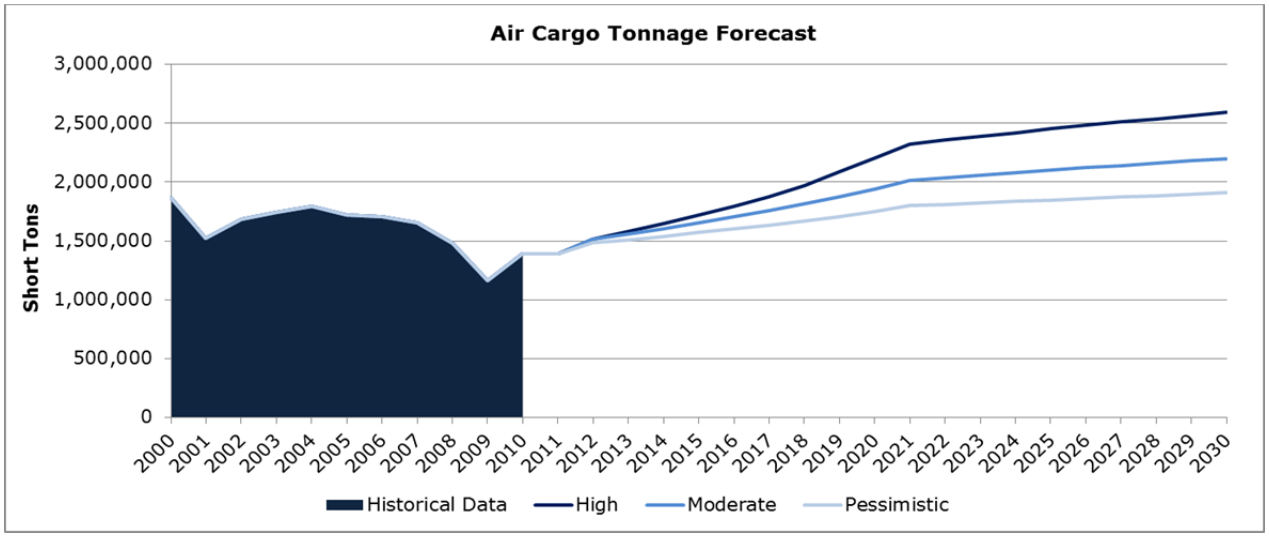
  This forecast results in domestic freighter tonnage increasing from 186,360 tons in 2010 to 292,345 tons in 2030, an average annual growth rate of 2.3 percent. Domestic belly tonnage is projected to grow from 67,574 tons in 2010 to 97,448 tons in 2030, an average annual increase of 1.85 percent. International freighter tonnage is forecast to increase from 561,447 tons in 2010 to 995,261 tons in 2030, an average annual growth rate of 2.9 percent. International belly tonnage is forecast to increase from 577,483 tons in 2010 to 814,304 tons in 2030, an average annual growth rate of 1.7 percent.

- **High Forecast Scenario** – In this scenario, domestic air cargo tonnage is forecasted to increase from 253,934 in 2010 to 501,181 in 2030, an average annual growth rate of 3.5 percent. International tonnage is forecasted to increase from 1,138,930 in 2010 to 2,095,533 in 2030, an average annual growth rate of 3.1 percent. Total air cargo tonnage for JFK is forecasted to increase from 1,392,864 in 2010 to 2,596,714 in 2030, an average annual rate of 3.2 percent.

  This forecast results in domestic freighter tonnage increasing from 186,360 tons in 2010 to 375,886 tons in 2030, an average annual growth rate of 3.6 percent. Domestic belly tonnage is projected to grow from 67,574 tons in 2010 to 125,295 tons in 2030, an average annual increase of 3.1 percent. International freighter tonnage is forecast to increase from 561,447 tons in 2010 to 1,152,543 tons in 2030, and average annual growth rate of 3.7 percent. International belly tonnage is forecast to increase from 577,483 tons in 2010 to 942,990 tons in 2030, an average annual growth rate of 2.5 percent.

Illustrated below in **Exhibit 6.2-4, *JFK Tonnage Forecast***, are the historical and projected air cargo volumes by scenario over the 2000-2030 horizon, listed in **Table 6.2-3, *JFK Tonnage Forecast***, also.

Exhibit 6.2-4 JFK TONNAGE FORECAST



Source: Port Authority of NY & NJ

6.2.6 FREIGHTER OPERATIONS FORECAST

This section presents the key assumptions and projections of air cargo operations (i.e., take-offs and landings) at JFK. For purposes of review the operations forecast are also segmented into integrator and "other" freighter operations.

Outlined below are the key assumptions for the freighter operations forecast including:

- **Tons-per-operation rises over the forecast horizon** – because the average size and capacity of freighters going forward is increasing consistent with trends and the aircraft manufacturers' forecasts. Newer freighters are more fuel-efficient, have greater range, and carry larger payloads. This trend is most clearly illustrated by the number of orders for the Boeing 777 (B777F) and Boeing 747-800 (B748F). The B-748-F will carry 110-120 tons of air cargo while a B-777-F can carry approximately 90 tons of air cargo. An overall ton per operation number is expected to increase from 49 tons in 2010 to 61 tons in 2030.
- **The Rate of Freighter Acquisition by carriers slows –** because international carriers will seek to utilize the capacity of their wide-body passenger fleets when possible.
- **Freighter Activity in North America is based on a 286 day cargo year –** which reflects historical one-half day activity on Saturdays and very limited activities on Sundays. From a planning perspective this represents a conservative approach that illustrates maximum demand for aircraft parking.

JFK experienced a significant decrease in freighter operations from 24,337 in 2000 to 15,329 in 2010, representing an average annual decline of 4.5 percent.

- **Pessimistic Operations Scenario** – In this scenario, domestic and international freighter operations are expected to grow at 0.1 percent and 1.3 percent, respectively. Annual freighter operations are expected to increase from 15,329 in 2010 to 18,137 in 2030. There is an industry consensus that freighters will return, albeit slowly, into the market including JFK. Overall freighter operations are expected to increase from an average of 54 per day in 2010 to 64 per day in 2030.
- **Moderate Forecast Scenario** – In this scenario, domestic and international freighter operations are expected to grow at 1.3 percent and 1.9 percent, respectively. Annual freighter operations are expected to increase from 15,329 in 2010 to 21,276 in 2030. Freighter operations are expected to increase from an average of 54 per day in 2010 to 74 per day in 2030.
- **High Operations Scenario** – In this scenario, domestic and international freighter operations are expected to grow at 2.5 percent and 2.6 percent, respectively. Annual freighter operations are expected to increase from 15,329 in 2010 to 25,615 in 2030. Freighter operations are expected to increase from an average of 54 per day in 2010 to 90 per day in 2030.

Table 6.2-3 JFK TONNAGE FORECAST

Year	Domestic Low	Domestic Moderate	Domestic High	International Low	International Moderate	International High	Total Low	Total Moderate	Total High
Historical									
2000	452,393	452,393	452,393	1,412,029	1,412,029	1,412,029	1,864,422	1,864,422	1,864,422
2005	402,286	402,286	402,286	1,318,640	1,318,640	1,318,640	1,720,926	1,720,926	1,720,926
2010	253,934	253,934	253,934	1,138,930	1,138,930	1,138,930	1,392,864	1,392,864	1,392,864
Forecast									
2015	269,192	288,976	315,236	1,301,508	1,363,680	1,403,733	1,570,700	1,652,655	1,718,969
2020	283,165	328,866	413,036	1,469,658	1,610,253	1,789,712	1,752,823	1,939,119	2,202,749
2025	297,500	366,003	477,315	1,550,090	1,738,295	1,976,918	1,847,591	2,104,298	2,454,233
2030	310,888	389,794	501,181	1,598,143	1,809,565	2,095,533	1,909,031	2,199,359	2,596,714
CAGR									
2000-2010	-5.6%	-5.6%	-5.6%	-2.1%	-2.1%	-2.1%	-2.9%	-2.9%	-2.9%
2010-2020	1.1%	2.6%	5.0%	2.6%	3.5%	4.6%	2.3%	3.4%	4.7%
2020-2030	0.9%	1.7%	2.0%	0.8%	1.2%	1.6%	0.9%	1.3%	1.7%
2010-2030	1.0%	2.2%	3.5%	1.7%	2.3%	3.1%	1.6%	2.3%	3.2%

Source: Port Authority of NY & NJ

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Illustrated below on **Table 6.2-4, *JFK Operations Forecast***, are the historical and projected freighter operations by scenario over the 2000-2030 horizon.

Table 6.2-4 JFK FREIGHTER OPERATIONS FORECAST

	Domestic			International			Total		
Year	Low	Moderate	High	Low	Moderate	High	Low	Moderate	High
Historical									
2000	10,410	10,410	10,410	13,927	13,927	13,927	24,337	24,337	24,337
2005	8,193	8,193	8,193	14,456	14,456	14,456	22,649	22,649	22,649
2010	5,942	5,942	5,942	9,387	9,387	9,387	15,329	15,329	15,329
Forecast									
2015	6,125	6,575	7,173	10,352	10,847	11,165	16,477	17,422	18,338
2020	6,130	7,119	8,942	11,456	12,552	13,951	17,586	19,671	22,892
2025	6,128	7,539	9,832	11,943	13,393	15,231	18,071	20,932	25,063
2030	6,093	7,639	9,822	12,044	13,637	15,792	18,137	21,276	25,615
CAGR									
2000-2010	-5.5%	-5.5%	-5.5%	-3.9%	-3.9%	-3.9%	-4.5%	-4.5%	-4.5%
2010-2020	0.3%	1.8%	4.2%	2.0%	2.9%	4.0%	1.4%	2.5%	4.1%
2020-2030	-0.1%	0.7%	0.9%	0.5%	0.8%	1.2%	0.3%	0.8%	1.1%
2010-2030	0.1%	1.3%	2.5%	1.3%	1.9%	2.6%	0.8%	1.7%	2.6%

Source: Port Authority of NY & NJ

Because an aircraft operation is a takeoff ***or*** a landing, to calculate the anticipated number of daily aircraft, it is necessary to divide the estimated operations by two because each aircraft will have a landing and takeoff. The resultant levels of forecasted daily freighters are indicated below.

2030	Annual Operations	Daily Aircraft
Low Activity Scenario	18,137	32
Moderate Activity Scenario	21,276	37
High Activity Scenario	25,615	45

6.2.7 PLANNING FACTORS

In general, each ton of air cargo requires one square foot of on-airport warehouse space. This tons-to-square footage metric is applied over the forecast horizon to determine on-airport air cargo warehouse requirements. Apron requirements are derived from the average daily freighter operations analysis which is embedded in the forecast model. As indicated above freighter operations will increase back to the activity levels of the late 1990s-early 2000s to approximately 45 freighters per day by 2030.

6.2.8 RECONCILIATION OF AIR CARGO FORECASTS AND METHODOLOGIES

A regression model was developed to forecast air cargo demand for the New York City ("NYC" or "the City") region. Total freight and mail tonnage was separated into domestic and international segments and used as dependent variables to regress against several economic variables and one dummy variable.

Independent variables used for the regression model included U.S. GDP, several NYC catchment area variables; gross regional product, manufacturing earnings and wholesale earnings, and a dummy variable to offset the effect of September 11, 2001 from the model. One additional independent variable was used in the international regional model, world GDP; never-the-less an accurate model could not be found for either segment.

After carefully analyzing air cargo tonnage trends at each airport it was clear that LaGuardia International Airport's ("LGA") declining air cargo tonnage was affecting the regional air cargo model. Therefore, regression models were developed for each segment at JFK and Newark Liberty International Airport ("EWR") airports. All four models showed good fits (over 0.8 adjusted R squared) but the forecast tonnages from the domestic models were unrealistic. Therefore it was decided to use:

- regression forecasting for international air cargo tonnage at JFK and EWR airports
- simple trend analysis for the domestic forecasts at JFK and EWR
- simple trend analysis for LGA domestic and international air cargo forecasts

The trend analyses used the average annual growth rate from 2002 to 2005. For the international regression forecast a small negative value was used consistently in the dummy variable for the forecast years to reduce the output's sensitivity to U.S. GDP.

Although the forecast results differ slightly from the current Port Authority air cargo forecast between domestic and international tonnage, the aggregate annual total tonnage for 2025 is nearly identical at 2.4 million tons per annum. The reconciliation process indicated that there are no significant statistical differences in the forecast numbers.

Table 6.2-5 presents the ***L&B 2007 Air Cargo Tonnage Forecast*** for JFK Airport.

6.2.9 REVIEW OF THE PORT AUTHORITY OF NY & NJ AIR CARGO FORECAST METHODOLOGY

L&B reviewed the Port Authority air cargo tonnage forecast methodology. Forecasters often prefer to rely on regression analysis to project underlying demand. This statistical method is a well-tested, logical, and reliable approach. As indicated earlier, in 2007, L&B attempted to use regression analysis to project air cargo demand but the key correlating metric (i.e., GDP Product) failed to generate a statistically sound air cargo tonnage forecast. The Port Authority's attempt to generate a statistically sound air cargo tonnage forecast also proved difficult so other generally accepted forecast approaches were deployed by both L&B (i.e., 2007 Forecast) and the Port Authority (i.e., 2011).

The Port Authority use of trend analysis to determine air cargo tonnage growth rates is a frequently-used forecast approach. The trend analysis should be informed by those key factors affecting demand. The Port Authority air cargo forecast used a trend analysis and it identified a number of key factors affecting air cargo demand including but not limited to modal competition, fuel costs, Asian growth, trans-Atlantic market weakness, and gateway competition.

The aggregate annual growth rates for the Port Authority's Pessimistic, Moderate, and High Scenarios are reasonable in their relation to each other *and* compared to industry-wide growth rates published by the aircraft manufacturers and the FAA. The Port Authority growth rates are *lower* than industry-wide growth rates for a variety of reasons including factors such as gateway competition given that Asian growth favors West Coast gateways (i.e., LAX). ***Therefore, for planning purposes, the Port Authority air cargo tonnage forecast is considered reasonable and rooted in a sound, generally accepted methodology.***

Table 6.2-5 L&B 2007 JFK AIR CARGO TONNAGE FORECAST

Air Cargo Tonnage Forecast
Kennedy International Airport

		Domestic			International			Total		
	Year	Freighter	Belly	Total	Freighter	Belly	Total	Freighter	Belly	Total
Actual	1990	183,194	275,959	459,153	438,223	560,677	998,900	621,417	836,636	1,458,053
	1995	240,193	251,009	491,202	645,060	643,915	1,288,975	885,253	894,924	1,780,177
	2000	347,163	235,949	583,112	778,570	670,027	1,448,598	1,125,733	905,976	2,031,709
Estimate	2005	339,376	138,618	477,994	757,528	595,201	1,352,728	1,096,903	733,819	1,830,722
Forecast	2006	344,126	136,217	480,343	833,008	651,899	1,484,907	1,177,134	788,115	1,965,250
	2007	348,944	133,760	482,704	854,392	665,963	1,520,355	1,203,335	799,723	2,003,059
	2008	353,828	131,248	485,076	873,751	678,327	1,552,079	1,227,579	809,576	2,037,155
	2009	358,781	128,679	487,461	891,750	689,524	1,581,274	1,250,531	818,203	2,068,734
	2010	363,804	126,053	489,856	908,676	699,787	1,608,463	1,272,480	825,839	2,098,319
	2011	368,897	123,367	492,264	924,957	709,455	1,634,412	1,293,854	832,822	2,126,676
	2012	374,061	120,623	494,684	940,822	718,709	1,659,530	1,314,882	839,332	2,154,214
	2013	379,297	117,818	497,115	956,576	727,786	1,684,362	1,335,873	845,604	2,181,476
	2014	384,607	114,952	499,558	972,214	736,683	1,708,898	1,356,821	851,635	2,208,456
	2015	389,991	112,023	502,014	987,537	745,251	1,732,788	1,377,527	857,274	2,234,801
	2020	418,062	96,410	514,472	1,064,403	786,945	1,851,348	1,482,465	883,355	2,365,820
	2025	448,154	79,086	527,240	1,142,547	827,361	1,969,908	1,590,701	906,448	2,497,149
Average Annual Growth Rates										
	1990-2005	4.2%	-4.5%	0.3%	3.7%	0.4%	2.0%	3.9%	-0.9%	1.5%
	2005-2015	1.4%	-2.1%	0.5%	2.7%	2.3%	2.5%	2.3%	1.6%	2.0%
	2015-2025	1.4%	-3.4%	0.5%	1.5%	1.1%	1.3%	1.4%	0.6%	1.1%
	2005-2025	1.4%	-2.8%	0.5%	2.1%	1.7%	1.9%	1.9%	1.1%	1.6%

H:\New York System Forecast\Forecasts\Cargo\[Cargo Forecast Template.xls]Tables
Source: Port Authority of NY & NJ

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6.3 FACILITY AND INFRASTRUCTURE DEMAND

In examining potential future demand for facilities and infrastructure, it is absolutely essential to change the perception that JFK is a land-rich airport with substantial capacity for traditional cargo development and redevelopment. The planning principles adapted for this effort and ongoing discussions with the Port Authority/EDC raised several key considerations that must be factored into future capacity and demand planning. These include:

- Port Authority preference to minimize cargo operations in Zone A to allow for accommodation of other aviation and aviation support functions.
- Stakeholder and Port Authority/EDC interest in the creation of an on-airport "Cargo Village."
- The City's desire to use potentially vacated off-airport properties to create new opportunities for air eligible shipping and other related logistics functions.
- Potential future displacement of cargo facilities because of a new runway and supporting aeronautical infrastructure.
- Air cargo industry trends toward third-party development and operating partnerships with handling companies. This concept reduces the demand for carrier specific facilities, and increases the attractiveness of common-use facilities.

The result is that in examining how best to address future demand the Airport should be considered as constrained and planning proceed accordingly.

6.3.1 PLANNING FOR DEVELOPMENT

The Port Authority/EDC has made clear that its primary business goals include increasing cargo volumes and growing the regional job base, therefore, strategically, JFK and the City must position themselves to initiate the development of supporting roadways, aeronautical infrastructure, and modern cargo facilities on a timely basis in order to meet demand generated by industry dynamics, and/or their own marketing initiatives. At the same time growth in the passenger segment of the business presents challenges to the Airport to balance the allocation of its land and financial resources among competing business segments. To better anticipate the level of demand and potential timing for new cargo development, the Port Authority/EDC initiated this study. An important component in the determination of future demand is the cargo forecast.

Unlike forecasts that are prepared for more conservative financial feasibility analyses upon which the sale of bonds may be predicated, the purpose of this forecast is to assist in planning for and accommodating the future growth of the air cargo business. Using the design layouts and estimated growth rates, the Airport can develop internal triggers for new facility development that will enable them to address the needs of cargo users and tenants while meeting fiscal responsibilities to regional constituents.

In the evolving cargo environment of 2011, consolidations, shifts in hubbing operations, route changes, and technology are affecting how cargo moves and the airports through which cargo flows. It will be particularly important therefore, for the Airport to monitor traffic patterns closely over the next several years. While no carriers have indicated any intent to reduce operations, the amount of building space and infrastructure leased by a number of the carriers is substantial and the tonnage they carry should be closely watched. It is also important to note that the amount of tonnage reported by the integrators is often

substantially understated because of unreported truck-to-truck activity. The efficient utilization of existing facilities can stretch their useful life without adversely impacting the levels of service the Airport seeks to provide.

6.3.1.1 Facility Requirements

As discussed in Section 6.1, Capacity, to determine future facility needs, an average utilization rate for cargo processing must be assumed. To use one average for the wide range of cargo operations would not be an accurate method of assessing future facility needs. For these planning purposes, the Team used the following utilization rates in **Table 6.3-1, *Facility Planning Utilization Rates - JFK***, to determine future facility requirements:

Table 6.3-1 FACILITY PLANNING UTILIZATION RATES - JFK

Type of Cargo	Ratio (Tons per square feet per Year)
Belly	1.0 to 1.50
Freighter	1.25 to 1.50
Integrated	1.50 to 2.00

It is important to consider several other elements beyond throughput when preparing estimates of future space requirements. The first is the amount of supporting office space, the second is storage space for equipment, and the third is space for security screening and inspection of both inbound and outbound goods. Additionally, at a gateway airport, it is important to include an allowance for unreported trucked products. This can vary by carrier operation from 10 percent to 30 percent of total reported tonnage, and because it is unreported, it can only be estimated. This is a very important consideration because it has substantial impact on a building's capacity and projected useful life for a specific tenant.

A major consideration for future cargo facility planning at JFK is the impact and timing of a potential new runway and supporting aeronautical infrastructure. Since the possible construction is still undetermined, the Team extended the forecast period to 2040 to better estimate demand and to accommodate the introduction of that infrastructure in the 2030 – 2040 decade. While this was outside the agreed upon scope, it was considered essential to create the most realistic and flexible planning scenarios.

6.3.1.2 Planning Segments

Planning for future facilities must accommodate three basic core activity segments – belly cargo, integrator, and freighter tonnage volumes. Each has a different throughput expectation and a resultant translation of tonnage to necessary square footage. The throughput assumptions for JFK are based on the following:

- Future inbound cargo will arrive in larger increments as carriers introduce more wide-body aircraft with more belly capacity into their fleets.
- New cargo facilities will be better configured to accommodate cargo handling and the interface between airside and landside operations.
- Building technology will continue to add efficiencies to cargo handling and sorting.
- The positive working relationships with federal agencies will be maintained.

- Cargo screening and clearance processes will become increasingly automated.
- Cargo handling companies will assume larger roles in the management and operation of cargo facilities that will eventually become common use with greater economies of scale for equipment and staff.
- The experience of the regional customs broker and freight forwarder community in handling cargo will facilitate throughput.

While each of these assumptions will have a positive impact on throughput, the Team opted to base planning on a range mid-point rather than the maximum rate. This more conservative approach provides a margin for additional capacity in the future.

Belly Hold Cargo

Belly hold cargo is forecast to increase from 645,000 tons in 2010 to 971,000 tons in 2020; 1,068,000 in 2030; and 1,198,000 by 2040. These increases represent an average annual growth rate of 1.4 percent. Belly cargo is carried by most carriers at JFK and subsequently processed in all four cargo areas. There is no major hubbing operation for a carrier so the cargo volumes are distributed throughout the four zones. Estimating unreported volumes at 20 percent, the projected tonnage for 2020 is 1,165,000; 2030 is 1,281,600 tons; and for 2040 is 1,434,000 tons. To meet the forecasted demand, JFK, using an average throughput guide of 1.25 tons per square foot, will need approximately 932,000 square feet of warehouse space in 2020; 1,025,000 square feet of space in 2030; and 1,147,000 square feet of space, in 2040.

Integrated Cargo

In an attempt to provide a more realistic outlook, integrated cargo was looked at separately in order to address its faster processing rates As discussed earlier in this section, the utilization rates of integrated carriers are typically much higher than for other carrier operations, thereby reducing building requirements. The need for land allocation for a building is offset to some extent by the large landside parking requirement for employees and the number of trucking operations utilized by integrated carriers. Additionally, the integrated cargo airside requirements can be great given the nature of the operation. To further complicate the planning process for JFK, FedEx typically under reports its cargo volumes substantially because so much of its New York operation is focused on ground service.

Integrated cargo at JFK is expected to increase from a “reported” 2010 level of 192,000 tons to 330,000 tons in 2020; 390,000 tons in 2030; and 436,000 tons in 2040, an average annual growth rate of 3.3 percent. The FedEx operation is currently located in Zone D, and the much smaller UPS operation is currently located in Zone C. Most traditional carriers have only limited interaction with the integrators for occasional interlining (transferring cargo from one carrier to another for delivery). This would allow for a reasonable separation of the integrators from the traditional carriers if planning warranted. It is estimated that the integrated carriers currently utilize approximately 480,000 square feet of warehouse space on the Airport.

Theoretically, JFK, based on a very conservative throughput assumption of 1.75 tons per square foot, would need only 275,000 square feet of space to accommodate integrator activities in 2040. However, there are indications that the current tonnage figures may be under-reported by as much as 60 percent for the integrators who do not include their truck-to-truck activity, which makes up a large part of the FedEx operation. This adjustment would bring the tonnage processing requirement to 698,000 tons.

Using the throughput assumption, the 2040 building requirement would be 399,000 square feet. It should be noted that this is an estimate for the integrated carriers as a whole, and is purely an estimate using the existing space versus future requirements. It may be necessary to build tailored space for a specific integrator should they want to expand their operation. Conversely, should an integrator alter its operating route structure, these requirements may not materialize at all. Neither alternative is a consideration at this time.

All-Cargo/Freighters

Freighter cargo is also processed through all four cargo zones with the heaviest concentration being in Zone D which is home to a number of the international carriers. Freighter cargo is expected to have an average annual growth rate of 6.8 percent over the 2030 planning period, the highest of all categories on the Airport, and slow down after that. The 555,000 tons processed in 2010 is expected to grow to 901,000 in 2020; 1,139,000 in 2030; and 1,273,000 in 2040. Again, adding the 20 percent estimated under-reporting, the tonnage numbers are adjusted to 666,000 for 2020; 1,081,000 for 2030; and 1,527,000 for 2040. To meet forecasted demand, and using a throughput ratio of 1.4 tons per square foot, JFK will need approximately 644,000 square feet of space in 2020, a total of 814,000 square feet in 2030, and 909,000 square feet in 2040.

Adjustments for unreported trucking tonnages are summarized in **Table 6.3.2, *Tonnages Adjusted for Unreported Trucking***.

Table 6.3-2 TONNAGES ADJUSTED FOR UNREPORTED TRUCKING

Facility Type	2020	2030	2040
Belly Cargo	1,165,000	1,281,000	1,434,000
Integrators	528,000	624,000	698,000
Freighters	1,084,000	1,367,000	1,527,000
Total Needs	**2,777,000**	**3,272,000**	**3,659,000**

Table 6.3-3, *Basic Warehousing Requirements*, provides a summary of future ***basic*** warehousing requirements for JFK. Note that these figures as presented below are unadjusted for additional operating requirements.

Table 6.3-3 BASIC WAREHOUSING REQUIREMENTS (SQUARE FEET)

Facility Type	Required 2020	Required 2030	Required 2040
Belly Cargo	954,000	1,025,000	1,147,000
Integrators	330,000	390,000	437,000
Freighters	774,000	976,000	1,090,000
Total Needs	**2,058,000**	**2,371,000**	**2,674,000**

Table 6.3-4, *Adjusted Warehousing Requirements*, below reflects warehousing requirements, as adjusted, to meet future operating and security needs.

Table 6.3-4 ADJUSTED WAREHOUSING REQUIREMENTS (SQUARE FEET) (Includes space for Storage (10% and Security 5%)

Facility Type	Required 2020	Required 2030	Required 2040
Belly Cargo	1,097,000	1,231,000	1,319,000
Integrators	380,000	448,000	503,000
Freighters	890,000	1,122,000	1,254,000
Total Needs	**2,367,000**	**2,791,000**	**3,076,000**

JFK will be challenged to provide sufficient space to effectively meet the needs of its air cargo tenants and users throughout the planning period from several perspectives. The first is that a substantial amount of the existing warehousing capacity is "functional" but not efficient. The demolition of such buildings will create some expense and policy review issues for the Port Authority, particularly with regard to residual value considerations. The second is that the cost of development is extremely high in New York. To encourage third-party development may require flexibility on the ground lease or the length of the lease. The last major consideration is the development of a new runway. The creation of future facilities and their allocation must be linked to the development of future infrastructure requirements for the Airport.

Space allocation should also link the Port Authority's business goals and new facility development opportunities with the broader context of forecast demand, industry growth, and regional economic development. Critical considerations are: a) facilitating interlining between international and domestic flights, b) enabling combination carriers (those that fly both passenger and freighter aircraft) to run consolidated operations when necessary, and c) achieving maximum ramp productivity. Approaches to the allocation of space must also take into consideration prudent and timely capital investment.

Space allocation practices could be instituted at two levels. The first is allocating space within a building. The second and more strategic level is allocating space among different uses at the Airport. Space permitting, airports have allowed market dynamics to shape their customer and tenant base. JFK has historically been considered as "land-rich" for cargo with ample room to meet the diverse requirements of a wide range of tenants and users. In this planning and business environment, the Port Authority has been very accommodating to the industry in providing sites and facilities. Based on the constraints and strategies discussed earlier, it does not appear that this flexibility can continue in the same allocation context. While future development should always consider tenant and user needs, the Port Authority will need to prioritize and focus its future physical planning and development efforts to address JFK's long-term responsibilities as a regional economic driver. If done effectively, JFK should be able to physically accommodate cargo growth for the next thirty years and beyond.

It is important that the allocation of space be linked to the general nature of a carrier's operation, the efficiency with which the carrier processes cargo through its leasehold, and the demands the carrier's operation places on the Airport's facilities. While the cargo and passenger elements of the business can be segmented financially, it is far more difficult to separate the two operationally, particularly with regard to aircraft ramps. Traditionally, a carrier would only lease and operate one cargo facility within a regional airport system.

Over the past several years, a number of carriers have established cargo as a separate revenue center, and have created the theoretical internal flexibility to split their passenger and freighter operations between airports. There are issues regarding duplicate capital investment, but these can be partially addressed through creative leasing, financial incentives, third-party handling, and third-party development. On the other hand, pure freighter operators do not have the constraint of passenger accommodation to impact their destination points, and their cargo is not typically as time-sensitive as that carried by the integrators. Further, they do not have the same extensive ramp requirements. Integrated carriers place far greater demands on an airport's infrastructure.

There are several kinds of cargo facilities. (Regardless of how they are developed, they are not owned by the carriers, developers, or any of their partners. The developers or tenants occupy the facilities through a leasing process.)

- Single-tenant - These types of facilities were historically developed by carriers but have largely fallen out of favor due to carrier strategies to take real estate off their books. Today, most such single-tenant facilities are utilized by the integrated carriers.
- Multi-tenant – These types of facilities house a variety of airlines and supporting businesses. Typically these facilities will be built by an independent third party or on a limited basis by a carrier (or carrier consortium).
- Common-use – This type of facility has a single lessor – usually a handling company or third-party developer – of the entire facility. While the handler may serve multiple carriers, the airlines do not lease space and the cargo is processed in a common area.

Individual carrier practice and preference varies on the use of third parties to handle cargo and changes cannot therefore be readily implemented unilaterally. Nevertheless, there are clear industry trends toward new business models in facility development and management. There is an additional cost benefit with newer business models. A consolidated operation in a common-use facility reduces demand for storage of equipment that is usually widely distributed throughout the cargo community. Because of the proliferation of equipment around cargo buildings and on ramps, some airports are exploring establishing and maintaining a cap on the number of handling companies. This kind of policy can offer additional benefits such as the development of quality controls and performance evaluations, improved service levels of the handling companies, and reduced costs to the carriers through the creation of economies of scale for both equipment and staff.

To estimate future capacity requirements the forecasted tonnage figures have been adjusted to enable planning numbers to be developed that will more accurately reflect realistic operating requirements. Tonnages for belly and freighter operations have been adjusted by 20 percent to reflect unreported activity, and by sixty percent for the integrators who, as discussed, have sizeable trucking operations outside of the JFK facilities. In addition, ten percent has been added to allow for storage, and five percent for screening and inspection needs within the individual facilities.

6.3.1.3 Office Requirements

Office requirements are typically calculated at ten percent of the square footage requirement for the warehouse. This is the basic warehouse number exclusive of additional space for screening and storage. The estimate for Customs is based on the existing square footage and an assumption of approximately 20 percent growth per ten-year increment to meet demand. The calculation for office requirements is shown below in **Table 6.3-5, *Office Space Requirements***

Table 6.3-5 OFFICE SPACE REQUIREMENTS (SQUARE FEET)

Facility Type	Required 2020	Required 2030	Required 2040
Carriers	173,000	200,000	224,000
Integrators	33,000	39,000	44,000
Customs	107,000	120,000	140,000
Total Needs	**314,000**	**359,000**	**404,000**

6.3.1.4 Allocating Space

When assessing allocation priorities for cargo operations, the Airport should consider four categories of potential user/tenant carriers, described in the following sections.

Domestic and Foreign Flag passenger carriers

Domestic and Foreign Flag passenger carriers' cargo facilities should be located as close as possible to the passenger terminals. Their operations rely on tugs to move cargo to the warehouse. The transit time to and from the passenger terminal is a planning consideration.

Combination carriers

Combination carriers typically operate a freighter in addition to their passenger operation. Their ramp demands are more modest and their warehousing requirements are frequently greater than those of the integrators carrying comparable volumes. For most such carriers, separation of the freighter and belly operations is possible but difficult, and, in the case of JFK, should not be an issue.

Freighter operators

Much of the business for airlines such as Atlas involves flying for other passenger or combination carriers. In that capacity, they should be treated like combination carriers. However, carriers such as Cargolux, and NCA function independently, carry cargo that is not typically as time sensitive as that carried by the integrators, and have a less critical need to be proximate to the business districts. These carriers, depending on the volumes they handle, may prefer not to lease space and be handled by a third party or the carrier for whom they fly.

Integrators

Integrators, currently the industry trend, are the only segment where there will be continuing use of freighters for domestic air cargo (other than occasional charters). The integrators play an extremely critical role in driving future demand for aeronautical infrastructure and air cargo ramps although it is unlikely that they will utilize Code F aircraft at JFK. This has been the most stable segment of the industry for the past ten years. The cargos they carry is the most time sensitive and, arguably, have the greatest need to be closest to the regional business centers. Nevertheless, these carriers, particularly those with small aircraft feeder service, can place heavy demands on the aeronautical infrastructure and airspace, and utilize a disproportionate amount of ramp, for which they typically demand exclusivity. Integrators activity at JFK is forecast to continue to grow.

6.3.2 AERONAUTICAL INFRASTRUCTURE – AIRCRAFT PARKING POSITIONS

The aeronautical infrastructure requirements include several primary considerations.

1. Minimize the amount of taxi-time and distance for freighter aircraft where possible.
2. Ensure that there is sufficient aircraft ramp to accommodate peak demand for cargo terminal access and parking, giving specific consideration to average aircraft stand occupancy time.
3. Ensure that the aircraft apron has sufficient access and egress for peak operating windows.

Aircraft ramp space can vary based on the type of aircraft being operated. For purposes of air cargo, most aircraft fall into one of four categories determined by the FAA's Airport Reference Code ("ARC"). Code C aircraft, a 737, requires 2,300 square yards of ramp space. Code D aircraft, a 767 or DC10, requires 3,900 square yards of ramp space. Code E aircraft, a 747, requires 6,500 square yards of ramp space. The new B747- 800F is a Code F aircraft and will require 8,650 square yards of ramp. These criteria were used to determine future aircraft ramp space at JFK. Currently, the Airport has approximately 65 aircraft parking positions dedicated to air cargo and was able to easily handle the 27 daily average freighters in 2010 (based on a 286-day cargo year). The forecast indicates approximately 40 daily cargo aircraft by 2020, 45 cargo aircraft by 2030, and 50 by 2040. The anticipated number of operations over the planning period is summarized in **Table 6.3-6, *Projected Aircraft Operations***.

Table 6.3-6 PROJECTED AIRCRAFT OPERATIONS

Year	Annual Freighter Operations	Daily Freighter Operations	Daily Aircraft
2020	22,892	80	40
2030	25,615	90	45
2040	28,600	100	50

International shipping schedules, customs clearances, foreign curfews, and federal screening requirements all limit flexibility to some extent; however, most positions would be used more than once a day. Prudent planning should typically consider two turns per day per parking position. However, in order to optimize available ramp, the plan assumes that 50 percent of the apron parking positions will handle only one aircraft per day, while the other 50 percent will handle two per day. Under this scenario, there will be a requirement for 37 apron positions using the conservative utilization scenario in 2040. **Table 6.3-7, *Summary of Air Cargo Aircraft Parking Requirements***, details the cargo aircraft parking requirements and the approximate ramp space that will be needed. This assumes 70 percent Code F and 30 percent Code D.

Table 6.3-7 AIRCRAFT PARKING REQUIREMENTS

Year	Code F Freighters	Code D Freighters	Ramp Space Required (sq ft)
2020	21	9	2,034,000
2030	24	10	2,312,000
2040	27	11	2,590,000
Total for Planning Period:			2,590,000

Note: Assumed all parking positions to accommodate Code E aircraft requiring 6,500 square yards per space.
Source: Report forecasts and Consultant Calculations

In addition, there will be a minimum of 50 feet provided (where appropriate) between the rear of the cargo buildings and the nose of the aircraft for staging and equipment maneuvering.

6.3.2.1 Landside Operations

An air cargo operation must be multi-modal – virtually all cargo arrives at the cargo facility by truck. As a result it is essential that landside planning consider trucking operations, as well as the accommodation of automobiles at the cargo facilities. Landside planning requirements include truck parking and queuing, roadway geometry, employee parking, customer parking, and potential alternative access for employees. Stakeholder discussions were held to determine vehicle usage and size estimates. Inputs received were included with industry planning guidelines to size the requirements for the facilities and to understand the potential levels of traffic on the roads serving the cargo complex.

Despite the current "limited use" of 53-foot tractor trailers, the expectation is that this vehicle will become more prevalent throughout the forecast period. To accommodate vehicles of this size, truck courts 150 feet deep are recommended. This will enable the trucks to back into the bays without impacting the movement of other vehicles on access roads during peak hours. Based on anticipated usage, the numbers of truck bay doors should be maximized at each cargo building. This would require a minimum separation of 12 feet from centerline of truck-to-centerline of truck.

6.3.2.2 The Trucking Component

In calculating trucking requirements, the primary consideration is origin and destination ("O&D") traffic. For JFK most air cargo traffic is O&D (of which about 50 percent is local). There is some transfer activity from aircraft to aircraft but it is considered minimal. Of the projected 3,659,000 tons of air cargo for 2040, a total of 698,000 tons is anticipated for the

integrators, leaving a balance of 2,961,000 tons for traditional carrier operations. Given the nature of the JFK market and operations fifteen percent of the latter tonnage figure – 444,000 is estimated to be transfer cargo. This leaves a balance of approximately 2,517,000 tons as O&D cargo – that is cargo that will arrive at or leave JFK on a truck.

When reviewing truck usage requirements, stakeholders confirmed that the most utilized vehicle types are the 53-foot tractor-trailer and the 40-foot truck for regular carriers, and the van and 53-foot vehicle for the integrators. Four other basic assumptions were utilized in estimating truck traffic: 1) the trucks would operate with less than a full payload, 2) the trucks would operate 286 days a year, 3) there will be an approximately equal in and outbound traffic flow, and 4) the 53-foot vehicle category, will also include some 48-foot trucks. These considerations tend to raise the anticipated amount of daily trucking activity. It should be noted that these numbers are 2040 estimates for planning purposes. Should roadway levels of service become an issue in the future a more detailed analysis will be required.

O&D Tonnage – 2,517,000

Estimated Truck Fleet Mix -2040:

Vehicle	Percent	Tonnage	Load	Operations
Vans	10%	251,700	2 Tons	125,850
40-foot Truck	30%	755,100	10 Tons	75,510
53-foot Truck	60%	1,510,200	19 Tons	79,484
			Annual Trucking Operations:	280,844
			Daily Trucking Operations:	982

This level of annual activity equates to 982 daily operations - rounded to 500 trucks. Traffic peaks linked to international operations result in a concentration of about 60 percent of the trucking activity in two to three hour windows per day. As a result, those time periods will experience 50 trucks per hour while each off-peak hour will average about 11 to 12 trucks.

Integrator/Courier - O&D Tonnage – 698,000

Integrated operations were considered separately because there are different peaks and because there is a possibility that the Integrator operations may be located apart from the traditional carrier cargo operations.

Estimated Truck Fleet Mix:

Vehicle	Percent	Tonnage	Load	Operations
Vans	20%	139,600	2 Tons	147,000
40-foot Truck	30%	209,400	10 Tons	20,940
53-foot Truck	50%	349,000	19 Tons	18,369
			Annual Trucking Operations:	186,309
			Daily Trucking Operations:	651

This level of activity on an annual basis equates to 651 daily operations or about 325 trucks. Traffic peaks result in a concentration of 80 percent of the trucking activity in two to three hour windows per day. As a result, those time periods will experience 86 trucks per hour while each off-peak hour will see about seven trucks.

6.3.2.3 Auto Parking Requirements

There are a number of operating assumptions that factored into the review of automobile parking requirements.

1. The autos will belong to one of three groups: employees working in the cargo facilities, visitors/customers of the carriers, and government employees and individuals visiting the central government complex.
2. Auto parking requirements will be lower for warehouse staff which work in highly automated facilities.
3. Typical employee auto parking for an air cargo operation ranges from three to eight spaces per 10,000 square feet of warehouse. A utilization level of four was assumed. (Note that a midpoint was used to reflect increased staffing efficiencies and handling efficiencies.)
4. Typical employee auto parking is two to three spaces per 1,000 square feet of air cargo office. Based on existing levels of use at JFK, a utilization level of three per 1,000 square feet was assumed.
5. Two additional positions per square foot of office were included for estimating the parking positions for Customs to accommodate customers.
6. Ten positions per 10,000 square feet were allocated to the USPS.
7. Integrator operations are labor-intensive and require twice the number of parking positions.
8. Typical planning allows for 300 square feet per parking space (inclusive of circulation areas).

Utilizing the above assumptions, the auto parking requirements were estimated for JFK cargo operations. The office and warehousing space requirements upon which the parking estimates are based are summarized below in **Table 6.3-8, *Office Space Requirements***. The parking requirements are shown in the following tables.

Table 6.3-8 OFFICE SPACE REQUIREMENTS (SQUARE FEET)

Facility Type	Required 2020	Required 2030	Required 2040
Carriers	173,000	200,000	224,000
Integrators	33,000	39,000	44,000
Customs	107,000	120,000	140,000
Total Needs	**314,000**	**359,000**	**404,000**

OFFICE PARKING REQUIREMENTS (POSITIONS)

User	Required 2020	Required 2030	Required 2040
Carriers	519	600	672
Integrators	99	117	132
Customs	535	600	700
Total Needs	**1,153**	**1,337**	**1,404**

WAREHOUSING REQUIREMENTS (SQUARE FEET)
(Includes space for Storage (10% and Security 5%)

Facility Type	Required 2020	Required 2030	Required 2040
Belly Cargo	1,097,000	1,231,000	1,319,000
Integrators	380,000	448,000	503,000
Freighters	890,000	1,122,000	1,254,000
Total Needs	**2,367,000**	**2,791,000**	**3,076,000**

WAREHOUSE PARKING REQUIREMENTS (POSITIONS)

User	Required 2020	Required 2030	Required 2040
Carriers	794	940	1,028
Integrators	304	360	400
Customs			
Total Needs	**1,098**	**1,300**	**1,428**

TOTAL REQUIRED AUTO PARKING POSITIONS

User	Required 2020	Required 2030	Required 2040
Carriers	794	940	1,028
Integrators	304	360	400
Postal	600	600	600
Customs	535	600	700
Total Needs	**2,233**	**2,500**	**2,728**

6.3.3 SPECIAL FACILITIES REQUIREMENTS

6.3.3.1 Perishables

There was a moderate amount of interest expressed by stakeholders in the development of a Perishables Center. Given the international elements of its operations, JFK must accommodate perishable goods such as fruits, vegetables, flowers, and seafood. Nevertheless, the development of such a facility failed in the early 1990's because: a) most carriers maintain some cooler capacity within their individual leaseholds, and b) perishables by their nature move through an airport very quickly minimizing storage demand. A number of perishable facilities have been developed and met with a similar lack of success. Most notable in North America, is Orlando which loses $500,000 annually on the facility. In Dubai, the flower center has never been fully utilized and is now proposed to be utilized for more traditional cargo processing. A more detailed and very specific due diligence should be conducted in the event future development is contemplated. If such an effort is to take place it will be critical to first determine the levels of perishable/climate controlled capacity that currently exist on the Airport. At this time the inclusion of a facility specifically allocated to perishables handling is not contemplated.

6.3.3.2 Certified Cargo Screening Facility (CCSF)

Because of the belly cargo screening requirement, and the intent of the TSA to push cargo screening back down the logistics chain, smaller cargo support functions have sought out Certified Cargo Screening Facilities ("CCSF") for operating assistance and financial relief. There are several such operations located off airport in forwarder and trucking facilities. There is some speculation that as security protocols mature, there will be increased interest in having a CCSF (or several) located on the Airport. This would reduce operating costs substantially if the facility can be located such that it will have airside access via restricted service road. This would eliminate the need to reload inspected cargo onto a truck for movement to the carrier. A CCSF would be an ideal element in an on-airport cargo village. A typical such facility allowing for truck circulation will require approximately 50,000 square feet.

6.3.3.3 Dangerous Goods (Hazardous Material)

Dangerous goods are categorized as such, not necessarily because of what they are, but because of the chemicals or combination of ingredients that they contain. As a result, the industry groups acids and explosives with aerosol containers, and perfumes with a wide range of products – many of them common household products – in between. There are few examples of stand-alone "dangerous goods" facilities at commercial airports. The reason is that the products are so varied, of basically limited scale, and for the most part treated very much as ordinary cargo (with appropriate safeguards), that there is no perceived need or financial justification to pay the handling and storage associated with a separate facility.

The handling of hazardous materials is usually the responsibility of the air carrier or freight forwarder. Those hazardous materials that are authorized to be shipped by air cargo carriers are regulated by the U.S. Department of Transportation ("USDOT"). This planning effort did not determine any specific hazardous material handling requirements of volumes sufficient to justify a separate facility.

Occasionally cargo screening may detect a potential device that could be considered dangerous. Given the volumes of cargo to be handled at JFK, there is a high likelihood that a number of such cargo detections may occur. For such occasions, the availability of a pressure/detonation chamber would be desirable. The land requirement is small – about 3,000 square feet – and can be easily allocated in the complex.

6.3.3.4 U.S. Customs & Border Protection (CBP)

U.S. Customs & Border Protection ("CBP") is obviously both a key facilitator of goods movement and a control on shipping processes. CBP's primary focus is on O&D traffic. As a major component from both an administrative and operating perspective, CBP will require a large office complex that will house not only their operations but ideally other government agencies as well. The result is a "one-stop shipping center" that facilitates clearance of cargo and the resolution of other transport issues for carriers, freight forwarders, and customs brokers. It also has the added benefit of reducing the movement of private vehicles throughout the cargo complex.

CBP and the U.S. Department of Agriculture ("USDA") have an onsite presence at JFK and have had a consolidated operation since 1992 in Building 77. The office capacity (107,000 square feet) is satisfactory as are the inspection areas. However, since the building is pre-September 11, 2001, CBP has indicated that it is non-compliant with anti-terrorist security requirements for what the General Services Administration ("GSA") categorizes as a Level 4 building. In the event the facility cannot be satisfactorily retrofitted, it may be necessary to develop a new building for the CBP operation. CBP would prefer that this facility be co-located with the majority of their customers. CBP has also indicated that a small allocation of space in the individual cargo facilities for their inspections would increase their staff productivity and reduce clearance times for their customers.

6.3.3.5 Animal Care Facility

Interviews with stakeholders indicated a continuing need for an animal care facility. The logic is that animals frequently require specialized care and handling that demands expertise not typically available with standard staff. Liability issues as well as certain elements of hygiene and safety also support the belief that a dedicated facility would be most appropriate.

From an industry perspective, such facilities often deal with three categories of animals. These include domestics, which for the most part are dogs and cats kept as house pets. Many airports maintain kennels and boarding operations for these animals both as a service to employees and carriers, and as a source of revenue. The second category is livestock, which is generally cattle and horses although pigs are often included in shipments. These animals require stalls and in many cases exercise areas during required travel pauses. The last category of animals includes exotics that are most often zoo or circus animals that are sometimes dangerous and almost always difficult to deal with.

Although most carriers have some modest ability to accommodate smaller animals in their own facilities, the ability to handle a broader range of animals is considered an important "value-added' service. The existing facility in Building 189 is roughly 10,000 square feet on an acre of property. Animal care operations are slated to be rebid and relocate to Building 78.

6.3.3.6 U.S. Postal Service (USPS) Facility

The largest single "cargo" building on the Airport is Building 250 – the U.S. Postal Service ("USPS") facility. USPS also leases Building 197, a much smaller proximate facility. The USPS has indicated that their future requirements can be accommodated in a facility the size of Building 250 and a second facility would not be necessary. It is probable that a modern, reconfigured and somewhat smaller facility could meet their needs but a more detailed analysis, would be required. Lacking that analysis, the USPS has been allocated their existing 600,000-square feet capacity, anticipating greater processing efficiencies as well as increased volumes. They have indicated that they are about to invest $10,000,000 in improvements to the building and under those circumstances will be unlikely to consider relocation unless there are no other options.

6.3.3.7 Cargo Handling Requirements

The handling of air cargo has evolved substantially over the past decade, from a business perspective as well as how the cargo is physically handled. Cargo handling companies have filled the gap created after carriers made the strategic determination to minimize investment in facilities. The result is a growing number of partnerships between handling companies and private developers to create a different and more efficient type of cargo-handling building. While the lease would be to a single entity, the facility would typically have multiple tenants with a wide range of carriers in the mix. This gives the Port Authority the option to pursue "leasehold compensation" either through a traditional ground lease, or a hybrid arrangement that combines a reduced ground rent with a percentage of the fees generated by the actual cargo handling. This latter arrangement would categorize such a facility as "common use."

6.3.3.8 Access Requirements

An air cargo operation is an inter-modal operation to which trucks are critical for delivery of cargo to points of O&D in some manner. There are no accessing rail lines for freight at JFK. However, since the air and rail modes are largely suited for different cargoes and the limited freight that might connect between rail and air most typically will move on a truck, rail transport was not considered a factor in this study.

Similarly, water ferries for cargo are not considered viable from a cost benefit perspective. Discussions with the industry today confirm that is still the current thinking. Earlier studies by the Port Authority identified several major issues. The first was covering the cost of the terminals and connecting infrastructure. There were no indications that there would be sufficient volumes to cover operating costs for a roll-on–roll-off operation. The second issue was conflict on the location of a viable terminal site. The last issue, which was and is most problematic, is addressing the environmental concerns that such an operation could create.

Access for trucking will remain an important piece of the puzzle for air cargo growth at JFK. Airports that do not have appropriate highway access to airport facilities could lose domestic cargo traffic to direct truck delivery, especially cargo that is not time sensitive. Adequate access to the Airport through the highway system is important and future highway needs and improvements must be coordinated appropriately among the Port Authority and State and City planning agencies. As air cargo grows at JFK, so will the truck traffic carrying the cargo to and from the Airport.

Interestingly, the trucking community, despite the potential advantages of a single on-airport cargo Zone, expressed concern that any attempt to implement such a consolidation could exacerbate the already strained levels of ground traffic. It is probable, given the differences in age and functionality of all the cargo facilities, that one or more existing buildings in all the cargo zones will be retained for the near-term, minimizing any adverse impacts. However, the feedback indicates that effective consolidation of cargo in Zone D will require a well thought-out landside infrastructure to include parking, queuing, and signage.

6.3.4 SUMMARY

The physical planning requirements discussed in this Section have been developed to meet the cargo operating needs of JFK contained in the higher growth scenario forecast for 2040 of 3,700,000 annual tons of air cargo. While this is an aggressive number, it is important given the unpredictability of the global cargo industry's logistics, that the Airport have the capability to adapt to changes in world-wide shipping trends. This requires an ultimate plan that will be sufficiently flexible to accommodate changes to business models, hubbing and transfer operations, and the emergence of new shipping activities. It is also essential that when planning consideration is given to the potential loss of physical cargo capacity as the Port Authority makes adjustments to its infrastructure to accommodate increasing operations and passenger demand.

Table 6.3-9, *Basic Requirements for Business Segments*, lists the basic requirements in square feet for each of the business segments discussed. Phasing and development will be predicated upon market conditions and staging strategies that are made by the Port Authority in conjunction with their business partners.

Table 6.3-9 BASIC REQUIREMENTS FOR BUSINESS SEGMENTS

JFK Anticipated Air Cargo Requirements - 2040		
Planning Element	**Industry Segment**	**Requirements**
Core Warehouse (Square feet)	Carriers	2,573,000
	Integrators	503,000
	Total	**3,076,000**
Core Office (Square feet)	Carriers	224,000
	Integrators	44,000
	Total	**268,000**
Proximate Aircraft Positions	All Tenants	38
	Total	**38**
Peak Hour Trucking (Trucks)	Carriers	50
	Integrators	86
	Total	**136**
Auto Parking Positions	Carriers	1,028
	Integrators	400
	Postal	600
	Customs	700
	Total	**2,728**
Others (Square feet)	Customs Offices	140,000
	Postal Facilities	600,000
	Animal Care	10,000
	Pressure Chamber	300
	Certified Screening	50,000
	Total	**800,300**

Utilizing the throughput guidelines discussed with and agreed upon by the carriers and handlers as reasonable for their operations at JFK and the typical planning assumptions used for modern facilities, the estimated footprints will enable the Airport to deliver the forecast tonnage volumes.

The physical planning requirements are substantial but can be accommodated into the existing cargo zones as currently configured. The available properties provide sufficient capacity to accommodate future growth and flexibility to adapt to industry changes. ***The impact of a potential new runway and supporting infrastructure could seriously impact capacity and will be carefully evaluated as alternative development scenarios are prepared.***

6.4 PREFERRED ALTERNATIVE

The preferred alternative for the conceptual layout of cargo facilities at JFK is depicted in **Exhibit 6.4-1, *Preferred Alternative***. Under this scenario, all four cargo zones are utilized; Zones B, C, and D for air cargo; and Zone A for commercial trade and aviation-related development. The Preferred Alternative primarily focuses the majority of cargo operations in Zone D. Zone C is solely used by cargo integrators (i.e. FedEx and UPS). Zone B is ultimately developed as a "Cargo Village" of freight forwarders. The following sections describe each zone in detail.

6.4.1 ZONE A

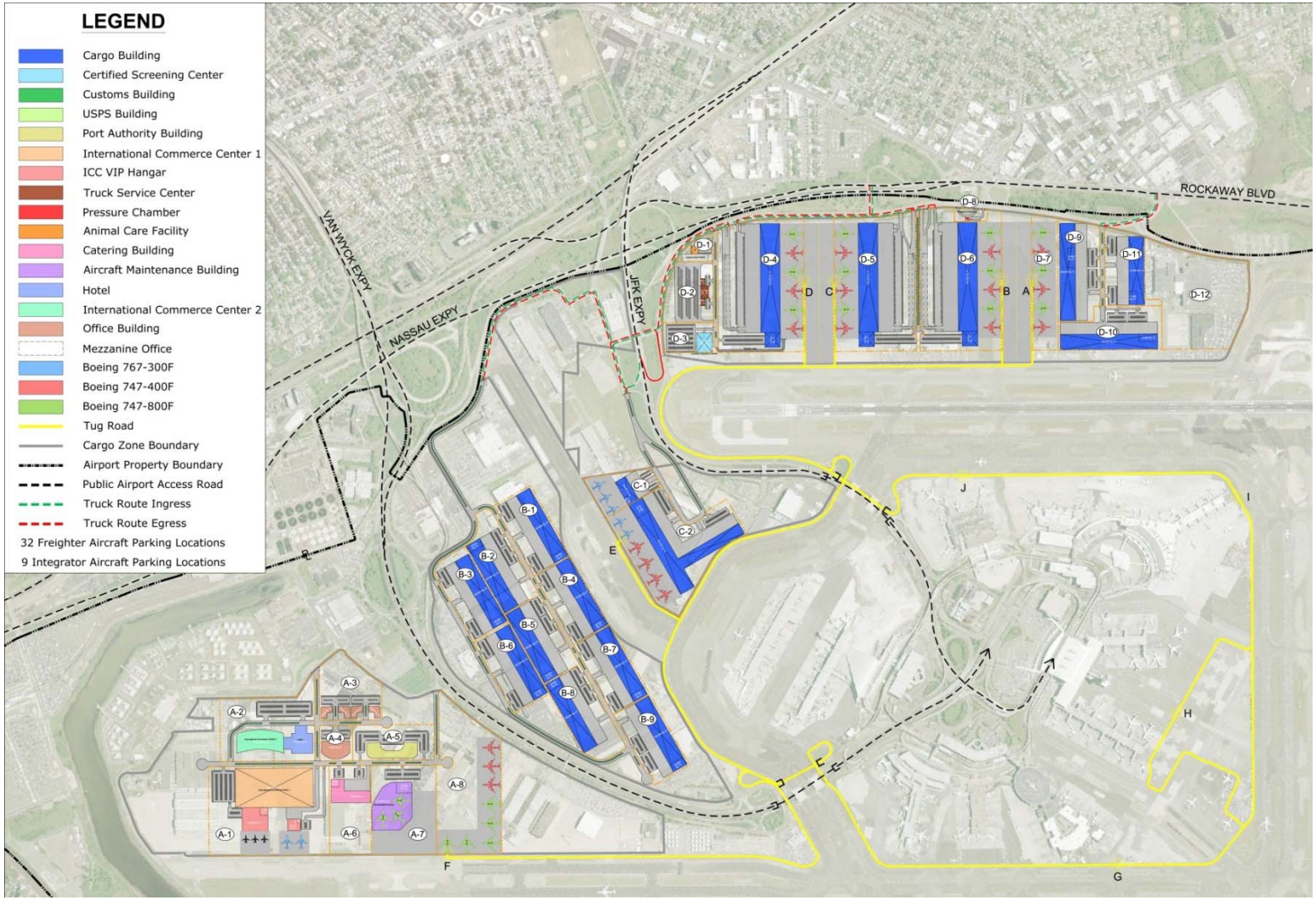
While air cargo facilities will eventually be shifted out of Zone A, its use will continue to be an important component of the overall Strategic Cargo Plan. Zone A has been developed at a conceptual level that proposes a departure from traditional thinking and is focused on both image development and revenue generation. The concepts can be adjusted as needed with regard to location, size, and quantity of the individual facilities.

Zone A contains the following facility types:

- An international commerce center of two separate facilities - a permanent exhibit/trade hall for international partners with whom the City does business - a smaller facility oriented along high-value product lines to include precious metals, gems, leather goods, and textiles.
- VIP/diplomatic reception hangar to accommodate such international diplomatic arrivals for the U.N. General Assembly and other VIP functions.
- Hotel
- Office complex
- Port Authority offices
- Flight kitchen
- Aircraft maintenance base with capacity for three code F aircraft
- Remote aircraft parking ("RON")

Table 6.4-1, *Cargo Zone A Proposed Facilities*, lists the details of the facilities proposed for Zone A. **Exhibit 6.4-2, *Proposed Zone A***, provides a detailed view of the Zone A plan.

Exhibit 6.4-1 PREFERRED ALTERNATIVE



Source: Port Authority of New York & New Jersey, Landrum & Brown Analysis

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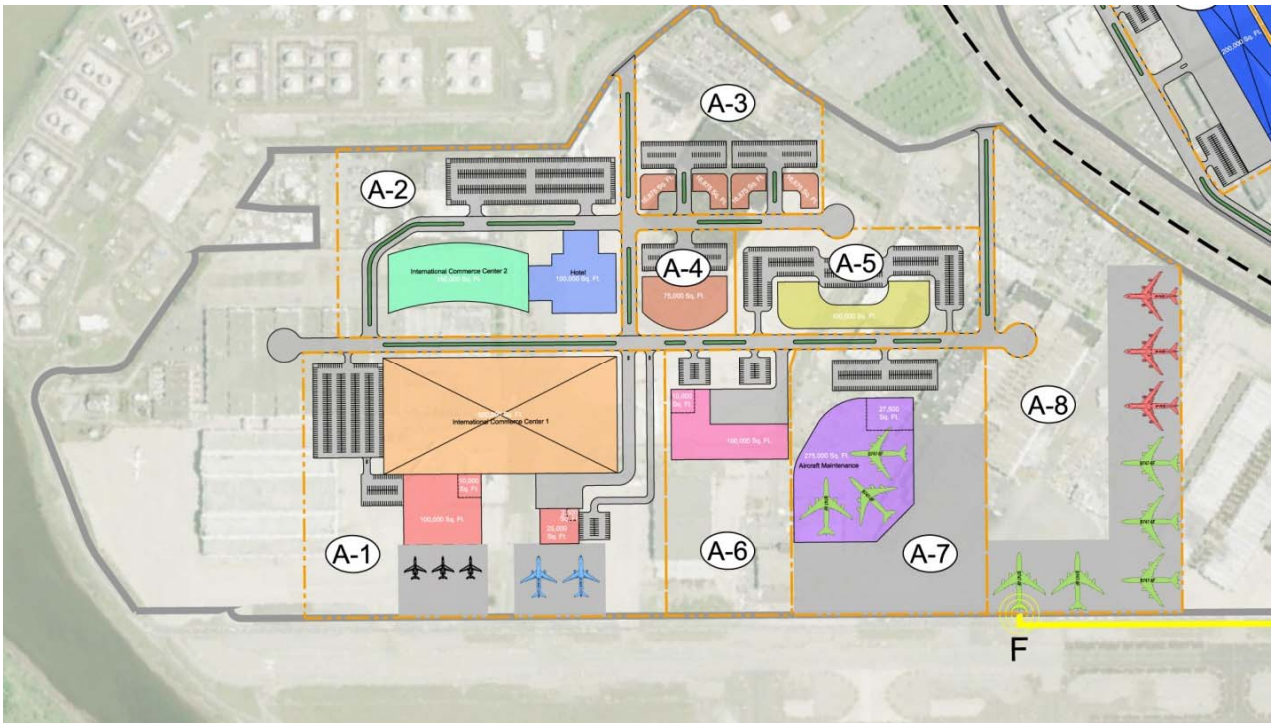
Table 6.4-1 CARGO ZONE A PROPOSED FACILITIES

Parcel	Description	Warehouse (ft^2)	Office (ft^2)	Ancillary Building (ft^2)	Apron (ft^2)	Parcel (ac)
A1	Int'l Commerce Center 1, VIP Hangar	0	12,500	625,000	238,184	40.31
A2	Int'l Commerce Center, Hotel	0	0	250,000	0	23.47
A3	Offices	0	67,500	0	0	13.22
A4	Offices	0	75,000	0	0	4.39
A5	Port Authority	0	100,000	0	0	10.76
A6	Flight Kitchen	0	10,000	100,000	0	14.01
A7	Aircraft Maintenance	0	27,500	275,000	422,167	21.76
A8	Remote Aircraft Parking	0	0	0	623,909	32.93
Area A Totals:		**0**	**292,500**	**1,250,000**	**1,284,260**	**160.85**

Exhibit 6.4-2 PROPOSED ZONE A



Source: Port Authority of New York & New Jersey, Landrum & Brown Analysis

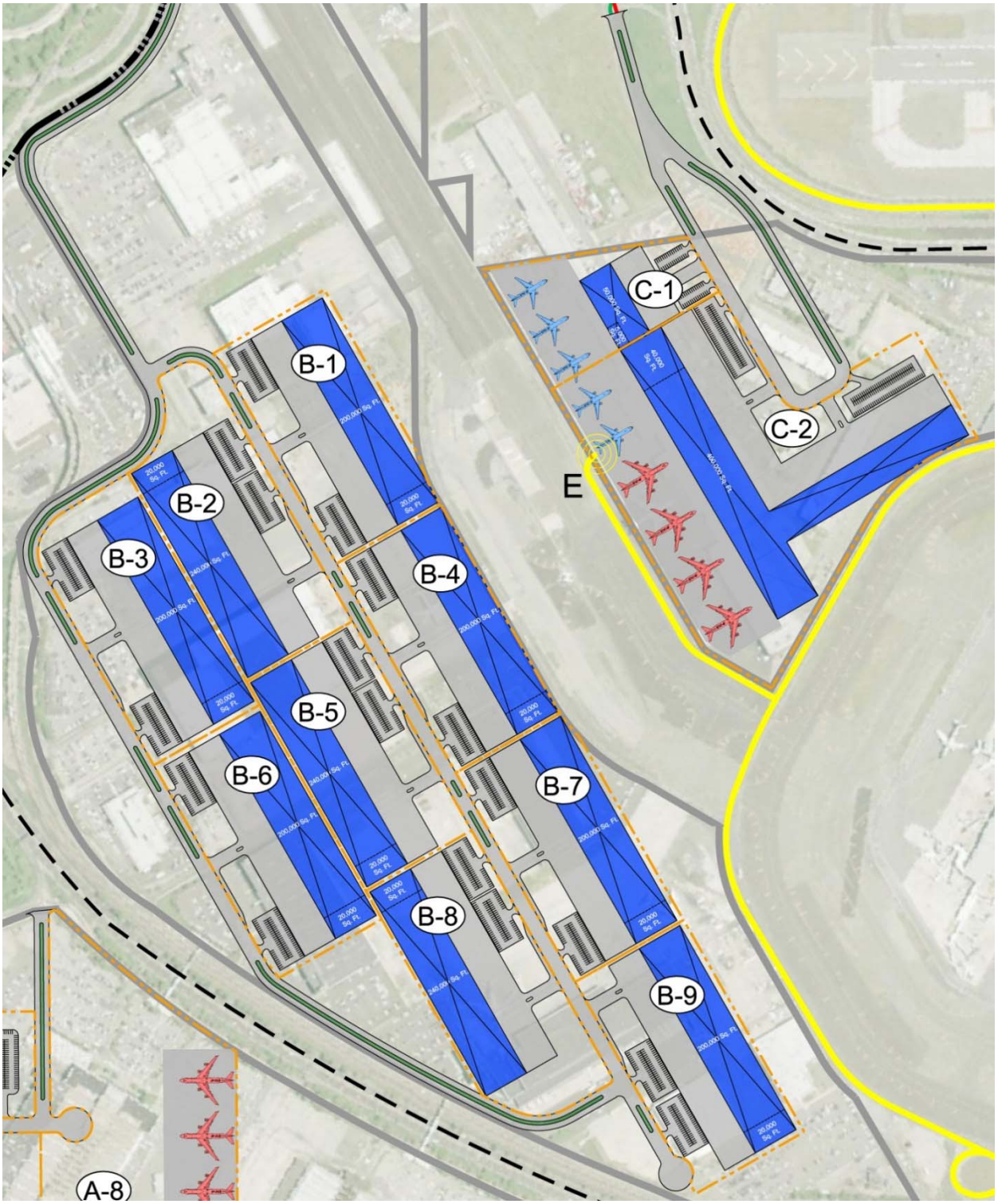
6.4.2 ZONE B

Zone B as shown in **Exhibit 6.4-3, *Proposed Zone B & C***, is envisioned to be the site of the future cargo village, providing facilities for air cargo's ancillary and supporting activities. As shown below, Zone B contains nine freight-forwarder buildings of 200,000 square feet each. Given that these buildings are planned as freight-forwarder facilities no direct airside access is provided. Each building will be served by a local access road that is connected to regional access via the JFK Expressway. It is envisioned that these facilities will be phased as demand dictates once the land becomes available, as discussed later in the phasing section of this document. The northern section of Zone B is left undeveloped in the future to comply with FAA airspace protection regulations. Parcel B1 is considered to be the northernmost developable area in Zone B for this reason. **Table 6.4-2, *Cargo Zone B Proposed Facilities***, lists the details of the Freight Forwarder Facilities planned for Zone B.

Table 6.4-2 CARGO ZONE B PROPOSED FACILITIES

Parcel	Description	Warehouse (ft^2)	Office (ft^2)	Ancillary Building (ft^2)	Apron (ft^2)	Parcel (ac)
B1	Freight Forwarder	200,000	20,000	0	0	12.59
B2	Freight Forwarder	200,000	20,000	0	0	13.98
B3	Freight Forwarder	200,000	20,000	0	0	13.30
B4	Freight Forwarder	200,000	20,000	0	0	11.99
B5	Freight Forwarder	200,000	20,000	0	0	12.23
B6	Freight Forwarder	200,000	20,000	0	0	12.51
B7	Freight Forwarder	200,000	20,000	0	0	12.49
B8	Freight Forwarder	200,000	20,000	0	0	14.19
B9	Freight Forwarder	200,000	20,000	0	0	12.58
Area B Totals:		**1,800,000**	**180,000**	**0**	**0**	**115.86**

Exhibit 6.4-3 PROPOSED ZONE B & C



Source: Port Authority of New York & New Jersey, Landrum & Brown Analysis

6.4.3 ZONE C

Zone C depicted in Exhibit 6.4-3, *Proposed Zone B & C*, is dedicated to be used by the integrated carriers (FedEx and UPS). It should be noted that UPS and FedEx have very different operating models and therefore, their respective facilities have very different requirements. Both however, require direct apron access which is provided via ramp area directly adjacent to the facility. UPS is envisioned to be accommodated in C-1. This smaller facility is more suited to UPS which uses on-airport facilities to stage the loading and unloading of aircraft. All package sorting is accomplished at an off-airport facility. FedEx, on the other hand, uses their on-airport facilities not only for loading and unloading of aircraft, but for sortation and truck-to-truck operations; therefore, requiring a much larger facility as discussed in Chapter 6 of this document. The northern portions of Zone C are rendered undevelopable under modern FAA regulations for protection of the approaches to Runway 13L.

Table 6.4-3 CARGO ZONE C PROPOSED FACILITIES

Parcel	Description	Warehouse (ft^2)	Office (ft^2)	Ancillary Building (ft^2)	Apron (ft^2)	Parcel (ac)
C1	UPS Integrator Building	50,000	5,000	0	160,016	8.13
C2	FedEx Integrator Building	400,000	40,000	0	416,672	33.67
Area B Totals:		**450,000**	**45,000**	**0**	**576,688**	**41.8**

6.4.4 ZONE D

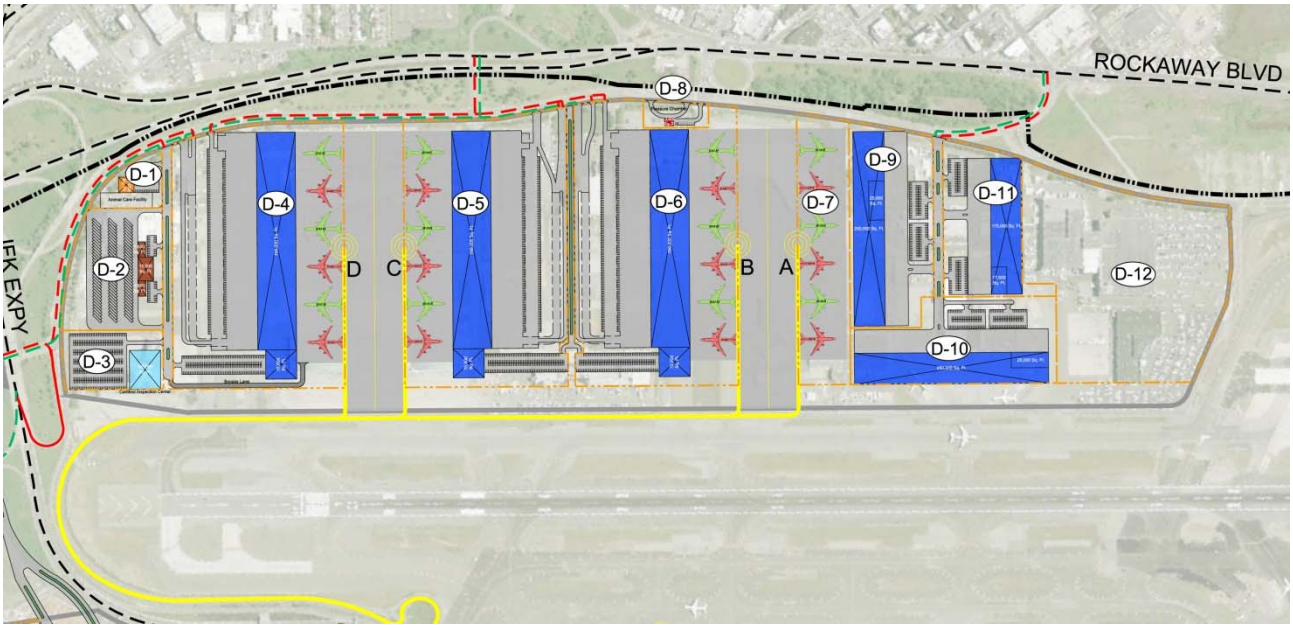
Zone D, as depicted in **Exhibit 6.4-4, *Proposed Zone D***, is envisioned contain the main concentration of cargo facilities going forward at JFK. The three primary facilities are D-4, D-5, and D-6, which are planned to be the primary international freighter terminals. Each of these three facilities is conceived to be a dual-level operation with two levels of truck docks, staging areas, and external vertical circulation systems. Each facility is capable of handling approximately 1.2 million annual tons of cargo.

To the west of the three international freighter facilities are several cargo "support" facilities. These support facilities include the following:

- Animal care facility – provides care for both transient animals as well as boarding services for pets of passengers flying out of JFK.
- Truck service center – provides an area for trucks arriving several hours before scheduled time at a cargo facility due to traffic reasons.
- Certified inspection center – provides screening services for the three main international freighter facilities.

East of the three main freighter facilities, three other cargo facilities are planned: two freight-forwarder facilities (D9 and D-11), and one belly-haul cargo facility (D-10). The belly-haul cargo facility lies adjacent to a restricted airside service road and will provide access to the airside via this service road. It is important to note that under the Preferred Alternative, the existing USPS facility and the CBP facility are left intact in the existing locations. Directly to the north of D-6 international freighter facility a pressure chamber is planned. This pressure chamber provides a safe facility to inspect any suspicious cargo that may be rigged to detonate upon a change in atmospheric pressure.

Exhibit 6.4-4 PROPOSED ZONE D



Source: Port Authority of New York & New Jersey, Landrum & Brown Analysis

Trucking access to Zone D is accomplished via local service roads to both the JFK Expressway and Rockaway Boulevard. **Table 6.4-4, *Cargo Zone D Proposed Facilities***, provides the details for all the aforementioned facilities in Zone D.

Table 6.4-4 CARGO ZONE D PROPOSED FACILITIES

Parcel	Description	Warehouse (ft^2)	Office (ft^2)	Ancillary Building (ft^2)	Apron (ft^2)	Parcel (ac)
D1	Animal Care Facility	0	0	10,000	0	2.69
D2	Truck Service Center	0	0	25,000	0	10.71
D3	Certified Inspection Center	0	0	100,000	0	5.66
D4	Int'l Freighter Facility	700,000	75,000	0	461,000	42.69
D5	Int'l Freighter Facility	700,000	75,000	0	461,000	41.71
D6	Int'l Freighter Facility	700,000	75,000	0	461,000	42.25
D7	Common Use Ramp	0	0	0	461,000	13.26
D8	Pressure Chamber	0	0	3,000	0	1.6
D9	Freight Forwarder	250,000	25,000	0	0	15.53
D10	Belly Haul Facility	250,000	25,000	0	0	14.97
D11	Freight Forwarder	175,000	17,500	0	0	11.57
D12	Existing USPS and USCBP Facilities	0	0	0	0	33.64
Area B Totals:		**2,775,000**	**292,500**	**138,000**	**1,844,000**	**236.28**

JFK AIR CARGO STUDY

NEW YORK CITY ECONOMIC DEVELOPMENT CORPORATION | THE PORT AUTHORITY NEW YORK & NEW JERSEY

Chapter 7 – Business, Financial and Funding Analysis





L&B
Aviation Planning at the Leading Edge

CHAPTER 7
BUSINESS, FINANCIAL, AND FUNDING ANALYSIS

7.1 CURRENT AIR CARGO LEASING PRACTICES

As the airport operator, the Port Authority of New York and New Jersey ("Port Authority") has lease management responsibilities across the entire John F. Kennedy International Airport ("JFK") facility including all air cargo leaseholds. Currently, there is a total estimated 6,128,879 square feet of air cargo facility space at JFK that includes 33 buildings and parcels. This includes 4,408,806 square feet of warehouse space; 1,635,031 square feet of office space; approximately 58 wide-body aircraft; and 11 narrowbody aircraft parking positions. The total air cargo property footprint is approximately 467 acres. (See **Table 7.1-1, *Summary of Current Air Cargo Leaseholds***.)

Air cargo revenues are derived from landing fees, fuel flowage fees, percentage agreements, service fees, vertical rents, and ground rents. While the primary focus of the work has been on leasing practices, one of the key issues identified in the analysis, is that the Port Authority does not have a separate business center for air cargo. ***The size of the business segment and the diverse range of cost and revenue elements, create challenges for a number of management and leasing functions that are best focused in the context of comprehensive financial targets and objectives.***

The Port Authority's JFK-based Properties and Commercial Management Division (JFK Properties) in coordination with the Aviation Department, negotiates and prepares air cargo leases for execution and the consent of the Port Authority Board of Commissioners.

7.1.1 BUILDING RENT

The Port Authority uses a tiered rental structure for building rent. The tiers are defined by building age, operating and maintenance costs, material handling systems, ramp access, and apron capacity, among other characteristics. Exact rental rates are typically negotiated within the ranges indicated below. This three-tiered rental structure is summarized below:

Tier One
Rental Range: $25.00 - $30.00 for warehouse and $35.00 - $40.00 for office
Building Age: Less than or equal to 15 years old
Requires only routine maintenance
State of the art cargo handling equipment
Ramp access with parking for Group V/VI aircraft
Excellent locations with quick access to runways
Newly finished Class A office space
Port Authority does not receive building rentals on new construction
Sublease Fees: 10 Percent
Tier Two
Rental Range: $19.60 - $23.00 for warehouse and $28.00 - $35.00 for office
Building Age: Between 15 and 25 years of age
Require frequent maintenance
Building systems reaching the end of their life
Operating costs significantly higher than tier one
Building and offices showing wear & tear
Sublease Fees: 10 Percent
Tier Three
Rental Range: $12.00 - $18.00 for warehouse and $20.00 - $25.00 for office
Building Age: Greater than 40 years of age
Building systems in need of replacement
Operating costs are high
Building designs make handling cargo inefficient
Ramp access available but may not handle Group V/VI aircraft
Rentals vary widely based on tenant investment replacing essential building & safety systems

Source: Port Authority of New York & New Jersey; Landrum & Brown, Inc.

7.1.2 GROUND RENT

With respect to ground rent, the Port Authority's current policy is to charge a uniform ground rent to all leaseholds on the Airport regardless of location or relationship to aeronautical infrastructure. The 2012 ground rent is $117,206 per acre or $2.69 per square foot. Ground rent is generally increased by the rate of inflation or four percent per annum, whichever is greater.

7.1.3 OTHER FEES

In addition to building and ground rent, the Port Authority levies a sub-lease fee on tenants which sub-lease space. Sub-leases require the consent of the Port Authority and the price for the fee is ten percent of the sub-lease rent.

7.1.4 FLIGHT FEES

As of January 1, 2012, the charge for each aircraft take-off is $5.95 per thousand pounds of maximum gross take-off weight per signatory airlines, including the major cargo carriers. All aircraft operators including passenger and freighter airlines self-report their take-offs and landings as well as landed weight on a monthly basis.

Table 7.1-1 SUMMARY OF CURRENT AIR CARGO LEASEHOLDS

Zone	Building Number	Year Built	Site Acreage Total	Site Area			Sq. Ft. of Warehouse	Sq. Ft. of Office	Sq. Ft. of Total Building	Aircraft Positions		Viable / Nonviable
				Aircraft Apron SQ Ft.	Truck Apron SQ Ft.	Auto Parking SQ Ft.				Wide-Body Positions	Narrowbody Positions	
Cargo Zone A	15	1958	7	88,200	42,700	118,790	97,360	54,118	148,453	0	2	Nonviable
	16	Not Available	12	214,950	157,800	111,860	119,700	21,100	140,876	3	0	Nonviable
	151	1956/1995	21	304,150	188,820	85,000	294,064	75,043	396,780	3	0	Viable
	208	1969	23	0	0	170,000	394,000	223,750	556,100	0	0	Nonviable
	Zone A Totals:		**63**	**607,300**	**389,320**	**485,650**	**905,124**	**374,011**	**1,242,209**	**6**	**2**	
Cargo Zone B	9	1955/1970	12	101,700	111,620	186,400	200,000	20,000	220,000	3	0	Viable
	21	2003	18	420,060	63,730	160,920	154,890	17,210	172,100	2	0	Viable
	22	1997	22	105,000	101,330	141,650	95,000	14,060	111,140	1	0	Viable
	23	2003	24	474,354	157,140	162,230	236,263	26,252	262,515	4	0	Viable
	66	1964	11	238,550	64,210	85,460	97,900	14,800	112,000	2	0	Nonviable
	67	1965	19	223,320	60,200	390,430	196,200	108,450	267,750	2	0	Nonviable
	Zone B Totals:		**106**	**1,562,984**	**558,230**	**1,127,090**	**980,253**	**200,772**	**1,145,505**	**14**	**0**	
Cargo Zone C	68	1963	3	0	96,285	41,347	29,640	8,580	34,210	0	0	Nonviable
	81	1950	9	0	10,000	22,000	41,770	6,000	47,770	0	0	Nonviable
	83	1950	13	234,520	62,510	54,920	125,700	17,800	142,800	4	0	Nonviable
	84	1950	10	237,580	58,765	26,215	59,883	24,500	91,700	3	0	Nonviable
	86	1960	10	583,860	50,200	54,850	64,124	12,000	76,124	3	0	Nonviable
	87	1960	20	544,590	88,200	93,070	133,500	19,500	153,000	4	0	Nonviable
	89	1963	8	0	4,337	81,100	90,000	15,000	105,000	0	0	Viable
	Zone C Totals:		**73**	**1,600,550**	**370,297**	**373,502**	**544,617**	**103,380**	**650,604**	**14**	**0**	
Cargo Zone D	5	1950	9	665,970	45,480	0	270,000	30,000	300,000	6	0	Nonviable
	6	1953	27	487,910	234,290	220,110	188,014	12,240	200,254	0	2	Nonviable
	7	1954	25	597,000	24,000	121,000	105,000	62,000	167,000	4	0	Nonviable
	71	Not Available	Not Available	151,554	51,292	41,347	54,000	8,500	62,500	0	1	Viable
	73	Not Available	Not Available	150,390	57,430	54,559	59,600	22,128	81,728	2	0	Viable
	75	1987	10	0	90,500	249,460	100,000	100,000	200,000	0	0	Viable
	76	1991	10	174,070	68,780	124,990	64,970	16,200	81,170	2	0	Viable
	77	1991	15	234,040	51,230	276,320	107,329	138,409	230,500	2	0	Viable
	78	1986	14	237,980	126,600	90,880	139,000	15,000	154,000	2	0	Viable
	79	1993	15	302,675	57,210	202,020	144,858	36,163	181,000	2	0	Viable
	197	1955	4	0	126,845	167,740	49,500	5,000	54,500	0	0	Nonviable
	250	1976	21	0	90,990	524,930	311,900	359,350	671,250	0	0	Nonviable
	260	1970	14	289,800	98,500	62,550	75,800	36,400	105,000	1	1	Nonviable
	261	1971	12	306,035	61,520	91,170	141,406	60,478	174,056	2	0	Nonviable
	262	1974	38	254,810	118,600	20,820	88,435	18,000	260,000	1	1	Nonviable
	263	1971	11	146,370	50,700	214,670	79,000	37,000	167,603	0	4	Nonviable
	Zone D Totals:		**225**	**3,998,604**	**1,353,967**	**2,462,566**	**1,978,812**	**956,868**	**3,090,561**	**24**	**9**	
	Grand Totals:		**467**	**7,769,438**	**2,671,814**	**4,448,808**	**4,408,806**	**1,635,031**	**6,128,879**	**58**	**11**	

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7.1.5 REVENUE MODEL

L&B developed an air cargo revenue model for JFK that reflects the Preferred Alternative in terms of the parcel/building sizes as well as the timing of development of each facility. For purposes of the revenue model, phasing for the Date of Beneficial Occupancy ("DBO") was estimated based on three factors: (1) any existing lease expiration constraints, (2) air cargo demand, and (3) consultant's judgment. For a map of each facility in the financial model please refer to Appendix A. The DBO assumptions for the preferred air cargo development plan are provided below:

Parcel Project	Project Name	DBO	Total Acreage	Total Site Building Area (SF)
B1	Freight Forwarder	**2024**	12.6	220,000
B2	Freight Forwarder	**2024**	14.0	220,000
B3	Freight Forwarder	**2024**	13.3	220,000
B4	Freight Forwarder	**2030**	12.0	220,000
B5	Freight Forwarder	**2026**	12.2	220,000
B6	Freight Forwarder	**2026**	12.5	220,000
B7	Freight Forwarder	**2030**	12.5	220,000
B8	Freight Forwarder	**2030**	14.2	220,000
B9	Freight Forwarder	**2030**	12.6	220,000
C1	UPS Integrator Building	**2018**	8.1	55,000
C2	FedEx Integrator Building	**2018**	33.7	440,000
D1	Animal Care Facility	**2020**	2.7	10,000
D2	Truck Service Center	**2020**	10.7	25,000
D3	Certified Inspection Center	**2020**	5.7	100,000
D4	International Freighter Facility	**2021**	42.7	775,000
D5	International Freighter Facility	**2027**	41.7	775,000
D6	International Freighter Facility	**2019**	42.3	775,000
D9	Freight Forwarder	**2022**	15.5	275,000
D10	Belly Haul Facility	**2023**	15.0	275,000
D11	Freight Forwarder	**2018**	11.6	192,500

Other key assumptions that drive the revenue model are imbedded in the model itself. These key assumptions can be easily varied to test revenue sensitivity. Key assumptions are described below:

- **Total Office Area** – Total square feet of office space in a planned facility.
- **Total Warehouse Area** – Total square feet of warehouse space in a planned facility.
- **Ancillary Building Area** – Total square feet of any planned ancillary facilities.
- **Total Site Building Area** – The combined total square feet of office and warehouse space in a planned facility.
- **Construction Costs Blended** – An average, fully-loaded construction cost expressed on a square foot basis (excluding demolition costs).
- **Total CapEx** – Total site building area multiplied by the blended construction costs.
- **Apron** – The total amount of apron area in terms of square feet.

- **Developer Return** – An estimated annual return on the Total Capex estimate.
- **Total Acreage of Site** – Total size of the parcel expressed in acres.
- **Term** – The length of a lease term expressed in years.
- **Cost of Capital** – The estimated interest rate paid for debt incurred.
- **Tier Two Warehouse/Office Rents** – Port Authority warehouse and office rents expressed in dollars per square foot.
- **With/Without Apron Ground Rent** – A model feature that would allow tiered pricing of ground rent based on apron access/availability.
- **O&M Expenses** – The estimated operating and maintenance expenses expressed in dollars per square foot were inflated for and on-airport cost differential.

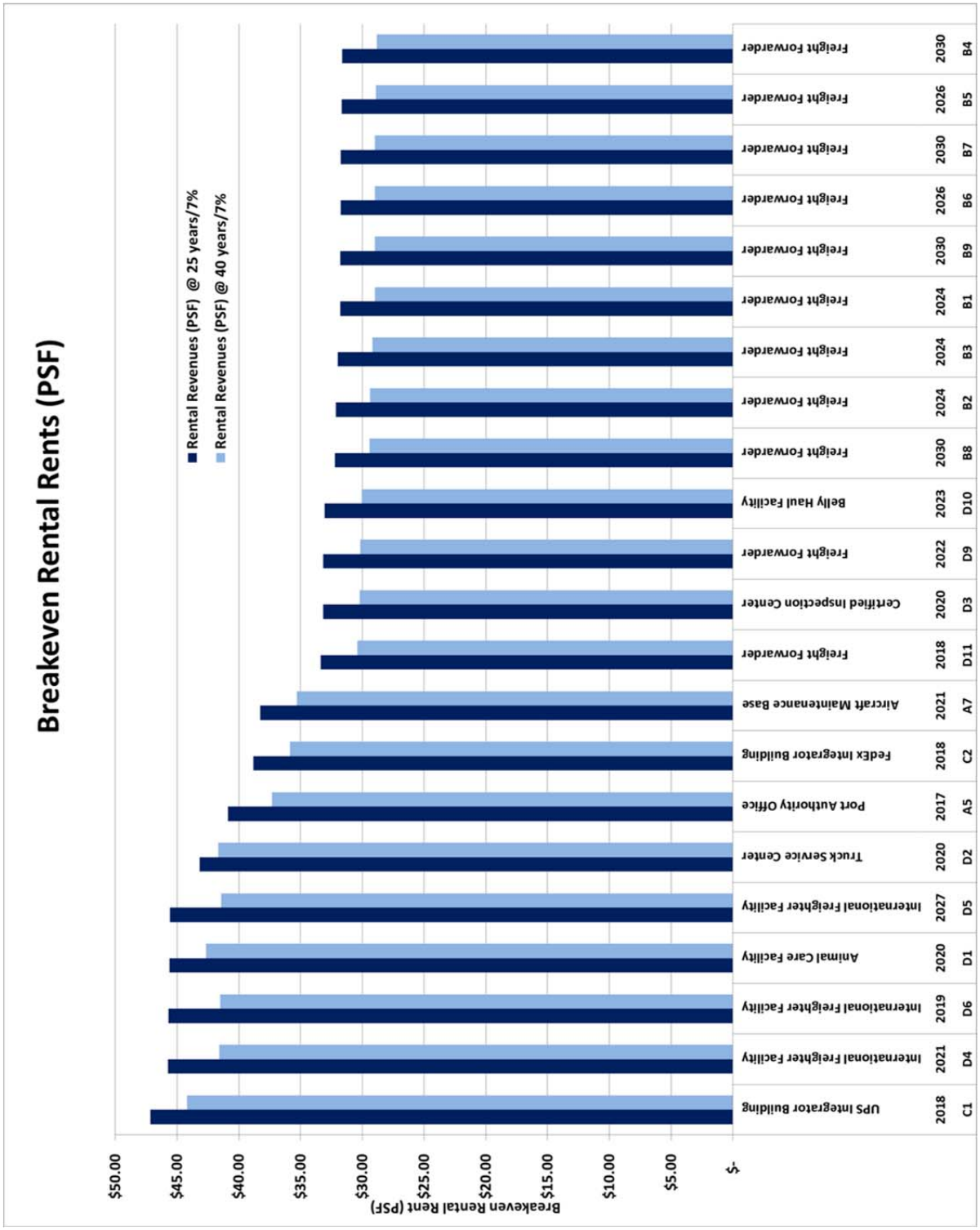
The revenue model includes four potential forms of rent including: (1) Ground Rent, (2) Building Rent, (3) Other Fees, (4) Activity Rent, and (5) City Rent. Each of these potential revenue sources are described below.

1. **Ground Rent** – The model defaults to the Port Authority's current ground rent per square foot at $2.69 per annum.
2. **Building Rent** – Although the Port Authority does not charge building rent for the term of the initial lease of a privately developed facility (currently 25 years), in the 26th year and beyond, building rent would apply. It is assumed as a default that in year 26 (the first year of the lease renewal period), Tier Two rental rates would be applied.
3. **Other Fees** – Any other fees that the Port Authority may levy including, but not limited to sub-leasing fees.
4. **Activity Rent** – Should the Port Authority negotiate air cargo volume-based fees (e.g., $0.01 per pound of air cargo), these revenues can be captured in the revenue model.
5. **City Rent** – This "below the line" calculation estimates how much rent would accrue to New York City ("the City") based on a simple eight percent of Port Authority revenues generated by each facility.

In addition to the five revenue lines described above, certain key metrics are derived including:

- **Estimated Annual Debt Service** – This is an estimate of the annual debt service that would need to be recovered in rental rates at an assumed cost of capital and term.
- **Estimated Annual O&M Expenses** – Estimated annual operating and maintenance ("O&M") expenses that would need to be recovered in rental rates.
- **Estimated Development Return** – This assumes a return on the full level of capital invested as is set as a default at 10 percent.
- **Rental Revenues Per Square Foot** – Derived as the sum of annual debt service, O&M expenses, and a developer return, and the total divided by the total square feet, divided by total square footage. This is the minimum estimated rental rate that would need to be charged by a developer. Rental revenues per square foot are illustrated below in **Figure 7.1-1, *Break Even Rental Rates.***

Figure 7.1-1 BREAK EVEN RENTAL RATES



7.1.6 OTHER – WHERE IS THE CITY BETTER OFF?

Based on the Port Authority's rental policies and the terms of its lease with the City, the City is better off from a revenue perspective with incremental air cargo development to occur on-airport. See table below.

	Air Cargo On-Airport	Air Cargo Off-Airport	Notes
Cargo Building Sq Ft	100,000	100,000	*Source: L&B*
NNN Building Rent	$27.00	$19.00	*Source: JLL and PANYNJ*
NNN Rent	$2,700,000	$1,900,000	
Ground Rent ($2.70psf JFK)	$1,076,049		*Assuming Bldg 25% of Ground Ground Rents included in Off-Airport NNN PSF Rates*
Total Rent *	$3,776,049	$1,900,000	
City Rent at 8% Gross/City Taxes at $1 psf City Taxes at $1 psf	$302,084	$100,000	*On-Airport Generates More Return to City*
Even with No PANYNJ Ground Rent	$216,000	$100,000	*City Better Off Maximizing On-Airport Development*

** Notes: Does not include any other potential leasehold revenues like sub-lease fees, ground handling fees, etc.*

7.2. AIR CARGO FACILITY FUNDING SOURCES

This section reviews the various funding sources used by airports to fund the costs of capital improvements, describes past successful funding strategies for cargo facilities at airports, and evaluates the applicability of those funding sources and strategies for funding on-airport cargo facilities at JFK. The major categories of airport capital funding sources are the following:

- Debt (usually bonds)
- Federal Aviation Administration ("FAA") Airport Improvement Program ("AIP") Grants
- Passenger Facility Charges ("PFCs")
- State/Local Funds (including airport discretionary cash)

Each major funding source category is discussed below.

7.2.1 DEBT FINANCING

Debt financing is an important source of capital program funding for U.S. airports. This category mainly consists of long-term bonds, which enable airports to fund significant capital costs when they are incurred, and then pay the bond debt service from revenue sources generated by the airport over time (usually a 25 to 30-year bond amortization period). This category of funding, which accounted for 50 percent of all capital funding in 2007 at all U.S. airports, includes the following main types of debt financing:

- General Obligation Bonds
- Revenue Bonds
- Special Facility Bonds
- Bonds Backed by PFCs (discussed in the subsection on PFCs below)
- Commercial Paper

The following paragraphs describe the most often used types of airport debt financing in the U.S., with reference to the types of debt issued by the Port Authority for airport capital costs.

7.2.1.1 General Obligation ("GO") Bonds

The most common type of bonds issued to fund airport capital improvements are revenue bonds, which are discussed below. However, some municipal and public governmental entities issue GO bonds to finance airport capital improvements. GO bonds are secured by the full faith and credit of the issuing governmental entity, including general tax revenues, of the governmental entity. Often these governmental entities will issue GO bonds to fund capital improvements at airports. In such instances, the debt service on these GO bonds most often are paid from revenues of the airport, instead of other revenues of the issuing entity. However, if airport revenues are not sufficient to pay the debt service requirements, the airport owner may be required to use its general tax revenues as a back-up source to pay debt service.

Very few large airports have outstanding GO bonds. At those airports, the debt in most cases was issued many years ago to fund capital improvements. However, in general, governmental entities that own small airports are more likely to make this type of bond financing available. The main advantages of GO bond financings are: 1) GO bonds usually carry lower interest costs than revenue bonds because they are backed by the full faith and credit of the city, county, or state that owns the airport, 2) Bond issuance costs are often lower with GO bonds than with revenue bonds because it is not necessary to develop a separate indenture or ordinance, financial feasibility study, and other legal and financial documents, 3) There are usually no debt service coverage requirements related to a GO bond issue, due to the strength of the GO bond credit backed by the general revenues of the city, county, or state owner of an airport.

Although the Port Authority has no taxing power, the Port Authority issues Consolidated Bonds, which are backed by the pooled net revenues of Port Authority facilities and a pledge of the general reserve and consolidated bond reserve funds, to fund capital improvement costs at its facilities, including its airports.

The bond ratings for the Port Authority's Consolidated Bonds have been generally favorable. The bond rating agencies assigned the following ratings for the Port Authority's Consolidated Bonds issued in September 2011: Aa2 (Moody's), AA- (S&P), and AA- (Fitch). In a January 2012 Fitch report discussing the Port Authority's $400 million Consolidated Bonds, 171st Series (for which Fitch also assigned

an AA- rating), Fitch cited several positive factors, including the Port Authority's resilient cash flows, stable revenue base, a conservative capital structure, and moderate leverage levels and strong coverage ratios. Fitch also cited the Port Authority's healthy financial condition due in part to the cost recovery nature of its use agreements at its airports. However, Fitch also stated that the following could trigger a rating action: "weaker financial margins due to slow revenue growth and/or higher rates of growth in operating expenses", or "additional leverage beyond current assumptions in the capital plan that is not supported by commensurate increases in revenue."

Under the provisions of a lease (the "City Lease") which was amended and restated in 2004, the Port Authority pays to the City of New York an annual rent amount for JFK and LaGuardia Airport ("LGA"). The annual rent is calculated as the greater of eight percent of the Port Authority's gross revenues from JFK and LGA airports or a minimum annual rental set forth in the City Lease. The annual rent due under the City Lease is an expenditure that affects the Port Authority's annual financial results.

Under the provisions of the Consolidated Bond Resolution, the Port Authority is required to meet an "additional bonds tests" and maintain a minimum debt service coverage ratio in order to issue additional Consolidated Bonds.

In its 2011 Capital Budget, the Port Authority had identified nearly $3.9 billion in capital improvement costs, including $432 million for Aviation Department capital budget expenditures. The largest share of the Port Authority's Aviation Department capital projects in the 2011 Capital Budget $244 million was for projects at JFK, including $31 million for a runway and taxiway project to reduce delays and $26 million for certain passenger terminal upgrades and expansion costs.

Approximately half of the Port Authority's 2011 Capital Budget was dedicated for the World Trade Center ($1.9 billion), an additional $400 million was dedicated for PATH projects, and over $280 million was dedicated for Port Commerce projects.

Given the significant capital improvements potentially contemplated by the Port Authority for passenger terminal, airfield, and roadway costs at JFK, the Port Authority may determine that it would be most advantageous to preserve its bonding capacity for projects that are higher priority than cargo facilities, such as passenger terminal, airfield, roadway, and other non-cargo facilities. In the Aviation Department portion of its 2011 Capital Budget, the Port Authority stated that "the 2011 capital priorities focus on addressing current challenges that include aging infrastructure, safety and security, congestion/delays and federal caps on flights per hour imposed by the FAA, and customer expectations."

7.2.1.2 Revenue Bonds

Revenue bonds are the most commonly used financing mechanism for airport capital improvement costs. General Airport Revenue Bonds ("GARBs") represents the type of revenue bond financing utilized more frequently by airports. GARBs are secured by an airport's general airport revenues, which include revenues from airline rates and charges, public parking, rental car concession and other fees, terminal concession fees, other lease revenues, and other types of revenues generated at the airport.

7.2.1.3 Special Facility Bonds

Special facility bonds are backed by the dedicated revenue stream of a particular facility financed with the bonds. The types of airport facilities usually financed with special facility bonds include rental car facilities, cargo buildings, hangar and maintenance facilities, and passenger terminal buildings and ground equipment support facilities for the exclusive use of one or more airlines. In this type of financing, a governmental entity (usually the airport owner, or a quasi-governmental entity such as an industrial development agency) typically issues the bonds, and the rent revenue for the facilities (under a lease agreement) is pledged for the payment of the bond debt service requirements. The marketability of special facility bonds issued to finance airline facilities has been negatively impacted by airline bankruptcies in recent years. In cases where bond debt service is tied to a lease, the bankruptcy petitioner may seek to reject the lease. For example, the bankruptcy filing by AMR, the parent company of American Airlines, in November 2011 caused concern in the

municipal bond market because of the risk that American would seek relief from its leases tied to facilities financed with special facility bonds. American's debt includes $1.2 billion of bonds related to projects at JFK funded with special facility bond proceeds (bonds issued by the New York City Industrial Development Agency). This risk is also discussed later in this section.

Special project bonds have been issued in the past by the Port Authority for capital projects at JFK and LGA. For example, in late 2010, the Port Authority approved the issuance of special project bonds in connection with a project (the "2010 Expansion Project") to expand and renovate JFK's Terminal 4 ("T4"), which included among other things the construction of nine new gates, modifications to T4's headhouse as well as certain other improvements to accommodate the planned use of T4 as a result of the added gates. Port Authority special project bonds are secured by, among other things, a mortgage of the facility rental (under a lease agreement) of the project being financed. Neither the full faith and credit of the Port Authority nor the general reserve fund or the consolidated bond reserve fund are pledged to the payment of interest on or repayment of the principal of the special project bonds. In its 2011 FAA Financial Reporting Form 127, JFK reported that it had almost $1.7 billion in special project bonds outstanding.

7.2.1.4 Commercial Paper

Commercial paper is often an interim financing source that meets an entity's short-term cash flow needs while it seeks long-term financing. Airports sometimes find commercial paper to be a useful form of debt financing when they need a short-term infusion of cash, and/or when short-term interest rates are low relative to long-term interest rates. Often, an airport will issue commercial paper to fund immediate capital program costs while it explores a more long-term financing option that will fit into its long-term debt program. In these cases, the airport will often retire the commercial paper with the proceeds of long-term bonds within several years.

7.2.2 AIRPORT IMPROVEMENT PROGRAM ("AIP") GRANTS

The FAA issues AIP grants to construct and maintain infrastructure projects that increase the capacity, safety, and security at airports across the U.S. The FAA assigns the highest priority for AIP funding to safety and security projects. The grants are issued in the form of entitlement grants and discretionary grants. The largest category of entitlement grants awarded to JFK is based on a formula that considers the number of passengers going through JFK. The amount made available to JFK is reduced because it collects PFC revenues.

JFK also qualifies for cargo apportionment, which is available to any airport with more than 100 million pounds of landed weight in all-cargo aircraft. The total amount available for the cargo apportionment (3.5 percent of total AIP), is allocated to qualifying airports based on their share of total national landed weight of all-cargo aircraft at all qualifying airports. In Federal Fiscal Year ("FFY") 2011, the FAA allocated $2.9 million in cargo apportionment funds to JFK.

Discretionary grants are just that, awarded at the discretion of the FAA. Discretionary funds are allocated to projects based in part on the FAA's National Priority System ("NPS") and assigns, the highest priority to safety and security projects. Construction of new aprons or apron expansion is considered low priority. Airfield projects, including aprons and taxiways connecting aprons to the runway system, are generally higher priority, therefore are eligible for AIP funding. Aprons cannot be exclusively leased and cannot serve facilities exclusively leased to a single tenant. In addition, aprons and related taxiways constructed for the use

of a tenant that does not serve the public are not eligible. Aircraft rescue and fire-fighting buildings and buildings for storage of snow removal equipment are eligible. Passenger terminals have limited AIP eligibility. Hangars and other buildings are generally ineligible, with one exception: non-revenue producing facilities or equipment owned by an airport and used for transferring passengers, cargo, or baggage between aeronautical and ground transportation modes are eligible.

If cargo-related capital improvements include airside projects such as taxiways and/or aircraft aprons, those project costs *could* be eligible for AIP grants. Improvements, such as an aircraft parking ramp, could not be designed to serve a single tenant because then they would be considered by the FAA to be exclusive-use facilities, and therefore, would not be eligible for AIP grant funding. It appears likely that the Port Authority will contemplate significant future projects related to the JFK passenger terminal complex and associated airfield improvements. Therefore, it is doubtful that the Port Authority would find it advantageous to use AIP discretionary grant funds for cargo-related improvements, because it will likely want to preserve its AIP grant funding for eligible projects related to the passenger terminal and related airfield projects. As noted, JFK also receives air cargo apportionments. The FAA encourages AIP cargo entitlements to be used for projects benefitting air cargo activity, and these funds could be used for airside projects to support air cargo activity, as long as the projects are not used by tenants on an exclusive-use basis

7.2.3 PASSENGER FACILITY CHARGES ("PFC")

PFCs are fees imposed by an airport of up to $4.50 per enplaned passenger at commercial airports controlled by public agencies. Airports can use PFCs to pay for specific projects approved by the ("FAA"). According to federal statutes and regulations, PFC projects must (1) preserve or enhance safety, security, or capacity of the national air transportation system; (2) reduce noise or mitigate noise impacts resulting from an airport; or (3) furnish opportunities for enhanced competition between or among air carriers. In addition, to qualify for funding at the $4.50 level, PFC projects at JFK must make a significant contribution to (1) improving air safety and security; (2) increasing competition among air carriers; (3) reducing current or anticipated congestion; or (4) reducing the impact of aviation noise on people living near the Airport. Therefore, PFC eligibility is comparable to AIP eligibility (as discussed in the prior subsection), with one important difference. While AIP funds are limited to actual construction costs, PFCs may be used to pay interest and other financing costs as well. In addition, as long as the projects selected by the airport operator are PFC eligible and other requirements of the PFC statute (49 USC §40117) are met, the FAA is obligated to approve the collection of PFCs.

A critical issue in determining availability of PFCs for expenditure on new projects, however, is the amount of PFCs annually committed to existing projects that have been completed or are under construction as compared to the airport's annual PFC revenue collections. If PFC cash flow is fully committed to existing projects (including debt service on those projects), PFCs may not be available to finance new development.

An airport can use PFCs on a "Pay-as-you-Go" basis ("PAYGO") or it can leverage part of its PFC revenue stream, or it can do a combination of both. Leveraging PFCs can be advantageous to an airport when it has one or more PFC-eligible capital projects with significant capital outlays projected to occur during a short period of time. By issuing bonds backed by PFCs, an airport can obtain needed funding in the short-term, and then pay the debt service on the bonds over time as PFCs are received by the airport.

There are several ways an airport can leverage its PFC revenues, as follows:

- Bonds secured solely by PFC revenues ("stand-alone PFC bonds"). In this type of bond financing, PFC revenues are not included in airport revenues, and are dedicated for the payment of debt service on the bonds. There have not been any stand-alone PFC bonds issued in recent years.
- GARBS, with PFC revenues included in the definition of airport revenues. Under this structure, PFC revenues are combined with other airport revenues for the purpose of paying eligible PFC debt service on the GARBs.
- PFC Bonds with a back-up pledge of general airport revenues. With this type of financing, the airport issues bonds secured by PFC revenues, with a secondary pledge of general airport revenues (often called "double barreled PFC bonds").

Depending on the scope of a cargo project, certain components could be eligible for PFC funding. Typically cargo aprons (if not leased on an exclusive-use basis) and taxiways connecting the cargo apron to the rest of the airfield system would be the eligible components. However, as noted in the subsection on AIP grants, the Airport would likely want to preserve its PFC funding for airfield and passenger terminal project costs, especially in light of the potential redevelopment of the passenger terminal complex and related airfield configuration.

7.3 SUCCESSFUL CARGO DEVELOPMENTS AT AIRPORTS

This section discusses various types of successful cargo developments at airports. Airports have various capital improvement funding sources at their disposal, including debt financings, AIP grant funds, PFCs, and state/local funds, as discussed above. However, the nature of cargo development at airports and the competing demands on the funding sources often mean that airports have to be more creative in finding funding solutions, such as private sources of funding for air cargo facilities. Also, due to the significant capital investment required for cargo projects at airports, some sort of debt financing is usually necessary. The types of transactions described below are not all-inclusive, but are meant to present the most common types of financial structures for cargo facilities at airports.

7.3.1 PRIVATE DEVELOPERS

Several private firms have extensive experience in developing and leasing/managing air cargo facilities at airports. Projects included in these firms' portfolios range from the planning, construction, leasing, and managing of air cargo facilities on land leased from the airport owner, to the purchase and rehabilitation and/or renovation, leasing, and managing of existing air cargo facilities at airports.

A typical financing strategy for capital improvement projects will likely include the issuance of bonds by the airport owner or a development authority (usually referred to as "the Issuer"). In these types of transactions, the Issuer typically loans the bond proceeds to an entity established by the private developer (referred to in this chapter as "the Company"), for the purpose of building the air cargo facilities. The Loan Agreement between the Issuer and the Company typically requires the Company to pay to the Issuer the costs associated with the bonds, including the principal and interest obligations of the bonds. The Airport typically retains title of the financed facilities, and the Company enters into a Lease Agreement with the Airport. The Company then subleases the air cargo facilities to various tenants. The Company's obligations under the Loan Agreement and/or Lease Agreement are payable from the rents the Company receives from the air cargo facility tenants. Often, the Company's obligations under the Loan Agreement and/or Lease Agreement are secured

by a mortgage given to the Issuer or a Trustee. A Ground Lease is usually executed for the land upon which the project is located, pursuant to which the Company pays to the airport owner lease payments for the land.

Examples of air cargo facilities financed through bonds issued by a development authority include the following:

- Connecticut Development Authority, Industrial Development Revenue Bonds, Series 2000, which were issued for the financing of cargo facilities developed at Bradley International Airport ("BDL").
- Industrial Development Authority of the City of Kansas City, Missouri, Air Cargo Facility Senior Revenue Bonds and Air Cargo Facility Subordinate Revenue Bonds, Series 1995A and 1995B, and Series 1997, which were issued to fund air cargo facilities at Kansas City International Airport ("MCI").
- Alaska Industrial Development and Export Authority Revenue Bonds, Series 2001, which were issued to fund the Alaska CargoPort at Ted Stevens Anchorage International Airport ("ANC").
- Maryland Economic Development Corporation Air Cargo Revenue Bonds, Series 1999, the proceeds of which funded air cargo facilities at Baltimore/Washington International Thurgood Marshall Airport ("BWI").
- New Jersey Economic Development Authority, which issued $32.1 million in bonds for an air cargo facility at Newark Liberty International Airport ("EWR"). The financing is supported by subleases with air cargo carriers.

Some of the more active private developers of air cargo facilities include Airis International Holdings, LLC; Aviation Facilities Company ("AFCO"); Aeroterm, LLC; Lynxs Group, LLC; and IAT Air Cargo Facilities Income Fund. These private entities have developed and/or manage cargo facilities at many airports, including the following:

- Airis International Holdings, LLC ("Airis") has developed cargo facilities at various airports, including the following: Cincinnati/Northern Kentucky international Airport ("CVG"), JFK, Louisville International Airport ("SDF"), Miami International Airport ("MIA"), and EWR.
- Projects developed and managed by Aviation Facilities Company ("AFCO") include cargo facilities at a number of airports, including the following: Albany International Airport ("ALB"), Austin-Bergstrom International Airport ("AUS"), BWI, BDL, Dallas/Fort Worth International Airport ("DFW"), Detroit Metropolitan Wayne County International Airport ("DTW"), Dayton International Airport ("DAY"), Jackson-Evers International Airport ("JAN"), Jacksonville International Airport ("JAX"), MCI, Los Angeles International Airport ("LAX"), Orlando International Airport ("MCO"), Philadelphia International Airport ("PHL"), Pittsburgh International Airport ("PIT"), Richmond international Airport ("RIC"), Seattle-Tacoma International Airport ("SEA"), and Washington Dulles International Airport ("IAD").
- Aeroterm, LLC (Aeroterm) has developed and/or purchased cargo facilities at many airports, including the following: Calgary International Airport ("YYC"), Chicago O'Hare International Airport ("ORD"), DFW, Houston Bush Intercontinental Airport ("IAH"), JFK, MCI, MIA, Nashville International Airport ("BNA"), and ANC.
- Lynxs Group, LLC ("Lynxs") has developed air cargo facilities at several airports, including ANC and ORD.

- IAT Air Cargo Facilities Income Fund ("IAT") has developed air cargo and related facilities at airports including the following: Las Vegas McCarran International Airport ("LAS"), Vancouver international Airport ("YYZ"), YYC, Edmonton International Airport ("YEG"), Saskatoon John D. Diefenbaker International Airport ("SKE"), and Winnipeg James Armstrong Richardson International Airport ("YWG").

7.3.2 AIRIS DEVELOPMENT AT JFK: AN EXAMPLE OF PAST CARGO FACILITY FINANCING AT JFK

Two cargo buildings at JFK were financed through the issuance of the New York City Industrial Development Agency ("IDA") Special Airport Facility Revenue Bonds (2001 Airis JFK I, LLC Project at JFK International Airport, Series 2001A and 2001B Bonds). The cargo buildings contain space for handling air cargo and related office areas and other improvements, and have direct access to the Van Wyck Expressway, and a direct connection to the Airport taxiways. The cargo facilities contain almost 435,000 square feet, and cover approximately 42 acres of land owned by the City and leased by JFK to Airis. The facilities can accommodate six Boeing 747 freighters and have 101 truck docks. The buildings were constructed pursuant to a Design Build Agreement between the developer and owner of the project (Airis JFK I, LLC, or "Airis") and a joint venture comprised of two construction companies. The Design Build Agreement contained a "guaranteed maximum price" of approximately $89.9 million.

At the time the business deal was negotiated and the bonds were sold for the project, the lease between the Port Authority and the City's operation of JFK was due to expire in 2015, only 14 years after the sale of the bonds, and approximately 12 years after the expected completion of the facilities. Therefore, a provision was negotiated stipulating that if the lease between the Port Authority and the City was not extended beyond 2015, the City would enter into a lease with the cargo facility operator to extend its lease for an additional 13 years (through 2028). This effectively extended the lease term for 25 years after the anticipated completion of the facilities.

JFK entered into a ground lease, under which JFK leased the land upon which the cargo facilities are located to Airis. In turn, Airis entered into facility leases with various tenants. Airis assigned all of its rights under the facility leases to the Trustee, and the tenants pay all rent due under the facility leases directly to the Trustee for the payment of the principal and interest obligations on the bonds. Current tenants include Lufthansa Cargo, Delta Air Lines, Alliance Airlines, and Lufthansa Technik. The leases for Lufthansa and Alliance expire in 2013, while Delta's lease expires in 2028. Lufthansa Cargo has a five-year extension option, which if exercised, would extend the lease through 2018.

In April 2005, Airis sold the project to Aero JFK, which assumed all the outstanding debt and the rights to the underlying agreements. Aero JFK is wholly owned by Cargo Acquisition Co. LLC, which is a wholly owned subsidiary of CalEast Air Cargo LLC. Aeroterm Inc., a third-party landlord, holds a minority share of the company.

In January 2011, Standard & Poore's revised its outlook on the Series 2001A and 2001B Bonds, from stable to negative, and affirmed its "BBB" rating on the bonds. In its report, Standard & Poore ("S&P") cited several negative factors, including lower-than-expected debt service coverage and the potential negative impacts on project revenue if rents are reduced when two of the leases expire in 2013. The low debt service coverage during the year prior to S&P's outlook revision was mainly due to four months of unpaid rent for the Alliance lease. The positive factors cited by S&P included the favorable location of the facilities (with airfield access), adequately funded reserves, an experienced manager of the facilities, and strong control by the Port Authority over leasing and other aspects of the facilities.

Approximately $1.2 billion in IDA bonds were issued to fund terminal and cargo facilities at JFK for American Airlines. Since American filed for bankruptcy protection in November 2011, the bond market has been concerned about the potential for American to seek relief from the leases tied to its special facility financings, including the IDA financing for its facilities at JFK. American did not make a payment due February 1, 2012 related to debt service on one of the IDA bond issues.[1] At this time, it is unclear what American's intentions are regarding its leases tied to the IDA financings. These concerns may have a negative impact on the marketability of future special facility bonds, including IDA financings.

An IDA financing structure could include the granting of state and local sales and use tax exemptions to private entities that participate in a project. For example, state and local sales tax exemptions may be available for certain IDA projects, for the purchase of materials used to construct, renovate or equip facilities. There are certain restrictions to the tax exemptions offered under IDA projects, and the exemptions vary depending on the type of project and other details. However, if such exemptions could be arranged for a cargo facility financed with IDA bonds, that could increase the financial return associated with the developer's investment and thereby result in increased interest on the part of private air cargo facility developers.

Since the Airis development was completed at JFK, the City and the Port Authority entered into an extension of the City Lease for JFK. The extension of the City Lease includes a provision that precludes the City from financing projects at JFK. This provision has been interpreted by the Port Authority Commissioners to preclude the financing of projects at JFK by the IDA. Therefore, in order for a similar financing arrangement to be accomplished for future cargo facilities at JFK, the City Lease would need to be amended to allow for IDA financing of cargo facilities at JFK.

7.3.3 FINANCING STRUCTURE INVOLVING MULTIPLE ENTITIES

One type of financing structure that has been used for cargo facilities at airports is a structure involving multiple entities. An example of this type of structure is the Cargo Acquisition Companies Obligated Group, which is comprised of 14 entities (each entity is a "member") that are wholly-owned subsidiaries of Cargo Acquisition Company, a wholly owned subsidiary of CalEast Air Cargo, LLC. Each entity was formed to develop and operate air cargo facilities. Aeroterm US, Inc. is the property and development manager at each of the properties. The Cargo Acquisition Companies Obligated Group Series 2002 Bonds and Series 2003 Bonds were issued by 11 issuers (one issuer, Capital Trust Agency, was the issuer for four of the bond issues). The bonds were issued pursuant to individual trust indentures between each issuer and each member, to finance the individual air cargo projects at 14 airports. Each issuer and corresponding member entered into a loan agreement, lease agreement, or other type of financing agreement, pursuant to which the member is obligated to make loan payments sufficient for the payment of the principal and interest payments on the bonds. Each member subleases its project to one or more tenants. The Port Authority may want to explore the possibility of joining with other entities to accomplish air cargo facility development at JFK, similar to the arrangement of the Cargo Acquisition Companies Obligated Group.

[1] This sentence refers to American's IDA bonds only, not any other bonds related to other American facilities at Port Authority properties.

The bonds included senior lien bonds and junior lien bonds. In May 2011, Moody's downgraded the senior lien bonds from Ba1 to Ba2 and the junior lien bonds from Ba2 to Ba3. In its announcement, Moody's cited its concerns about the increasing vacancy rates at the facilities, with the resulting negative effect on the revenues generated by the facilities and debt service coverage. In particular, the overall vacancy rate for the Cargo Acquisition Companies Obligated Group as a whole increased from 22 percent in mid-2009 to 31 percent in May 2011.

7.3.4 CONSIDERATIONS FOR AIR CARGO FACILITY FUNDING

Certain key issues are important in the consideration for funding cargo facilities at airports. The following paragraphs discuss key issues that will likely be of particular importance in the development of future cargo facilities at JFK. These considerations carry increased importance, given the recent national economic downturn. As noted above, in 2011 S&P revised its outlook downward on the bonds related to the JFK Airis development, and Moody's downgraded the bonds related to the Cargo Acquisition Companies Obligated Group. These recent downgrades, which were mainly due to decreased revenues related to the projects, reflect the difficult economic environment in which air cargo facilities are currently operating, primarily reflected in increased vacancies due to less than expected demand and lower than expected revenues. In the current economic and cargo industry climate, it is more challenging for private developers to achieve their desired return on investment. In order to attract successful cargo facility development at JFK, it would be beneficial for the Port Authority to evaluate the considerations described below, as a first step to planning a successful financing strategy.

7.3.4.1 Lease Term

Most airport land leases, including land leases for cargo facilities, contain a clause providing that the leasehold improvements (buildings and other facilities constructed by the lessee/developer on the leased land) will transition (revert) to the landlord (the airport owner). Therefore, the length of the lease term is an important consideration for any private entity considering whether to enter into a land lease with the intent of constructing improvements on the land. The private entity will have to depreciate the full value of the improvements over the term of the lease. Therefore, the term of a lease must be long enough to enable the private developer to amortize or depreciate its capital investment. A longer lease term can enable the developer to achieve financial targets while lowering rents to tenants.

A review of recent business deals for cargo facilities at airports indicates that a lease term of 25 to 30 years is common. However, it is not uncommon for a developer to seek and receive a longer lease term in consideration for a better financial deal for the airport. For example, a developer often proposes a longer lease term in consideration for a greater financial return to the airport It is noted that due to concerns about the potential short lease term for the Airis cargo facility development at JFK, the lease documents provided that in the event the Port Authority's lease with the City was not extended prior to expiration, the City would enter into a lease with Airis to extend the Airis lease for an additional 13 years so that the cargo facility could continue to operate.

The issue of lease term length for cargo facility development has also been effectively addressed through the creative use of lease extension options. For example, ANC negotiated a lease agreement with Lynxs Group, LLC for the development of a cargo facility on a 20-acre parcel of land. The lease term is 35 years, with four options to extend the lease, each option being five years, thereby resulting in a potential lease term of 55 years.

A creative approach to the challenges related to the reversion of leasehold improvements was implemented by the Monroe County Airport ("BMG") in New York. BMG negotiated a land lease with a private entity, which agreed to develop a 29,000 square foot hangar complex, which was completed in 1994. The lease has a 20-year term, with a 10-year option for renewal, after which the hangar complex will revert to BMG. However, the lease allows the tenant to retain a portion of ownership in the facility. BMG becomes vested in the facility at a rate of 2.5 percent per year. This means that at the end of 30 years (assuming the 10-year renewal option is exercised), the tenant will own at least 25 percent of the facility. BMG has since used this lease structure to attract other types of development including a flight training center with seven offices, which was constructed in 1998, and a corporate flight complex, which was constructed in 2000. The BMG project is presented here as an example of a creative approach to dealing with the reversion of leasehold improvements. If the Port Authority decides it might be interested in pursuing this type of approach, it would need to consider the requirements of the federal government regarding the transfer of land that had originally been acquired with federal funds.

Because most leases provide for the reversion of leasehold improvements to the airport at the end of the lease term, it is desirable to an airport to include in the lease strong provisions regarding required facility upkeep. Otherwise, the lessee may have limited incentive to perform maintenance and upkeep on the facilities during the term of the lease. The airport owner should ensure that the lease enables the airport owner or its representative to enforce required maintenance and upkeep schedules and standards.

7.3.4.2 Ground Rent During Construction

A land lease that involves the development of cargo or other facilities often specifies a schedule during which the construction of the facilities must be conducted. It is not uncommon for a land lease to provide for damages, including monetary penalties, if the construction schedule is not met, and such damage provisions could allow the land owner (the airport or airport owner) to terminate the lease. Often, a private developer requests that land rent be waived during construction, until the date of beneficial occupancy. The decision regarding whether to charge land rent during construction is a material consideration during lease negotiations. It should be recognized that any requirement for the developer to pay rent during construction will impact the financial deal by affecting the developer's cost, the cost to tenants, and the potential return to the airport owner.

7.3.4.3 Existing Cargo Facilities

An excess of similar facilities at an airport will have the effect of diluting the demand for those types of facilities. This can be problematic, particularly if there are other cargo facilities at the airport that are older and command lower rental rates. Some tenants will prefer to rent the older facilities, even if they are less efficient from an operational standpoint, if the rent is substantially less than the newly developed facilities. This type of situation can undercut the rent-producing potential of the new facilities, and will negatively affect the developer's return on investment, thereby discouraging private investment in air cargo facilities. These issues should be considered during lease negotiations. To the extent that there are existing cargo facilities at an airport, such facilities could present a market challenge to the developer of a new facility when the developer is seeking to lease the new facility. A private developer will likely take into account the existing facilities and the market for cheaper space when the developer is deciding whether to develop new cargo facilities.

7.3.4.4 The Request for Proposal ("RFP") Process

The development community generally views the Port Authority's bidding process (RFPs) as very onerous and expensive. Therefore, the Port Authority and the City may want to consider discussing with developers ways to reduce the time investment and the cost to developers of preparing RFPs.

7.3.4.5 Infrastructure Costs

If the infrastructure (sewer, utilities etc.) is developed on a site by the owner, it is likely that the owner will charge a land rental rate sufficient to recover its investment. Such an improved land rental rate would likely be higher than the lease rate that would be charged if the tenant is required to develop the infrastructure. However, if private developers of air cargo facilities are required to provide the infrastructure, such additional costs may adversely affect their decision to enter into a development deal. If such costs would require the developer to charge higher rents than what the market would support, developers would not be inclined to participate in the project.

7.3.4.6 Conclusions and Recommendations

Airports have various capital improvement funding sources at their disposal, including debt financings, AIP grant funds, PFCs, and state/local funds. However, the nature of cargo development at airports and the competing demands on the funding sources often mean that airports must look to private sources of funding for air cargo facilities. Also, due to the significant capital investment required for cargo projects at airports, some sort of debt financing is usually necessary.

This chapter described several funding strategies for cargo facilities that have been successfully implemented at airports. For example, a typical financing strategy involves the issuance of bonds by the airport owner or a development authority. Examples of development authorities that have issued bonds to finance cargo facilities at airports include the Connecticut Development Authority; the Industrial Development Authority of the City of Kansas City; the Alaska Industrial Development and Export Authority; the Maryland Economic Development Corporation; and the New Jersey Economic Development Authority.

Two cargo buildings at JFK were financed through the issuance of the New York City IDA Special Airport Facility Revenue Bonds (2001 Airis JFK I, LLC Project at JFK International Airport, Series 2001A and 2001B Bonds). It has been noted that the City Lease includes a provision that precludes the City from financing projects at JFK. This provision has been interpreted by the Port Authority Commissioners to preclude the financing of projects at JFK by the IDA. Therefore, in order for a similar financing arrangement to be accomplished for future cargo facilities at JFK, the City Lease would need to be amended to allow for IDA financing of cargo facilities at JFK.

It is recommended that the Port Authority consider the items/issues described below, which can potentially have an effect on the ability to fund, develop, and lease cargo facilities at JFK. Some of the recommendations reflect input from private developers. We believe that meaningful air cargo development can be achieved if such development is approached in a cooperative manner. It is critical that private developers recognize the restrictions faced by the Port Authority, and the Port Authority should recognize the concerns of the developers.

- *Lease term.* Due to the common land lease provision that provides for the leasehold improvements to revert to the landlord (the airport owner), the term of a lease must be long enough to enable the private developer to fully amortize or depreciate its capital investment before it reverts to the airport owner. Also, the lease should have strong provisions regarding required facility upkeep, so the lessee performs maintenance and upkeep on the facilities during the term of the lease. Although a lease term of 25 to 30 years is common, some RFPs state that proposers are allowed to propose (and the airport owner will consider) an alternate lease term length if it can be demonstrated that a longer term would be beneficial in light of the capital investment required and the goals of the project. This issue can also be addressed through the creative use of lease extension options.
- *Ground rent during construction.* The Port Authority may want to consider setting the land rent during construction at a reduced rate, or waived altogether. Such a provision would enhance the financial viability of the project because it reduces developers' cash outlay during construction, increases their return on investment, and potentially reduces costs to tenants.
- *Challenges presented by existing facilities.* The existence of older cargo facilities at an airport can be problematic, because the older cargo facilities often command rental rates that are lower than what a private developer would need to charge in order to realize a targeted financial return. These issues should be considered during lease negotiations. A private developer will likely take into account the existing facilities and the market for cheaper space, when the developer is deciding whether to develop new cargo facilities.
- *The RFP process.* Some in the development community view the Port Authority's RFP process as very onerous and expensive. Therefore, the Port Authority and the City may want to consider discussing with developers ways to reduce the time investment and the cost to developers of preparing RFPs.
- *Infrastructure costs.* If private developers of air cargo facilities are required to pay for infrastructure (sewer, utilities, etc.) to the site, such additional costs may adversely affect their decision regarding whether to enter into a development deal. These infrastructure costs could require the developer to charge higher rents than what the market would support, and therefore, the developer may not be inclined to participate in the project.
- *IDA Financing.* Since the Airis development was completed at JFK, the City and the Port Authority entered into an extension of the City Lease for JFK, which includes a provision that precludes the City from financing projects at JFK. This provision has been interpreted by the Port Authority Commissioners to preclude the financing of projects at JFK by the IDA. Therefore, The Port Authority may want to consider negotiating with the City to amend the City Lease to allow for IDA financing of cargo facilities at JFK.

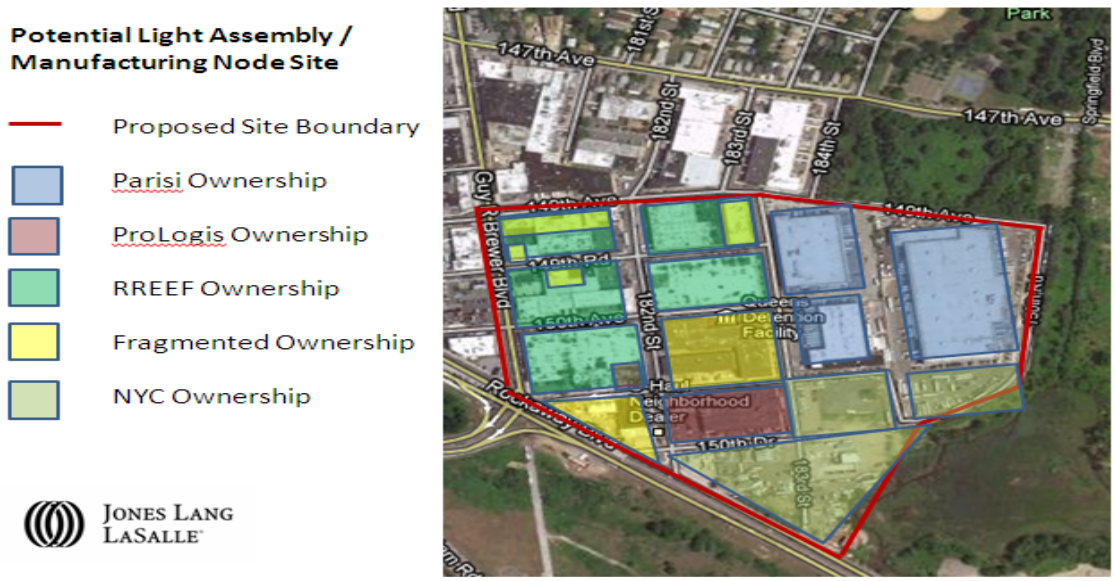
7.3.5 OFF-AIRPORT INFILL DEVELOPMENT

The modifications to the on-airport cargo offerings will undoubtedly impact, and can be integrated with the off-airport real estate market. The private sector will adapt to the new environment in a way that best maximizes the return on investment of their current holdings within the new operating environment of the Springfield Garden community. With foresight and planning, a new use can emerge that adds value to the JFK cargo market and creates jobs and revenues for the state and local jurisdictions. Alternatively, the market may evolve into a collection of self-storage facilities in a haphazard fashion, not aligned with the City's or Airport's goals and objectives.

7.3.5.1 Off-Airport land reuse and value-added services

The privately owned, off-airport land adjacent to JFK airport contains a mixture of uses, asset types, and ownership structures. Beyond commercial uses of office, warehouse, flex space, and parking, residential units are scattered throughout the area. Some of these areas are challenged because: they lack infrastructure including inadequate roadways, are subject to flooding, are proximate to wetlands, and have limited access to major roads and public transportation. Additionally, fragmented ownership creates a major obstacle to master planning a change in usage in the neighborhood as currently configured.

An opportunity may exist to develop City and privately-owned parcels, particularly those east of Guy R. Brewer Boulevard, and introduce a light assembly/manufacturing logistics support center. Such uses could include value-added services that will typically yield rents and values in excess of those generated by the existing off-airport warehouse facilities serving the freight forwarding industry. The area outlined in the map below currently consists of approximately 1.1 million square feet of commercial spaces with the most concentrated ownership in Springfield Gardens. The location is proximate to the airport, typically has large buildings spanning an entire block, and has minimal non-commercial uses within the area's boundaries.



It is estimated that a use change, from warehousing to manufacturing, will bring about significant job growth. An estimated 550 employees currently work within the proposed area boundaries. A manufacturing use typically yields 1.1 employees per 1,000 square feet, representing the potential for an additional 660 jobs within the area in addition to the potential growth in air cargo activity and services.

From the landlord's perspective, the rents achieved for warehouse space and manufacturing space are similar when adjusted for the excess tenant improvements required for the manufacturing function. Vacancy, however, is often significantly lower for manufacturing uses, adding stability to a landlord's cash flow.

7.3.5.2 Off-Airport Incentives

To further this concept of introducing such a complex, the City may consider offering various incentives to include tax benefits for property and capital investments, enhanced training, an economic development zone, or simply shuttle service for employees from public transportation nodes. A major draw would be designating the area as a Foreign Trade Zone ("FTZ"). The FTZ designation could serve as a catalyst in attracting tenants to the area. Additionally, the FTZ designation along with the new manufacturing use should increase JFK cargo volumes as the throughput of raw materials and finished products increase via the new district.

Application for the FTZ designation need not be speculative, as the new district should be targeted toward the appropriate market and be pre-subscribed with several manufacturing tenants' prior to construction. Application can be made with one or several tenants while the benefits will accrue to future tenants of the area and serve as a significant marketing point.

FTZ designation used for off-airport development is not without precedent. The area around DFW contains a large off-airport FTZ. Rents and vacancy figures for properties within the FTZ outperform those outside of the designated area on a consistent basis.

7.3.5.3 Off-Airport Financing Mechanisms

Under the right business scenario, the real estate development industry may be willing to engage with the City in the development of a new light assembly and manufacturing node. Depending on the nature of the development scope, a private-sector developer could engage in an assemblage - the structured purchase of all land within the area boundaries or a public-private partnership with the City. A public-private partnership allows a flexible solution to enable the City to achieve several objectives. A private-sector developer would likely be willing to pay ground rent as well as a PILOT (payment in lieu of taxes) at the outset. Additionally, a private sector developer could provide the necessary infrastructure required for such an endeavor provided the potential development is of sufficient size.

A variety of financing mechanisms are available for funding such an endeavor. A number of options listed below are government mechanisms involving a tax or surcharge on local business operations or land holdings. The private funding or public / private funding mechanisms have evolved because the development community has expressed interest in the preferred options. The public funding mechanisms should only be considered should it become evident that a catalyst is required to encourage a favorable re-use of Springfield Gardens. Our initial discussions indicate, however, that private-sector developers are willing to take on such a project as a master-planned project.

Table 7.3-1, *Off-Airport Infrastructure Projects*, discusses various programs (or variations thereof) that may be used for financing off-airport development and infrastructure projects. These programs range from corporate self-funding to government grants. Often, off-airport infrastructure projects are funded with a combination of several of these programs.

Table 7.3-1 OFF-AIRPORT INFRASTRUCTURE PROJECTS

Financing Structure	Description	Example	Project Size
Private Funding			
Master-Planned Development	A master developer will fund the infrastructure requirements (on and adjacent to the property) for a planned off-airport development. The master developer will parcel off the site to builders and owner-occupants in order to recover their capital and earn a return on investment.	CenterPoint Business Park, Fort Worth, Texas	445 acres near DFW Airport
Public / Private Funding			
Privatization	A privately built project that is not a public asset. Legislation is often required to authorize such a project, with or without the use of eminent domain. On-going fees are set by the private company but typically regulated by a public authority.	Dulles Greenway, Virginia	$603M
Public Private Partnership	Offers private expertise and funding for public projects to generate efficiency gains. Typically involves a government contribution of land or existing infrastructure with project financing and management provided by the private sector partner.	University of Maryland, College Park – Energy & Utility Infrastructure Program	$469M
Public Sector Funding			
Capital Facility Fees	A municipality funds the infrastructure requirements and charges a connection fee for new developments to be paid at the time of building permit issuance. The future cash flow stream from the connection fee may be securitized to finance immediate infrastructure needs.	Keirnan Business Park, Modesto, California – Existing Authority	$118.5M
Community Facilities Districts	A public agency creates a district within a well-defined geographic area to levy a special tax on all taxable property within that area to pay for the public improvements and services needed to serve that particular area. This levy is typically collected at the same time and in the same manner as property taxes.	Keirnan Business Park, Modesto, California – Supplemental Authority	$118.5M
Build America Bonds	Taxable bonds for which the U.S. Treasury pays a direct subsidy to the issuer for offset borrowing costs for public capital infrastructure projects.	Sound Transit, Seattle, WA	$377M
Road Fund / Toll Road	Introduces a cash flow stream via usage fees that may be securitized to procure required infrastructure. Profits are retained for capital repair and replacement needs in the future.	Dulles Toll Road, Virginia	$3.73 billion in improvement
Parking Site Tax	A levy on parking lots assessed on a per-parking-space basis or a per-parking-area basis.	City of Sydney, Australia	Annual revenue of $40M
Land Value Taxation ("LVT")	An ad valorem tax levied only on land and is independent from any improvements on the land. LVT can discourage inefficient land uses and encourages infill development and densification.	Harrisburg, Pennsylvania	Created development of nearly 3,700 infill projects since 1975

Table 7.3-1 OFF-AIRPORT INFRASTRUCTURE PROJECTS, *Continued*

Financing Structure	Description	Example	Project Size
Public Sector Funding, *Continued*			
TOD Policy Leveraging	The use of transportation infrastructure funding to exert pressure on municipalities to make land use planning provisions consistent with the principles of TOD along proposed transit corridors.	San Francisco, California	Not Applicable
Fuel Tax Transfer	Intergovernmental tax revenue sharing. The federal and/or state governments pledge a portion of the current or increased tax revenues to a particular local jurisdiction.	Calgary, Alberta, Canada	Five cents per litre is transferred to the City
Tax Increment Financing ("TIF")	The financing of capital projects through the increase in property tax revenues that such project will generate. An insertion of new amenities into an existing neighborhood will increase the property values and thereby drive increased property tax revenues.	Portland, Oregon	TIF is the primary method by which Portland finances urban renewal projects
Vehicle registration Surcharge	A tax applied to vehicles registered to addresses within a specific jurisdiction. The tax may be ad valorem or a flat rate per vehicle. Typically collected annually and may be applied to private and commercial vehicles.	Multiple U.S. Locations	Authorized by 33 states
Commuter Tax	Payroll income taxes paid by people employed by, but not residing in a given jurisdiction. Typically between 0.25 and 2.00 percent of earned income.	Multiple U.S. Locations	Used by 13 U.S. cities
Local Option Sales Tax ("LOST")	A special-purpose taxation mechanism placed on top of the state sales tax for purchases in a particular jurisdiction. Typically between 0.5 and 1.0 percent of the sale. LOSTs are usually enacted to fund capital intensive projects and typically have a defined period of time for which the tax is in existence.	FasTracks Expansion - Denver, Colorado	$4.7 billion

Of the various off-airport financing mechanisms listed above, we recommend priority be placed heavily on the private funding mechanisms or public/private partnerships. Both mechanisms have a history of success in the off-airport land adjacent to JFK.

Delivered in 2002 by AMB, now ProLogis, the JFK Logistics Center on International Airport Center Boulevard is an example of a successful master-planned development. Lacking the infrastructure required for the 530,000-square foot development, AMB built and financed the infrastructure requirements for the one-half mile along Rockaway Boulevard to the existing Springfield Gardens tie-ins. The gated, secure location proved a tremendous commercial success, with on-going occupancy in the high 90 percent range and achieving some of the highest off-airport rental rates in the market. Social infrastructure, in the form of a continuous bus route operating from the property to public transportation nodes, is also borne by the private developer and has proven a positive return on investment in terms of tenant acquisition and retention.

In 2000 the T.P.E.C. Corporation and the New York City's Parks Department entered into a lease for several acres off of 183rd Street in Springfield Gardens. T.P.E.C. Corporation is a parking operator offering long-term parking for Springfield Garden employees and short-term solutions for trucking operators working in the JFK vicinity. This lease is an example of a type of public/private partnership that leverages excess city land and an industry expert to provide the neighborhood a needed service.

The public sector funding mechanisms exist, but are not recommended for use in off-airport development in this instance. Interest exists from the private development community to fund future development without government supplement. Additionally, avoidance of an additional "cost of doing business" at JFK is recommended for overall volumes.

7.3.5.4 Off-Airport Alternatives

The Springfield Garden light assembly/manufacturing value-added reuse concept is a complex initiative that, if pursued, will require close coordination between the Port Authority and the Economic Development Corporation ("EDC") along with alignment of multiple private-sector interests to achieve success. Should the effort be delayed or not come to fruition, alternatives exist, although the usage would remain status quo rather than offer a catalyst for improved cargo volumes and economic development. As the JFK off-airport market is constrained by limited excess land, tenants have moved further east into the Nassau County market. Valley Stream, Lawrence, Inwood and Franklin Square are all sub-markets in Nassau that have JFK-related tenants. Hook Creek and Expeditors are the major cargo players in the Nassau market with 250,000 square feet and 15 acres, and 150,000 square feet over 13 acres, respectively. The cargo tenants in Nassau County would be primary targets for both the on-airport and off-airport space vacated by tenants moving on-airport.

7.4 REVIEW OF FEDERAL, STATE, AND LOCAL CONSIDERATIONS

This section presents a review and analysis of federal, state, and local considerations that could affect the selection and implementation of strategies to enhance air cargo activity at JFK. *The narrative in this section reflects the conclusions of the Consultant Team and does not represent a legal opinion of the Port Authority or the City nor is it intended to indicate acceptance by either of those parties of the recommendations contained herein.* The analysis of local considerations focuses on the amended and restated lease between the City and the Port Authority for JFK and LGA. The analysis of federal considerations focuses on the potential impact of AIP grant assurances and regulatory requirements on the Port Authority's flexibility in offering incentives or favorable lease terms to stimulate air cargo operations and new development at JFK, and on the potential for accessing AIP and PFC funds for capital development to support the initiative. The analysis of state considerations was limited to a review of provisions authorizing the Port Authority to operate the City airports in the Interstate Compact between the states of New York and New Jersey establishing the Port Authority.

7.4.1 BACKGROUND

One approach being considered to increase air cargo activity at JFK would encourage the relocation of freight forwarder and cargo broker operations from sites near JFK to vacant on-airport properties. The vacated off-airport sites would be available for redevelopment of manufacturing, warehousing, distributions, or other enterprises that would benefit from proximity to an airport, and that would use JFK for air cargo shipping. The analysis is focused on this approach.

7.4.2 CITY CONSIDERATIONS – PORT AUTHORITY – CITY LEASE

The focus of the review of City considerations is the Amended and Restated Lease of the Municipal Air Terminals between the City of New York and The Port Authority of New York and New Jersey ("Airport Lease"). Provisions that may affect the terms the Port Authority can potentially offer are first summarized; the impact is described and potential strategies to mitigate any negative impacts (as appropriate) are then discussed. The provisions are discussed in the order they appear in the Airport Lease. It should be noted that under the terms of the lease the Port Authority is the tenant of the City. Operators leasing facilities from the Port Authority are classified as subtenants of the City, and their agreements with the Port Authority are considered subleases.

7.4.2.1 Section 2.2 – Use

The Airport Lease provides that JFK may be used for Municipal Air Terminal Purposes as defined in statutory enactments of New York and New Jersey applicable to the Port Authority and for purposes incidental thereto. These enactments appear to be sufficiently broad as to permit the development of on-airport cargo facilities as considered in this planning effort.

7.4.2.2 Section 2.6 – Ownership of Improvements

Section 2.6 provides that title to all improvements and fixtures on the JFK premises covered by the Airport Lease vest with the City upon execution of the Airport Lease (November 24, 2004). Title to any additional improvements (including new fixtures) vest with the City upon completion *unless sublease agreements provide for title to remain with the sub-tenant.* In that case, title to the improvement would vest with the City upon expiration or termination of the Airport Lease.

7.4.2.3 Article 4 – Calculation of Rent

The calculation of annual rent to be paid to the City is a multi-step process. Under the terms of the Airport Lease, a combined rental amount is calculated for LGA and JFK. There is no separate calculation by airport. A key element in the calculation is the Airport's "Annual Gross Revenue" which is defined in Section 4.1 of the Airport Lease as all revenues, receipts, or payments received by or owing to the Port Authority as a result of operation of JFK and LGA with the following exceptions:

- Amounts attributable to repayment of principal, but not interest, on special project bonds
- AIP grants
- PFCs
- Certain funds used for security projects or security enforcement

Under Section 4.3 of the Airport Lease, the annual rent (Base Rent) is greater of the eight percent of current year Airport Revenue or Minimum Annual Rent. Section 4.1 provides for the determination of Minimum Annual Rent as follows.

- Through the end of 2006 -- $93.5 million
- Five-Year Period 2007-2011 – The greater of $93.5 million or 10 percent of the average Annual Gross Revenue for the five-year period 2006-2010

- For each succeeding Five Year Period – The greater of the Minimum Annual Rent for the prior Five-Year Period or 10 percent of the average Annual Gross Revenue for the preceding Five-Year Period.

In short, the Minimum Annual Rent is calculated by taking 10 percent of the average of prior Annual Gross Revenue, with the amount adjusted every five years. However, the Minimum Annual Rent for any given year cannot be less than the prior year under Section 4.3 of the Airport Lease. Thus Minimum Annual Rent can go up from one five-year period to the next, but it can never go down.

Under the terms of Sections 4.1 and 4.3 of the Airport Lease, if JFK were to suffer a sustained decline in revenue commencing in 2012 (with no change in LGA revenue), the base rent commencing in 2017 could be based on the Minimum Annual Rent for the Five-Year Period 2007-2011 – resulting in a lower percentage of revenues available to the Port Authority for other purposes. In general, the rental formula is designed to encourage the Port Authority to generate additional revenue. This occurs because the base rental formula uses only eight percent of current revenue, while the Minimum Annual Rent is based on 10 percent of revenue during the previous five-year period. If Port Authority revenue increases, the Port Authority pays to the City eight percent of the (increasing) revenue. If Port Authority revenues decline significantly, the Port Authority will be required to pay 10 percent of the higher historical revenue. The impact of a sustained loss of revenue is compounded by the provision in Section 4.3 that effectively prevents the Minimum Annual Rent from ever decreasing.

7.4.2.4 Impact on Port Authority Pricing Flexibility

It should be noted that the Airport Lease does not impose any limitations on the Port Authority's discretion/ability to establish fee and structures. It is silent on the methods used, or the level of unit charges to be imposed by the Port Authority. The impact, if any, results from the provisions for calculating the Port Authority's annual rental payment to the City. Under the formula which considers past as well as current revenue, the Port Authority may be adversely impacted if revenues decline for a sustained period of time.

One result of this analysis will be the identification of alternative fee and rental structures or other incentives to encourage development of on-airport cargo facilities. It is understood that these alternatives might result in certain tenants paying reduced unit rates on rentals or other charges. It is also understood, however, that the objective of implementing these alternative structures or incentives is to increase the total air cargo revenue generated at JFK. As long as revenue enhancement is realized, the lease terms establishing rents to be paid to the City would not pose a financial impediment to the fee initiatives being considered in this study.

7.4.2.5 Section 7.2 – Subletting

Subsection 7.2(a) provides that any sublease is subordinate to the Airport Lease and any interest superior to that of the Port Authority's. Subsection 7.2(c) provides that if the Airport Lease is terminated, the subtenant will, at the City's option, enter into a direct lease on identical terms with the City.

The effect of these provisions taken together, means that the Port Authority is unable to offer a binding sub-lease term that extends beyond the term of the Airport Lease or December 31, 2050. As of the date of this Report, approximately 38 years remain on the Airport Lease. With 38 years remaining, the inability of a subtenant to obtain a sublease beyond the term of the Airport Lease is not likely to affect the subtenant's ability to finance

a development project. Third-party financing through debt would not likely require more than a 30-year sub-lease. Thirty-eight years is still an ample amount of time to amortize a capital investment. However, as time goes on, and the length of the Airport Lease decreases, the limit on the effective duration of a sublease could become an impediment to investment on the Airport.

Subsection 7.2(c) is also potentially troublesome in the highly unlikely event of the Airport Lease being terminated early, because the option for a subtenant to lease directly from the City rests with the City, rather than the subtenant.

7.4.2.6 Section 9.3 – No Pledge of Revenue Beyond Term

This section prohibits the Port Authority from pledging revenue from the Airport beyond the term of the Airport Lease. At this time, the prohibition would not have a significant impact on the Port Authority's ability to issue debt to support cargo facility development, because debt typically has a 30-year term. However, once the term of the Airport Lease falls below 30 years (December 31, 2020), the Port Authority's ability to issue debt would be affected.

7.4.2.7 Section 9.5 – Financing of Projects by the City

Section 9.5 provides that the City shall not finance any projects at JFK except for projects for which the City had already adopted an inducement resolution prior to the execution of the Airport Lease and the refunding of outstanding City bonds. Upgrading and restoration of City-owned water and sewer facilities on the Airport are also excluded from the provision. As described in an explanatory statement appended to a resolution of the Port Authority Commissioners, this provision would also preclude the financing of projects at the Airport by the New York City IDA.

The prohibition on City financing of projects at JFK would eliminate one potential source of financing for development of cargo facilities as an alternative to developer or cargo operator financing. It reduces the financing options available to the Port Authority to attract air cargo development. IDA bonds have been used in the past to finance development at JFK. Section 9.5 would need to be modified or waived by the City to provide for IDA financing as an option.

7.4.2.8 Summary

The Airport Lease imposes no direct limitations on the Port Authority's ability to modify its rates and charges policy or to provide financial incentives to attract cargo development and activity on the airport. The provisions on calculating rental rates would adversely affect the Port Authority only if the new policies or financial incentives resulted in an overall reduction of JFK revenues. This outcome is considered unlikely because one of the objectives of the initiative is to grow cargo revenues at JFK.

A number of provisions in the lease *could* hinder third-party air cargo development on the Airport. These would all of course be subject to legal opinion. These include the provision requiring ownership of improvements to transfer to the City; the prohibition on pledging JFK revenue beyond the term of the lease; and the provision giving the City, but not a subtenant, the right to lease directly in the event of termination of the Airport Lease. The adverse impacts can be mitigated, but the mitigation would require modifications of the Airport Lease. The prohibition on City financing of improvements eliminates a potential source of financing that otherwise could be used to attract air cargo development on the airport.

7.5 SUMMARY

Air freight forwarding and cargo broker services, anticipated to move on-airport through the initiative, are likely to be classified as aeronautical activity. To the extent operations remain off-airport, but are provided with airfield access, it is recommended that the application of Grant Assurance 22 to these activities be clarified. The Port Authority's current policies on permits for off-airport operators appear to meet FAA requirements for control over Through the Fence ("TTF") activity to assure the safe and efficient operation of the airport and compliance with grant obligations. However, the failure to charge off-airport cargo operators a fee for airfield access could be inconsistent with FAA's policy requiring assessment of fees to off-airport businesses with airfield access to prevent unjust discrimination against comparable on-airport businesses.

For cargo operations that may move onto the airport, it will be necessary to limit leases to less than 50 years to conform to FAA policies. The Port Authority's current tiered pricing structure for cargo facilities appears to be consistent with Grant Assurance No. 22 requiring reasonable access without unjust discrimination due to the differences in facility conditions and operating costs, and differences in the quality of airfield access. A tiered rate structure for ground rents based on the type of airfield access also appears to be consistent with Grant Assurance No. 22.

To comply with the AIP grant assurances, any incentives the Port Authority may choose to offer air cargo operators to induce them to relocate to JFK airport property should have the following characteristics:

- Be temporary in nature (one or two years duration), although volume discounts may be permanent
- Be based on objective criteria and be available to all operators that meet the criteria
- Be limited to fee waivers or discounts and joint marketing programs
- Avoid direct subsidies to operators with airport revenue, aside from joint marketing
- Be financed without increasing fees to aeronautical users, absent those users' agreement

Construction of facilities for cargo operators relocating to the Airport are subject to requirements for controlling access to the airfield. Facilities may need to be designed accommodate cargo security screening activities, and the Port Authority may need to obtain FAA approval for an amended ALP depicting the facilities before construction can begin. Given the experience of Port Authority staff in complying with the applicable requirements, it is expected that these requirements will not prove to be significant impediments.

7.5.1 AVAILABILITY OF FEDERAL FINANCIAL ASSISTANCE

The two primary forms of federal financial assistance are the AIP and the PFC program. The AIP provides direct federal grants to airports for eligible airport development projects. PFCs are locally imposed charges on enplaning airport passengers. The airport operator selects the projects to be funded with PFCs and determines the amount of PFC revenue to be applied to each project. However, the use of PFC revenue is subject to FAA approval. The approval requirement is the reason FAA characterizes the PFC program as federal financial assistance. The Port Authority currently collects a $4.50 PFC at JFK – the maximum permitted by law.

AIP and PFC funding are discussed at length in sections 7.2.2 and 7.2.3. As noted, some apron development and related airfield development may be eligible for AIP and PFC funding. However, AIP funding is likely to be limited to JFK's cargo apportionment funds. Further, given competing priorities, the Port Authority may not choose to apply its limited PFC revenue to cargo facilities.

7.5.2 CONCLUSIONS

Under the terms of the interstate compact establishing the Port Authority and the Airport Lease, the development of cargo facilities on JFK by any party is permitted. The formula for calculating rental payments to the City is not expected to be an impediment to the tiered pricing structures or incentive programs that could be considered by the Port Authority.

Certain lease provisions may be impediments to amortization of facility development costs in the case of facilities constructed by the Port Authority, cargo operators, or developers. However, development has occurred at JFK under the terms of the lease with the City. The potentially problematic provisions include the following:

- Provisions governing ownership of facilities constructed at JFK
- The term of the Airport Lease
- Provisions governing subtenants rights and obligations in the event of expiration or termination of the Airport Lease
- Prohibition on pledging airport revenue to support Port Authority debt beyond the term of the Airport Lease

In addition, the provision precluding the pledge of IDA debt to support new development at JFK eliminates a source of funding that has been used for on-airport development in the past.

At the federal level, if off-airport operators are to be granted airfield access, it would be desirable to clarify the applicability of Grant Assurance 22 to their activities.

Regarding potential on-airport development, leases should be limited in duration to 50 years or less. The Port Authority's existing tiered rate structure for cargo building leases appears to be consistent with the grant assurance prohibiting unjust discrimination. A tiered pricing structure for ground rent, if tied to the quality of airfield access, would probably be consistent as well. Design and construction of on-airport facilities would be subject to regulatory requirements for safety, security, and airport design standards.

To meet federal requirements, any incentive program should be temporary, should be based on objective criteria, should be available to all operators meeting the criteria, and should not involve direct subsidies using airport revenue (aside from expenditures on joint marketing campaigns). In addition, the net cost of the program (including lost revenue) should not be recovered through fees charged to aeronautical users (absent agreement).

AIP funding to support new on-airport cargo facilities is likely to be limited to JFK's cargo entitlements. PFCs may be legally used for certain cargo facilities, but the Port Authority may choose to commit PFCs to other projects.

JFK AIR CARGO STUDY

NEW YORK CITY ECONOMIC DEVELOPMENT CORPORATION | THE PORT AUTHORITY NEW YORK & NEW JERSEY

Chapter 8 – Market and Business Development





L&B
Aviation Planning at the Leading Edge

CHAPTER 8
MARKETING AND BUSINESS DEVELOPMENT

8.1 THE IMPORTANCE OF AIR CARGO

Most airports agree that air cargo is one of the major aviation elements – alongside passenger, maintenance, and general aviation operations. With only a few exceptions however, the financial challenges that confront airports regarding resource allocation typically require a focus on passenger activity. Marketing budgets promoting airports range from millions of dollars to nothing, dependent in large measure on airport funding, as well as airport and regional priorities. Occasionally overlooked among spending priorities is the economic impact of air cargo operations on a region.

8.2 AIR CARGO IMPACTS

A facility, industry, or event can affect the local economy in many ways. The most common measures of "economic impact" are the jobs created, the total revenues brought to local businesses, and contributions to the gross domestic product ("GDP") of an area. Other measures may also be appropriate.

The economic effects of JFK's cargo operations, whatever their form, can reach the community through four channels. The **Direct** impacts involve those activities which take place on the Airport. These could include the loading and unloading of cargo, work related to leasing and security, and cargo handling in the warehouse. **Indirect** activities occur off-airport. They can include a wide range of functions including the work of freight forwarders and customs brokers, trucking, and a number of other diverse supporting firms. The **Induced** effects arise from the expenditures by the recipients of direct and indirect wages and salaries. Wage earners spend a portion of their income on goods and services, thereby creating employment for additional persons. The process continues indefinitely, with each successive transacting individual spending part of his or her income. Since a portion of the income of each step goes to taxes, savings, or imports, the stimulus declines geometrically with each round. The total stimulus can be represented as a multiple of the original earnings. The **Catalytic** benefits result from the structural changes that a facility such as an airport makes in the business environment of a region. An airport may lower the cost of doing business in a region, or increase the quality of life sufficiently to attract new firms. It may also change expectations or attitudes about a community. A firm that establishes a warehouse on Long Island to benefit from the availability of JFK's extensive air cargo services would generate a catalytic impact.

The theory and methods for measuring economic impact are well accepted and the processes are straightforward in principle. In practice, an economic impact study could encounter many complications, such as defining the area of interest, ambiguities about the various input-output coefficients (most models assume full employment), quantifying "leakages" to areas outside those of immediate interest, and the practical problem of non-respondents. Most economic impact studies involve detailed questionnaires completed by many business entities. Firms are often reluctant to disclose sensitive financial information. The input-output coefficients and multipliers are statistical averages, and apply to a large population of businesses. Catalytic impacts are particularly difficult to determine. While several European entities have estimated catalytic impacts arising from aviation, most U.S. airports have concentrated on the traditional direct/indirect/induced effects.

8.2.1 IMPACTS AT JFK

In 2005, the Port Authority of New York and New Jersey completed a detailed study of the economic impact of the Newark Liberty International ("EWR"), La Guardia International ("LGA"), John F. Kennedy International ("JFK") and Teterboro International ("TEB") Airports. **Table 8.2-1, *Direct and Total Impact of Air Cargo by Airport 2004***, summarizes the findings for air cargo.

Table 8.2-1 DIRECT AND TOTAL IMPACT OF AIR CARGO BY AIRPORT 2004

	Newark	Kennedy	La Guardia	Total
Direct				
Jobs	15.030	24,720	530	40,280
Wages $Mln	867	1,451	36	2,354
Sales $Mln	2,658	3,867	82	$6,607
Total				
Jobs	29,530	49,170	950	79,650
Wages $Mln	1,518	2,492	57l	4,067
Sales $Mln	4,195	7,404	127	$11,726
2004 Cargo Tons	995,256	1,790,448	14,096	2,799,800
2010 Cargo Tons	860,845	1,379,733	7,516	2,248,094

Sources: Port Authority of New York and New Jersey, The Economic Impact of the Aviation Industry on the New York-New Jersey Metropolitan Region, October 2005

The Team produced estimates of the future economic impact of air cargo at JFK. The methodology uses the basic relationships derived from the 2005 study. The revised economic impacts reflect volume changes between 2004 and the 2010 base year. Cargo quantity data were updated to 2010, using the Authority's published statistics. Unit wage data were updated to 2011 using occupational data provided by the Bureau of Labor Statistics. The Bureau of Economic Analysis ("BEA") provided GDP deflators for updating the gross sales data. The original Port Authority table did not include GDP impacts. This analysis applied information produced by the BEA's input-output model for 2011 to estimate the incremental GDP arising from the additional gross sales. The resulting framework, when applied to the forecasts of total air freight traffic at JFK, produced forecasts of the corresponding economic impact for the City.

The economic impact calculations exclude catalytic effects. Catalytic impacts can best be measured by a detailed program of questionnaires and interviews. The research must necessarily focus on firms having little or no immediate involvement in the air cargo industry. Much of the evidence that results from such research is only anecdotal.

Table 8.2-2, *Forecast Economic Impact of Cargo at JFK, 2010-2025*, summarizes the forecasts of economic impact of cargo at JFK through 2025.

Table 8.2-2 FORECAST ECONOMIC IMPACT OF CARGO AT JFK, 2010-2025

Year	Direct Impacts				Direct, Indirect and Induced Impacts			
	Jobs	Wages	Sales	GDP	Jobs	Wages	Sales	GDP
	Person-Yrs	$Mln	$Mln	$Mln	Person-Yrs	$Mln	$Mln	$Mln
2010	19,049	$1,132	$5,169	$2,206	37,891	$1,943	$9,897	$5,570
2011	19,309	$1,147	$5,239	$2,236	38,407	$1,970	$10,032	$5,646
2012	19,559	$1,162	$5,307	$2,265	38,904	$1,995	$10,162	$5,719
2013	19,806	$1,177	$5,374	$2,294	39,396	$2,021	$10,290	$5,791
2014	20,051	$1,191	$5,441	$2,322	39,883	$2,046	$10,417	$5,863
2015	20,290	$1,205	$5,506	$2,350	40,359	$2,070	$10,542	$5,933
2016	20,523	$1,219	$5,569	$2,377	40,822	$2,094	$10,663	$6,001
2017	20,758	$1,233	$5,633	$2,404	41,289	$2,118	$10,785	$6,070
2018	20,996	$1,247	$5,697	$2,432	41,763	$2,142	$10,908	$6,139
2019	21,237	$1,262	$5,763	$2,460	42,241	$2,167	$11,033	$6,210
2020	21,480	$1,276	$5,829	$2,488	42,725	$2,191	$11,160	$6,281
2021	21,713	$1,290	$5,892	$2,515	43,189	$2,215	$11,281	$6,349
2022	21,949	$1,304	$5,956	$2,542	43,659	$2,239	$11,404	$6,418
2023	22,188	$1,318	$6,021	$2,570	44,133	$2,264	$11,527	$6,488
2024	22,429	$1,332	$6,086	$2,598	44,612	$2,288	$11,653	$6,558
2025	22,672	$1,347	$6,152	$2,626	45,097	$2,313	$11,779	$6,629

Sources: Consultant analysis of PANYNJ economic impact study of 2005, PANYNJ traffic totals, BLS real wage statistics, BEA GDP deflators for United States and input-output coefficients for New York State. All monetary data is expressed in 2011 constant dollars.

The economic impact calculations demonstrate that the air cargo industry at JFK will play a large and expanding role in the New York economy. Between 2010 and 2025, the growing air freight traffic at JFK has the potential to create a total of 7,206 new full-time equivalent jobs in the region. This corresponds to a 19 percent increase.

In looking at this data another way, each increment of 1,000 tons of annual air cargo creates about 35 jobs within the region.

In discussing and evaluating the importance of Marketing, the economic impact of the industry should be considered.

8.3 THE MARKETING CONTEXT

Over the past two decades the nature of air cargo has changed. Asia has emerged as the future giant, and South America is currently growing faster than all other markets. The Middle East is perhaps the most aggressive geographic region in terms of marketing while India and Africa are developing plans to expand. Within this global context the two most mature markets are Europe and North America. For years the primary U.S. gateways were "the place to be" to ship internationally because flights from other airports were so limited and offered little consolidation opportunities and related cost reductions. While the gateways pursued cargo development, they have routinely been less aggressive than their potential competitors.

Of all the U.S. gateways, New York is the only one with two significant international airports within a 500-mile radius, JFK and EWR. The bifurcation of the international airlines between the two New York airports has impacts on cargo. JFK is and will remain the primary New York international destination for freighter cargo. However, many carriers serving JFK also serve EWR; some international operators such as Scandinavian Airlines and TAP (Portugal) serve only EWR. Belly cargo will be dependent on the particular airline serving the airport. For the integrated carriers, EWR has a more significant market because Federal Express uses the airport as it hub because EWR has immediate access to numerous surrounding major highways.

While the Port Authority does not steer the selection of airports within its regional system, the fact that there are two facilities with international capacity gives the industry operating alternatives that are fairly unique.

EWR was the first New York airport to obtain nonstop services to Dubai (Malaysia Airlines), Hong Kong (Continental), Mumbai (Continental), and Singapore (Singapore Airlines). At EWR, United, greatly strengthened by its merger with Continental, operates a substantial hub. It benefits from a very-well integrated domestic network, feeding strong international routes. This business arrangement provides a strong incentive for Star Alliance carriers to develop at EWR as well. For example, in 2002, United shifted its JFK-Argentina flight to Washington Dulles International Airport ("IAD"). In the spring of 2012, it will transfer the flight to EWR. This is part of its post-merger route reconciliation. From a pure cargo perspective, EWR is also closer to the main interstate routes I-95, I-80, I-84, and I-87 and has no problems with 53 foot tractor-trailers.

Other significant market development issues include:

- Liberalization has made available to numerous U.S. airports advantages that were once almost exclusive to New York. Everyone has benefitted from open skies, but most have gained more than JFK (as the incumbent). Massive fragmentation of international markets since 1985 has resulted in the emergence of new gateways, such as: Dallas/Fort Worth International Airport ("DFW"), Hartsfield–Jackson Atlanta International Airport ("ATL"), Detroit Metropolitan Wayne County Airport ("DTW"), Charlotte/Douglas International Airport ("CTL"), and Philadelphia International Airport ("PHL"). Nonstop international services from interior hubs increased rapidly in the 1990s, but growth has slowed since 2000.
- Integrators have captured most international high-yield traffic, leaving low-yield cargo to the airlines/forwarders at JFK and other gateways.
- New emergent competing gateways like DFW and Houston Intercontinental ("IAH") have 360-degree feed enabling them to draw from, and distribute to, a broader geographic region.
- The strongest international carrier at JFK is Delta, which is already heavily committed to ATL. There is no carrier that uses JFK as its primary gateway. Delta's domestic feeder services at JFK have improved, but do not compare to networks at other major hub airports. JFK is [apart from Boston Logan International Airport ("BOS")] the only international gateway lacking a strong, entrenched alliance. Conversely one of the strengths of JFK is the diverse number of carriers and routes they fly.
- JFK has fallen behind other gateways in scale and diversity of services. For example, United and Delta have been developing services to Africa from IAH, IAD, and ATL.
- The growth of traffic on the accessing roadway infrastructure and the restriction of 53-foot trucks put JFK at a competitive disadvantage.

- Emergent airports have lower fee structures which have become significant in a very cost-sensitive environment.
- On the horizon, the 787 will further fragment international services, particularly to Asia. Japan Air Lines will start nonstop Boston-Tokyo 787 flights in the spring of 2012 and All Nippon will operate San Jose-Tokyo flights. Nevertheless, there may be new opportunities that the long-range aircraft creates for JFK.

In terms of air service, JFK long benefited from being an iconic gateway considered essential to any carrier's global status, as much as to its global network. Decisions by Latin American carriers to enter the U.S. market at Miami International Airport ("MIA") or Asian carriers to do the same at Los Angeles International Airport ("LAX") were considered concessions to geography but confident that, at least in the case of transpacific carriers, service to JFK was inevitable.

In recent years, JFK's "marquee value" has been eroded and carriers have been willing to bypass JFK in favor of Chicago O'Hare International Airport ("ORD"). Before eliminating its freighter operation in October 2010, Japan Airlines ("JAL") ended all-cargo service at JFK months earlier, while ORD was among its final destinations. In April 2011, Russian all-cargo Airline, AirBridgeCargo ("ABC") inaugurated its U.S. scheduled service at ORD but still has no JFK service. Also in 2011, Emirates SkyCargo initiated scheduled freighter service to JFK and plans for future growth of the route.

Comparisons to international gateways (ORD, MIA, and LAX) were presented in an earlier section. For marketing purposes it is worth revisiting the ORD and JFK comparison, specifically. Between Calendar Year ("CY") 2000 and 2010 (inclusive), total cargo *fell* by 6.3 percent and 26.1 percent, respectively for ORD and JFK – a period during which ORD passed JFK in annual cargo tonnage. During that same period, international cargo *increased* for ORD by 23.2 percent and *decreased* for JFK by 16.5 percent. As a percentage of total cargo, the international share is still higher for JFK (81.6 percent) than for ORD (66.9 percent) but ORD reduced the gap while maintaining its own substantial lead in domestic cargo. With 58 percent, ORD had a higher share of international cargo carried on freighters than did JFK (54 percent).

While ORD is the U.S. international cargo gateway that most closely competes with JFK, every route decision involves a judgment about connecting JFK versus an alternative. ATL, DFW, IAH and even non-hub airports like Indianapolis International Airport ("IND") have captured international freighter service growth. These airports have aggressively pursued that service through a combination of participation in industry events and trade missions abroad.

The biennial TIACA (The International Air Cargo Association) Air Cargo Forum will be held in Atlanta, GA in October, 2012, following successful events in Amsterdam (2010) and Kuala Lumpur (2006). In addition to Atlanta, exhibitors already registered include: Chicago Rockford International Airport, ORD, DFW, Houston Airport System, Huntsville International Airport ("HSV"), Kansas City International Airport ("MCI"), Lambert/St. Louis International Airport ("STL"), MIA, MidAmerica St. Louis Airport ("BLV"), Phoenix-Mesa Gateway Airport ("AZA"), Pittsburgh International Airport ("PIT")/Allegheny County Airport Authority, Rickenbacker International Airport ("LCK"), (Columbus, OH) and San Bernardino International Airport ("SBD"). LAX customarily exhibits at this event but had not registered as of 3/1/2012.

That mix of airports reflects a split between JFK's gateway rivals (ORD and MIA), second-tier international cargo gateways (ATL, DFW, IAH) and a mix of airports with only remotely realistic messages about alternative gateways. Virtually all of these airports will convey either directly or implicitly messages about why carriers should direct their future capacity to a destination other than JFK. At trade shows and in other meetings at airline headquarters in the U.S. and abroad, airports' messages will reach airline route planners, property managers, and other executives with decision authority. Apart from managers from the host market or local hub, local station managers are not part of the target audience at such events. The bottom line is that Trade Shows are an important medium for an airport to reach the critical airline staff. The absence of the Port Authority at such events puts the agency at a competitive disadvantage. While airlines make the decisions about where they will fly, contact with an airport provides them with a current marketing context. With the Port Authority, outreach at these events provides an opportunity to reach carriers from emerging regions, as well as traditional carriers, and provide current and meaningful input on the new policies, practices, and opportunities at JFK. Exhibiting at these conferences is a very cost-effective form of marketing provided knowledgeable staff attend.

Through the Air Cargo Association and other tenant initiatives, the Port Authority has done an excellent job of cultivating station managers but that is principally a relationship maintenance function. Expansion judgments are more likely made at the executive headquarters level, whether by existing or prospective tenants. The preceding does not marginalize the importance of maintaining relations with existing tenants. Station managers' opinions will almost always be sought for expansion decisions by existing tenants. JFK's proponents must also reach the strategic management teams of the carriers.

For forwarders, multiple layers of decision authority exist but an extra decision not generally available[1] to carriers exists – whether to locate on-airport or off-airport. On a case-specific basis, some forwarders' local station managers may have more influence than counterparts at the carriers because the latter not only determine facilities but also aircraft utilization. Forwarders either charter aircraft or buy capacity from carriers according to carriers' schedules. Whether with airlines or forwarders, JFK's proponents must recognize that a backlog of perceptions exists that cannot be overcome passively. Not only have other airports often built their cases on the basis of negative perceptions about JFK but some of these negative perceptions have been validated. The material improvements currently considered for JFK's cargo facilities must be promoted aggressively but still sensibly.

Generally, print advertising is an ineffective means of marketing JFK's cargo facilities due to its imprecise targeting of prospects and relatively limited ability to perform meaningful follow-up. In contrast, several annual and biennial industry events provide worthy opportunities to meet with dozens of carriers (often multiple representatives, each of whose input is potentially significant) and key forwarders. JFK's proponents have been conspicuously absent from these events. In addition to the previously-cited TIACA event, which poses a particularly cost-effective opportunity by happening in the U.S. in this year's geographic rotation, and annual IATA World Cargo Symposium (which rotates by continent) provide global audiences, while the biennial Air Cargo Americas (in contra-years to TIACA but always in Miami) and various Asia-oriented cargo events are more regionally focused. Of the four largest international gateways, LAX, MIA and ORD (as well as many of the next-tier gateways) are consistently represented in these events.

[1] Cargo carriers may also locate off-airport but the motivation to remain on-airport is exponentially greater.

The Port Authority already publishes more extensive trade data than is typical of most U.S. airports but may not be leveraging its utility optimally. Between that trade data, JFK's existing service (network connectivity) and planned improvements, JFK's proponents will soon have much of the key elements of what could be efficiently developed into target-specific proposal presentations. The number of carriers and forwarders that comprise prospects is finite. These presentations can then be delivered to prospects both at industry events and in "road show" meetings, as well as local briefings to area managers and key constituents.

The Port Authority and New York City ("the City") both recognize the importance of air cargo to JFK and to the region. Both entities however face challenges on a number of fronts that have historically diverted the focus away from logistics. Until 2000, growth was naturally assumed because of the attractiveness of the region, and strong proactive marketing was not an issue. Since that time, industry forces, the rise of alternative gateways, and the loss of revenue and jobs have added a sense of urgency to marketing and to a restoration of JFK's image and position in the industry. Part of the urgency is a result of budget cuts within the Port Authority's Aviation Department which eliminated the air cargo marketing budget three years ago. This was also the last date when a basic marketing/business plan for cargo was partially developed.

Other gateways actively participate in a number of the estimated 50 to 75 air cargo conferences held globally every year. Some take the initiative to host these events. For example, Miami sponsors the Air Cargo Americas Conference every two years, and ATL is hosting The International Air cargo Association Conference. These are venues in which business partnerships are actively pursued. Neither the Port Authority, nor the City participates. Municipalities and airports often work closely together to pursue air cargo. In some instances, the efforts involve shared marketing expenses and/or joint participation in conferences or events; in others it may involve the provision of incentives. The dollars that airports allocate to air cargo marketing are difficult to isolate for several reasons. First, there is a reluctance to share such data; second, the data is often subset within a broader marketing budget and not specifically allocated. Experience indicates that marketing budgets can range from $100,000 for some small airports to several million dollars annually. Most of the dollars are spent on travel and print advertising. There are no generic indicators on the success of such efforts or the prudence with which the funds have been expended. A well-focused budget of $300,000 to $500,000 for JFK would not be out of line with industry norms, particularly given the goals of this planning effort.

The City and the Port Authority have no indicated history of proactive joint efforts despite the potential synergies. The state to which the industry has evolved now presents both an opportunity and a need for the entities to establish a strong working relationship. Due diligence in this planning effort indicates that substantial effort will be required on several fronts to help the JFK cargo operation recover. The Port Authority must address many of the challenges that exist on the Airport, but certainly the relationship to off-airport development and access to the Airport require close collaboration with the City.

The preceding analyses have identified critical issues that are confronting the JFK cargo business. Given how the industry is changing, marketing and business development initiatives must look beyond the recapture of lost market share, which will be extraordinarily difficult, and focus on: a) attracting and capturing new business, and b) creating local demand for air logistics. Since this represents a different mindset and approach to marketing, *what becomes most important from a marketing perspective is the adoption of a comprehensive vision or brand of what the cargo complex and operation will look like, how it will enable its tenants and users to function, and the services and benefits that will be available.* The marketing strategies must reflect the business goals of the Port Authority

and the Economic Development Corporation ("EDC"), and do so within the context of the Conceptual Development Plan – Preferred Alternative and the critical issues summarized below:

1. A conceptual development plan that allows for phased, fiscally prudent development of modern, cost-effective air cargo facilities.
2. Trucking access issues and connectivity between on- and off-airport cargo facilities.
3. A cost containment program for tenants and users of on- and off-airport facilities.
4. Competitive and modern leasing policies and practices
5. Infrastructure financing strategies for off-airport development.
6. An aggressive rebranding and marketing campaign.

The Preferred Alternative is structured to address business and operating requirements in state-of-the-art facilities supported by efficient use of aeronautical infrastructure. This development must be sensitive to funding options, costs for tenants and users, and the requisite cash flows to the Port Authority and the City under the Master Lease. Early phasing will take approximately eight years during which time the leases on most affected facilities will have expired, minimizing adverse impact and giving the Port Authority increased flexibility for implementation. This option is also the easiest to phase because it minimizes multiple moves. The infrastructure costs are lowered through the use of shared aeronautical infrastructure and from a construction perspective, work could begin very quickly. The phasing is also structured to have minimal impact on facilities with some residual value.

8.4 THE DEVELOPER PERSPECTIVE

A primary concern is the ability to finance new development. It was therefore critical to obtain insight from the private sector firms that specialize in air cargo facilities. Since partnerships will be critical, a workshop with the top North American developers of air cargo buildings was held to discuss the issues that they perceived with projects at JFK and airports in general. There were several that surfaced.

1. The Port Authority has a history of issuing Requests For Proposals ("RFP") and/or authorizations for cargo development that were cancelled – the 80 series, Building 208, and Hangars 3, 4, and 5. The cost of preparing a response to these kinds of solicitations can be up to $1,000,000. Failure on the part of an airport to follow through creates skepticism about future development initiatives. There is a concern that many RFP's are essentially fact-finding missions.
2. There is substantial concern over the issue of existing airport facilities competing with new ones. The older facilities which are in some instances fully amortized can charge much lower rents. This creates difficulties in attracting and retaining customers in new buildings. This has become particularly sensitive in the market of the past five years where volumes and yields are down and costs are up.
3. There are basic policy issues with the Port Authority's approach to leasing. The length of the typical lease for a development property is 25 years. Newer lease agreements at MIA, ORD, and LAX can be extended – in some instances to reach 40 years or more. This enables the developer to amortize the investment over a longer period and reduce the rents and user fees charged to tenants. Because of the links to the Master Lease, cooperation from the City on some form of "non-disturbance" provision would be very important.

4. The issue of residual value (i.e. the potential worth of an existing building) at gateway airports is only an issue with the Port Authority. Asking developers to compensate the Port Authority for an old building as part of the right to build a new building adds considerable costs which must flow through to tenants and users. (It should be noted that the Port Authority has indicated that this is no longer a current policy.)
5. Most airports, other than those operated by the Port Authority, do not require the developer to begin paying ground rent the day the lease is signed. A more common and acceptable policy is a penalty provision for a "failure to perform" by a negotiated date. This date is typically flexible and linked to market conditions. (Again, the Port Authority has indicated that this is no longer policy.).
6. Infrastructure development is a challenge not a deterrent. In most instances the development of aeronautical infrastructure can be folded into a project and the costs mitigated through lease length, a sharing of costs, or in some cases the use of airport or city benefits that can be applied to the project with a flow-through that offsets some of the investment costs.
7. Development RFP's can be substantially simplified to reduce the costs of the proposal and the length of the process. Solicitations will more than likely end in a negotiation but they should be conducted as they would be with a partner rather than in confrontational fashion.
8. Updated design standards and development guidelines should be in place for handling tenant alterations. The appointment of a single one-stop shop to coordinate requests would be of substantial benefit.
9. Lastly, transparency related to costs in solicitations and negotiations is essential.

Understanding the developer perspective is important in moving forward with new development and at the same time controlling the cost of development and the resultant impact on tenants and users.

8.5 THE PREFERRED ALTERNATIVE

There are currently four cargo zones at the Airport. Under the Preferred Alternative one of the Zones would be discontinued for cargo use - Zone A would be shifted to other uses that will be discussed. Zone C would be dedicated to integrators and reduced slightly to allow for potential infrastructure modifications and the accommodation of future growth of passenger terminal requirements. The current Zones B and D would be the focus of new air cargo and logistics development. All non-integrator carrier activity will be concentrated in Zone D, making signage and way-finding easier for trucking, and for connectivity with the off-airport community. At the same time Zone B will be gradually developed to accommodate a Cargo Village of customs brokers and freight forwarders.

The Preferred Alternative includes the following elements - all of which represent the state-of-the-art development and operating elements found in the most modern cargo complexes and which offer enhanced services and the opportunity for reduced costs at JFK:

- Completely new cargo facilities, with ideal configuration and sizing to include: warehouse, office, and capacity needs, security requirements; and truck apron and maneuvering ability for landside operations.
- Appropriate aircraft ramp sized to meet Code F requirements.
- Increased ramp safety and security with fewer facilities, tighter access controls, and more capacity for equipment storage.

- A new Integrator Complex to enable that market segment to continue to grow in an environment that will meet both airside and landside needs.
- Retention of the Customs Facility that incorporates all government offices in close proximity to the cargo facilities.
- Port Authority offices that will provide a facility designed to accommodate the agency's office requirements.
- A new Animal Care Facility to provide enhanced levels of service to the cargo industry and the Airport community.
- A Certified Screening Center to provide economies of scale savings for shipping through JFK and to attract new business.
- A Pressure Chamber as a safety measure in the event a suspect device is detected.
- A Truck Service Center to address the requirements of short- and long-haul truckers some of whom travel more than 2,500 miles to deliver cargo to JFK for shipment.
- An on-airport Cargo Village to accommodate customs brokers and freight forwarders in a completely integrated community that is closely linked to the carrier complex.
- Improved on- and off-airport connectivity is achieved through better roadway geometry, moving some of the connection activity onto the Airport, and eliminating cargo from Zone A.
- Reduced truck movements because of better connectivity, a simplified roadway network, and fewer cargo facilities will provide cost savings to truckers and reduced time to conduct business at JFK.
- A cleaner carbon footprint will result from the reduced trucking activity.
- The simpler layouts of the cargo facilities will facilitate easier maintenance and operations for tenants and the Port Authority.

8.6 MARKETING JFK IN THE FUTURE

From a marketing perspective there are a number of key issues that will need to be addressed within the industry. Several of these are part of the existing marketing program but will need to be updated to reflect the concepts and approaches discussed below. It is important to note that the knowledge and expertise of the Port Authority staff involved with air cargo, place them among the top tier in the industry and substantially superior to LAX and ORD.

Cargo customers require four basic business elements - cargo handling, availability of aircraft maintenance, customs clearance, and fueling. These are well represented at JFK. *The discussion that follows contains the key points that should be made in future marketing efforts, and emphasized in collateral material. The emphasis will change based on the targets.*

8.6.1 VISION

There must be a comprehensive vision or brand of how the cargo complex will look in the future, how it will operate, what the relative cost structures will be, the services to be offered, and the partnership between the Port Authority and the City.

"America's Most Advanced Gateway to the World"

8.6.2 FACILITIES

The cargo facilities at JFK will be completely redesigned to handle four million tons of cargo while offering reduced costs, quicker turn times, and higher levels of service.

The new carrier buildings in Zone D will facilitate connectivity and interlining. They are designed to be responsive to a wide range of diverse tenant and user requirements with easy airside and landside access and include state-of-the-art material handling systems that provide cost-effective and efficient handling. Climate controlled facilities are provided as well as special areas for dangerous goods, high value shipments, and animals. Special airside access gates for oversized cargo enable easy movement to an aircraft ramp designed for Code F aircraft. Centralized cargo handling will be available in the main cargo facilities making available broad economies of scale that will hold down costs and increase levels of service. Facilities will contain the latest in security technology and provide enhanced ability for tenants to track shipments with the most modern Information Technology ("IT") equipment.

Zone C will be converted into an integrator complex where substantial landside operations can be readily accommodated. This will substantially reduce trucking congestion in Zone D as well. This option also capitalizes on the availability of existing aircraft apron for the integrators' freighter operations.

Zone B will contain nearly 1,800,000 square feet of new facilities for customs brokers, freight forwarders, and other supporting business. New business programs and leasing policies will allow these firms to locate on-airport in new, efficient, and affordable facilities designed to accommodate the largest modern tractor-trailers.

Zone A represents a new concept for the Airport. Part of the acreage will be allocated to meet the aviation support needs of the carriers include flight kitchens and aircraft maintenance. The balance of the property would accommodate an international commerce center that can capitalize on an on-airport location. This complex will specialize in exhibits and product displays of high value products to include: precious metals, gems, and textiles. It would be supported by hotels and office space which would also accommodate the general airport population and customer base.

Off-airport, the New York City EDC would create - through a series of public-private partnerships and incentives unique capacity for businesses that are involved in international shipping by air. The extension of Foreign Trade Zone status which currently exists in all the on-airport cargo zones, to a new manufacturing and assembly complex will enable the City to provide one of the most cost efficient and prestigious locations in the industry. The complex would also provide value-added services for products that typically move by air to include perishables, pharmaceuticals, electronics, specialty kitting, critical parts distribution, etc.

8.6.3 ACCESSIBILITY

The City and the Port Authority recognize that JFK is an international gateway, and that the landside operations are critical. As a top priority they are working closely with New York State to enable 53-foot trucks to access JFK and its off-airport Foreign Trade Zone. The use of the larger vehicles will represent a substantial savings over the current operating environment. Simplified cargo building alignments, fewer and more efficient facilities, better roadways and signage will result in simplified pick-up and delivery. The fewer truck trips will reduce dwell time and reduce operating costs for stops by carriers, customs brokers, and freight forwarders.

Roadway geometry, both accessing the Airport and in the new on- and off-airport facilities, will consider the need for the larger trucks to queue and dock efficiently.

A last element of the landside efforts is a new Truck Service Center that will provide drivers with a new facility focused on their needs. In the event there is a delay in pick-up or delivery, drivers can park their vehicles for an extended time, eat, and be alerted electronically when they can be accommodated at the facility.

8.6.4 BUSINESS

The growth of cargo at JFK will be in large measure a product of public-private partnerships among the industry, the Port Authority, New York City, and the development community. New business programs that include restructured ground lease rates, longer leases, and more flexible terms and conditions for facility development are being introduced. This new approach will enable developers to realize cost reductions that they can pass on to the tenants and users of their facilities. These kinds of arrangements that generate operating savings and revenue increases through economies of scale, can be detailed within the context of leasing or operating agreements and linked to reporting and performance measures. (See Chapter 7 for more detail). As a partner, the City will be working with the Port Authority to design and implement a broad array of incentives to locate and maintain air cargo and related businesses at and around JFK.

8.6.5 SECURITY

Both landside and airside access are tightly monitored and controlled, and the new development plan provides capacity for both Customs and the Transportation Security Administration ("TSA") to perform their inspection activities faster and more effectively in each of the primary cargo buildings. Recognizing that modern security requirements can add substantial costs, a Centralized Certified Cargo Screening Facility will be added to provide savings through economies of scale and expedited service for urgent cargo. The industry's most experienced police force (currently at JFK) provides a strong deterrent to crime and upholds one of North America's safest and most secure shipping environments.

8.6.6 SERVICE

The new facilities will be put in place with two objectives to provide new value to the users of JFK: lower costs and increased service. The quality of handling companies and other service providers will be evaluated on a regular basis to ensure that any potential issues are addressed quickly and effectively. The Port Authority will have key staff designated to address tenant and user questions ranging from basic business and marketing issues to tenant alteration requests.

Facilities on- and off-airport will together address virtually any operating issue that the air cargo community will have. World class handling companies are available on the airport to provide first class service and emergency maintenance assistance that is available around the clock. A question was raised regarding the ideal number of handling companies to have on the Airport. The ideal situation strikes a balance between price and service to the airlines that the Airport as a whole can provide. The number of companies will to a great extent, depend on the business arrangements in the cargo facilities. A common-use facility would typically have a single handling company serving a large number of carriers. These companies operate though a Port Authority licensing process that should be subject to performance review. The appropriate number of companies will provide targeted levels of service, at an agreed upon price, and without equipment storage and staging becoming an issue.

The strong working relationships with the most experienced representatives of federal agencies in the industry will continue, providing expedited clearance of imports and rapid efficient inspection of outbound products.

Off-airport facilities will be developed that will focus on value-added services to include: handling of flowers, seafood and other perishables, product fulfillment, electronic assembly and repair, specialty products, critical parts, pharmaceuticals, bio-medical processing, and medical kitting. An element of this development strategy will be to provide opportunities for businesses currently located outside of the City to move closer to JFK to reduce their operating costs. There are a number of potential marketing targets located in nearby Nassau County. These include:

1. Hook Creek Industrial & Office Park in Valley Stream is an important JFK submarket with several buildings housing tenants with an air-logistics focus
2. Lawrence which also has a number of buildings housing relevant tenancies
3. Inwood
4. Franklin Square and Lake Success which also house airport-related tenants

8.7 STRATEGIES FOR MOVING FORWARD

Reinvigorating JFK's cargo business will require:

- A comprehensive acceptance within the Port Authority Aviation Department of the vision and the direction for moving forward
- A strong working partnership with the City on the business and marketing elements

Implementation will in all probability have some temporary adverse impacts that can be minimized through efficient development phasing and the introduction of new policies and incentives that will encourage private investment in infrastructure both on- and off-airport. Without consensus on what the development will look like and how it will operate, it will be extremely difficult to accept and implement change.

Initiatives will need to take place on several fronts that address not only the current physical and operating challenges, but also the perceptual issues that exist in the industry regarding JFK.

8.8 PHYSICAL PLANNING AND DEVELOPMENT

The preferred runway option must be determined so that the Conceptual Development Plan for air cargo can be "finalized" (The Team recognizes that some adjustments may be necessary in the future, but having a product to market will be important). With a development scenario "in place" a more accurate development phasing plan can be prepared and a final cost-benefit analysis conducted to ensure that cash flows are optimized to the extent possible.

There are several development initiatives in process for JFK currently. These include the Truck Service Center, a new cargo facility, an animal care facility, and major improvements to the U.S. Postal Service facility. *It may be counter-productive to move all of these ahead without a decision on the final layout and the phasing plan which could certainly impact location and the appropriate development timing.*

The City, New York State and the Port Authority need to immediately begin resolution of the 53-foot trucking access issue for JFK. A key element of this will be the extension of the Foreign Trade Zone ("FTZ") concept to additional businesses off-airport and demonstrating the importance of the access to JFK's position as an international gateway. This effort can be linked to discounted tolls and special tracking of JFK-destined vehicles.

A final determination on the development and phasing of the on-airport cargo village as part of the conceptual plan will enable the City to begin working on consolidation of off-airport properties for the larger development of an FTZ complex that will house firms focused on shipping by air.

The addition of a centralized cargo screening facility should receive immediate consideration because of its value in attracting business and reducing costs for existing users.

The development of new cargo facilities will need to consider not only the costs and revenues for the Port Authority and the developer, but also how these cash flows translate into costs for the tenants and users of facilities.

8.9 BRANDING

For all its maturity, JFK needs a new identity or brand in the air cargo industry. This is critical for several reasons. The first is to offset the strong negative marketing that other airports focus on JFK. The cost of doing business and access are the two areas that are mentioned first, and the branding must address these in newly developed collateral material and in selective media use. Creating a new industry awareness of a comprehensive value-added service package will be critical to help differentiate JFK and the Region from other emergent international facilities. The ability to reduce shipping costs through consolidation will be critical.

The City will need to be involved as a partner. Despite the fact that there is very limited manufacturing/assembly in the City, the creation of a shipping center near the Airport could have substantial benefit. The indications from the analyses in this effort are that much of the cargo that has been lost will not be recaptured easily, if at all. The thrust, therefore, is to create a new market sustained by the off-airport shipping center.

8.10 TARGETING AIR CARGO

The air cargo industry is built on a series of business relationships among firms that in many instances either control or have a major influence on the routing of cargo. Care should be taken in the pursuit of new business not to lose sight of existing partners. Moving forward therefore, the marketing of JFK should have separate areas of focus:

1. The first and most obvious is the carriers. This effort can be greatly enhanced by conducting fuel-burn analyses to help identify the lower-cost routes and destinations for carriers.
2. The second is the freight forwarders who control the routing of a great deal of international freight.
3. The third is the trucking industry which often balks at traveling to JFK because of the costs and the restraints on trucking.
4. The fourth is other airports to create strategic partnerships for joint marketing.
5. The last is a mix of industries that produce products or value-added services for goods that move by air.

8.10.1 CARRIERS

As discussed earlier in this document, JFK is NOT a commodity driven air cargo operation. As a gateway, it is appropriately focused on global distribution – expediting shipping with frequency of lift, and containing shipping costs through consolidation. While it is important to continue to address core markets in Europe, Asia, South Asia, Russian CIS, and the Middle East, targeting should focus on new geographic regions and carriers that currently serve or could potentially serve those destinations. Africa will have strong potential over the next five years and South America, which is growing rapidly, will become far more viable with the introduction of the 787. There are a substantial number of potential target markets that include: Osaka, Guangzhou, Bangkok, Bangalore, Accra, Lagos, St. Petersburg, nonstop to Sydney (Australia), the Baltic States, Birmingham, Bucharest, Vilnius, Riga, Naples, Tripoli, St. Petersburg, Pusan and Ankara. Each of these markets is different and may require a totally different approach. For some, cultural and social connections may prove just as important as business costs. In such instances, the input and partnership of EDC to emphasize the regional connections could be a major factor since the pursuit of new business will include both passenger and cargo services.

From a broad marketing perspective, the positive is that New York is a known entity. New business development should therefore focus on two elements for targeted markets, cost and service; cost should be used to help focus marketing efforts. From a carrier perspective, airport marketing must be designed to help a major business make a strategic decision on the routing of millions of dollars of equipment. A very effective use of marketing resources with very little associated costs is to focus on existing tenants and users. Those carriers have already made a decision to use JFK and it is essential that the decision be reinforced and in some way rewarded. A strong outreach program and regular communications are critical, but will be unsuccessful unless carrier issues and concerns are addressed.

The marketing cannot be “all things to all people” nor can it be a shotgun approach. The strategy cannot simply target all carriers not using JFK. Certainly they can receive marketing material and communications on what is happening at the Airport and the region, but effective marketing must be targeted and prioritized based on due diligence of the geographic region and the carriers that serve it. In each instance the factors about the City and JFK that are most attractive may differ and the contents of a tailored “sales kit” should be modified appropriately.

Airlines that operate all-cargo aircraft are an appropriate focus of Port Authority air service development efforts. In the pursuit of pure freighter operations, a fuel burn analysis can help differentiate JFK from competing gateways and at the same time give guidance to selecting and prioritizing target markets. As an example, the fuel burn (and the related costs) on a route from Bucharest to MIA, versus JFK, versus ATL, and versus ORD can be calculated to give a clear picture of a major cost segment for the carrier and the benefit of a JFK destination. Conversely, this kind of analysis may indicate that JFK is not the best option and the focus can be shifted to a different priority. Asia still remains a high growth option and despite the geography should also remain of high interest.

Marketing for both passenger and freighter operations should be based on Port Authority-driven criteria that are linked to service levels to specific regions, bi-lateral considerations, potential load factors, financial stability of the carrier, political considerations, and indicated market demand (Flexibility should always be provided for special demand factors that may require unusual service). Using these and other factors relevant to Port Authority and the City the field of carriers should be screened and narrowed to a number that could reasonably be addressed in a year by available resources – 20 to 30

would be realistic. Based strictly on geography several targets warrant initial exploration. These include Ethiopian, Kenya Airways, Tarom, China Southern, Hainan, Thai Airways, Grupo TACA, ultimately Cubana, COPA, Baltic carriers, Yemenia, SATA, Malaysia Airlines, Vietnam Airlines, WestJet, and Philippine.

A major element of the carrier pursuit is the ability to provide handling capacity in a state-of-the-art facility, with a world-class provider. The introduction of performance criteria for cargo handling would be an effective way to emphasize Port Authority interests in quality of service. Lastly, although aeronautical infrastructure at a gateway airport is seldom an issue, new outreach efforts will need to demonstrate the readiness of the Airport for Code F aircraft.

8.10.2 FREIGHT FORWARDERS

These travel agents for freight vary in size from small specialty operations (museum pieces, antiques, etc.) to large multi-national firms. They operate both as independent export agents and as partners with major manufacturers and shippers. They are a critical business segment from both a leasing perspective and the routing of cargo. These firms make their profits on margins that they negotiate with shippers and carriers. Their success is linked to the ability to consolidate shipments and create economies of scale. This makes a location close to or an on-airport desirable. However, since an on-airport location is not necessary, the main selling points to this large leasing market are a reasonable rental rate and efficient operating conditions.

The long-term development of a Cargo Village in Zone B would be tailored for this market segment. The Preferred Alternative locates carriers in Zones D and C leaving a substantial development opportunity in Zone B for freight forwarders and customs brokers. A structured development will yield the ability to add more than 1,000,000 square feet of these facilities. Under a Tiered Pricing Structure the basic ground rent could be reduced particularly if that modification is in conjunction with an extended lease term and reasonable financing. There has been strong historical demand for such facilities if the price is right. The target market for leasing would include businesses in Nassau County as well as those in Springfield Gardens.

Cargo or Freight Villages represent unique opportunities to organize and leverage freight activities to create economic development and value for communities. They can encourage the coordinated use of multiple freight modes; reduce vehicle miles traveled by encouraging industrial development in the immediate vicinity of freight hubs; and can encourage more use of long distance modes (such as air cargo) by concentrating industrial shippers in a single location. Further, from the perspective of an airport's surrounding communities, Cargo Villages, can also make goods movement activities better neighbors.
This section:

- Defines the Freight Village concept.
- Provides examples of various types of Freight Village developments in the U.S.
- Identifies potential concepts for JFK.

8.10.2.1 Defining the Cargo Village

The term "Cargo or Freight Village" emerged in Europe over forty years ago to describe a new form of logistics center development that combined freight transportation, warehouses/ distribution centers and services in one site. In contrast to the European Freight Village model where the public sector has generally been the primary developer, private sector companies are the primary developers and operators of U.S. Cargo Villages which concentrate on freight forwarders, customs brokers, and other supporting businesses.

The characteristics of the U.S. Cargo Villages include:

- Modal shifting – goods are moved between two or more forms of freight transportation. Typically, Cargo Villages in the U.S. involve rail/truck shifting, although some air cargo/truck examples exist or are under consideration. Air cargo examples include Alliance in Texas and the Southern California Logistics Airport[2]. The former was developed by Hillwood (formerly Perot). The Southern California development is at the former George Air Force Base in the Inland Empire area of the State. In a sense, much of the development around LCK and the former DHL hub in Wilmington, OH are versions of cargo villages.
- Active distribution centers and industrial activities are located adjacent to the modal shift facilities, within the clearly demarcated development, to generate vibrant economic activity, jobs, and tax ratables for the immediate area. The distribution centers tend to serve multi-state market areas.
- An active relationship exists between the modal facilities and distribution centers/industrial activities in the complex. This relationship already exists between the Airport and air cargo related businesses in the surrounding area.
- Support activities, such as office space, retail (restaurants, banking), and hotels are generally part of the development.
- One or no more than two entities generally manage the development. The development of the concept at JFK and integrating it with an off-airport shipping complex, would be the basis for a strong working partnership between the Port Authority and the City.
    - In the U.S., the support activities can serve as a bridge between the development and the surrounding community – serving both the Cargo Village's workforce and the local community.
    - The support activities can connect the community to the development in the U.S., providing valuable services and a broader range of tax ratable's to local areas. The support activities improve the desirability of the development.

8.10.2.2 U.S. Cargo Village Examples

Research has identified five different forms of a U.S. Cargo Village development; three variations in terms of the development process used and two concepts that are being considered.

[2] For more information, see: HTTP://WWW.LOGISTICSAIRPORT.COM/

The three forms of U.S. Cargo Village development are:

- "Build from Scratch" – In these developments, new freight and transportation facilities, such as rail yards and track, and industrial properties are constructed on a site. Examples of this development process include Alliance in Texas and Centerpoint in Illinois.
- "Add a Village/Two-Stage" – In these developments, the freight facilities exist or are generally constructed first. The industrial development generally occurs once the freight facilities become operational. Examples include the Southern California Logistics Airport and the Dallas Intermodal Terminal/Dallas Logistics Hub in Texas. This development model may be part of a potential Cargo Village program for JFK.
- "Evolved Village" – These developments started as large industrial parks that already contained support services. While rail track may have existed in the development, the addition of a short-line or regional railroad operator enhanced the viability and attractiveness of using rail-to-shippers as part of their supply chains and brought new users into the development. The examples include the Pureland Industrial Complex and Raritan Center, both located in New Jersey.

There are two other concepts for Cargo Village development:

- *Compact Cargo Village*, which focuses on the development of sites of 300 acres or less. A conceptual plan for a compact freight village was developed for a brownfield site in Somerset County, NJ.
- *Virtual Freight Village*, which focuses on extending the Village concept to locations with existing concentrations of industrial activities and freight facilities. The Virtual Cargo Village concept "brands" an existing area and includes the creation of an active public/private association to market and support the area. The concept incorporates the zoning and land use ordinance structure and seeks to add the unified management structure inherent to successful Freight Villages. In the case of an established industrial area, the Virtual Freight Village seeks to create or use an existing local industrial or business association to:
    - Provide a unique identity and marketing plan for the area that would encourage new industrial tenants to consider the area.
    - Coordinate between the industrial tenants and freight service facilities and operations in the area to create efficient goods movement beneficial to tenants, freight operators and the surrounding community.
    - Address worker support services such as, restaurants, banks and day care centers that can be useful to the surrounding community.

It is possible that the existing area surrounding JFK could be enhanced as part of branding the area as an Air Cargo Logistics Center.

8.10.2.3 Applicability for JFK

Based on a review of Cargo Village approaches and benefits, rebranding of JFK and the surrounding area could be done as a combination of the "Add a Village" and "Virtual Cargo Village" concepts. The existing on-airport JFK air cargo assets and potential new forwarder complex would serve as the core of the Village. The existing off-airport businesses, potential new shipping complex, and air cargo support operations would become the industrial development component of the Village. This approach works for both on- and off-airport, as well as, existing and new industrial development.

The Virtual Freight Village component involves building on the strength of existing business associations in the area to create a unique, public/private entity with a website to champion and market the area for air cargo activities.

Branding and the potential application of incentives could be used to reinforce and enhance the Cargo Village concept.

The other element of marketing to forwarders is the movement of cargo. In this area the focus will need to be on service as much as cost. The addition of a Certified Screening Center, the efficiency of Customs, and the security of shipping through JFK are all important items. The addition of an off-airport shipping center to provide a wide range of value-added services for specialized products, as well as, the ability to assemble certain products for international distribution could be an important attraction for routing.

8.10.3 TRUCKING

The analyses indicate that the cost of trucking is a major concern but one that could be addressed, in large measure, by administrative changes to the policy that restricts the use of 53-foot tractor trailers. The current policy constraint adds substantial cost to shipping through the City and acts as a deterrent to a number of long-haul carriers. It is important to note that the catchment area for cargo extends as far west as Vancouver and as far south as Miami, defining JFK as a true gateway. The ability to strengthen and grow this domestic network is essential to maintaining JFK's position and to capture potentially new business. Cost is critical. Marketing material must address ways to reduce this through easier access, reduced queuing, better signage, fewer stops, tolls discounts, and the bigger issue of restrictions on the larger vehicles.

8.10.4 SHIPPING

Future marketing must present a picture of a different operating environment with a new cost structure and value-added services. The off-airport shipping center is an option to generate new business and reinvigorate old shipping channels. The close proximity to JFK provides overnight access to virtually every market in the world. Manufacturers of air-eligible products, particularly those with a high level of time sensitivity, would be primary targets. Time to market would be a major marketing element. The extension of the FTZ to the off-airport complex can provide substantial inventory and distribution benefits to tenants and users. The effective development of such a center would create a new market for both inbound and outbound products. Historically, despite its FTZ status, JFK has not been able to attract tenants or users because of the high on-airport rents. It makes more financial sense for a potential tenant to go into the FTZ at the Brooklyn Navy Yard, where the rents are one-third of those at the Airport, and truck to JFK.

Development will require the cooperation of private property owners and a coordinated consolidation effort. Tax-based property incentives may be required to facilitate this initiative and the creation of a formal enterprise or economic development zone would be attractive to shippers and manufacturers as well. This is an area where the efforts of the EDC would be particularly valuable in helping structure the outreach strategies and in the actual marketing to shippers and related businesses. That effort would mesh well with a Port Authority focus on the aviation elements of the marketing.

Identification of primary targets would include discussion with regional freight forwarders who should be helpful in focusing efforts not only on potential redirected cargo volumes but also on potential tenants of regional facilities.

8.10.5 AIRPORTS

One of the greatest challenges facing cargo route development is backhaul. A cargo operation needs to balance (at a satisfactory volume level) inbound and outbound flows. On long international routes, carriers typically must make fuel stops, which for the most part involve little cargo activity. Multi-stop flights offer the opportunity for carriers to build backhaul on certain routes. Airports that partner to offer volume discounts on such items as fuel, landing fees, handling and trucking costs, can create synergies that make certain routings more attractive to carriers.

8.10.6 MEDIA AND PROMOTION

Other competing domestic gateways (and airports) frequently team with the Municipality to promote the Region and the Airport's facilities and services. This partnering frequently comes in the form of the provision of economic and sometimes financial incentives. However, a more pragmatic approach is to ensure that regular communication takes place between the Port Authority and the City to coordinate as appropriate potential interaction on:

- Representing the City and Airport at trade shows
- Creation and production of integrated marketing material
- Strategy development for target markets and specific targets within those markets
- Presentations to passenger and cargo carriers
- Regional communications and outreach to political and business constituents
- Response to media inquiries and commentary

The lack of a Port Authority marketing budget for air cargo is an issue. Several years ago the budget was $300,000 and was used mainly for advertising. Participation in Trade Shows and conferences has been very tightly controlled for the past two decades because of cost issues and concerns over public perception of "paid vacations". Understanding that budget dollars are scarce, the ultimate impact of not marketing air cargo may be substantial in terms of lost revenue and job opportunities. The global market has grown substantially and the U.S. airports competing for market share has increased as well. The geographic appeal of JFK remains strong in the industry, but the routing of cargo continues to be driven by time and cost considerations. It is important therefore to continue to maintain a proactive presence in the industry. This can be accomplished through:

- Targeted press releases
- Revised and upgraded collateral marketing material
- Focused marketing trips based on due diligence and existing communications
- Participation in high profile carrier-oriented cargo/logistics conferences

Because the potential target markets will extend beyond the core aviation businesses to include shippers and manufacturers, as well as, providers of value-added services, joint marketing, on a select basis, by the City and the Port Authority would be beneficial. The right approach includes the right people to discuss intelligently the issues of relevance to the target.

The Zone A Concept

The initiatives related to air cargo that will eventually be pursued, are largely dependent on variables that will include, but not be limited to:

- the availability of capital funds
- expiration of existing leases
- fluctuations in demand and
- the phasing of development

The Zone A concept is a mechanism that, if feasible, will enable the Port Authority to address the variables mentioned above, and simultaneously, generate jobs and incremental revenue through the introduction of a new business paradigm. The Port Authority has made a strategic decision, with which the Consulting Team concurs, to eventually concentrate cargo operations in Zone D and shift all such functions out of A. This Zone can then serve two functions in the future. The first of these, and most important from an airport perspective, is the preservation and allocation of land to support future aviation operations. Accordingly a portion of the approximately 240 acres has been allocated for aircraft maintenance, flight kitchens, and additional ramp capacity to accommodate peak and/or unusual demand for aircraft parking.

The other function that can be developed on the site is an International Commerce Center, with exhibit space on a geographic and product specific basis, and ancillary supporting amenities in terms of office, hotel, and retail. Situating this type of development in Zone A, makes it easily accessible from the Van Wyck, and public transportation, and adds a powerful aesthetic impact to the entrance to the airport, and by extension, the entrance to New York and the United States for international travelers. The core of the new development would be two primary halls. The first and larger facility would allow nations to permanently exhibit products, services, and amenities that they offer. The second would be a smaller, 200,000 square foot facility that would focus on exhibiting of high-value precious metals, gems, textiles and leather goods for which New York is well-known. The exhibit halls would eventually be supported by a hotel, and office buildings, with a balanced amount of retail to include dining, with an international tone.

On the air side, space is provided for a small VIP ramp and hangar facility as well as a small logistics facility for easy movement of goods in and out of the exhibit halls should that be required. Neither of these facilities is essential. However, the VIP operation could provide access to travelers on in-transit visas enabling them to conduct business on the Airport itself. (This concept has not been vetted with airport security at this time).

Development could begin independent of the cargo phasing and in a relatively short period of time. This would provide an accelerated cash flow to the Port Authority and subsequently to the City. Development of this kind would be done by an independent third-party specializing in such projects that are focused on international trade and commerce. Discussions with the development community suggest a level of interest exists, provided acceptable business terms are available. A Request for Expression of Interest would enable the Port Authority and the EDC who together would share responsibility for the project, to gather appropriate intelligence on the feasibility of such a project, with virtually no attendant costs.

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JFK AIR CARGO STUDY

NEW YORK CITY ECONOMIC DEVELOPMENT CORPORATION | THE PORT AUTHORITY NEW YORK & NEW JERSEY

Appendices A-K





Aviation Planning at the Leading Edge

JFK AIR CARGO STUDY

NEW YORK CITY ECONOMIC DEVELOPMENT CORPORATION | THE PORT AUTHORITY NEW YORK & NEW JERSEY

Appendix A

Aviation Planning at the Leading Edge

APPENDIX A
DBO CONCEPTUAL PHASING DIAGRAM

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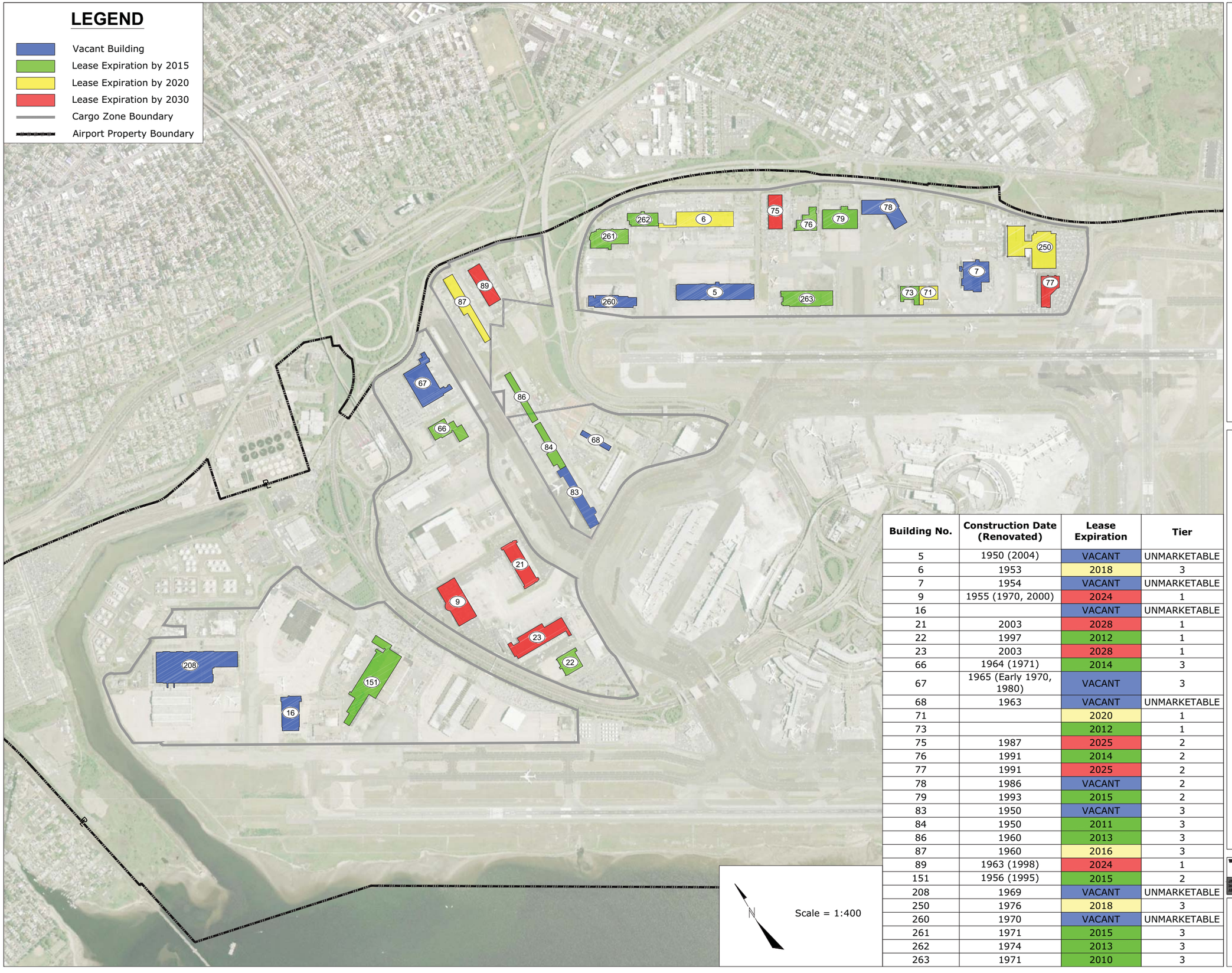


Building No.	Construction Date (Renovated)	Lease Expiration	Tier
5	1950 (2004)	VACANT	UNMARKETABLE
6	1953	2018	3
7	1954	VACANT	UNMARKETABLE
9	1955 (1970, 2000)	2024	1
16		VACANT	UNMARKETABLE
21	2003	2028	1
22	1997	2012	1
23	2003	2028	1
66	1964 (1971)	2014	3
67	1965 (Early 1970, 1980)	VACANT	3
68	1963	VACANT	UNMARKETABLE
71		2020	1
73		2012	1
75	1987	2025	2
76	1991	2014	2
77	1991	2025	2
78	1986	VACANT	2
79	1993	2015	2
83	1950	VACANT	3
84	1950	2011	3
86	1960	2013	3
87	1960	2016	3
89	1963 (1998)	2024	1
151	1956 (1995)	2015	2
208	1969	VACANT	UNMARKETABLE
250	1976	2018	3
260	1970	VACANT	UNMARKETABLE
261	1971	2015	3
262	1974	2013	3
263	1971	2010	3

Present Day Conditions
Vacant or Leased Buildings

JFK INTERNATIONAL AIRPORT
CARGO STUDY

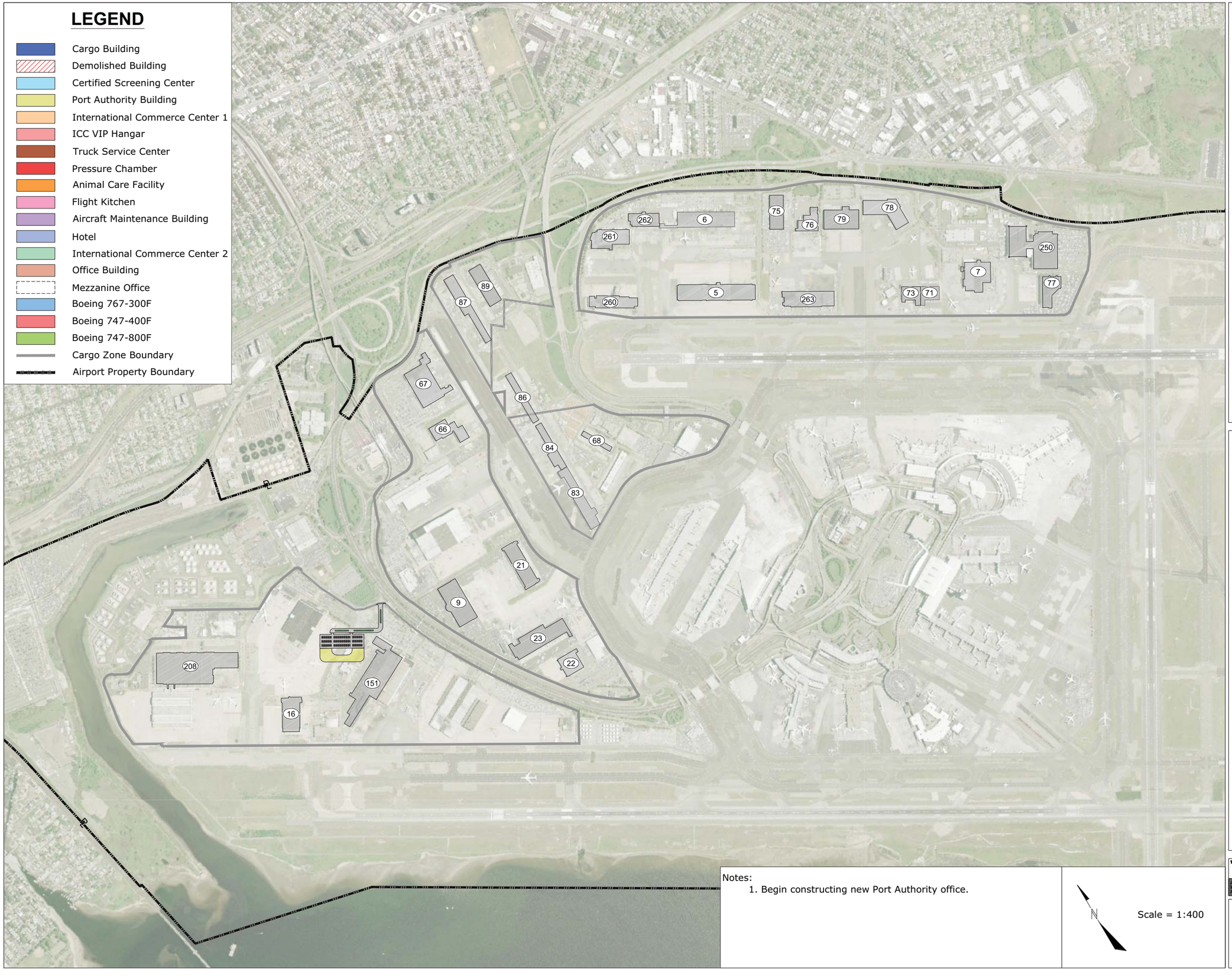
Aviation Department
Master and Site Planning and Technical Services Division
JFK International Airport
JFK

Exhibit
X-X

File: Y:\JFK\EDC Air Cargo\E-1&8 Work Product\1-CAD\1CONCEPTUAL ALTERNATIVES\Phasing\Preferred Alternative DBO Phasing.dwg | Layout: Vacant & Leased

LEGEND

- Cargo Building
- Demolished Building
- Certified Screening Center
- Port Authority Building
- International Commerce Center 1
- ICC VIP Hangar
- Truck Service Center
- Pressure Chamber
- Animal Care Facility
- Flight Kitchen
- Aircraft Maintenance Building
- Hotel
- International Commerce Center 2
- Office Building
- Mezzanine Office
- Boeing 767-300F
- Boeing 747-400F
- Boeing 747-800F
- Cargo Zone Boundary
- Airport Property Boundary



Notes:
1. Begin constructing new Port Authority office.

N

Scale = 1:400

Phase 1 (~2015)

JFK INTERNATIONAL AIRPORT
CARGO STUDY

DRAFT

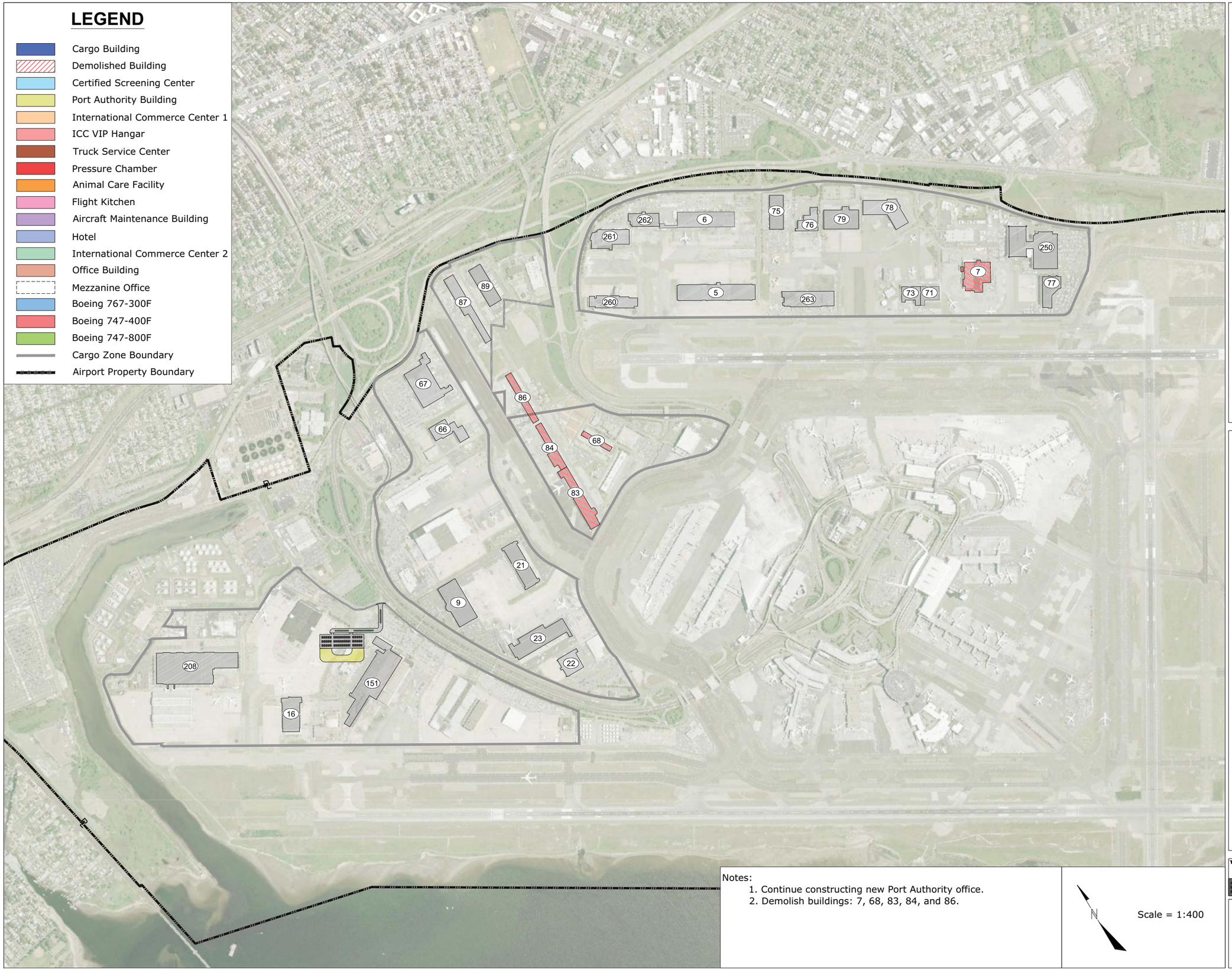
Aviation Department
Master and Site Planning and Technical Services Division
JFK International Airport

Exhibit X-X

File: Y:\JFK\EDC Air Cargo\E-L&B Work Product\1-CADD\CONCEPTUAL ALTERNATIVES\Phasing\Preferred Alternative DBO Phasing.dwg | Layout: Phase 1

LEGEND

- Cargo Building
- Demolished Building
- Certified Screening Center
- Port Authority Building
- International Commerce Center 1
- ICC VIP Hangar
- Truck Service Center
- Pressure Chamber
- Animal Care Facility
- Flight Kitchen
- Aircraft Maintenance Building
- Hotel
- International Commerce Center 2
- Office Building
- Mezzanine Office
- Boeing 767-300F
- Boeing 747-400F
- Boeing 747-800F
- Cargo Zone Boundary
- Airport Property Boundary



Notes:
1. Continue constructing new Port Authority office.
2. Demolish buildings: 7, 68, 83, 84, and 86.

N

Scale = 1:400

Phase 2 (~2015)

JFK INTERNATIONAL AIRPORT
CARGO STUDY

THE PORT AUTHORITY OF NY & NJ
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JFK International Airport JFK

Exhibit X-X

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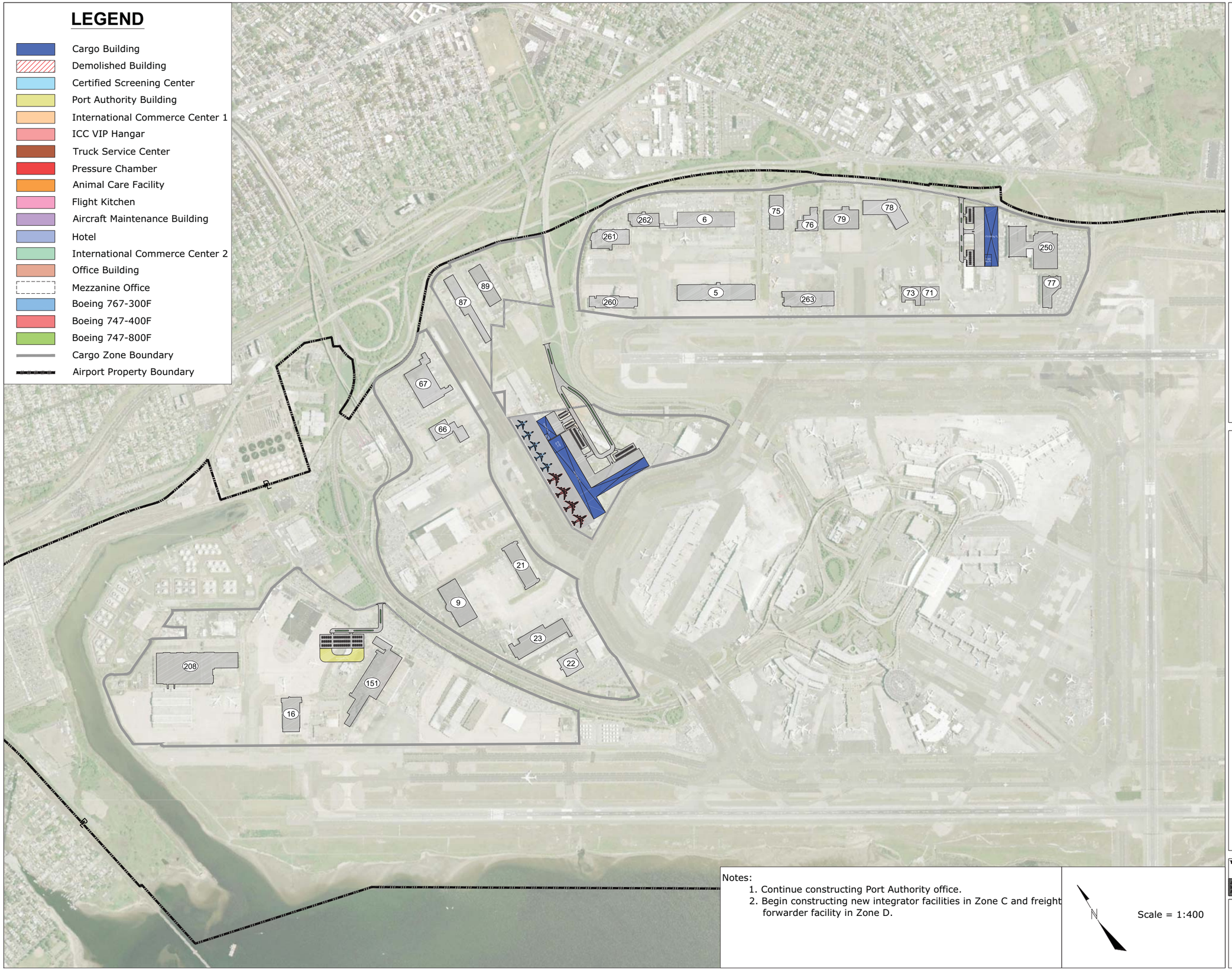
LEGEND

- Cargo Building
- Demolished Building
- Certified Screening Center
- Port Authority Building
- International Commerce Center 1
- ICC VIP Hangar
- Truck Service Center
- Pressure Chamber
- Animal Care Facility
- Flight Kitchen
- Aircraft Maintenance Building
- Hotel
- International Commerce Center 2
- Office Building
- Mezzanine Office
- Boeing 767-300F
- Boeing 747-400F
- Boeing 747-800F
- Cargo Zone Boundary
- Airport Property Boundary



Notes:
1. Continue constructing Port Authority office.
2. Begin constructing new integrator facilities in Zone C and freight forwarder facility in Zone D.

N

Scale = 1:400

Phase 3 (~2016)

JFK INTERNATIONAL AIRPORT CARGO STUDY

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Master and Site Planning and Technical Services Division

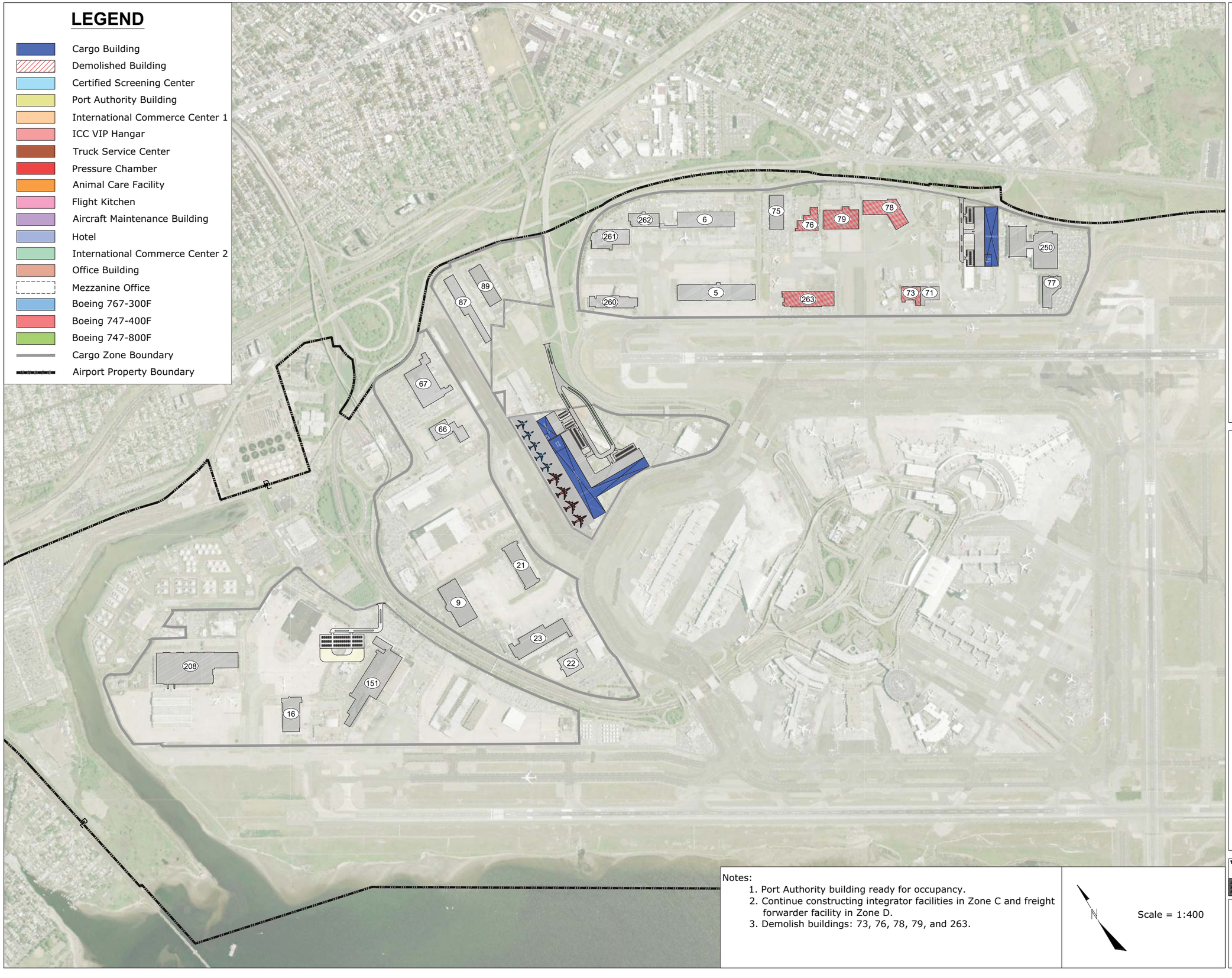
JFK International Airport

Exhibit X-X

File: Y:\JFK\EDC Air Cargo\E-L&B Work Product\1-CADD\CONCEPTUAL ALTERNATIVES\Phasing\Preferred Alternative DBO Phasing.dwg | Layout: Phase 3

LEGEND

- Cargo Building
- Demolished Building
- Certified Screening Center
- Port Authority Building
- International Commerce Center 1
- ICC VIP Hangar
- Truck Service Center
- Pressure Chamber
- Animal Care Facility
- Flight Kitchen
- Aircraft Maintenance Building
- Hotel
- International Commerce Center 2
- Office Building
- Mezzanine Office
- Boeing 767-300F
- Boeing 747-400F
- Boeing 747-800F
- Cargo Zone Boundary
- Airport Property Boundary



Notes:
1. Port Authority building ready for occupancy.
2. Continue constructing integrator facilities in Zone C and freight forwarder facility in Zone D.
3. Demolish buildings: 73, 76, 78, 79, and 263.

Scale = 1:400

Phase 4 (~2017)

JFK INTERNATIONAL AIRPORT
CARGO STUDY

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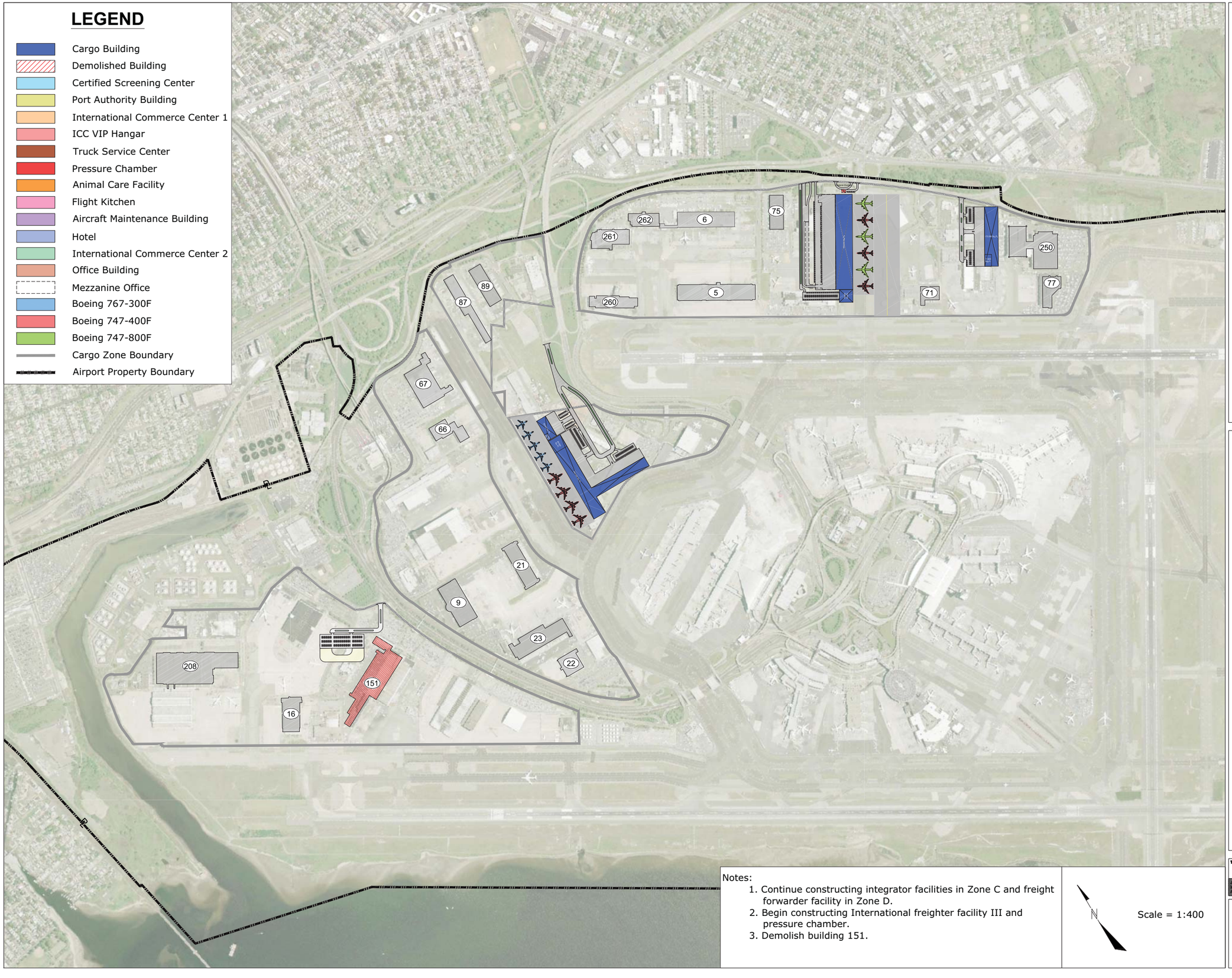
JFK International Airport JFK

Exhibit X-X

File: Y:\JFK\EDC Air Cargo\E-L&B Work Product\1-CADD\CONCEPTUAL ALTERNATIVES\Phasing\Preferred Alternative DBO Phasing.dwg | Layout: Phase 4

LEGEND

- Cargo Building
- Demolished Building
- Certified Screening Center
- Port Authority Building
- International Commerce Center 1
- ICC VIP Hangar
- Truck Service Center
- Pressure Chamber
- Animal Care Facility
- Flight Kitchen
- Aircraft Maintenance Building
- Hotel
- International Commerce Center 2
- Office Building
- Mezzanine Office
- Boeing 767-300F
- Boeing 747-400F
- Boeing 747-800F
- Cargo Zone Boundary
- Airport Property Boundary



Notes:

1. Continue constructing integrator facilities in Zone C and freight forwarder facility in Zone D.
2. Begin constructing International freighter facility III and pressure chamber.
3. Demolish building 151.

N

Scale = 1:400

Phase 5 (~2017)

JFK INTERNATIONAL AIRPORT
CARGO STUDY

Aviation Department
Master and Site Planning and Technical Services Division

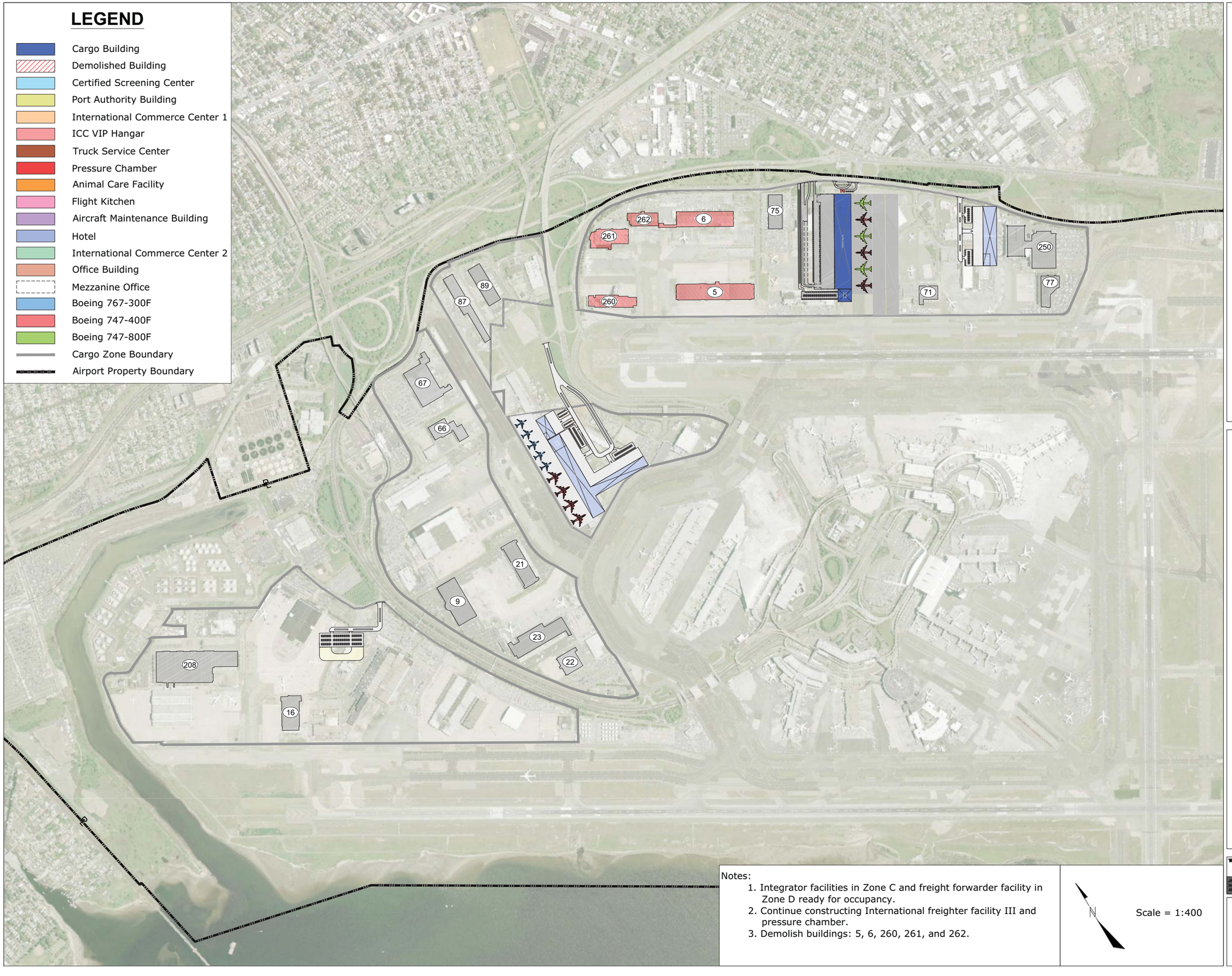
JFK International Airport JFK

Exhibit X-X

File: Y:\JFK\EDC Air Cargo\E-L&B Work Product\1-CADD\CONCEPTUAL ALTERNATIVES\Phasing\Preferred Alternative D&O Phasing.dwg | Layout: Phase 5

LEGEND

- Cargo Building
- Demolished Building
- Certified Screening Center
- Port Authority Building
- International Commerce Center 1
- ICC VIP Hangar
- Truck Service Center
- Pressure Chamber
- Animal Care Facility
- Flight Kitchen
- Aircraft Maintenance Building
- Hotel
- International Commerce Center 2
- Office Building
- Mezzanine Office
- Boeing 767-300F
- Boeing 747-400F
- Boeing 747-800F
- Cargo Zone Boundary
- Airport Property Boundary



Notes:
1. Integrator facilities in Zone C and freight forwarder facility in Zone D ready for occupancy.
2. Continue constructing International freighter facility III and pressure chamber.
3. Demolish buildings: 5, 6, 260, 261, and 262.

N

Scale = 1:400

Phase 6 (~2018)

JFK INTERNATIONAL AIRPORT
CARGO STUDY

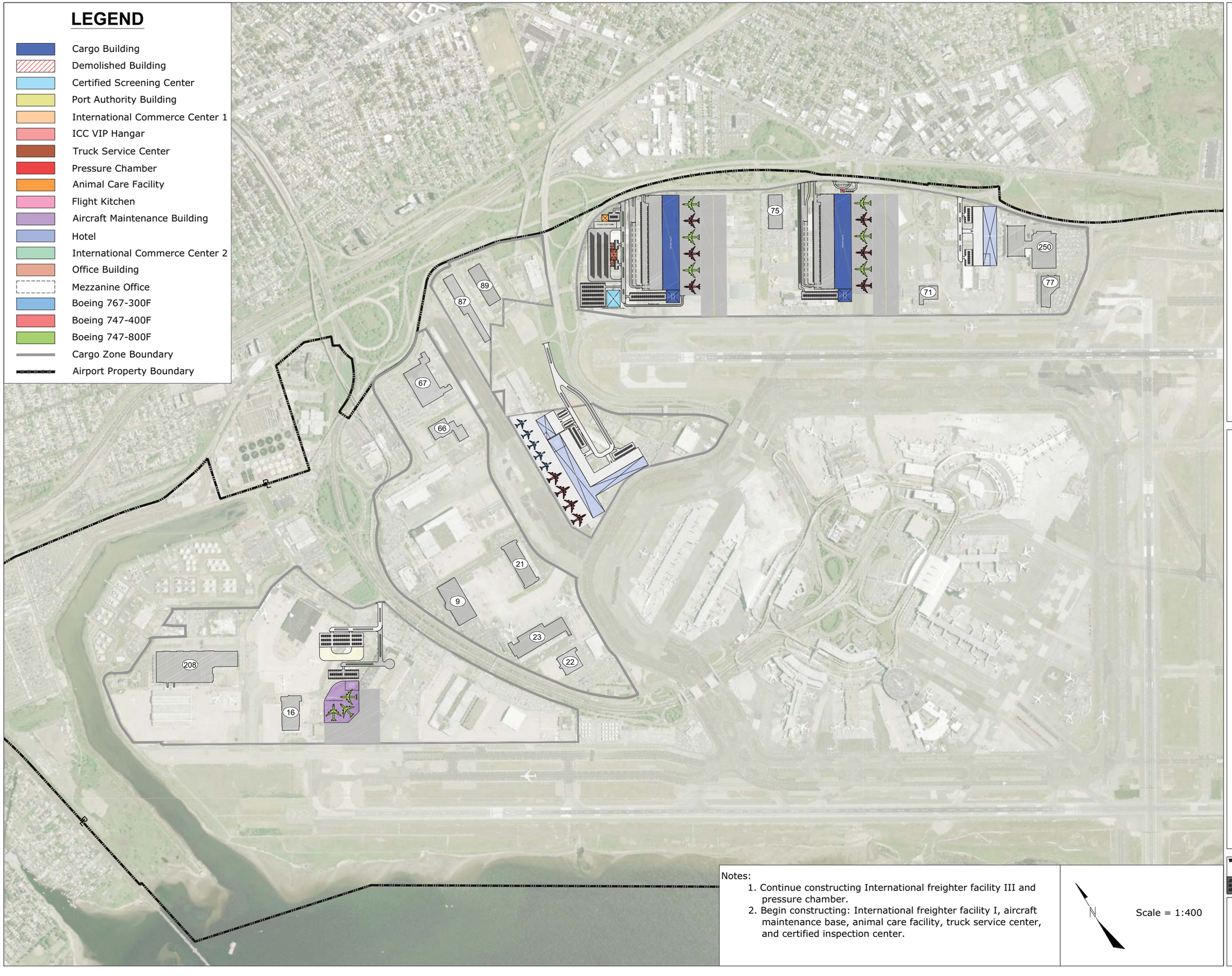
PORT AUTHORITY OF NY & NJ
Aviation Department
Master and Site Planning and Technical Services Division
JFK International Airport JFK

Exhibit X-X

File: V:\JFK\EDC Air Cargo\E-L&B Work Product\1-CADD\CONCEPTUAL ALTERNATIVES\Phasing\Preferred Alternative DBO Phasing.dwg | Layout: Phase 6

LEGEND

- Cargo Building
- Demolished Building
- Certified Screening Center
- Port Authority Building
- International Commerce Center 1
- ICC VIP Hangar
- Truck Service Center
- Pressure Chamber
- Animal Care Facility
- Flight Kitchen
- Aircraft Maintenance Building
- Hotel
- International Commerce Center 2
- Office Building
- Mezzanine Office
- Boeing 767-300F
- Boeing 747-400F
- Boeing 747-800F
- Cargo Zone Boundary
- Airport Property Boundary



Notes:

1. Continue constructing International freighter facility III and pressure chamber.
2. Begin constructing: International freighter facility I, aircraft maintenance base, animal care facility, truck service center, and certified inspection center.

N

Scale = 1:400

Phase 7
(~2018 to ~2019)

JFK INTERNATIONAL AIRPORT
CARGO STUDY

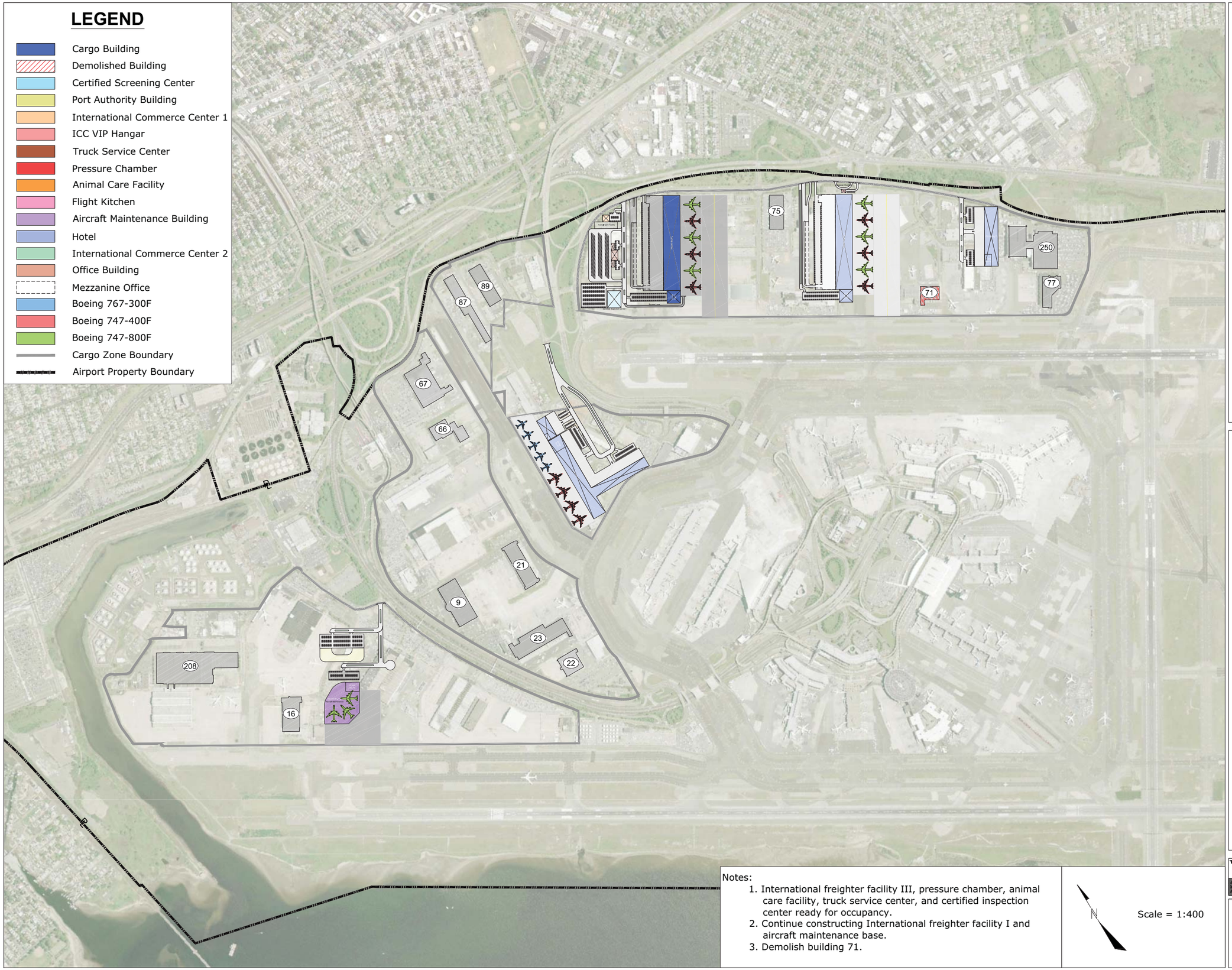
Aviation Department
Master and Site Planning and
Technical Services Division
JFK International Airport

Exhibit
X-X

File: Y:\JFK\EDC Air Cargo\E-L&B Work Product\1-CADD\CONCEPTUAL ALTERNATIVES\Phasing\Preferred Alternative DBO Phasing.dwg | Layout: Phase 7

LEGEND

- Cargo Building
- Demolished Building
- Certified Screening Center
- Port Authority Building
- International Commerce Center 1
- ICC VIP Hangar
- Truck Service Center
- Pressure Chamber
- Animal Care Facility
- Flight Kitchen
- Aircraft Maintenance Building
- Hotel
- International Commerce Center 2
- Office Building
- Mezzanine Office
- Boeing 767-300F
- Boeing 747-400F
- Boeing 747-800F
- Cargo Zone Boundary
- Airport Property Boundary



Notes:
1. International freighter facility III, pressure chamber, animal care facility, truck service center, and certified inspection center ready for occupancy.
2. Continue constructing International freighter facility I and aircraft maintenance base.
3. Demolish building 71.

N

Scale = 1:400

Phase 8
(~2019 to ~2020)

JFK INTERNATIONAL AIRPORT
CARGO STUDY

Aviation Department
Master and Site Planning and Technical Services Division

JFK International Airport JFK

Exhibit
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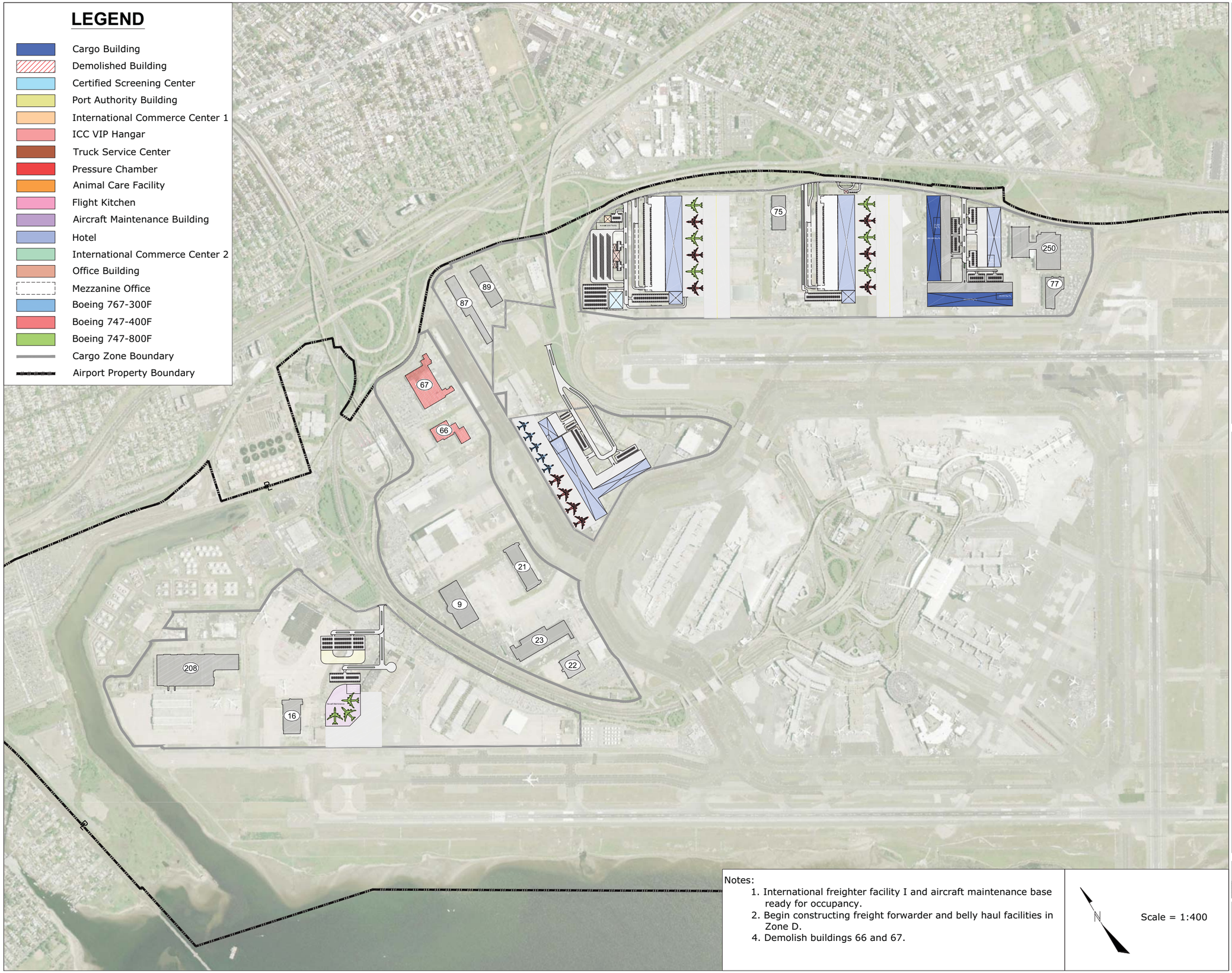
File: Y:\JFK\EDC Air Cargo\E-L&B Work Product\1-CADD\CONCEPTUAL ALTERNATIVES\Phasing\Preferred Alternative DBO Phasing.dwg | Layout: Phase 8

LEGEND

- Cargo Building
- Demolished Building
- Certified Screening Center
- Port Authority Building
- International Commerce Center 1
- ICC VIP Hangar
- Truck Service Center
- Pressure Chamber
- Animal Care Facility
- Flight Kitchen
- Aircraft Maintenance Building
- Hotel
- International Commerce Center 2
- Office Building
- Mezzanine Office
- Boeing 767-300F
- Boeing 747-400F
- Boeing 747-800F
- Cargo Zone Boundary
- Airport Property Boundary



Notes:
1. International freighter facility I and aircraft maintenance base ready for occupancy.
2. Begin constructing freight forwarder and belly haul facilities in Zone D.
4. Demolish buildings 66 and 67.

N

Scale = 1:400

Phase 9
(~2020 to ~2021)

JFK INTERNATIONAL AIRPORT
CARGO STUDY

Aviation Department
Master and Site Planning and
Technical Services Division

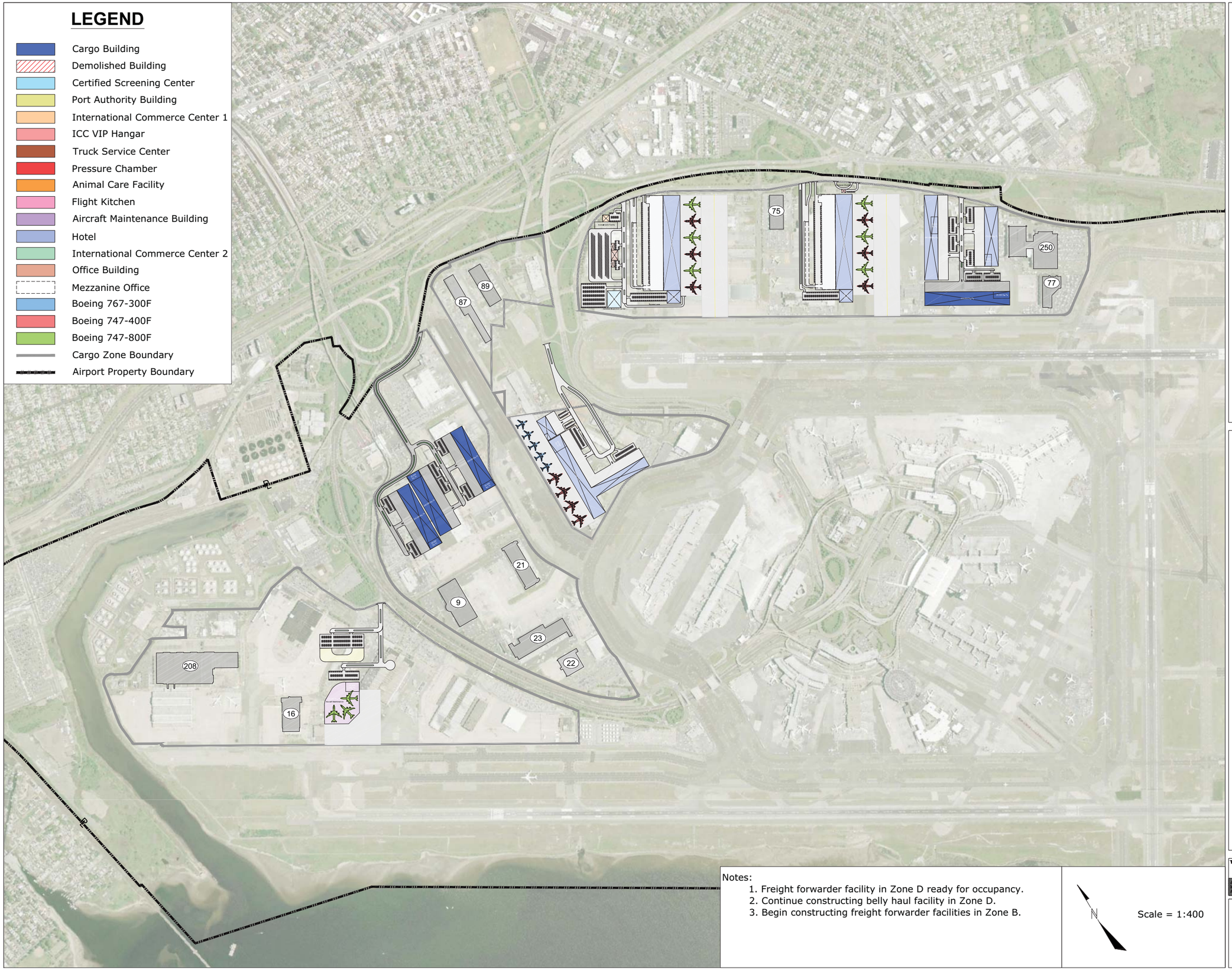
JFK International Airport JFK

Exhibit
X-X

File: Y:\JFK\EDC Air Cargo\E-L&B Work Product\1-CADD\CONCEPTUAL ALTERNATIVES\Phasing\Preferred Alternative DBO Phasing.dwg | Layout: Phase 9

LEGEND

- Cargo Building
- Demolished Building
- Certified Screening Center
- Port Authority Building
- International Commerce Center 1
- ICC VIP Hangar
- Truck Service Center
- Pressure Chamber
- Animal Care Facility
- Flight Kitchen
- Aircraft Maintenance Building
- Hotel
- International Commerce Center 2
- Office Building
- Mezzanine Office
- Boeing 767-300F
- Boeing 747-400F
- Boeing 747-800F
- Cargo Zone Boundary
- Airport Property Boundary



Notes:
1. Freight forwarder facility in Zone D ready for occupancy.
2. Continue constructing belly haul facility in Zone D.
3. Begin constructing freight forwarder facilities in Zone B.

N

Scale = 1:400

Phase 10 (~2022)

JFK INTERNATIONAL AIRPORT CARGO STUDY

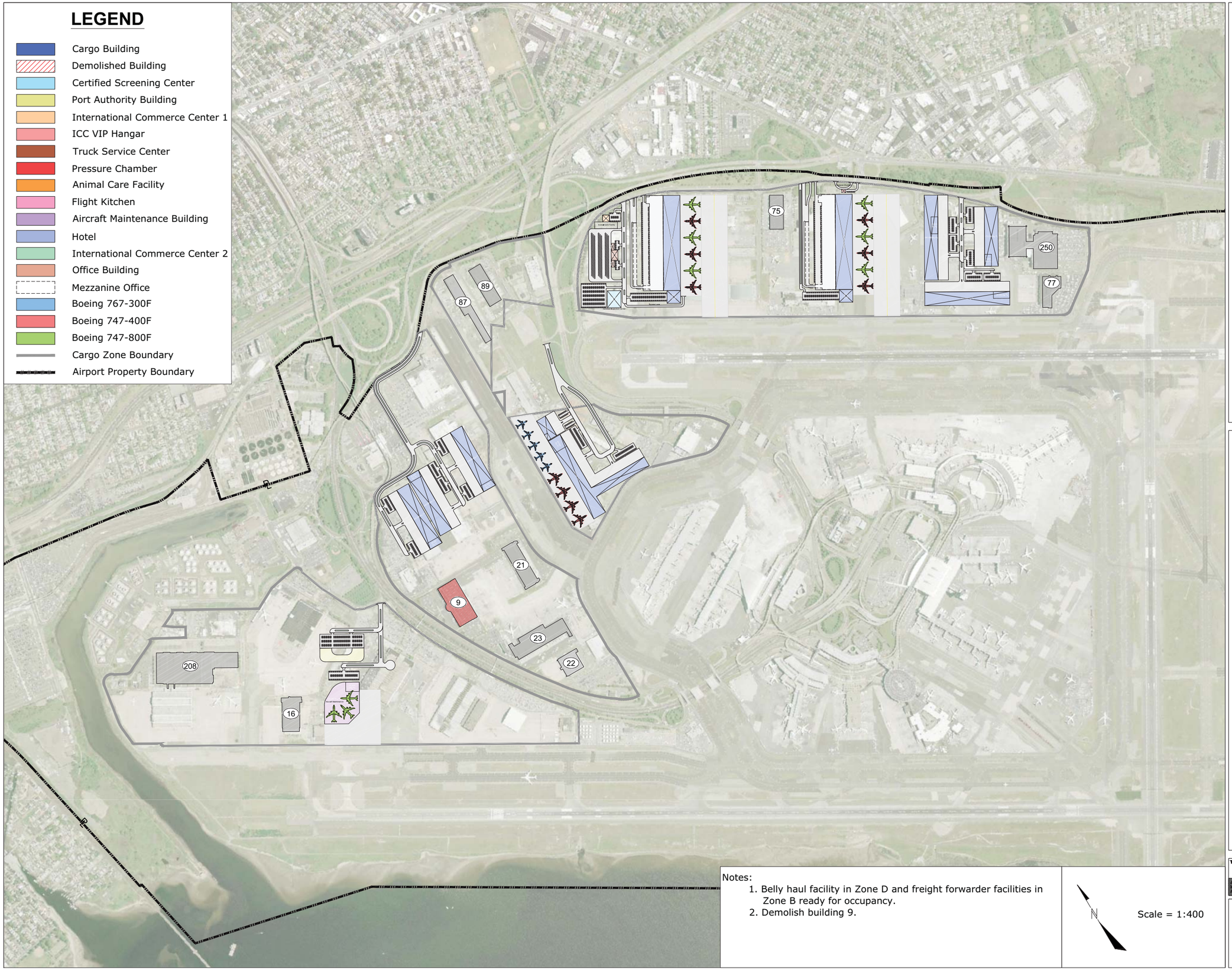
Aviation Department
Master and Site Planning and Technical Services Division
JFK International Airport JFK

Exhibit X-X

File: Y:\JFK\EDC Air Cargo\E-L&B Work Product\1 -CADD\CONCEPTUAL ALTERNATIVES\Phasing\Preferred Alternative DBO Phasing.dwg | Layout: Phase 10

LEGEND

- Cargo Building
- Demolished Building
- Certified Screening Center
- Port Authority Building
- International Commerce Center 1
- ICC VIP Hangar
- Truck Service Center
- Pressure Chamber
- Animal Care Facility
- Flight Kitchen
- Aircraft Maintenance Building
- Hotel
- International Commerce Center 2
- Office Building
- Mezzanine Office
- Boeing 767-300F
- Boeing 747-400F
- Boeing 747-800F
- Cargo Zone Boundary
- Airport Property Boundary



Notes:
1. Belly haul facility in Zone D and freight forwarder facilities in Zone B ready for occupancy.
2. Demolish building 9.

N

Scale = 1:400

Phase 11
(~2023 to ~2024)

JFK INTERNATIONAL AIRPORT
CARGO STUDY

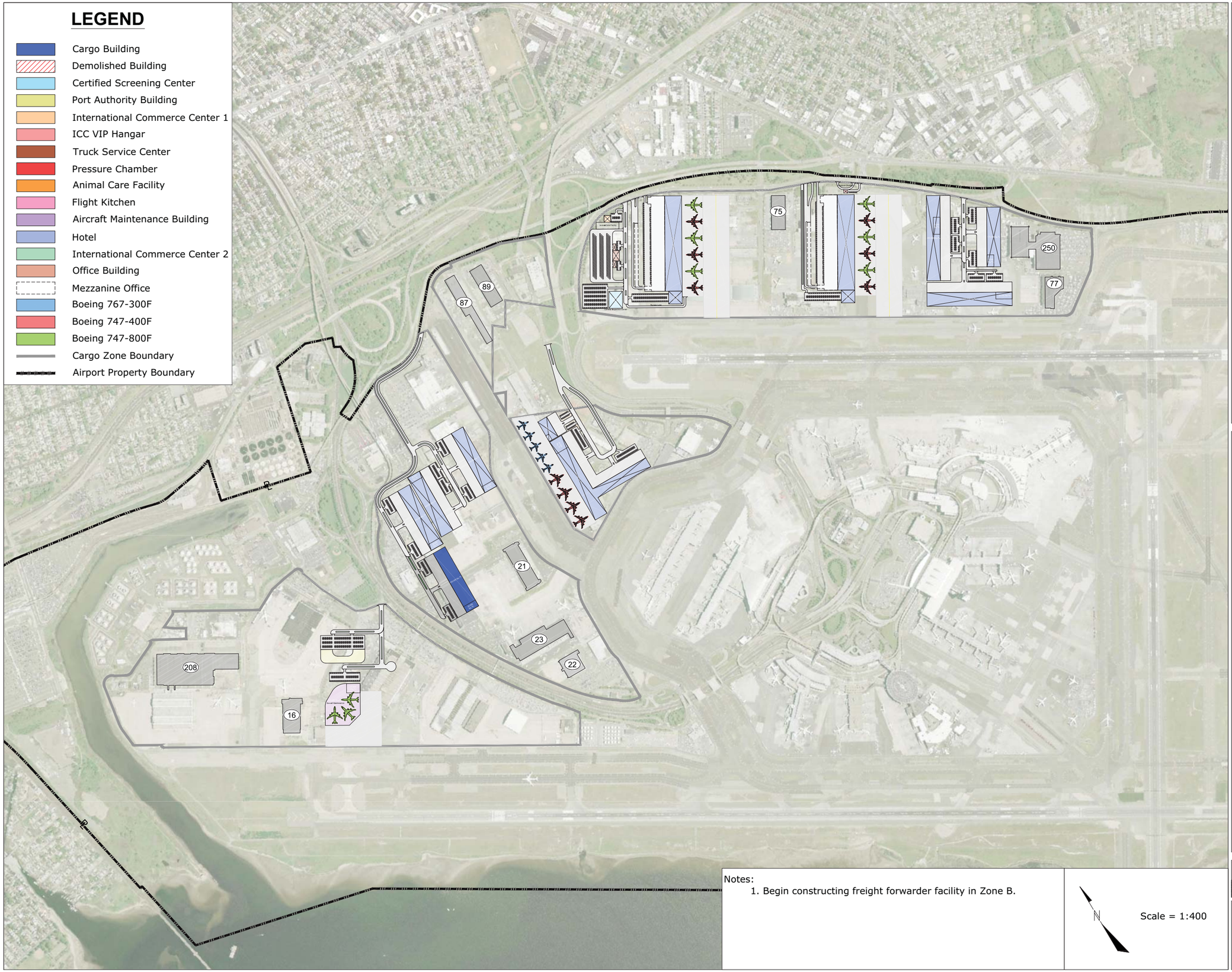
Aviation Department
Master and Site Planning and Technical Services Division
JFK International Airport
JFK

Exhibit
X-X

File: Y:\JFK\EDC Air Cargo\E-L&B Work Product\1 -CADD\CONCEPTUAL ALTERNATIVES\Phasing\Preferred Alternative DBO Phasing.dwg | Layout: Phase 11

LEGEND

- Cargo Building
- Demolished Building
- Certified Screening Center
- Port Authority Building
- International Commerce Center 1
- ICC VIP Hangar
- Truck Service Center
- Pressure Chamber
- Animal Care Facility
- Flight Kitchen
- Aircraft Maintenance Building
- Hotel
- International Commerce Center 2
- Office Building
- Mezzanine Office
- Boeing 767-300F
- Boeing 747-400F
- Boeing 747-800F
- Cargo Zone Boundary
- Airport Property Boundary



Notes:
1. Begin constructing freight forwarder facility in Zone B.

N

Scale = 1:400

Phase 12 (~2024)

JFK INTERNATIONAL AIRPORT CARGO STUDY

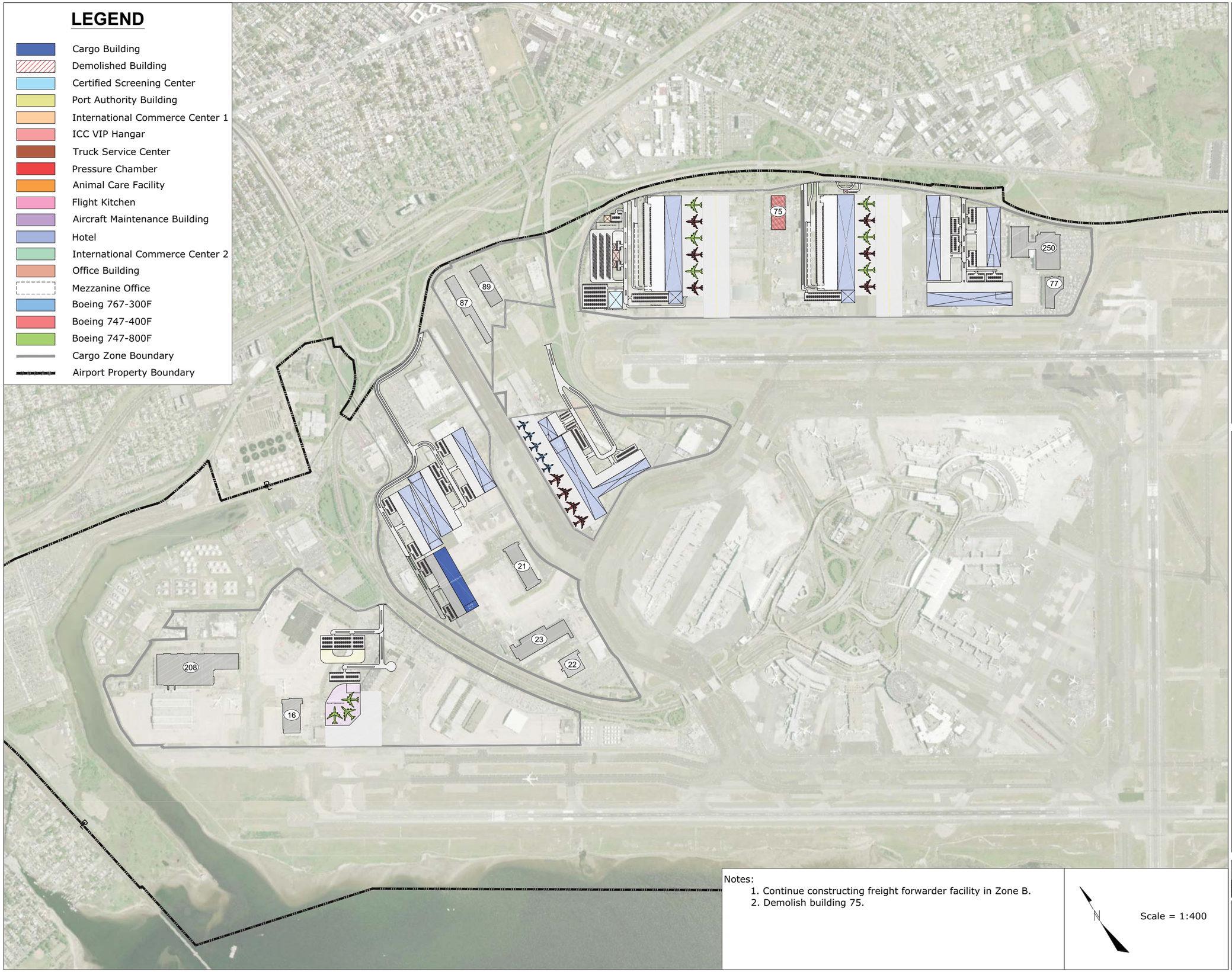
Port Authority of NY&NJ
Aviation Department
Master and Site Planning and Technical Services Division
JFK International Airport JFK

Exhibit X-X

File: Y:\JFK\EDC Air Cargo\E-L&B Work Product\1-CADD\CONCEPTUAL ALTERNATIVES\Phasing\Preferred Alternative PBO Phasing.dwg | Layout: Phase 12

LEGEND

- Cargo Building
- Demolished Building
- Certified Screening Center
- Port Authority Building
- International Commerce Center 1
- ICC VIP Hangar
- Truck Service Center
- Pressure Chamber
- Animal Care Facility
- Flight Kitchen
- Aircraft Maintenance Building
- Hotel
- International Commerce Center 2
- Office Building
- Mezzanine Office
- Boeing 767-300F
- Boeing 747-400F
- Boeing 747-800F
- Cargo Zone Boundary
- Airport Property Boundary



Notes:
1. Continue constructing freight forwarder facility in Zone B.
2. Demolish building 75.

N

Scale = 1:400

Phase 13 (~2025)

JFK INTERNATIONAL AIRPORT CARGO STUDY

Aviation Department
Master and Site Planning and Technical Services Division

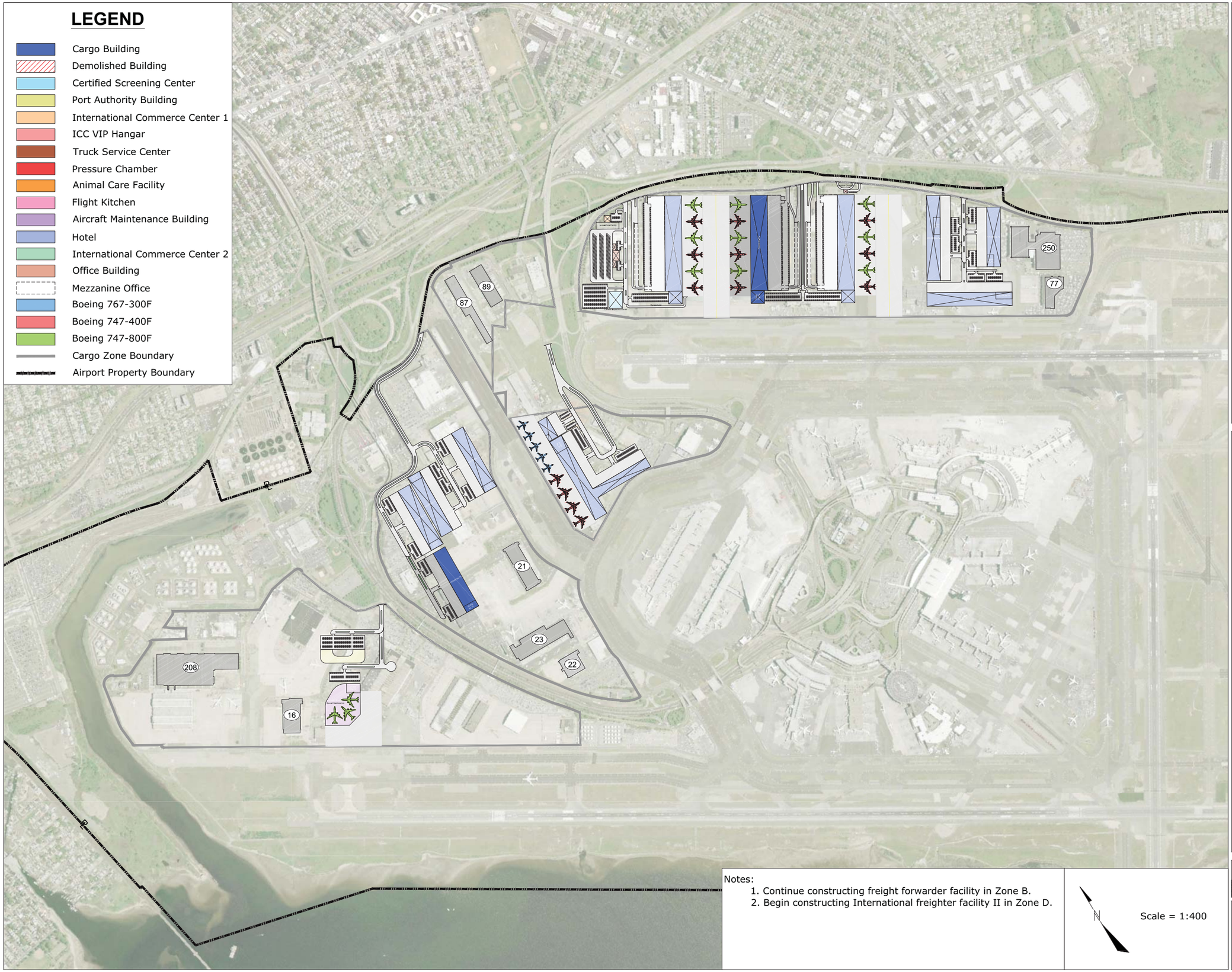
JFK International Airport JFK

Exhibit X-X

File: Y:\JFK\EDC Air Cargo\E-L&B Work Product\1- CADD\CONCEPTUAL ALTERNATIVES\Phasing\Preferred Alternative PBO Phasing.dwg | Layout: Phase 13

LEGEND

- Cargo Building
- Demolished Building
- Certified Screening Center
- Port Authority Building
- International Commerce Center 1
- ICC VIP Hangar
- Truck Service Center
- Pressure Chamber
- Animal Care Facility
- Flight Kitchen
- Aircraft Maintenance Building
- Hotel
- International Commerce Center 2
- Office Building
- Mezzanine Office
- Boeing 767-300F
- Boeing 747-400F
- Boeing 747-800F
- Cargo Zone Boundary
- Airport Property Boundary



Notes:
1. Continue constructing freight forwarder facility in Zone B.
2. Begin constructing International freighter facility II in Zone D.

N

Scale = 1:400

Phase 14 (~2025)

JFK INTERNATIONAL AIRPORT
CARGO STUDY

Aviation Department
Master and Site Planning and Technical Services Division

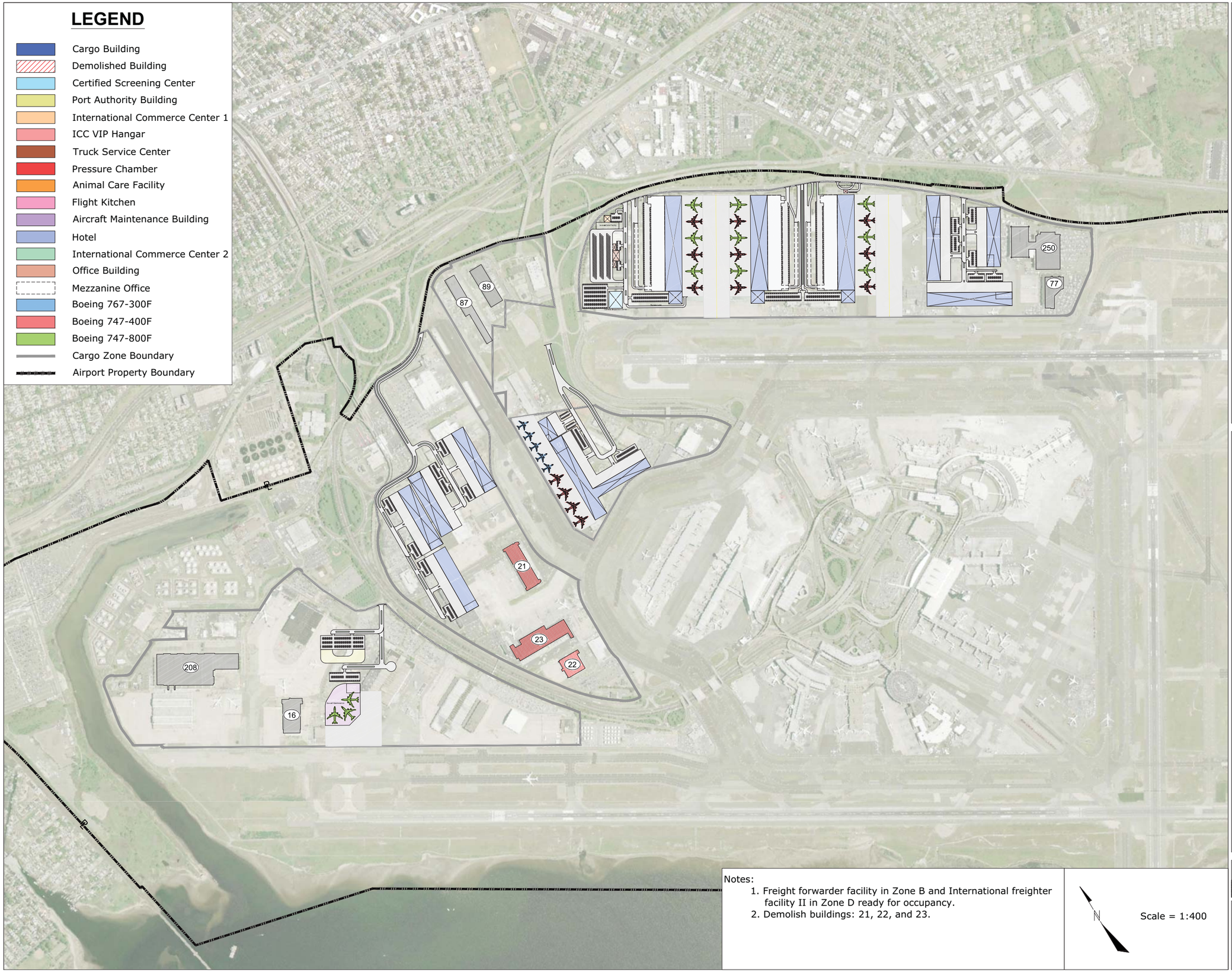
JFK International Airport JFK

Exhibit X-X

File: Y:\JFK\EDC Air Cargo\E-1&B Work Product\1- CADD\CONCEPTUAL ALTERNATIVES\Phasing\Preferred Alternative DBO Phasing.dwg | Layout: Phase 14

LEGEND

- Cargo Building
- Demolished Building
- Certified Screening Center
- Port Authority Building
- International Commerce Center 1
- ICC VIP Hangar
- Truck Service Center
- Pressure Chamber
- Animal Care Facility
- Flight Kitchen
- Aircraft Maintenance Building
- Hotel
- International Commerce Center 2
- Office Building
- Mezzanine Office
- Boeing 767-300F
- Boeing 747-400F
- Boeing 747-800F
- Cargo Zone Boundary
- Airport Property Boundary



Notes:
1. Freight forwarder facility in Zone B and International freighter facility II in Zone D ready for occupancy.
2. Demolish buildings: 21, 22, and 23.

N

Scale = 1:400

Phase 15
(~2026 to ~2028)

JFK INTERNATIONAL AIRPORT
CARGO STUDY

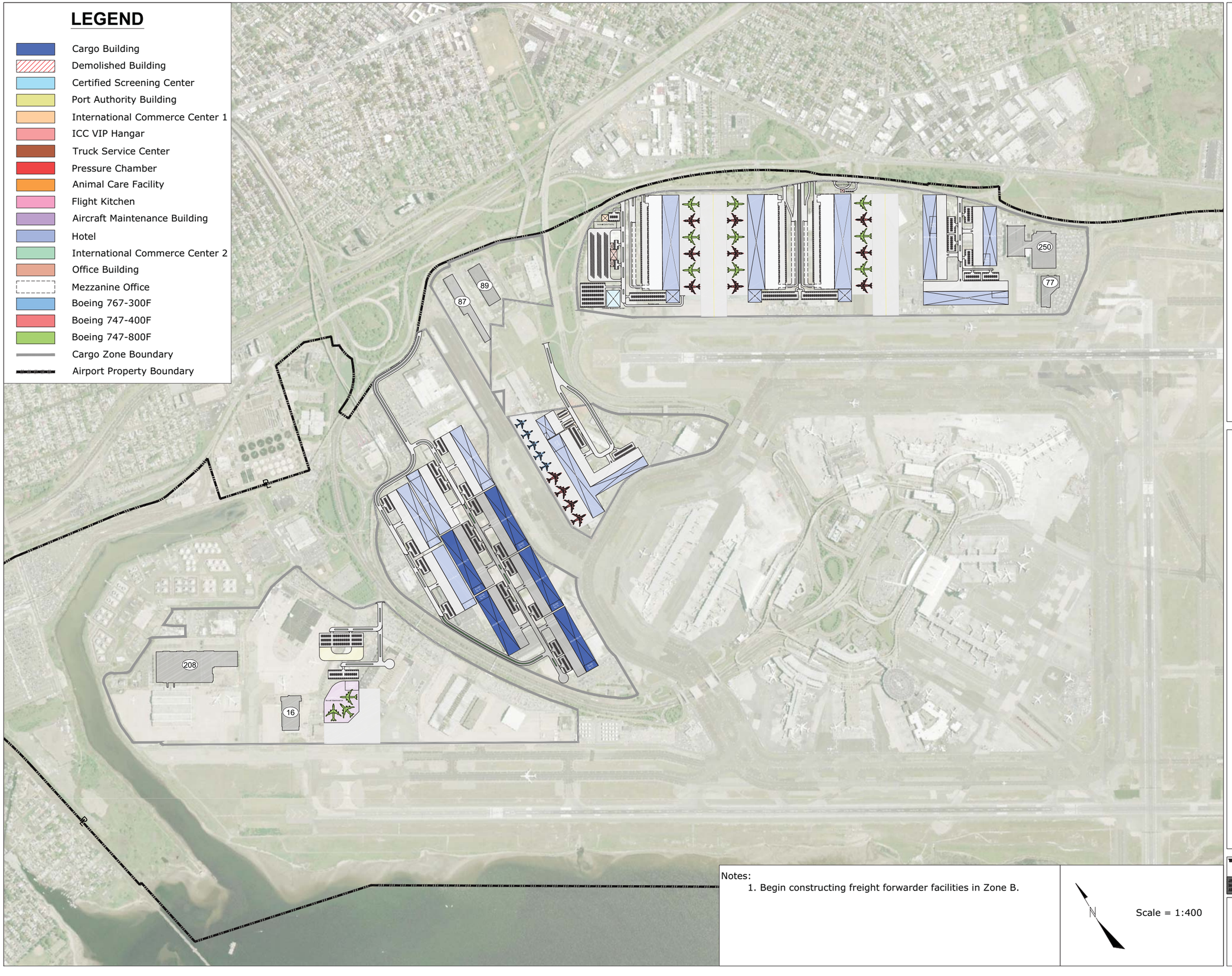
The Port Authority of NY & NJ
Aviation Department
Master and Site Planning and Technical Services Division
JFK International Airport JFK

Exhibit
X-X

File: Y:\JFK\EDC Air Cargo\E-L&B Work Product\1-CADD\CONCEPTUAL ALTERNATIVES\Phasing\Preferred Alternative DBO Phasing.dwg | Layout: Phase 15

LEGEND

- Cargo Building
- Demolished Building
- Certified Screening Center
- Port Authority Building
- International Commerce Center 1
- ICC VIP Hangar
- Truck Service Center
- Pressure Chamber
- Animal Care Facility
- Flight Kitchen
- Aircraft Maintenance Building
- Hotel
- International Commerce Center 2
- Office Building
- Mezzanine Office
- Boeing 767-300F
- Boeing 747-400F
- Boeing 747-800F
- Cargo Zone Boundary
- Airport Property Boundary



Notes:
1. Begin constructing freight forwarder facilities in Zone B.

N

Scale = 1:400

Phase 16
(~2028)

JFK INTERNATIONAL AIRPORT
CARGO STUDY

DRAFT

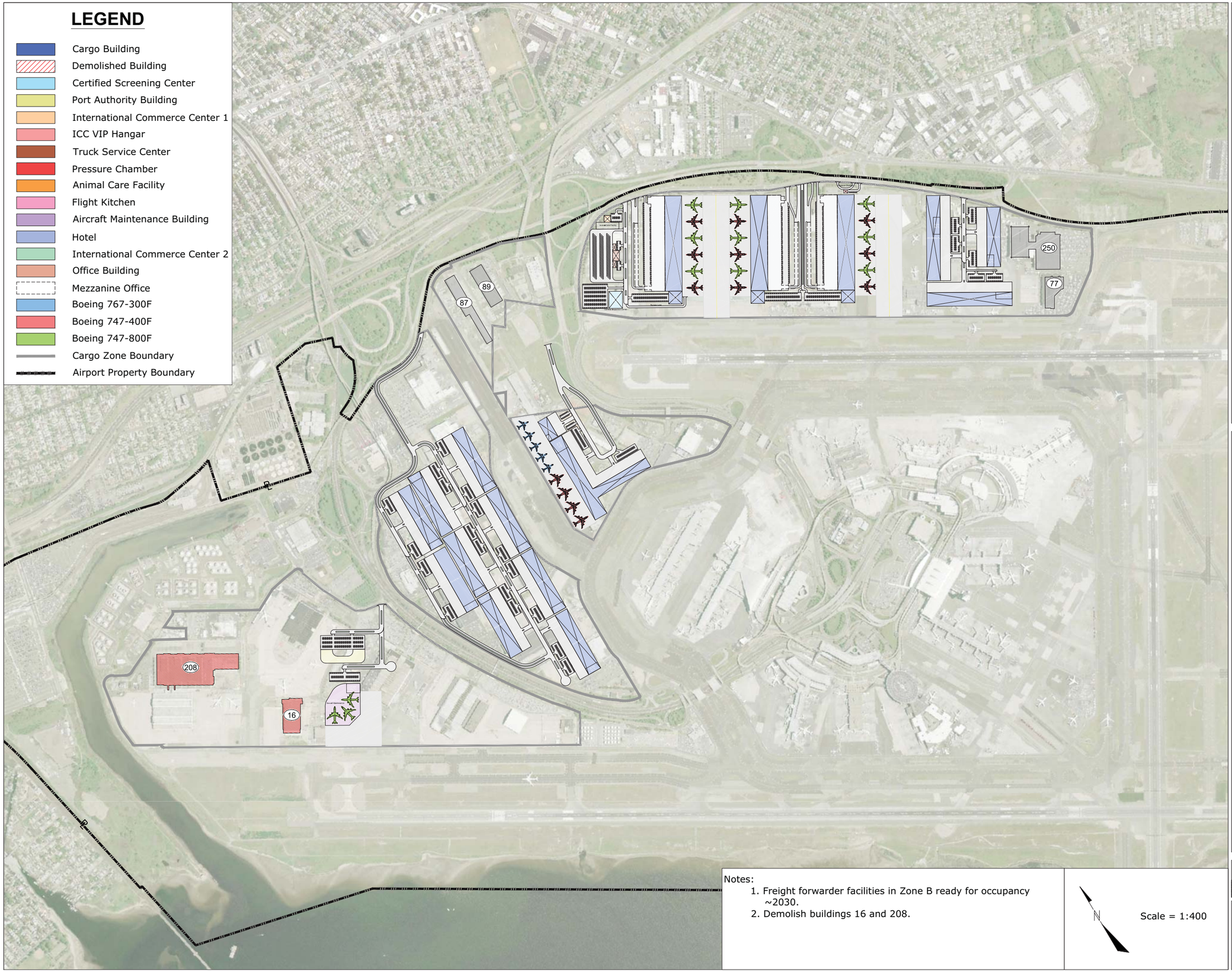
Port Authority of NY & NJ
Aviation Department
Master and Site Planning and Technical Services Division
JFK International Airport JFK

Exhibit
X-X

File: Y:\JFK\EDC Air Cargo\E-1&8 Work Product\1-CADD\CONCEPTUAL ALTERNATIVES\Phasing\Preferred Alternative DBO Phasing.dwg | Layout: Phase 16

LEGEND

- Cargo Building
- Demolished Building
- Certified Screening Center
- Port Authority Building
- International Commerce Center 1
- ICC VIP Hangar
- Truck Service Center
- Pressure Chamber
- Animal Care Facility
- Flight Kitchen
- Aircraft Maintenance Building
- Hotel
- International Commerce Center 2
- Office Building
- Mezzanine Office
- Boeing 767-300F
- Boeing 747-400F
- Boeing 747-800F
- Cargo Zone Boundary
- Airport Property Boundary



Notes:
1. Freight forwarder facilities in Zone B ready for occupancy ~2030.
2. Demolish buildings 16 and 208.

N

Scale = 1:400

Phase 17
(~2030 and Beyond)

JFK INTERNATIONAL AIRPORT
CARGO STUDY

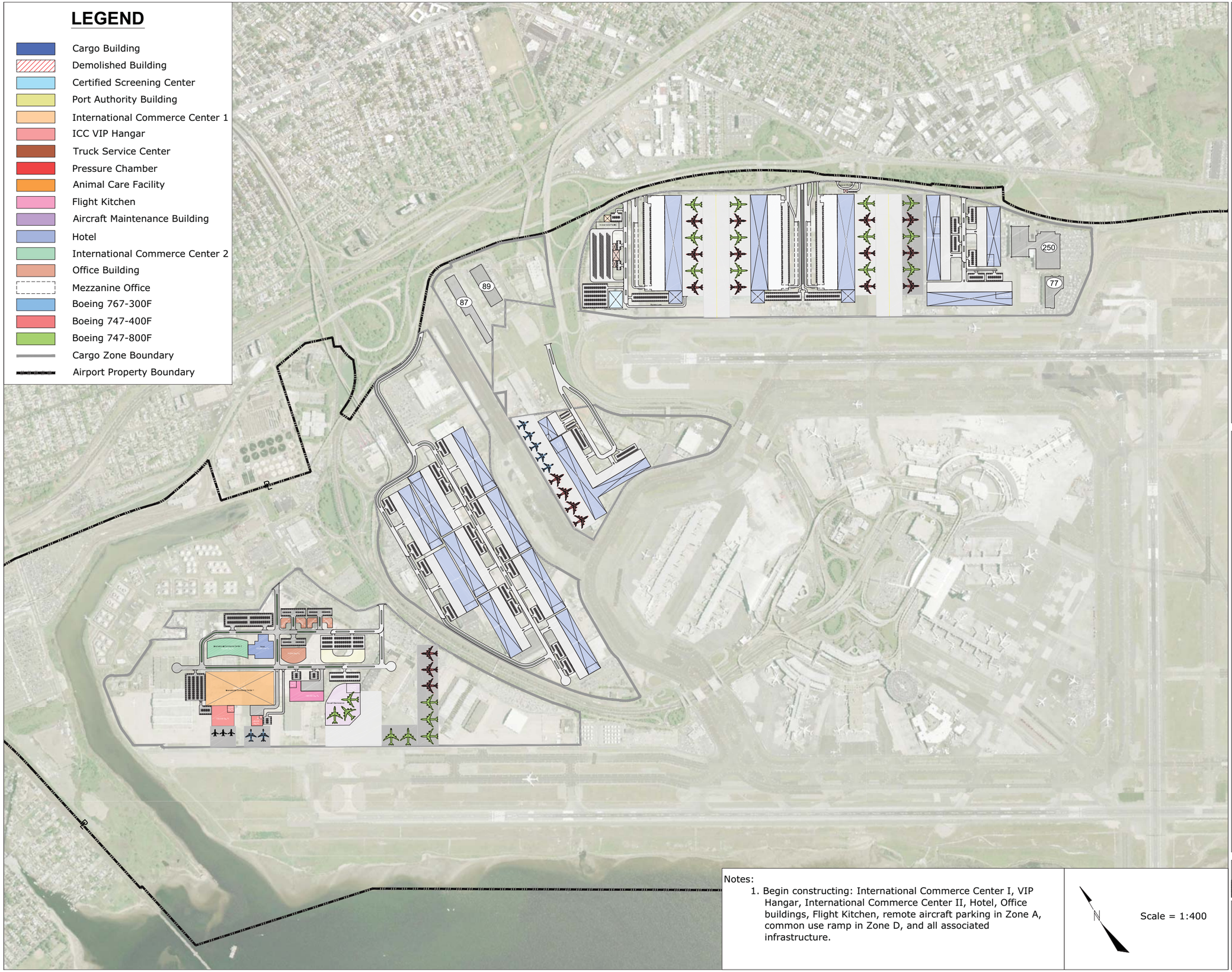
Port Authority of NY & NJ
Aviation Department
Master and Site Planning and Technical Services Division
JFK International Airport JFK

Exhibit
X-X

File: Y:\JFK\EDC Air Cargo\E-L&B Work Product\1-CADD\CONCEPTUAL ALTERNATIVES\Phasing\Preferred Alternative DBO Phasing.dwg | Layout: Phase 17

LEGEND

- Cargo Building
- Demolished Building
- Certified Screening Center
- Port Authority Building
- International Commerce Center 1
- ICC VIP Hangar
- Truck Service Center
- Pressure Chamber
- Animal Care Facility
- Flight Kitchen
- Aircraft Maintenance Building
- Hotel
- International Commerce Center 2
- Office Building
- Mezzanine Office
- Boeing 767-300F
- Boeing 747-400F
- Boeing 747-800F
- Cargo Zone Boundary
- Airport Property Boundary



Notes:

1. Begin constructing: International Commerce Center I, VIP Hangar, International Commerce Center II, Hotel, Office buildings, Flight Kitchen, remote aircraft parking in Zone A, common use ramp in Zone D, and all associated infrastructure.

N

Scale = 1:400

Phase 18
(Beyond ~2030)

JFK INTERNATIONAL AIRPORT
CARGO STUDY

Aviation Department
Master and Site Planning and Technical Services Division

JFK International Airport

Exhibit
X-X

File: Y:\JFK\EDC Air Cargo\E-L&B Work Product\1-CADD\CONCEPTUAL ALTERNATIVES\Phasing\Preferred Alternative DBO Phasing.dwg | Layout: Phase 18

LEGEND

- Cargo Building
- Certified Screening Center
- Customs Building
- USPS Building
- Port Authority Building
- International Commerce Center 1
- ICC VIP Hangar
- Truck Service Center
- Pressure Chamber
- Animal Care Facility
- Catering Building
- Aircraft Maintenance Building
- Hotel
- International Commerce Center 2
- Office Building
- Mezzanine Office
- Boeing 767-300F
- Boeing 747-400F
- Boeing 747-800F
- Tug Road
- Cargo Zone Boundary
- Airport Property Boundary
- Public Airport Access Road
- Truck Route Ingress
- Truck Route Egress

32 Freighter Aircraft Parking Locations

9 Integrator Aircraft Parking Locations

VAN WYCK EXPY
NASSAU EXPY
JFK EXPY
ROCKAWAY BLVD

D-1 D-2 D-3 D-4 D-5 D-6 D-7 D-8 D-9 D-10 D-11 D-12
A B C D
C-1 C-2 E
B-1 B-2 B-3 B-4 B-5 B-6 B-7 B-8 B-9
A-1 A-2 A-3 A-4 A-5 A-6 A-7 A-8
F G H I J

Tug Times (In Minutes with 20 MPH Avg.)

	A	B	C	D	E	F	G	H	I	J
A		1.50	2.72	2.94	7.78	12.20	11.84	10.35	8.35	6.27
B	1.50		2.50	2.72	7.56	11.98	11.62	10.13	8.13	6.05
C	2.72	2.50		1.50	6.34	10.76	10.40	8.91	6.91	4.83
D	2.94	2.72	1.50		6.12	10.54	10.18	8.69	6.69	4.61
E	7.78	7.56	6.34	6.12		6.02	5.83	8.29	6.29	4.21
F	12.20	11.98	10.76	10.54	6.02		7.41	10.32	10.72	8.63
G	11.84	11.62	10.40	10.18	5.83	7.41		2.92	3.49	5.57
H	10.35	10.13	8.91	8.69	8.29	10.32	2.92		2.00	4.08
I	8.35	8.13	6.91	6.69	6.29	10.72	3.49	2.00		2.09
J	6.27	6.05	4.83	4.61	4.21	8.63	5.57	4.08	2.09	

N

Scale = 1:400

Preferred Alternative

JFK INTERNATIONAL AIRPORT
CARGO STUDY

The Port Authority of NY & NJ
Aviation Department
Master and Site Planning and Technical Services Division
JFK International Airport JFK

Exhibit X-X

File: Y:\JFK\EDC Air Cargo\E-L&B Work Product\1-CARDO\CONCEPTUAL ALTERNATIVES\Preferred Options\Final Preferred Alternative.dwg | Layout: Preferred Alternative

JFK AIR CARGO STUDY

NEW YORK CITY ECONOMIC DEVELOPMENT CORPORATION | THE PORT AUTHORITY NEW YORK & NEW JERSEY

Appendix B

Aviation Planning at the Leading Edge

APPENDIX B
EDC FINAL SURVEY FORM AND RESULTS

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JFK CARGO SURVEY - Fall 2011 **Phase 1 – Qualitative Elements**

Type of Business (Airline, Forwarder, Customs Broker etc) _____
Company Name and Address: _____
Your contact information (name, title, email, fax) _____
_____

FACILITIES

LOCATION (Check all that apply) ___ On-Airport ___ Off- Airport
FACILITY SIZE (List totals) **On-Airport** Warehouse _____sf Office_____sf Other_____sf
Off-Airport Warehouse _____sf Office_____sf Other_____sf

Do you plan to expand your facilities in the next 5 years? No Yes(on-airport) Yes (off-airport)

For your on-airport facilities (if applicable):

Do you have aircraft ramp access? ___ Do not need it ___ Yes _____sf

Will you need additional ramp access? ___Yes ___ No

Do you have capacity for your Ground Servicing Equipment?

___ Yes _____sf ___ No. I need _____ sf more.

LOCATIONAL DECISIONS

1. What kinds of operations does your company maintain off-airport?

_____
_____
_____

2. Would you consider moving these operations to an on-airport location? ___Yes ___ No

2b. If yes, what are the advantages for you to be on-airport?

_____
_____
_____

2c. If no, what are the reasons you would remain off-airport?

_____
_____
_____

3. How could an on-airport location accommodate your operation and space requirements in the future?

_____
_____
_____

4. Would you require your own facility ___Yes ___ No

Is multi-tenant space acceptable? ___Yes ___ No

5. Would you use a certified central screening facility at JFK? ___Yes ___ No

5b. Why or why not?

_____
_____
_____

OPERATIONAL ISSUES

This section asks for your opinions on operational strengths and weaknesses of JFK airport and the surrounding-off airport area.

6. Please rate each item on a scale from 1 to 4 where 1 is weakest and 4 is strongest. If not applicable, state N/A.

Issue	Very Weak	Weak	Strong	Very Strong
Quality of warehouse space	1	2	3	4
Quality of office space	1	2	3	4
Quality of GSE space	1	2	3	4
Condition of aircraft ramp	1	2	3	4
Availability of parking	1	2	3	4
Availability of truck bays	1	2	3	4
Condition of airport roads	1	2	3	4
Municipal services	1	2	3	4
Other_____	1	2	3	4

7. Is airport access a constraint to the expansion of your on- or off-airport cargo facilities?
___Yes ____ No

7b. If yes, what are the most significant airport access improvements that should be made to alleviate the issue?

_____
_____
_____

8. List major advantages to operating in/around JFK Airport.

_____
_____
_____

9. List major advantages to operating in the New York region.

_____
_____
_____

10. List major disadvantages to operating in/around JFK Airport.

_____
_____
_____

11. List major disadvantages to operating in the New York region.

_____
_____
_____

12. Do you ever ship through gateways other than JFK? ___Yes ___ No

12b. If Yes, why?

_____
_____
_____

JFK AIR CARGO DEVELOPMENT -STAKEHOLDER INPUT

PLEASE PROVIDE YOUR THOUGHTS REGARDING:

- The use and future plans of the carriers operations
  _____
  _____
  _____

- How the airport was and could be linked with the economic development goals of the City
  _____
  _____
  _____

- The regional industrial real estate market
  _____
  _____
  _____

- Other competing airports
  _____
  _____
  _____

- Existing and emerging issues along with potential solutions and priorities
  _____
  _____
  _____

ISSUES

The list below includes issues that have been raised as sensitive to some degree. Please share your thoughts as appropriate for those relevant to your business.

- Issues with NYC
- Anticipated growth of JFK
- Security – getting outbound product screened
- Outbound cargo trucked to other gateways
- Screening inbound cargo.
- Customs and the TSA
- Relations with the integrators
- Cost of doing business
- Lease terms
- Operating conditions
- Satisfaction with facilities and infrastructure
  Warehouse
  Office space
  GSE space

Aircraft ramp
Truck bays
Truck queuing
Airport roads
Airport access
Other:

Recommendations/Suggestions

_____
_____
_____

What is the first thing you would change?

_____
_____
_____

How can traffic be recaptured?

_____
_____
_____

Potential new initiatives to encourage growth

_____
_____
_____

Potential new markets

_____
_____
_____

Would you locate on airport if you are not there now?

What are the positives?

_____
_____
_____

What are the negatives?

_____
_____
_____

NYCEDC Air Cargo Business Survey [31 total]

- Biggest strengths: condition of aircraft ramp, condition of airport roads
- Biggest weaknesses: quality of warehouse space, quality of GSE space, availability of parking, municipal services
- 16 respondents indicated that they planned to expand their facilities in the next 5 years
- 5 respondents indicated that they would be willing to relocate on airport
- 8 respondents indicated that airport access is a constraint to the expansion of their cargo facilities
- 14 respondents indicated that they ship through gateways other than JFK
- The top 3 reported disadvantages of operating in the New York Region were costs of doing business, traffic, and labor force

Issue	Very Weak	Weak	Strong	Very Strong
Quality of warehouse space	8	11	6	3
Quality of office space	3	13	9	1
Quality of GSE space	2	10	3	1
Condition of aircraft ramp		8	9	1
Availability of parking	3	14	6	3
Availability of truck bays	2	11	8	1
Condition of airport roads	2	10	12	3
Municipal Sevices	1	13	9	1

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JFK AIR CARGO STUDY

NEW YORK CITY ECONOMIC DEVELOPMENT CORPORATION | THE PORT AUTHORITY NEW YORK & NEW JERSEY

Appendix C

Aviation Planning at the Leading Edge

APPENDIX C
DETAILED EXPORTS BY COMMODITY AND WORLD REGION

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DETAILED EXPORTS BY COMMODITY AND WORLD REGION
AFRICA

		TOTAL U.S.		JFK TRAFFIC		JFK SHARE	
		VALUE ($000)	WEIGHT TONNES	VALUE ($000)	WEIGHT TONNES	VALUE (%)	WEIGHT (%)
690919	Ferrite core memories	23,488	1,460	19,338	1,173	82.33	80.39
880000	Engines for civilian aircraft	983,083	1,362	249,058	296	25.33	21.74
847130	Motherboards	80,609	616	35,789	295	44.40	47.90
820719	Natural or synthetic diamonds	75,890	792	7,654	270	10.09	34.05
490199	Bibles	12,104	541	5,137	238	42.44	43.96
300490	Specialize cancer medications	60,024	604	15,432	209	25.71	34.66
860719	Axles, locomotive	3,112	320	2,497	200	80.24	62.30
843149	Coal cutter parts	48,000	1,540	5,774	197	12.03	12.81
482010	Diaries	970	303	742	186	76.51	61.54
382200	Pregnancy tests	35,163	981	13,574	174	38.60	17.75
871000	Tanks and other armored f	9,906	251	4,073	158	41.11	62.91
841989	Glue pots	8,958	361	3,941	157	44.00	43.50
210690	Protein concentrates	6,046	449	1,632	153	27.00	34.10
481014	Basic paper to be sensiti	316	289	164	147	52.02	50.88
843143	Oil and gas field machine	249,556	4,635	7,999	141	3.21	3.05
	Other	3,646,101	52,962	1,162,001	11,063	31.87	20.89
	Total	**5,243,327**	**67,465**	**1,534,807**	**15,057**	**29.27**	**22.32**

Source: United States Bureau of the Census Ports Database

DETAILED EXPORTS BY COMMODITY AND WORLD REGION
ASIA

		TOTAL U.S.		JFK TRAFFIC		JFK SHARE	
		VALUE ($000)	WEIGHT TONNES	VALUE ($000)	WEIGHT TONNES	VALUE (%)	WEIGHT (%)
382100	Culture media, prepared (	61,044	1,678	24,337	762	39.87	45.40
382311	Acid oils from refining	4,004	778	3,968	760	99.10	97.60
382200	Pregnancy tests	1,044,130	8,193	95,396	738	9.14	9.01
392062	Non cellular plastic sheets	89,119	3,821	16,061	704	18.02	18.43
847130	Motherboards	597,397	3,209	121,451	687	20.33	21.41
690919	Ferrite core memories	45,366	1,508	11,640	673	25.66	44.62
846691	Stone working machine too	219,298	2,123	116,146	673	52.96	31.68
721399	Other bars, rods hot-rolled	848	766	743	667	87.64	87.08
842199	Centrifuges and centrifuge	202,407	2,343	79,722	616	39.39	26.31
722790	Hot-rolled coils alloy steel	1,418	1,881	530	614	37.35	32.65
902780	Titrators	637,339	2,119	199,555	611	31.31	28.86
732020	Springs, coil, iron or st	12,187	5,573	1,261	605	10.34	10.85
330300	Colognes	58,515	1,227	27,627	585	47.21	47.70
410791	Leather, bovine, n.e.s.o.	17,821	616	16,978	584	95.27	94.70
853690	Fuse boxes, cast metal	449,815	4,269	43,094	581	9.58	13.60
	Other	104,578,436	822,653	18,358,366	114,566	17.55	13.93
	Total	**108,019,144**	**862,758**	**19,116,874**	**124,425**	**17.70**	**14.42**

Source: United States Bureau of the Census Ports Database

DETAILED EXPORTS BY COMMODITY AND WORLD REGION
CARIBBEAN AND CENTRAL AMERICA

		TOTAL U.S.		JFK TRAFFIC		JFK SHARE	
		VALUE ($000)	WEIGHT TONNES	VALUE ($000)	WEIGHT TONNES	VALUE (%)	WEIGHT (%)
711790	Wooden beads, strung (jew	31,978	616	8,759	326	27.39	52.89
300490	Aloc	711,066	1,614	98,702	133	13.88	8.22
300220	Vaccines for humans	193,509	256	136,115	119	70.34	46.61
382200	Pregnancy tests	118,473	1,103	14,596	81	12.32	7.31
961519	Scrunchies (hair holders)	651	114	390	74	59.87	64.60
210690	Protein concentrates	9,246	976	612	72	6.62	7.35
610230	Raincoats, of manmade fib	760	71	654	70	86.01	97.52
852321	Magnetic media for data	7,922	120	4,835	64	61.03	53.43
852580	Other television cameras	76,717	348	12,802	63	16.69	18.17
842129	Oil-separation equipment	6,458	123	3,543	61	54.86	49.66
382313	Tall oil fatty acids	55	61	55	61	100.00	100.00
600240	Lace, elastic, narrow, kn	2,454	59	2,306	48	93.98	80.98
330430	Nail oils	1,704	109	798	47	46.81	43.20
711620	Rutile articles	272,111	49	250,784	44	92.16	89.36
902214	Other x-ray devices. Surgical	10,196	65	6,761	42	66.30	64.56
	Other	10,523,248	81,955	477,162	3,004	4.53	3.67
	Total	**11,966,550**	**87,639**	**1,018,873**	**4,308**	**8.51**	**4.92**

Source: United States Bureau of the Census Ports Database

DETAILED EXPORTS BY COMMODITY AND WORLD REGION
CANADA

		TOTAL U.S.		JFK TRAFFIC		JFK SHARE	
		VALUE ($000)	WEIGHT TONNES	VALUE ($000)	WEIGHT TONNES	VALUE (%)	WEIGHT (%)
760410	Bars, aluminum not alloye	866	157	351	100	40.54	63.54
330499	Baby oils	9,365	313	2,226	93	23.77	29.69
620462	Jeans, women's and girls'	4,203	91	1,684	53	40.06	57.55
620213	Capes, women's and girls'	1,625	55	1,240	45	76.27	81.78
420232	Bill cases, plastics or t	915	41	455	31	49.78	73.99
640291	Boots, except with leathe	237	31	200	29	84.37	93.92
420222	Sequin handbags, plastics	2,587	77	1,863	28	72.00	35.95
611420	Leotards, of cotton, knit	690	32	422	26	61.08	81.55
987000	Batteries and parts thereof	19,546	1,315	292	26	1.50	1.98
611430	Judo uniforms, of manmade	1,393	66	406	26	29.12	39.12
610910	Singlets, of cotton, knit	4,027	467	231	24	5.74	5.14
640359	House slippers, new, leat	1,030	36	396	23	38.41	63.32
420221	Leather, handbags	3,826	34	2,648	22	69.22	64.76
640351	Footwear, leather uppers,	509	26	290	21	56.87	81.03
482320	Filter paper, n.e.s.o.i.	812	169	95	21	11.65	12.19
	Other	11,035,778	54,133	118,670	805	1.08	1.49
	Total	**11,087,411**	**57,045**	**131,468**	**1,371**	**1.19**	**2.40**

Source: United States Bureau of the Census Ports Database

DETAILED EXPORTS BY COMMODITY AND WORLD REGION
EUROPE

		TOTAL U.S.		JFK TRAFFIC		JFK SHARE	
		VALUE ($000)	WEIGHT TONNES	VALUE ($000)	WEIGHT TONNES	VALUE (%)	WEIGHT (%)
30622	Lobsters and parts thereo	139,831	12,383	98,686	8,824	70.58	71.26
880000	Engines for civilian aircraft	19,324,022	25,460	5,779,127	5,374	29.91	21.11
320619	Titanium oxide pigments	10,870	3,929	8,349	2,946	76.80	75.00
490199	Bibles	226,556	9,319	64,211	2,909	28.34	31.22
330499	Baby oils	209,437	6,384	87,685	2,649	41.87	41.50
300490	Specialized cancer medications	9,312,714	11,333	916,154	2,366	9.84	20.88
330300	Colognes	166,601	3,264	112,716	2,207	67.66	67.60
382200	Pregnancy tests	2,095,521	12,382	204,614	1,966	9.76	15.88
380110	Artificial graphite	8,656	3,124	4,289	1,961	49.55	62.77
854449	Electrical conductors <1000 V	73,834	8,213	16,460	1,940	22.29	23.62
690919	Ferrite core memories	88,917	2,086	62,254	1,925	70.01	92.27
210690	Protein concentrates	101,008	8,791	29,853	1,918	29.55	21.81
901890	Scalpels	3,504,743	14,543	345,158	1,805	9.85	12.41
382490	Fusel oil	136,763	13,056	22,843	1,760	16.70	13.48
80610	Grapes, fresh	9,341	4,560	3,165	1,660	33.88	36.41
	Other	114,843,509	920,539	29,412,762	183,667	25.61	19.95
	Total	**150,252,324**	**1,059,366**	**37,168,326**	**225,876**	**24.74**	**21.32**

Source: United States Bureau of the Census Ports Database

DETAILED EXPORTS BY COMMODITY AND WORLD REGION
MIDDLE EAST AND SUBCONTINENT

		TOTAL U.S.		JFK TRAFFIC		JFK SHARE	
		VALUE ($000)	WEIGHT TONNES	VALUE ($000)	WEIGHT TONNES	VALUE (%)	WEIGHT (%)
482010	Diaries	10,070	2,162	9,510	1,864	94.44	86.21
847130	Motherboards	541,749	3,636	258,464	1,825	47.71	50.19
880000	Engines for civilian aircraft	2,368,900	3,975	798,391	1,420	33.70	35.73
80719	Muskmelons, fresh	3,615	3,315	1,586	1,287	43.88	38.81
210690	Protein concentrates	26,540	2,754	9,769	1,180	36.81	42.84
854449	Electric conductors <1000 V	30,234	3,565	9,936	1,171	32.86	32.84
490199	Bibles	51,511	2,073	19,879	967	38.59	46.66
560392	Filament other than manma	4,203	1,084	3,327	873	79.17	80.47
490290	Periodicals, business, pa	16,353	879	16,252	837	99.38	95.24
854411	Magnet wire, insulated	12,170	2,935	3,498	733	28.74	24.99
392350	Lids, plastic	10,630	1,321	5,303	707	49.89	53.50
441299	Plywood, veneered wood	621	1,132	285	703	45.79	62.10
281512	Caustic soda, liquid	178	956	126	606	70.52	63.43
880330	Other parts airplanes, helicopters	914,542	879	499,251	589	54.59	66.94
901890	Scalpels	335,116	2,121	79,065	521	23.59	24.56
	Other	25,697,002	232,647	13,110,079	65,209	51.02	28.03
	Total	**30,023,437**	**265,434**	**14,824,721**	**80,491**	**49.38**	**30.32**

Source: United States Bureau of the Census Ports Database

DETAILED EXPORTS BY COMMODITY AND WORLD REGION
PACIFIC

		TOTAL U.S.		JFK TRAFFIC		JFK SHARE	
		VALUE ($000)	WEIGHT TONNES	VALUE ($000)	WEIGHT TONNES	VALUE (%)	WEIGHT (%)
330300	Colognes	46,775	1,119	38,745	877	82.83	78.39
490199	Bibles	52,682	2,601	18,139	615	34.43	23.64
330491	Rouges	7,704	1,038	4,770	593	61.92	57.15
843149	Coal cutter parts	43,838	1,184	8,081	246	18.43	20.78
300490	Specialized cancer medications	541,265	1,047	74,937	203	13.84	19.41
901920	Iron lungs	22,111	251	11,512	148	52.06	59.07
901890	Scalpels	352,172	2,295	19,277	145	5.47	6.33
392690	Hand fans	31,927	721	4,279	135	13.40	18.75
382100	Culture media, prepared (	8,199	191	4,888	135	59.61	70.55
901819	Defibrillators	113,211	783	23,212	128	20.50	16.29
880000	Engines for civilian aircraft	1,030,676	1,692	95,144	102	9.23	6.04
120991	Onion seed for sowing	11,344	667	1,078	101	9.51	15.09
330499	Baby oils	23,898	787	2,766	91	11.58	11.61
820719	Natural, synthetic diamonds	43,874	825	1,103	89	2.51	10.80
300220	Human blood vaccines	31,940	146	20,999	87	65.74	59.90
	Other	6,421,883	65,774	1,226,702	8,521	19.10	12.95
	Total	**8,783,502**	**81,120**	**1,555,632**	**12,217**	**17.71**	**15.06**

Source: United States Bureau of the Census Ports Database

DETAILED EXPORTS BY COMMODITY AND WORLD REGION
SOUTH AMERICA

		TOTAL U.S.		JFK TRAFFIC		JFK SHARE	
		VALUE ($000)	WEIGHT TONNES	VALUE ($000)	WEIGHT TONNES	VALUE (%)	WEIGHT (%)
320619	Titanium oxide pigments	2,466	1,836	794	557	32.21	30.36
711790	Wooden beads, strung (jew	10,790	622	7,959	424	73.77	68.27
844399	Printed circuits & components	305,781	5,128	8,841	408	2.89	7.96
283319	Glauber's salt	155	440	141	399	90.97	90.64
282732	Aluminum chloride	1,340	219	1,277	202	95.30	92.56
300490	Specialized cancer medications	1,033,113	2,087	55,541	201	5.38	9.66
382200	Pregnancy tests	318,080	2,745	27,390	200	8.61	7.28
250830	Fire-clay	426	188	426	188	100.00	100.00
843149	Coal cutter parts	89,576	3,669	10,395	176	11.61	4.81
610230	Raincoats, of manmade fib	3,342	177	3,303	174	98.84	98.33
490199	Bibles	28,385	1,329	3,709	167	13.07	12.54
740921	Brass plates, sheets and	1,898	200	1,454	157	76.62	78.39
843143	Oil and gas field machine	410,027	8,584	13,951	151	3.40	1.75
851770	Parts of telephone sets	279,922	1,570	28,689	150	10.25	9.58
860719	Axles, locomotive	17,230	969	461	147	2.68	15.14
	Other	25,763,287	285,059	953,141	12,345	3.70	4.33
	Total	**28,265,816**	**314,822**	**1,117,473**	**16,048**	**3.95**	**5.10**

Source: United States Bureau of the Census Ports Database

JFK AIR CARGO STUDY

NEW YORK CITY ECONOMIC DEVELOPMENT CORPORATION | THE PORT AUTHORITY NEW YORK & NEW JERSEY

Appendix D





Aviation Planning at the Leading Edge

APPENDIX D
DETAILED IMPORTS BY COMMODITY AND WORLD REGION

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DETAILED IMPORTS BY COMMODITY AND WORLD REGION
AFRICA

		TOTAL U.S.		JFK TRAFFIC		JFK SHARE	
		VALUE ($000)	WEIGHT TONNES	VALUE ($000)	WEIGHT TONNES	VALUE (%)	WEIGHT (%)
620462	Jeans, women's and girls'	57,805	3,804	40,807	2,828	70.59	74.33
854430	Automotive wiring sets	22,444	923	18,990	791	84.61	85.67
620342	Jeans, men's and boys', o	34,139	2,065	14,550	673	42.62	32.61
611020	Sweaters, of cotton, knit	14,955	1,112	6,877	441	45.98	39.65
620520	Polo shirts, men's and bo	23,620	658	14,180	429	60.03	65.19
611030	Sweaters, of manmade fibe	12,754	793	4,000	289	31.36	36.41
840999	Engine parts, automobile,	3,872	514	877	261	22.64	50.80
610343	Pants, men's and boys', o	4,402	444	2,557	248	58.09	55.99
360300	Detonators	3,155	226	3,155	226	100.00	100.00
30232	Yellowfin tuna, excluding	3,432	562	1,305	210	38.04	37.40
610510	Shirts, men's and boys',	5,514	356	3,319	205	60.20	57.60
30419	Fish fillets, frozen or chilled	1,938	300	1,282	194	66.14	64.66
610462	Jeans, women's and girls'	4,215	273	2,832	177	67.18	64.80
610910	Singlets, of cotton, knit	9,197	509	3,506	174	38.12	34.20
842139	Degassers	41,492	1,264	4,757	174	11.47	13.74
	Other	4,639,636	13,065	4,024,381	4,395	86.74	33.64
	Total	**4,882,569**	**26,868**	**4,147,374**	**11,714**	**84.94**	**43.60**

Source: United States Bureau of the Census Ports Database

DETAILED IMPORTS BY COMMODITY AND WORLD REGION
ASIA

		TOTAL U.S.		JFK TRAFFIC		JFK SHARE	
		VALUE ($000)	WEIGHT TONNES	VALUE ($000)	WEIGHT TONNES	VALUE (%)	WEIGHT (%)
847130	Motherboards	26,586,912	144,273	3,147,460	16,461	11.84	11.41
844399	Ancillary machines digital printing	1,630,095	23,071	816,128	8,767	50.07	38.00
611020	Sweaters, of cotton, knit	578,820	24,416	211,265	8,074	36.50	33.07
620462	Jeans, women's and girls'	341,107	20,665	127,620	6,702	37.41	32.43
711719	Brooches, other than prec	657,892	15,767	172,760	5,287	26.26	33.53
640399	Dress shoes, leather uppe	272,195	17,233	92,064	4,527	33.82	26.27
980100	Articles exported and returned	6,326,813	25,028	1,124,856	4,482	17.78	17.91
711790	Wooden beads, strung (jew	300,373	10,052	127,282	4,339	42.37	43.16
611030	Sweaters, of manmade fibe	330,754	14,784	108,403	3,938	32.77	26.64
847170	Automatic data processing machines	8,328,565	62,151	554,948	3,931	6.66	6.33
850440	Power supply, dc	1,795,020	32,579	139,642	3,790	7.78	11.63
851712	Telephones for cellular networks	28,151,233	72,736	2,034,604	3,595	7.23	4.94
620443	Dresses, women's and girl	297,457	9,480	123,652	3,578	41.57	37.74
620342	Jeans, men's and boys', o	138,443	9,033	54,972	3,090	39.71	34.21
847330	Disk drive unit parts	13,998,989	53,285	327,836	2,727	2.34	5.12
	Other	119,873,920	1,325,834	13,143,775	183,368	10.96	13.83
	Total	209,608,591	1,860,388	22,307,267	266,655	10.64	14.33

Source: United States Bureau of the Census Ports Database

DETAILED IMPORTS BY COMMODITY AND WORLD REGION
CENTRAL AMERICAN AND CARIBBEAN

		TOTAL U.S.		JFK TRAFFIC		JFK SHARE	
		VALUE ($000)	WEIGHT TONNES	VALUE ($000)	WEIGHT TONNES	VALUE (%)	WEIGHT (%)
70990	Dill, fresh or chilled	5,292	3,525	1,000	650	18.90	18.44
70700	Gherkins, fresh or chille	4,142	3,682	614	470	14.83	12.78
70960	Pimenta, fruits of the ge	6,442	3,488	1,022	415	15.86	11.89
30269	Mullet, excluding livers	84,925	16,887	1,097	241	1.29	1.43
170490	Jujubes	390	240	175	226	44.91	94.07
80720	Papayas, fresh	1,445	794	377	210	26.12	26.41
81090	Pawpaws, fresh	1,051	1,034	142	172	13.48	16.59
71490	Yams, fresh, dried or fro	867	510	290	155	33.50	30.39
70200	Tomatoes, fresh or chille	795	511	187	141	23.50	27.64
30611	Rock lobster and parts th	5,806	266	2,674	132	46.06	49.80
71290	Garlic, dried	240	111	223	107	92.91	97.12
30232	Yellowfin tuna, excluding	40,868	5,006	600	93	1.47	1.85
40690	Cream cheese	464	150	145	92	31.31	61.38
40610	Curd	453	90	445	88	98.38	97.61
30234	Bigeye tunas, excluding l	6,001	667	649	85	10.81	12.76
	Other	18,086,252	105,439	255,618	1,627	1.41	1.54
	Total	**18,245,433**	**142,399**	**265,258**	**4,904**	**1.45**	**3.44**

Source: United States Bureau of the Census Ports Database

DETAILED IMPORTS BY COMMODITY AND WORLD REGION
CANADA

		TOTAL U.S.		JFK TRAFFIC		JFK SHARE	
		VALUE ($000)	WEIGHT TONNES	VALUE ($000)	WEIGHT TONNES	VALUE (%)	WEIGHT (%)
30624	Crabs and parts thereof,	5,733	555	5,255	501	91.66	90.29
980100	Articles exported and returned	919,456	3,168	59,274	360	6.45	11.35
848180	Cocks, plumbing	19,059	3,062	524	170	2.75	5.56
852340	Record blanks and matrices	22,113	602	2,273	75	10.28	12.50
30499	Fish filets chilled, frozen	956	59	956	59	100.00	100.00
30419	Fresh fish	847	54	771	43	91.00	79.95
854442	Conductors voltage < 1000 V	21,575	391	2,062	36	9.56	9.22
844313	Offset printing machinery	5	29	5	29	100.00	100.00
902790	Microtomes, parts and acc	35,462	250	3,882	28	10.95	11.20
30799	Clams, frozen, dried, sal	612	27	585	26	95.63	98.47
901380	Stereoscopes	183,091	378	7,231	24	3.95	6.30
30623	Prawns, live, fresh, chil	466	23	463	22	99.31	98.99
852990	Radio parts	92,135	187	4,952	21	5.37	11.28
330499	Baby oils	3,377	179	311	20	9.20	11.12
711890	Coins, legal tender, not	675,818	19	674,550	19	99.81	97.95
	Other	6,830,242	29,155	1,078,580	721	15.79	2.47
	Total	**8,810,946**	**38,138**	**1,841,672**	**2,155**	**20.90**	**5.65**

Source: United States Bureau of the Census Ports Database

DETAILED IMPORTS BY COMMODITY AND WORLD REGION
EUROPE

		TOTAL U.S.		JFK TRAFFIC		JFK SHARE	
		VALUE ($000)	WEIGHT TONNES	VALUE ($000)	WEIGHT TONNES	VALUE (%)	WEIGHT (%)
848180	Cocks, plumbing	699,212	49,625	69,146	8,016	9.89	16.15
980100	Articles exported and returned	13,182,035	27,495	1,986,840	6,910	15.07	25.13
70960	Pimenta, fruits of the ge	54,016	21,599	12,230	5,930	22.64	27.45
30212	Chum (dog) salmon, exclude	147,317	24,223	31,756	5,226	21.56	21.57
841191	Turbojet engine parts	5,208,437	13,351	1,411,772	3,904	27.11	29.24
300490	Specialized drugs for cancer	18,210,872	20,691	2,155,473	3,692	11.84	17.84
870324	Motor homes	291,210	9,681	74,605	3,321	25.62	34.30
60319	Other cut flowers	44,819	6,424	22,000	3,156	49.09	49.13
30419	Fresh and chilled fish fillets	298,458	34,264	23,432	2,692	7.85	7.86
760719	Leaf, aluminum	30,534	6,588	11,258	2,646	36.87	40.16
844399	Magnetic disk drives diameter > 21 cm.	403,109	4,059	229,338	2,235	56.89	55.05
640359	House slippers, new, leat	377,710	3,658	249,925	2,211	66.17	60.44
640420	Sandals, except with leat	56,148	3,691	38,788	1,999	69.08	54.17
330499	Baby oils	194,926	7,645	36,765	1,760	18.86	23.02
330300	Colognes	247,351	4,306	87,188	1,702	35.25	39.52
	Other	120,367,880	925,857	25,251,765	146,527	20.98	15.83
	Total	**159,814,033**	**1,163,158**	**31,692,281**	**201,926**	**19.83**	**17.36**

Source: United States Bureau of the Census Ports Database

DETAILED IMPORTS BY COMMODITY AND WORLD REGION
MIDDLE EAST AND SUBCONTINENT

		TOTAL U.S.		JFK TRAFFIC		JFK SHARE	
		VALUE ($000)	WEIGHT TONNES	VALUE ($000)	WEIGHT TONNES	VALUE (%)	WEIGHT (%)
620462	Jeans, women's and girls'	135,584	9,555	76,746	5,554	56.60	58.13
620342	Jeans, men's and boys', o	107,386	9,182	54,466	4,699	50.72	51.18
300490	Specialized drugs for cancer	3,647,601	24,339	1,057,968	4,452	29.00	18.29
871000	Tanks and other armored f	292,007	7,239	166,509	4,119	57.02	56.90
611020	Sweaters, of cotton, knit	118,920	8,078	57,829	3,803	48.63	47.07
620520	Polo shirts, men's and bo	128,371	6,131	54,095	2,356	42.14	38.43
610910	Singlets, of cotton, knit	64,475	5,104	25,241	2,093	39.15	41.01
620630	Women's and girls' shirts	115,017	4,182	51,164	1,943	44.48	46.47
610510	Shirts, men's and boys',	42,732	3,469	21,837	1,755	51.10	50.58
620442	Dresses, women's and girl	85,517	3,182	35,165	1,432	41.12	44.99
980100	Goods exported and returned	984,242	3,716	367,174	1,394	37.31	37.50
611030	Sweaters, of manmade fibe	45,324	2,251	21,095	1,214	46.54	53.91
610821	Panties, women's and girl	78,734	2,493	27,085	973	34.40	39.04
610462	Jeans, women's and girls'	26,919	1,777	11,240	834	41.75	46.93
610120	Capes, men's and boys', o	13,519	1,642	7,091	811	52.45	49.41
	Other	23,580,414	157,532	13,516,806	42,957	57.32	27.27
	Total	**29,466,763**	**249,871**	**15,551,511**	**80,388**	**52.78**	**32.17**

Source: United States Bureau of the Census Ports Database

DETAILED IMPORTS BY COMMODITY AND WORLD REGION
PACIFIC

		TOTAL U.S.		JFK TRAFFIC		JFK SHARE	
		VALUE ($000)	WEIGHT TONNES	VALUE ($000)	WEIGHT TONNES	VALUE (%)	WEIGHT (%)
30212	Chum (dog) salmon, exclude	5,119	770	1,029	161	20.10	20.98
980100	Goods exported and returned	404,080	1,391	27,125	155	6.71	11.17
30269	Mullet, excluding livers	12,217	1,880	1,257	132	10.29	7.02
850590	Magnet parts	7,677	221	2,374	75	30.93	34.00
293911	Heroin	83,251	232	15,320	44	18.40	19.02
382200	Pregnancy tests	12,528	61	6,663	42	53.18	69.13
220421	Port wine	588	97	115	35	19.56	36.01
60313	Knitted wool fabrics	848	193	105	28	12.33	14.63
860711	Truck assemblies for self	765	28	765	28	100.00	100.00
871000	Tanks and armored vehicles	393	29	84	26	21.32	89.51
711590	Cupels, precious metal	769,076	25	768,493	25	99.92	99.72
10420	Goats, live	66	23	66	23	100.00	100.00
20890	Quail, fresh, chilled or	1,209	75	387	23	32.02	29.91
40900	Honey, natural	509	173	67	22	13.23	12.89
848350	Blocks, pulley	1,051	50	512	20	48.72	39.37
	Other	1,467,873	15,246	228,861	714	15.59	4.69
	Total	**2,767,251**	**20,494**	**1,053,222**	**1,554**	**38.06**	**7.58**

Source: United States Bureau of the Census Ports Database

DETAILED IMPORTS BY COMMODITY AND WORLD REGION
SOUTH AMERICA

		TOTAL U.S.		JFK TRAFFIC		JFK SHARE	
		VALUE ($000)	WEIGHT TONNES	VALUE ($000)	WEIGHT TONNES	VALUE (%)	WEIGHT (%)
30419	Fresh and chilled fish fillets	367,947	43,964	33,593	5,633	9.13	12.81
30269	Mullet, excluding livers	36,036	7,682	2,938	704	8.15	9.16
81040	Bilberries, fresh	101,395	20,940	3,678	586	3.63	2.80
80920	Cherries, sweet and tart,	17,138	5,347	1,595	577	9.31	10.80
640399	Dress shoes, leather upper	46,496	1,595	16,948	528	36.45	33.09
30267	Canned fish	9,695	1,571	3,244	519	33.46	33.03
840991	Engine parts, internal co	35,059	2,148	15,883	460	45.30	21.41
70820	Wax beans, fresh or chill	798	435	798	435	100.00	100.00
30234	Bigeye tunas, excluding l	12,676	1,419	3,799	372	29.97	26.24
840999	Engine parts, automobile,	35,286	4,705	1,493	300	4.23	6.38
121190	Catnip	5,059	918	1,765	288	34.89	31.39
300510	Corn pads	7,920	631	3,302	237	41.69	37.54
980100	Goods exported and returned	870,220	3,654	34,543	225	3.97	6.14
902620	Manometers	10,788	256	7,858	200	72.85	77.93
640391	Boots, leather uppers	15,717	553	5,924	199	37.69	35.97
	Other	39,636,442	581,324	7,534,968	93,816	19.01	16.14
	Total	41,208,671	677,142	7,672,329	105,079	18.62	15.52

Source: United States Bureau of the Census Ports Database

JFK AIR CARGO STUDY

NEW YORK CITY ECONOMIC DEVELOPMENT CORPORATION | THE PORT AUTHORITY NEW YORK & NEW JERSEY

Appendix E





Aviation Planning at the Leading Edge

APPENDIX E
EXPORTS FROM NEW YORK, NEW JERSEY, PENNSYLVANIA AND CONNECTICUT

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EXPORTS FROM NEW YORK, NEW JERSEY, PENNSYLVANIA AND CONNECTICUT
ASIA
($ Millions)

		2005	2006	2007	2008	2009	2010	GROWTH
111	Agricultural Products	22.91	9.46	150.68	285.99	627.91	593.18	91.7%
112	Other Animals	16.22	30.45	18.09	20.23	16.67	13.44	-3.7%
113	Forestry Products	74.09	89.32	99.20	87.81	77.35	110.31	8.3%
114	Fish; Fresh/Chilled/Frozen Marine Products	41.49	37.78	38.62	42.46	52.66	53.29	5.1%
211	Oil & Gas	0.78	1.90	1.08	0.95	0.53	0.66	-3.2%
212	Minerals & Ores	53.42	52.77	52.74	234.72	227.47	1,159.49	85.1%
311	Food Manufactures	266.36	291.32	316.93	444.11	415.49	535.02	15.0%
312	Beverages & Tobacco Products	11.79	15.52	19.89	25.74	40.47	84.74	48.3%
313	Textiles & Fabrics	87.52	104.30	126.95	112.81	103.00	149.65	11.3%
314	Textile Mills Products	23.33	28.11	29.15	32.99	26.63	34.48	8.1%
315	Apparel Manufacturing Products	109.75	113.07	110.45	107.60	90.28	103.34	-1.2%
316	Leather & Allied Products	104.86	109.07	82.24	81.61	86.51	100.03	-0.9%
321	Wood Products	106.33	131.49	109.63	81.66	89.65	160.10	8.5%
322	Paper	177.50	206.42	200.26	267.60	274.92	483.02	22.2%
323	Printed Matter And Related Products	212.59	230.78	234.14	248.71	266.63	302.36	7.3%
324	Petroleum & Coal Products	75.03	330.75	297.87	643.22	142.24	226.26	24.7%
325	Chemicals	3,176.48	3,544.66	3,432.16	3,746.50	3,293.69	5,047.96	9.7%
326	Plastics & Rubber Products	374.82	366.12	405.76	442.65	381.95	456.42	4.0%
327	Nonmetallic Mineral Products	372.61	533.98	506.35	468.64	343.30	480.63	5.2%
331	Primary Metal Mfg	1,423.39	2,287.88	3,190.72	2,944.06	1,633.53	2,548.11	12.4%
332	Fabricated Metal Products	693.66	817.83	1,029.52	1,051.85	762.41	1,237.69	12.3%
333	Machinery; Except Electrical	3,327.32	3,005.21	3,355.72	4,151.10	3,669.16	4,873.52	7.9%
334	Computer And Electronic Products	3,933.17	4,362.52	4,786.41	4,823.06	4,056.77	4,609.69	3.2%
335	Electrical Equipment; Appliances, Components	792.51	932.73	1,132.98	1,153.00	734.27	980.29	4.3%
336	Transportation Equipment	1,998.48	2,984.21	3,134.80	3,324.44	2,793.08	3,118.51	9.3%
337	Furniture & Fixtures	23.20	23.36	32.55	26.37	23.51	35.35	8.8%
339	Miscellaneous Manufactured Commodities	3,313.64	3,735.36	4,814.36	5,050.41	4,209.70	5,706.40	11.5%
511	Newspapers; Books /Published Matter	17.98	15.76	46.72	16.99	15.37	15.34	-3.1%
910	Waste And Scrap	960.93	1,340.50	2,017.84	2,265.43	1,845.58	2,103.91	17.0%
920	Used Or Second-Hand Merchandise	273.97	527.71	634.62	648.12	433.91	684.60	20.1%
990	Special Classification Provisions	380.61	358.98	410.87	386.55	547.54	594.92	9.3%
	TOTAL	22,446.76	26,619.28	30,819.31	33,217.42	27,282.15	36,602.73	10.3%

Source: United States Department of Commerce International Trade Administration

EXPORTS FROM NEW YORK, NEW JERSEY, PENNSYLVANIA AND CONNECTICUT
EUROPE
($ Millions)

		2005	2006	2007	2008	2009	2010	GROWTH
111	Agricultural Products	112.12	100.60	129.58	96.33	116.47	148.87	5.8%
112	Other Animals	32.22	25.50	45.55	31.47	33.50	74.61	18.3%
113	Forestry Products	94.96	99.39	101.39	110.13	78.73	83.60	-2.5%
114	Fish; Fresh/Chilled/Frozen Marine Products	19.98	17.99	12.00	18.73	12.40	16.13	-4.2%
211	Oil & Gas	1.63	3.15	2.94	2.69	1.62	1.99	4.1%
212	Minerals & Ores	183.76	162.43	108.66	477.13	385.68	917.70	37.9%
311	Food Manufactures	286.63	289.28	345.98	512.28	573.13	673.38	18.6%
312	Beverages & Tobacco Products	18.13	35.10	36.21	33.12	33.32	51.50	23.2%
313	Textiles & Fabrics	81.09	92.18	83.92	91.88	76.65	89.81	2.1%
314	Textile Mills Products	56.46	58.68	72.16	74.57	55.59	52.92	-1.3%
315	Apparel Manufacturing Products	107.98	137.84	160.35	188.46	160.82	171.51	9.7%
316	Leather & Allied Products	67.50	76.93	73.91	87.78	70.56	64.09	-1.0%
321	Wood Products	148.89	165.37	151.86	128.43	107.04	142.28	-0.9%
322	Paper	189.19	180.83	195.04	221.10	214.83	259.51	6.5%
323	Printed Matter And Related Products	449.10	495.70	543.07	541.61	443.77	418.48	-1.4%
324	Petroleum & Coal Products	103.18	687.68	508.45	2,685.00	1,104.49	1,631.77	73.7%
325	Chemicals	5,273.69	5,866.26	6,718.50	6,817.57	6,605.53	7,470.19	7.2%
326	Plastics & Rubber Products	619.87	670.23	783.78	843.70	611.33	680.95	1.9%
327	Nonmetallic Mineral Products	288.56	326.11	377.53	383.07	307.65	446.48	9.1%
331	Primary Metal Mfg	1,777.54	4,912.02	7,145.31	8,637.38	1,908.85	3,948.59	17.3%
332	Fabricated Metal Products	642.21	684.76	845.08	966.33	750.35	766.73	3.6%
333	Machinery; Except Electrical	2,846.97	3,030.04	3,599.34	4,051.22	2,811.52	3,160.16	2.1%
334	Computer And Electronic Products	4,231.34	4,445.54	4,597.33	4,943.52	4,028.78	3,972.49	-1.3%
335	Electrical Equipment; Appliances, Components	736.65	881.92	945.78	1,153.60	980.82	1,017.15	6.7%
336	Transportation Equipment	7,111.34	7,855.14	9,038.45	11,250.95	8,106.69	8,586.80	3.8%
337	Furniture & Fixtures	72.27	105.69	106.88	139.99	107.62	116.39	10.0%
339	Miscellaneous Manufactured Commodities	4,171.88	4,875.40	6,029.01	6,802.03	5,181.35	6,453.96	9.1%
511	Newspapers; Books & Published Matter	13.42	11.65	9.97	7.65	8.01	6.19	-14.3%
910	Waste And Scrap	1,092.69	1,422.39	2,488.50	3,597.75	1,642.21	2,678.13	19.6%
920	Used Or Second-Hand Merchandise	3,211.54	4,076.46	4,611.52	5,809.95	4,953.28	4,644.35	7.7%
990	Special Classification Provisions	439.42	459.98	627.67	605.93	507.00	538.28	4.1%
	TOTAL	34,482.21	42,252.25	50,495.73	61,311.36	41,979.58	49,284.97	7.4%

Source: United States Department of Commerce International Trade Administration

EXPORTS FROM NEW YORK, NEW JERSEY, PENNSYLVANIA AND CONNECTICUT
SOUTH AMERICA
($ Millions)

		2005	2006	2007	2008	2009	2010	GROWTH
111	Agricultural Products	10.79	25.66	33.55	54.90	36.74	107.14	58.3%
112	Other Animals	0.47	0.42	0.39	1.43	0.80	0.82	12.0%
113	Forestry Products	5.67	8.89	7.88	8.99	7.67	11.48	15.2%
114	Fish; Fresh/Chilled/Frozen Marine Products	5.36	3.38	3.54	4.43	4.27	5.51	0.5%
211	Oil & Gas	0.11	0.20	0.32	0.46	0.29	0.73	46.0%
212	Minerals & Ores	6.87	6.89	93.68	106.41	136.94	261.33	107.0%
311	Food Manufactures	83.12	96.65	100.63	131.02	128.12	146.85	12.1%
312	Beverages & Tobacco Products	1.16	1.00	2.24	2.09	3.50	2.54	17.0%
313	Textiles & Fabrics	19.33	19.70	23.14	22.37	13.98	20.27	1.0%
314	Textile Mills Products	4.25	3.95	6.46	8.14	8.57	8.35	14.4%
315	Apparel Manufacturing Products	8.47	8.04	11.44	14.92	13.18	18.23	16.6%
316	Leather & Allied Products	4.13	4.09	3.11	3.45	5.42	6.00	7.7%
321	Wood Products	3.11	5.51	7.59	7.08	6.17	4.43	7.4%
322	Paper	44.17	44.05	60.93	101.12	130.32	159.57	29.3%
323	Printed Matter And Related Products	24.62	29.20	34.94	33.08	25.90	23.72	-0.7%
324	Petroleum & Coal Products	62.95	189.40	434.29	610.91	514.98	414.39	45.8%
325	Chemicals	758.44	1,212.87	1,387.04	1,382.85	1,147.79	1,655.25	16.9%
326	Plastics & Rubber Products	65.60	75.43	92.42	116.31	92.76	129.44	14.6%
327	Nonmetallic Mineral Products	52.16	51.03	62.21	54.11	43.60	73.48	7.1%
331	Primary Metal Mfg	132.85	171.11	198.97	412.71	199.63	297.41	17.5%
332	Fabricated Metal Products	80.39	105.29	111.86	216.26	94.59	172.90	16.6%
333	Machinery; Except Electrical	476.64	618.35	654.42	905.55	831.99	1,297.07	22.2%
334	Computer And Electronic Products	408.09	436.35	558.88	658.78	534.57	672.35	10.5%
335	Electrical Equipment; Appliance, Components	63.71	104.05	114.65	114.34	120.58	181.41	23.3%
336	Transportation Equipment	457.22	340.95	510.42	910.66	537.98	563.51	4.3%
337	Furniture & Fixtures	4.02	4.79	4.76	5.69	8.14	11.62	23.6%
339	Miscellaneous Manufactured Commodities	121.59	127.87	158.29	241.48	201.45	216.42	12.2%
511	Newspapers; Books & Published Matter	1.84	1.53	0.89	0.82	0.57	0.67	-18.3%
910	Waste And Scrap	30.04	29.87	45.10	52.27	38.86	56.35	13.4%
920	Used Or Second-Hand Merchandise	13.31	23.90	30.19	46.18	35.06	49.66	30.1%
990	Special Classification Provisions	28.41	43.83	28.76	82.23	88.80	68.29	19.2%
	TOTAL	2,978.90	3,794.25	4,782.97	6,311.03	5,013.19	6,637.23	17.4%

Source: United States Department of Commerce International Trade Administration

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JFK AIR CARGO STUDY

NEW YORK CITY ECONOMIC DEVELOPMENT CORPORATION | THE PORT AUTHORITY NEW YORK & NEW JERSEY

Appendix F





Aviation Planning at the Leading Edge

APPENDIX F
TOTAL EXPORTS BY METROPOLITAN AREA

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TOTAL EXPORTS BY METROPOLITAN AREA
($ Millions)

	2005	2006	2007	2008	2009	2010 FIRST HALF
New York NY-NJ-PA	55,565	66,229	80,852	95,244	69,990	39,855
Houston, TX	41,748	53,281	62,815	80,015	65,821	37,455
Los Angeles, CA	43,814	48,718	54,433	59,986	51,528	29,733
Detroit, MI	40,360	43,273	49,165	44,515	28,405	21,741
Miami-Fort Lauderdale-Miami Beach, FL	20,383	23,491	26,197	33,412	31,175	16,880
Seattle, WA	30,676	46,309	53,893	46,911	36,942	16,697
Chicago, IL-IN-WI	26,172	29,219	30,635	35,555	28,197	15,973
San Jose, CA	25,843	28,171	28,210	27,049	21,406	12,129
Philadelphia, PA-NJ-DE-MD	12,720	16,147	18,882	21,683	19,067	11,600
Dallas, TX	20,541	22,462	22,079	22,504	19,882	10,741
Boston, MA-NH	18,090	20,267	21,031	22,955	18,973	10,592
Minneapolis, MN-WI	15,938	17,602	21,628	25,212	20,097	10,428
San Francisco, CA	14,707	18,358	20,081	20,470	16,040	10,370
San Juan, PR	9,156	10,874	14,642	16,577	18,949	9,453
Portland, OR-WA	11,202	14,581	15,784	19,477	15,482	9,177
Cincinnati, OH-KY-IN	11,192	12,708	15,359	17,534	15,489	8,364
San Diego, CA	13,193	13,618	14,342	15,856	13,419	7,943
Atlanta, GA	11,063	11,394	12,551	14,433	13,406	7,243
New Orleans, LA	4,858	6,717	8,449	12,665	10,145	6,392
Pittsburgh, PA	6,899	8,277	9,750	11,309	8,343	6,006
St. Louis, MO-IL	7,217	9,612	10,481	11,601	9,027	5,559
Cleveland, OH	7,087	8,263	8,751	9,726	8,013	5,173
Washington, DC-VA-MD-WV	6,058	7,511	9,205	9,879	9,226	5,161
New York Share	6.14%	6.39%	6.95%	7.33%	6.62%	6.52%

Source: United States Department of Commerce International Trade Administration

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JFK AIR CARGO STUDY

NEW YORK CITY ECONOMIC DEVELOPMENT CORPORATION | THE PORT AUTHORITY NEW YORK & NEW JERSEY

Appendix G

Aviation Planning at the Leading Edge

APPENDIX G
IMPORTS ENTERING BY NEW YORK, NEW JERSEY, PENNSYLVANIA AND CONNECTICUT
SUMMARY BY PRODUCT

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IMPORTS ENTERING BY NEW YORK, NEW JERSEY, PENNSYLVANIA AND CONNECTICUT
SUMMARY BY PRODUCT
ALL WORLD REGIONS ($ Millions)

		VALUE ($MILLIONS)			% SHARE		
HS CODE	DESCRIPTION	2008	2009	2010	2008	2009	2010
270900	Crude Oil From Petroleum , Coals	43,741	23,189	29,211	44.4	33.3	34.8
710239	Diamonds, Nonindustrial, Worked	14,990	10,562	15,834	11.9	11.4	14
300490	Medicaments Nesoi, Measured Doses, Retail Pk Nesoi	14,075	12,836	11,944	12.8	17.5	13.8
271011	Light Oils& Prep (Not Crude) From Petrol & Bitum	14,236	7,660	10,432	14.3	11.7	13.1
870324	Pass Veh Spk-Ig Int Com Rcpr P Eng > 3000 Cc	12,710	7,181	9,108	9.5	7.6	8.3
870323	Pass Veh Spk-Ig Int Com Rcpr P Eng >1500 Nov 3M Cc	9,083	6,708	7,937	6.8	7.1	7.6
271019	Oil (Not Crude) From Petrol & Bitum Mineral Etc.	8,115	5,238	6,972	8	7.1	7.7
710812	Gold, Nonmonetary, Unwrought Nesoi	2,647	2,441	3,908	2.8	3.1	4.2
970110	Paintings, Drawing And Pastels By Hand	3,847	2,419	3,396	3.1	2.6	3
271121	Natural Gas, Gaseous	7,733	2,960	3,037	6.2	3.2	2.7
710691	Silver, Unwrought	1750	1277	2,776	5.8	5.2	8.6
847130	Port Digtl Automatic Data Process Mach Not > 10 Kg	1965	1802	2707	1.8	2.2	3
711319	Jewelry And Parts Thereof, Of Oth Precious Metal	2,639	2,023	2,241	2.1	2.2	2
611020	Sweaters, Pullovers Etc, Knit Etc, Cotton	2095	1930	2165	1.8	2.2	2.1
851712	Phones Cellular Ntwks Or For Oth Wireless Ntwk	898	1,466	2,085	0.8	1.7	2.1
740311	Refined Copper Cathodes And Sections Of Cathodes	2351	1575	2024	8	5.8	5.1
841191	Turbojet And Turboproller Parts	2,256	1,891	2,013	10.2	11.4	10.8
620462	Women'S Or Girls' Trousers Etc Not Knit, Cotton	1075	1069	1200	0.9	1.4	1.3
711590	Oth Prec Metl Artcls Or Artcls Clad W Pm	411	925	1,175	0.3	1	1
300290	Human Blood; Animal Blood Prep, Toxins, Cultrs Etc	113	99	1,012	0.1	0.1	0.9
711011	Platinum, Unwrought Or Powder	1,044	645	792	0.8	0.7	0.7
180100	Cocoa Beans, Whole Or Broken, Raw Or Roasted	346	710	781	0.3	0.8	0.7
750210	Nickel, Unwrought, Not Alloyed	843	299	771	1	0.5	1
711890	Coin	450	756	760	0.4	0.8	0.7
300220	Vaccines For Human Medicine	538	468	734	0.7	0.8	1
851762	Mach For Recp/Convr/Trans/Regn Of Voice/Image/Data	164	422	724	0.1	0.4	0.7
220421	Wine, Fr Grape Nesoi & Gr Must W Alc, Nov 2 Liters	855	753	721	0.7	0.8	0.6
711311	Jewelry And Parts Thereof, Of Silver	472	508	688	0.4	0.5	0.6
880330	Parts Of Airplanes Or Helicopters	593	639	681	2.1	2.8	2.3
620342	Men'S Or Boys' Trousers Etc, Not Knit, Cotton	600	591	645	0.5	0.6	0.6
950300	Tricycle, Scootr, Pedal Car & Sim Wheeled Tys; Etc	643	511	641	0.9	0.9	1.1
880230	Airplane & A/C Unladen Wght > 2000, Nov 15000 Kg	806	560	640	3.7	3.4	3.4
330210	Mixtures Odoriferous Substance Use Food/ Drink Ind	996	723	640	0.8	0.8	0.6
293499	Nucleic Acids & Salts; Other Heterocyclic Cmp,	1,412	891	639	1.1	0.9	0.6
970300	Original Sculptures And Statuary, In Any Material	490	344	633	0.4	0.4	0.6
970600	Antiques Of An Age Exceeding One Hundred Years	831	598	630	0.7	0.6	0.6
640399	Footwear, Outer Sole Rub Etc & Leather Upper Nesoi	665	526	611	1.6	1.8	1.8
90111	Coffee, Not Roasted, Not Decaffeinated	481	333	598	1.2	0.6	0.9
844399	Pts & Acc Of Printers, Copiers And Fax Mach	1,128	767	596	0.8	0.8	0.5
840734	Spark-Igntn Recprcting Piston Engine Etc > 1000 Cc	118	261	544	0.1	0.3	0.5
902110	Orthopedic Or Fractre Appliances, Parts	529	764	531	0.4	0.8	0.5
293399	Heterocyclic Comp W Nitrogen Hetero-Atm Only	413	453	518	0.3	0.5	0.5

Source: United States Department of Commerce International Trade Administration

IMPORTS ENTERING BY NEW YORK, NEW JERSEY, PENNSYLVANIA AND CONNECTICUT: SUMMARY BY PRODUCT
ALL WORLD REGIONS ($ Millions)

		VALUE ($MILLIONS)			% SHARE		
HS CODE	DESCRIPTION	2008	2009	2010	2008	2009	2010
40690	Cheese, Including Cheddar And Colby	581	502	508	0.4	0.5	0.5
80610	Grapes, Fresh	499	441	498	0.6	0.8	0.7
851770	Pts Of Phone Sets & Oth App For The Trans/Recp	253	441	497	0.2	0.5	0.5
180400	Cocoa Butter, Fat And Oil	553	479	496	0.4	0.5	0.5
711021	Palladium, Unwrought Or In Powder Form	825	390	491	0.6	0.4	0.5
220300	Beer Made From Malt	570	524	488	0.4	0.6	0.4
300439	Hormones Etc. (No Antibiotics Contained) Dosage	421	390	466	0.3	0.4	0.4
300660	Chemical Contraceptive Preps Based On Hormones	458	866	437	0.6	1.5	0.6
880240	Airplane & Ot A/C, Unladen Weight > 15,000 Kg	456	766	433	2.1	4.6	2.3
854370	Elec Mach And App, Having Indiv Functions	59	84	432	0	0.1	0.4
300432	Medicaments Cont Cortex Hormones Etc Doses	120	137	413	0.1	0.2	0.6
850440	Static Converters; Adp Power Supplies	368	310	409	0.5	0.5	0.5
760110	Unwrought Aluminum, Not Alloyed	65	302	403	0.3	1.8	2.2
720712	Smfd Irn/Nal Stl Lt .25 Pct Crb Rect Cs Wid	908	127	388	1.1	0.2	0.5
901890	Instr & Appl F Medical Surgical Dental Vet	130	146	347	0.2	0.3	0.5
901819	Electro-Diagnostic Apparatus Nesoi, And Parts	68	103	344	0.1	0.2	0.5
20230	Meat Of Bovine Animals, Boneless, Frozen	376	307	299	0.5	0.5	0.4
847149	Digital Adp Mac & Units,Entered As Systems	346	262	297	0.4	0.5	0.4
848620	Machines For Man. Semicondutor Devices/Elec Ic	80	236	294	0.4	1.4	1.6
480261	Paper & Paperboard, Uncoated, >10% Mech.Fib.,Rolls	320	307	289	0.4	0.5	0.4
401110	New Pneumatic Tires Of Rubber, For Motor Cars	224	237	289	0.3	0.4	0.4
871000	Tank & Ot Armored Fight Veh, Motorized; Parts	13	256	274	0	0.4	0.4
852580	Television Camera, Digitl Camra & Vid Cam Recorder	114	148	271	0.1	0.3	0.4
720241	Ferrochromium Over 4 Percent Carbon	238	59	160	1.1	0.4	0.9
848690	Parts & Accsesories For Mach To Man. Semicnt, Etc	37	51	129	0.2	0.3	0.7
910211	Wrst Watch, Battery, Mechanical Disply, Base Metal	128	101	116	0.6	0.6	0.6
841459	Fans	92	73	110	0.4	0.4	0.6
821210	Razors	85	99	109	0.4	0.6	0.6
960810	Ball Point Pens	106	101	105	0.5	0.6	0.6
640391	Footwear, Out Sole Rub Etc & Up Lea Nesoi, Ank	40	68	104	0.2	0.4	0.6
841370	Centrifugal Pumps	72	81	92	0.3	0.5	0.5
790111	Zinc Unwrt Nt Aly Cnt Wgt At Lst 99.99 Percnt Zinc	67	92	88	0.3	0.6	0.5
170199	Cane/Beet Sug Chem Pure Sucrose Refind Nesoi	81	34	88	0.4	0.2	0.5
848340	Gears; Ball Or Roller Screws; Gear Boxes, Etc	85	77	87	0.4	0.5	0.5
	Total Connecticut	22,051	16,594	18,620	1	1.1	1
	Total Pennsylvania	81,336	57,900	74,662	3.9	3.7	3.9
	Total New York	125,577	92,909	113,303	6	6	5.9
	Total New Jersey	134,375	94,368	108,781	6.4	6.1	5.7

Source: United States Department of Commerce International Trade Administration

JFK AIR CARGO STUDY

NEW YORK CITY ECONOMIC DEVELOPMENT CORPORATION | THE PORT AUTHORITY NEW YORK & NEW JERSEY

Appendix H





Aviation Planning at the Leading Edge

APPENDIX H
IMPORTS ENTERING BY NEW YORK, NEW JERSEY, PENNSYLVANIA AND CONNECTICUT: SUMMARY BY TRADING NATION

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IMPORTS ENTERING BY NEW YORK, NEW JERSEY, PENNSYLVANIA AND CONNECTICUT
SUMMARY BY TRADING NATION
ALL WORLD REGIONS
($ Millions)

COUNTRY	2008 VALUE	2009 VALUE	2010 VALUE	2008 % SHARE	2009 % SHARE	2010 % SHARE	% CHANGE, 2009 - 2010
Canada	3,976	3,175	2,834	18	19.1	15.2	-10.7
Mexico	2,223	1,716	2,566	10.1	10.3	13.8	49.5
China	2,354	1,915	2,395	10.7	11.5	12.9	25
United Kingdom	1,514	1,478	1,683	6.9	8.9	9	13.9
Germany	1,729	1,222	1,285	7.8	7.4	6.9	5.1
Japan	923	755	830	4.2	4.6	4.5	9.9
Netherlands	561	527	692	2.5	3.2	3.7	31.3
France	587	492	540	2.7	3	2.9	9.7
Italy	570	422	411	2.6	2.5	2.2	-2.7
Switzerland	404	258	313	1.8	1.6	1.7	21.3
Chile	535	292	300	2.4	1.8	1.6	2.6
Sweden	327	254	295	1.5	1.5	1.6	16.2
Poland	77	78	294	0.4	0.5	1.6	277.5
Taiwan	263	166	293	1.2	1	1.6	76.5
Peru	541	359	292	2.5	2.2	1.6	-18.6
Russia	332	294	226	1.5	1.8	1.2	-23.1
South Africa	242	145	207	1.1	0.9	1.1	42.8
Brazil	399	263	205	1.8	1.6	1.1	-22
Israel	250	169	195	1.1	1	1	15.8
Venezuela	195	92	185	0.9	0.6	1	99.6
Singapore	246	126	153	1.1	0.8	0.8	21.3
India	159	92	150	0.7	0.6	0.8	62.1
Turkey	122	119	148	0.6	0.7	0.8	24.2
Ireland	356	151	141	1.6	0.9	0.8	-6.5
Vietnam	51	83	141	0.2	0.5	0.8	70
Total Connecticut	22,051	16,594	18,620	1	1.1	1	12.2
Total New Jersey	134,375	94,368	108,781	6.4	6.1	5.7	15.3
Total New York	125,577	92,909	113,303	6	6	5.9	22.0
Total Pennsylvania	81,336	57,900	74,662	3.9	3.7	3.9	28.9
Total Four States	363,339	261,771	315,366	17	17	17	20.4

Source: United States Department of Commerce International Trade Administration

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JFK AIR CARGO STUDY

NEW YORK CITY ECONOMIC DEVELOPMENT CORPORATION | THE PORT AUTHORITY NEW YORK & NEW JERSEY

Appendix I





Aviation Planning at the Leading Edge

APPENDIX I
SUMMARY OF AIR FREIGHT TRAFFIC BY ROUTE
2000-2010

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SUMMARY OF AIR FREIGHT TRAFFIC BY ROUTE
2000-2010
AFRICA

		TWO WAY AIR FREIGHT TRAFFIC BY YEAR (TONS)											GROWTH		
		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2000-2005	2005-2010	2000-2010
JFK	NEW YORK JFK	25,801	18,727	14,120	15,387	11,454	11,127	18,947	19,790	16,750	14,208	18,438	-56.9%	65.7%	-28.5%
ATL	Atlanta, GA	3,601	4,880	6,784	6,274	8,104	7,194	4,977	4,212	4,979	7,533	10,189	99.8%	41.6%	183.0%
IAD	Washington, DC	209	169	155	152	230	723	4,170	6,872	4,531	4,149	8,342	246.4%	1054.4%	3898.4%
IAH	Houston, TX	159	305	3,585	2,872	484	363	708	1,119	1,683	1,786	5,279	128.0%	1354.0%	3214.8%
EWR	Newark, NJ	331	108	258	110	100	0	0	0	6	11	221	100.0%	-	-33.3%
MIA	Miami, FL	367	9	0	184	0	256	458	354	538	34	61	-30.3%	-76.1%	-83.3%
LAX	Los Angeles	247	135	0	0	0	173	108	0	33	2	3	-29.8%	-98.4%	-98.9%
BWI	Baltimore, MD	561	449	366	234	186	116	0	121	2	0	1	-79.3%	-99.1%	-99.8%
	ALL	32,206	25,129	26,709	27,437	22,511	23,177	30,584	42,097	31,160	28,741	43,289	-28.0%	86.8%	34.4%
	Other	931	347	1,442	2,224	1,953	3,225	1,216	9,629	2,637	1,019	755	109.8%	-61.4%	-18.9%
	Outbound % Ttl	63.0%	65.8%	66.5%	68.7%	69.2%	71.4%	73.3%	68.2%	73.2%	72.9%	70.6%	14.9%	-1.1%	13.7%
	JFK Outbound % Ttl	62.1%	64.9%	61.8%	61.3%	63.4%	66.3%	70.8%	70.5%	68.5%	65.6%	64.0%	-	-3.5%	-
	Herfindahl	6,551	5,937	3,633	3,800	3,926	3,372	4,298	2,785	3,396	3,380	2,923	-48.5%	-13.3%	-55.4%
	JFK Share	80.1%	74.5%	52.9%	56.1%	50.9%	48.0%	62.0%	47.0%	53.8%	49.4%	42.6%			
	Integrator Share	0.0%	0.0%	0.1%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
	Integ. Share JFK	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			

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JFK AIR CARGO STUDY

NEW YORK CITY ECONOMIC DEVELOPMENT CORPORATION | THE PORT AUTHORITY NEW YORK & NEW JERSEY

Appendix J

Aviation Planning at the Leading Edge

APPENDIX J
JFK CARGO BUILDING INVENTORY FACT SHEETS

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BUILDING 15 NONVIABLE

Cargo Zone A

GENERAL DATA

Location: Situated on East Hangar Road, South of the Intersection of 130th Place

Year Built: 1958 (original)/1970 (additions north and south)

Number of Stories: 4

Height:

Warehouse – 67.75 feet

Hangar – 28.67

Office – 67.75 feet

Floor Area:

Shop/Warehouse – 97,360 ft²

Office 1st Floor – 54,118 ft²

Office 2nd Floor –

Office 3rd Floor –

Total Floor Area: 148,453 ft²

Building Footprint: 98,790 ft²

Site Area: 7 acres

Auto Parking:

Area 1 Spaces – 240 spaces

Area 2 Spaces – 125 spaces

Total Parking Area – 118,790 ft²

Truck Dock:

Doors/Bays/Spaces – 16

Linear Footage – 90 feet

Total Dock Area – 42,700 ft²

Airside Apron:

Apron Area – 88,200 ft²

Wide Body Parking Positions – 0 Positions

Narrow Body Parking Positions – 2 Positions

Tenant: Worldwide

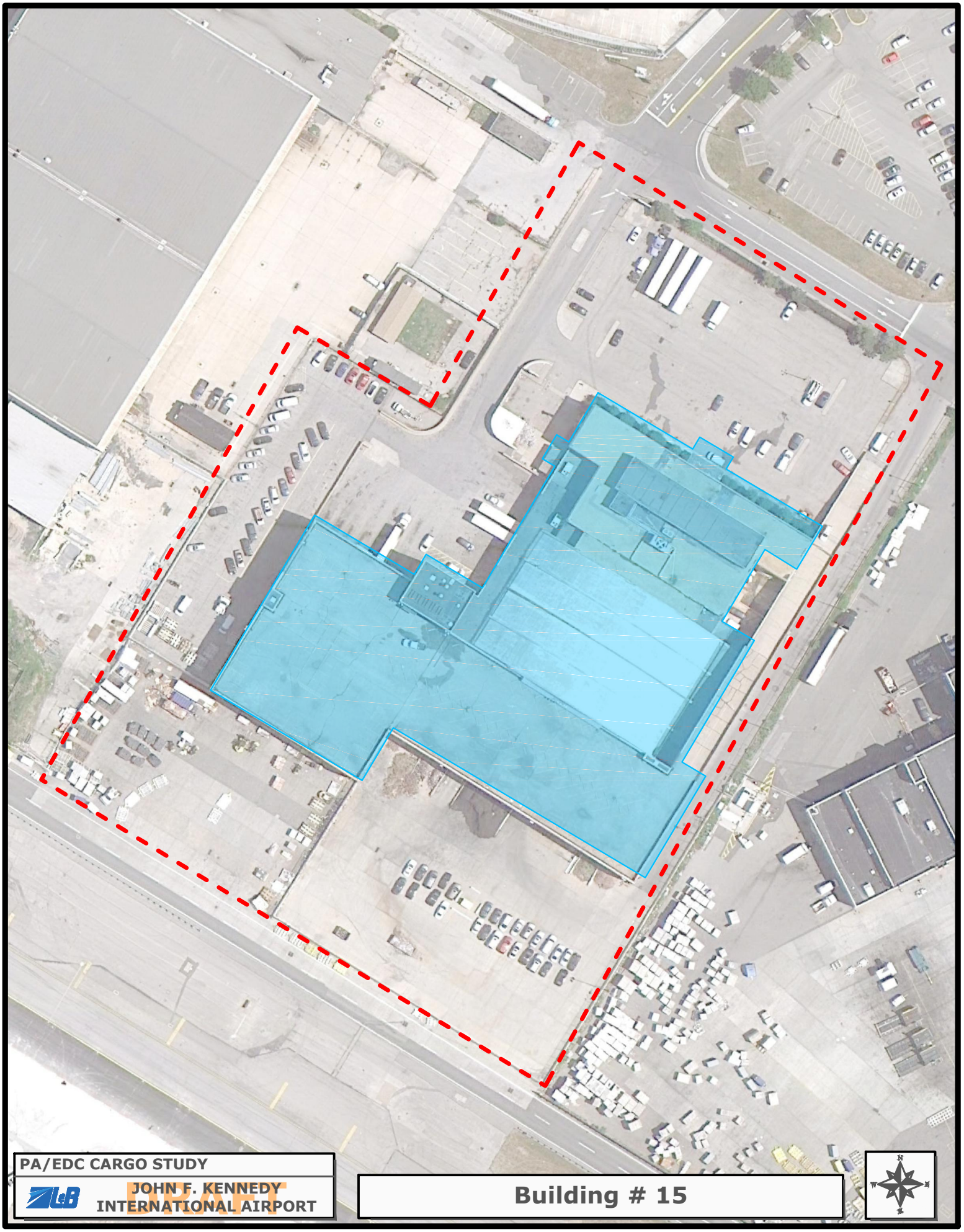
HISTORY

The arched hangar was originally constructed in 1958 and additions were constructed in the late 1970's.

BUILDING DESCRIPTION

A pile supported structure is made of both steel and reinforced concrete originally built for aircraft maintenance. Building 15 is currently used as a cargo handling facility. The building is a combination of an arched roof hangar and a 4-story office and cafeteria at the northwest.

PHYSICAL CONSTRAINTS


PA/EDC CARGO STUDY
JOHN F. KENNEDY
INTERNATIONAL AIRPORT
DRAFT
Building # 15
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BUILDING 16 NONVIABLE

Cargo Zone A

GENERAL DATA

Location: West End of East Hangar Road

Year Built:

Number of Stories: 1 with Mezzanine (Office)

Height:

Warehouse – 45 feet

Hangar –

Office – 77 feet

Floor Area:

Shop/Warehouse – 119,700 ft²

Office 1st Floor – 21,100 ft²

Office 2nd Floor –

Office 3rd Floor –

Total Floor Area: 140,876 ft²

Building Footprint: 133,940 ft²

Site Area: 12 acres

Auto Parking:

Area 1 Spaces – 290 spaces

Area 2 Spaces –

Total Parking Area – 111,860 ft²

Truck Dock:

Doors/Bays/Spaces –

Linear Footage – 340 feet

Total Dock Area – 157,800 ft²

Airside Apron:

Apron Area – 214,950 ft²

Wide Body Parking Positions – 3 Positions

Narrow Body Parking Positions – 0 Positions

Tenant: This space is currently vacant.

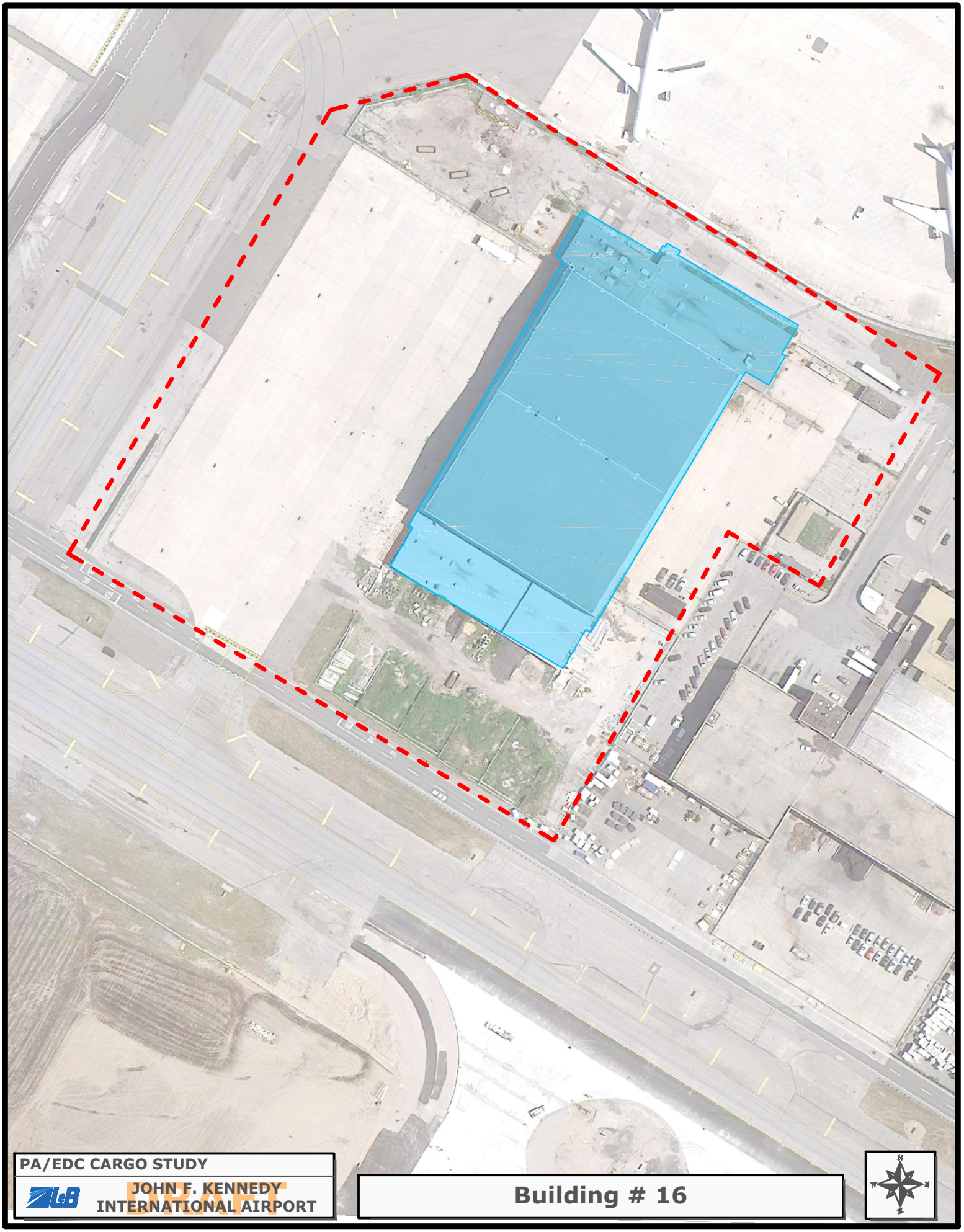
HISTORY

The building is soon to be mothballed.

BUILDING DESCRIPTION

A steel structure with insulated metal sidings, a combination hangar and a 1-story office on the north and a 1-story with mezzanine, office/storage at the south end.

PHYSICAL CONSTRAINTS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INTERNATIONAL AIRPORT
DRAFT
Building # 16
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BUILDING 151 VIABLE

Cargo Zone A

GENERAL DATA

Location: Southwest Area of JFK Airport; Situated off Van Wyck Expressway; Centrally located in Cargo Zone A

Year Built: 1956 (original)/ 1995 (renovations and additions)

Number of Stories: 2

Height:

Warehouse – 100 feet

Hangar –

Office –

Floor Area:

Shop/Warehouse – 294,064 ft²

Office 1st Floor – 75,043 (Mechanical/Electrical) ft²

Office 2nd Floor –

Office 3rd Floor –

Total Floor Area: 396,780 ft²

Building Footprint: 241,400 ft²

Site Area: 21 acres

Auto Parking:

Area 1 Spaces – 427 spaces

Area 2 Spaces –

Total Parking Area – 85,000 ft²

Truck Dock:

Doors/Bays/Spaces – 49 spaces

Linear Footage – 760 feet

Total Dock Area – 188,820 ft²

Airside Apron:

Apron Area – 304,150 ft²

Wide Body Parking Positions – 3 positions

Narrow Body Parking Positions – 0 positions

Tenant: Japan Airlines

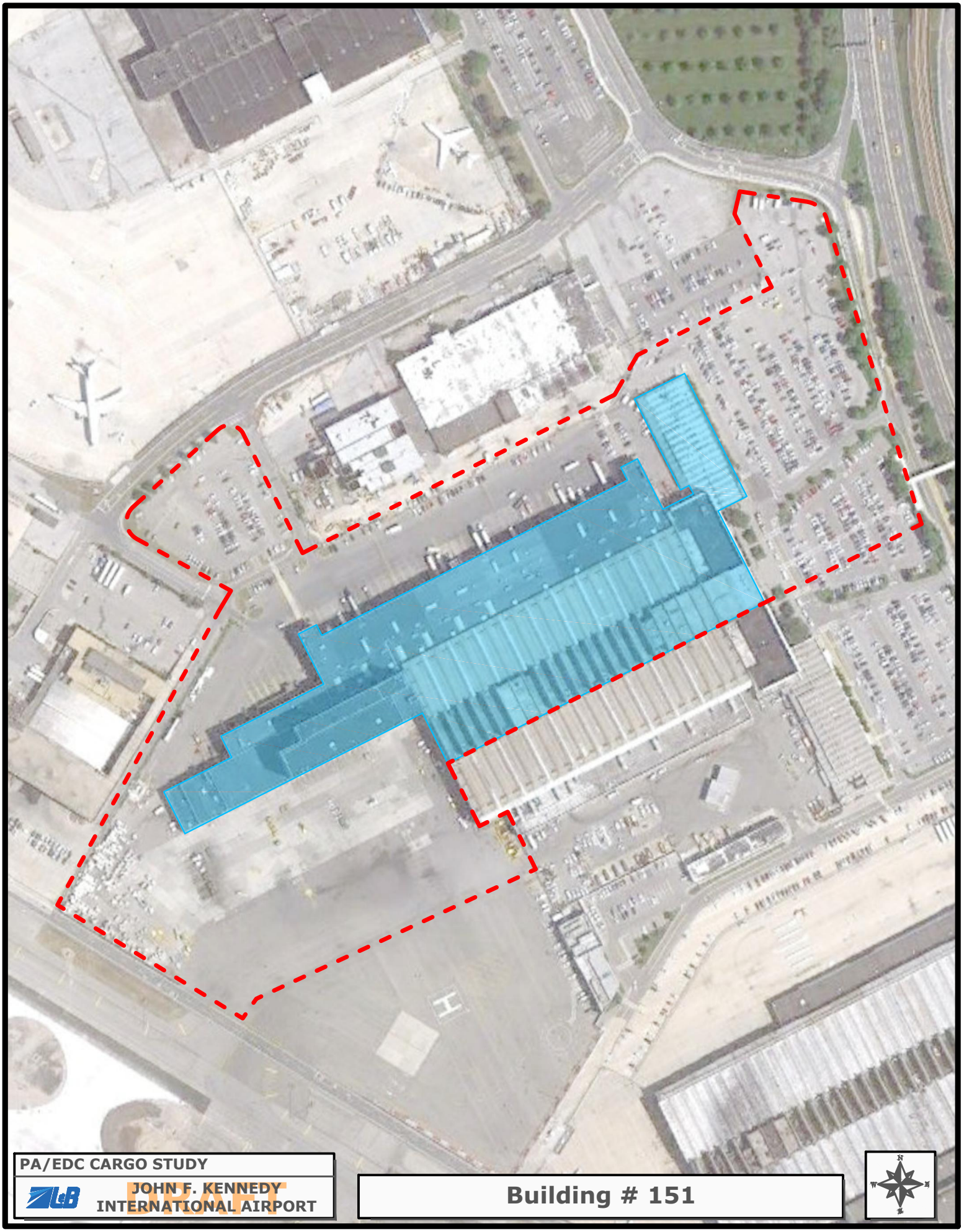
HISTORY

The original building, building 14, was built in 1956 and was utilized by Pan American from 1956 to 1986. It's composed of six structures; the office building, west wing, east wing, main hangar, and east and west hangar. Renovations and additions started in 1990 to accommodate JAL's facilities and were completed in 1995.

BUILDING DESCRIPTION

The existing structure was constructed utilizing cast-in place, concrete beams without support concrete waffle slab floor. Existing building #14 is a 3-story building with mechanical and electrical at the 4th floor.

PHYSICAL CONSTRAINTS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INTERNATIONAL AIRPORT
DRAFT
Building # 151
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BUILDING 208 NONVIABLE

Cargo Zone A

GENERAL DATA

Location: End of West Hangar Road; Located on west end of Cargo Zone A

Year Built: 1969

Number of Stories: 2

Height:

Warehouse – 37.67 feet

Hangar –

Office – 54.92 feet

Floor Area:

Shop/Warehouse – 394,000 ft²

Office 1st Floor – 162,000 ft²

Office 2nd Floor – 33,750 ft²

Office 3rd Floor – 28,000 ft² (penthouse)

Total Floor Area: 556,100 ft²

Building Footprint: 453,079 ft²

Site Area: 23 acres

Auto Parking:

Area 1 Spaces – 770 spaces

Area 2 Spaces – 130 spaces

Total Parking Area – 170,000 ft²

Truck Dock:

Doors/Bays/Spaces – 0 bays

Linear Footage – 0 feet

Total Dock Area – 0 ft²

Airside Apron:

Apron Area – 0 ft²

Wide Body Parking Positions – 0 positions

Narrow Body Parking Positions – 0 positions

Tenant: This space is currently vacant.

HISTORY

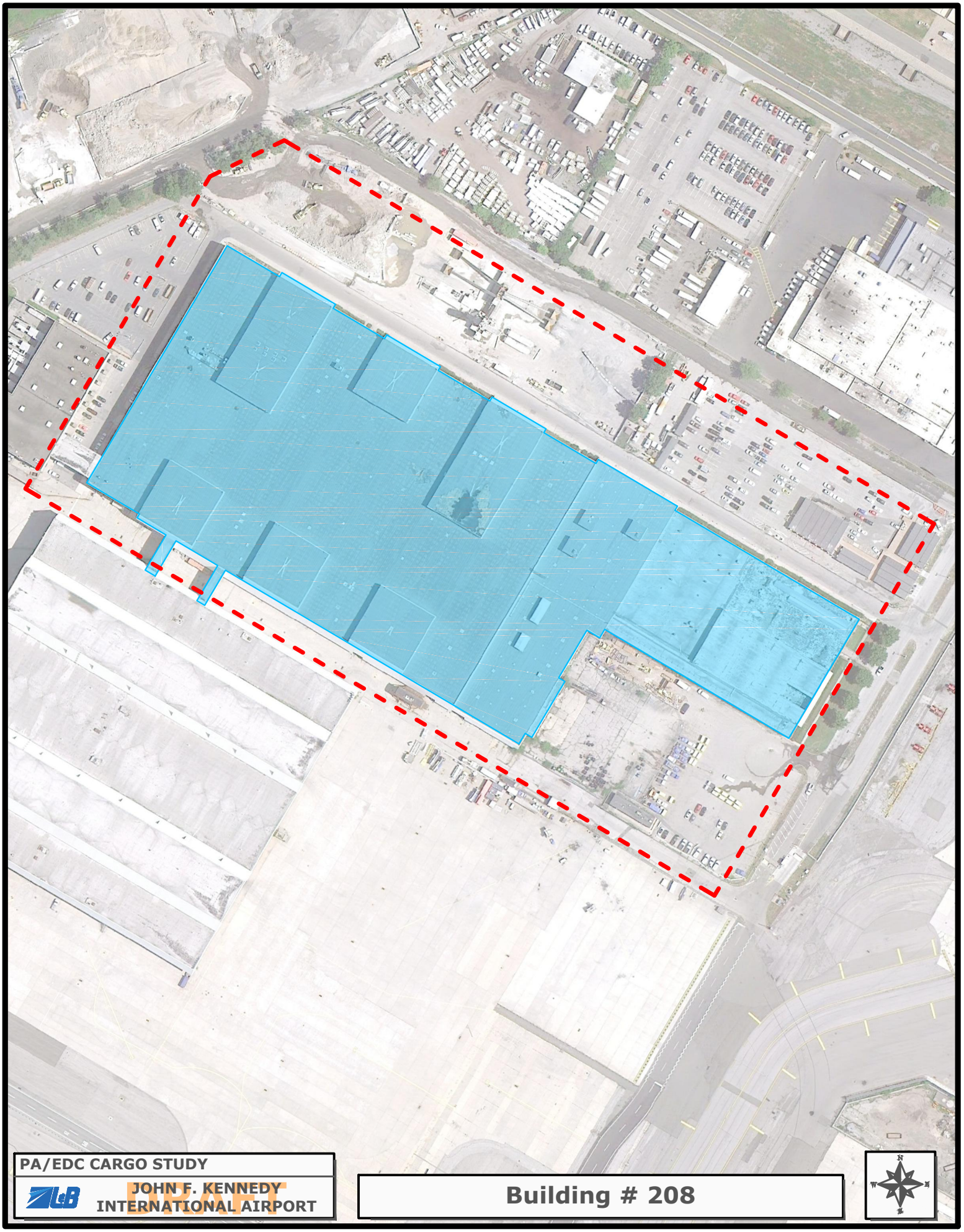
Building 208 was constructed in 1969, originally designed as a part of a maintenance complex for Pan American World Airways, associated with utility area for Building 208 and Hangar 19

BUILDING DESCRIPTION

A steel frame structure with pre-cast concrete panel exterior walls. The building has been designed to provide unobstructed shop areas. About 25% of this building is office space. The other part includes the high ceiling shop area, rooftop penthouse with loading docks, and various bridges connected to the adjacent buildings.

PHYSICAL CONSTRAINTS

The design of the building is for a jet engine maintenance facility with and adjacent 2-story office and maintenance shops.


PA/EDC CARGO STUDY
JOHN F. KENNEDY
INTERNATIONAL AIRPORT
DRAFT
Building # 208
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BUILDING 9 VIABLE

Cargo Zone B

GENERAL DATA

Location: Located off North Service Road between Hangar 8 and 10

Year Built: 1955 (original)/ 1970 (extensions)/ 2000 (updates)

Number of Stories: 2

Height:

Warehouse – 36 feet

Hangar –

Office –

Floor Area:

Shop/Warehouse – 200,000 ft²

Office 1st Floor – 20,000 ft²

Office 2nd Floor –

Office 3rd Floor –

Total Floor Area: 220,000 ft²

Building Footprint: 197,670 ft²

Site Area: 12 acres

Auto Parking:

Area 1 Spaces – 250 spaces

Area 2 Spaces –

Total Parking Area – 186,400 ft²

Truck Dock:

Doors/Bays/Spaces – 34 spaces

Linear Footage – 380 feet

Total Dock Area – 111,620 ft²

Airside Apron:

Apron Area – 101,700 ft²

Wide Body Parking Positions – 3 positions

Narrow Body Parking Positions – 0 positions

Tenant: KAL

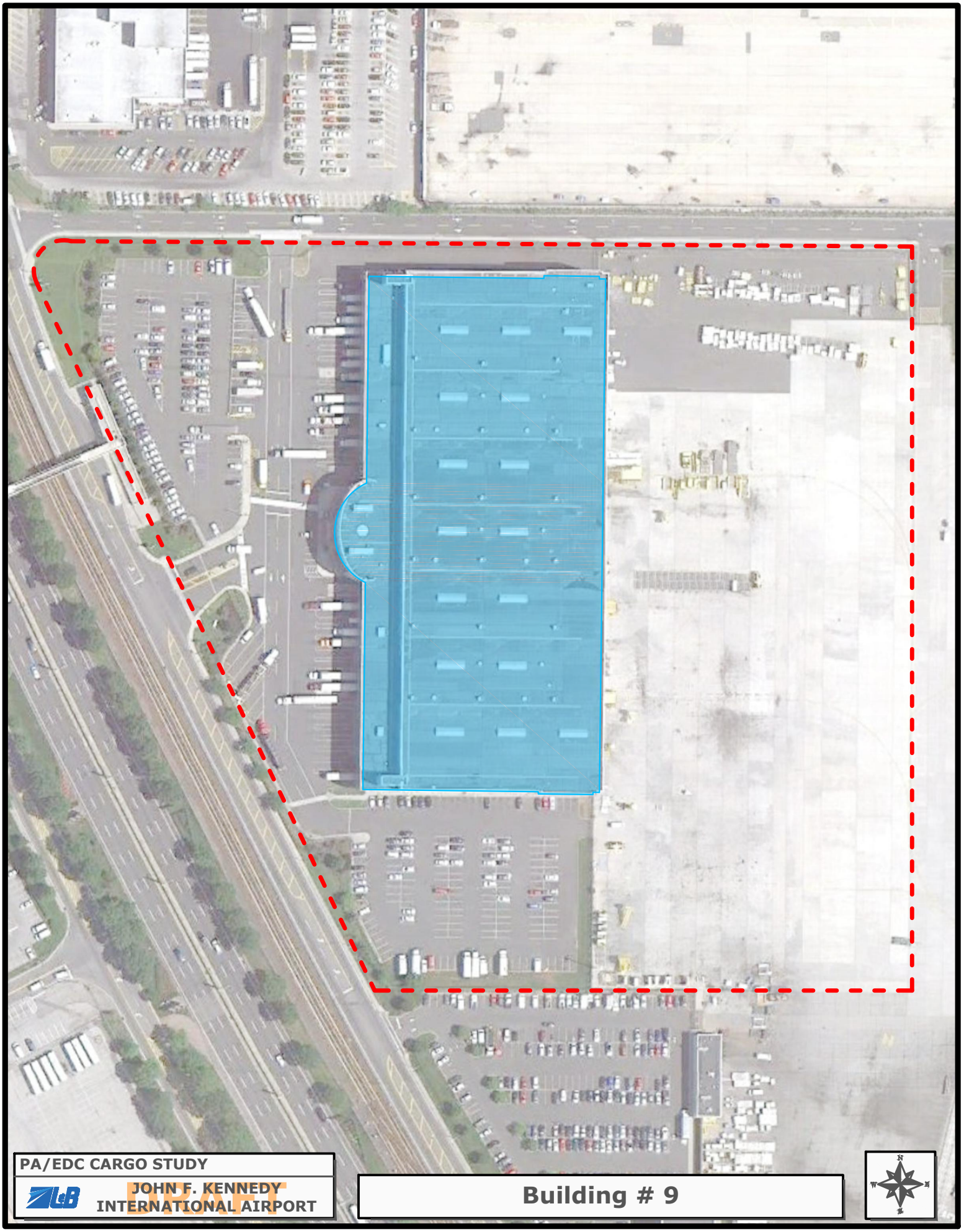
HISTORY

The original hangar structure was built in 1955. An air freight terminal extension at the north west section was added in 1970.

BUILDING DESCRIPTION

The building is comprised of the north south hangar and core area, which are the office areas. The north hangar is used for air freight storage.

PHYSICAL CONSTRAINTS


PA/EDC CARGO STUDY
JOHN F. KENNEDY
INTERNATIONAL AIRPORT
DRAFT
Building # 9

BUILDING 21 VIABLE

Cargo Zone B

GENERAL DATA

Location: Located off Taxiway R; East of Building 9

Year Built: 2003

Number of Stories:

Height:

Warehouse – 24 feet

Hangar –

Office –

Floor Area:

Shop/Warehouse – 154,890 ft²

Office 1st Floor – 17,210 ft²

Office 2nd Floor –

Office 3rd Floor –

Total Floor Area: 172,100 ft²

Building Footprint: 148,080 ft²

Site Area: 18 acres

Auto Parking:

Area 1 Spaces – 204 spaces

Area 2 Spaces –

Total Parking Area – 160,920 ft²

Truck Dock:

Doors/Bays/Spaces – 45 spaces

Linear Footage – 593 feet

Total Dock Area – 63,730 ft²

Airside Apron:

Apron Area – 420,060 ft²

Wide Body Parking Positions – 2 positions

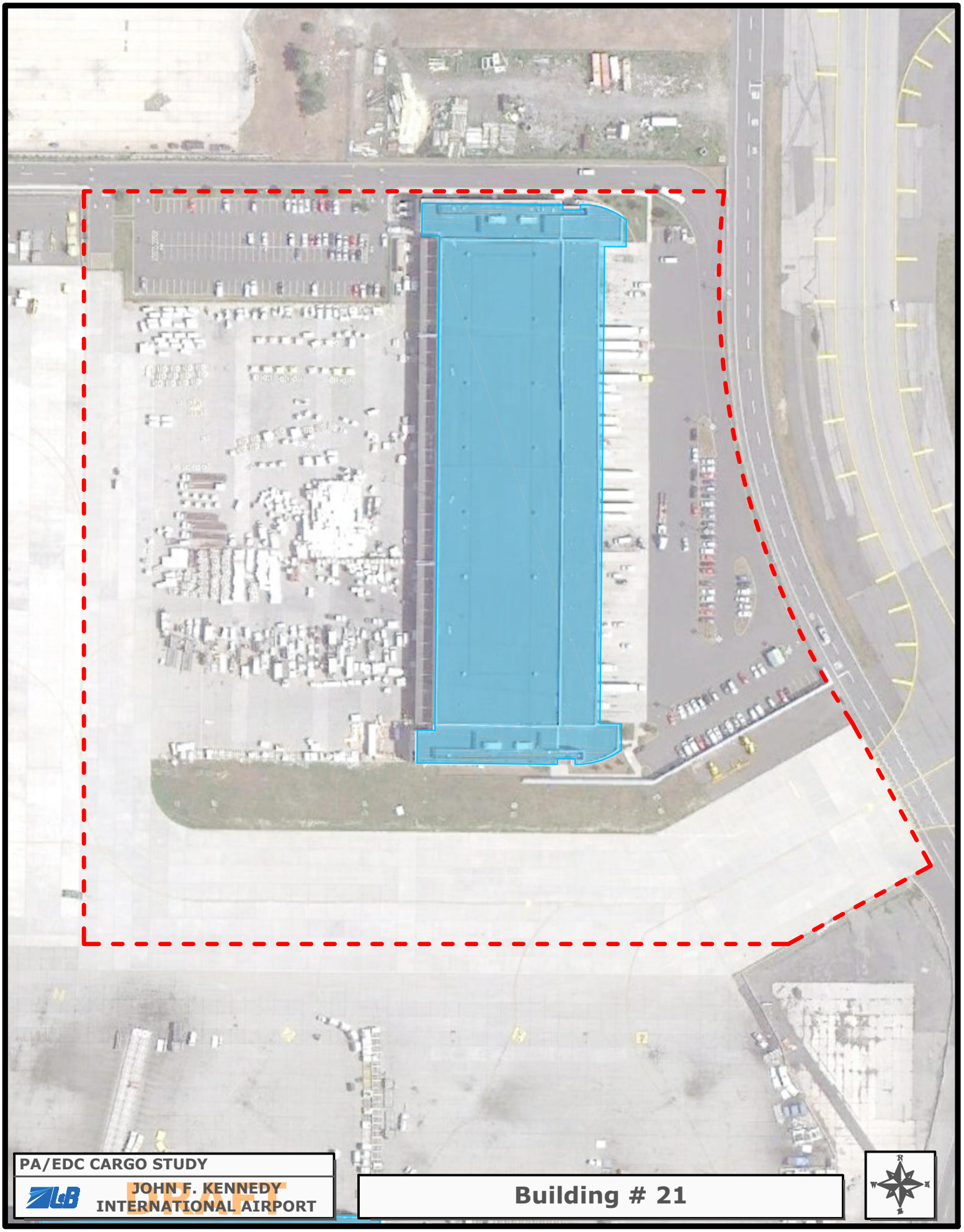
Narrow Body Parking Positions – 0 positions

Tenant: AEROTERM/ Delta

HISTORY

BUILDING DESCRIPTION

PHYSICAL CONSTRAINTS


PA/EDC CARGO STUDY
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INTERNATIONAL AIRPORT
DRAFT
Building # 21

BUILDING 22 VIABLE

Cargo Zone B

GENERAL DATA

Location: Located off of the North Service Road; Adjacent to Building 23

Year Built: 1997

Number of Stories:

Height:

Warehouse – 45 feet

Hangar –

Office –

Floor Area:

Shop/Warehouse – 95,000 ft²

Office 1st Floor –

Office 2nd Floor – 14,060 ft²

Office 3rd Floor –

Total Floor Area: 111,140 ft²

Building Footprint: 85,640 ft²

Site Area: 22 acres

Auto Parking:

Area 1 Spaces – 100 spaces

Area 2 Spaces –

Total Parking Area – 141,650 ft²

Truck Dock:

Doors/Bays/Spaces – 18 spaces

Linear Footage – 257 feet

Total Dock Area – 101,330 ft²

Airside Apron:

Apron Area – 105,000 ft²

Wide Body Parking Positions – 1 positions

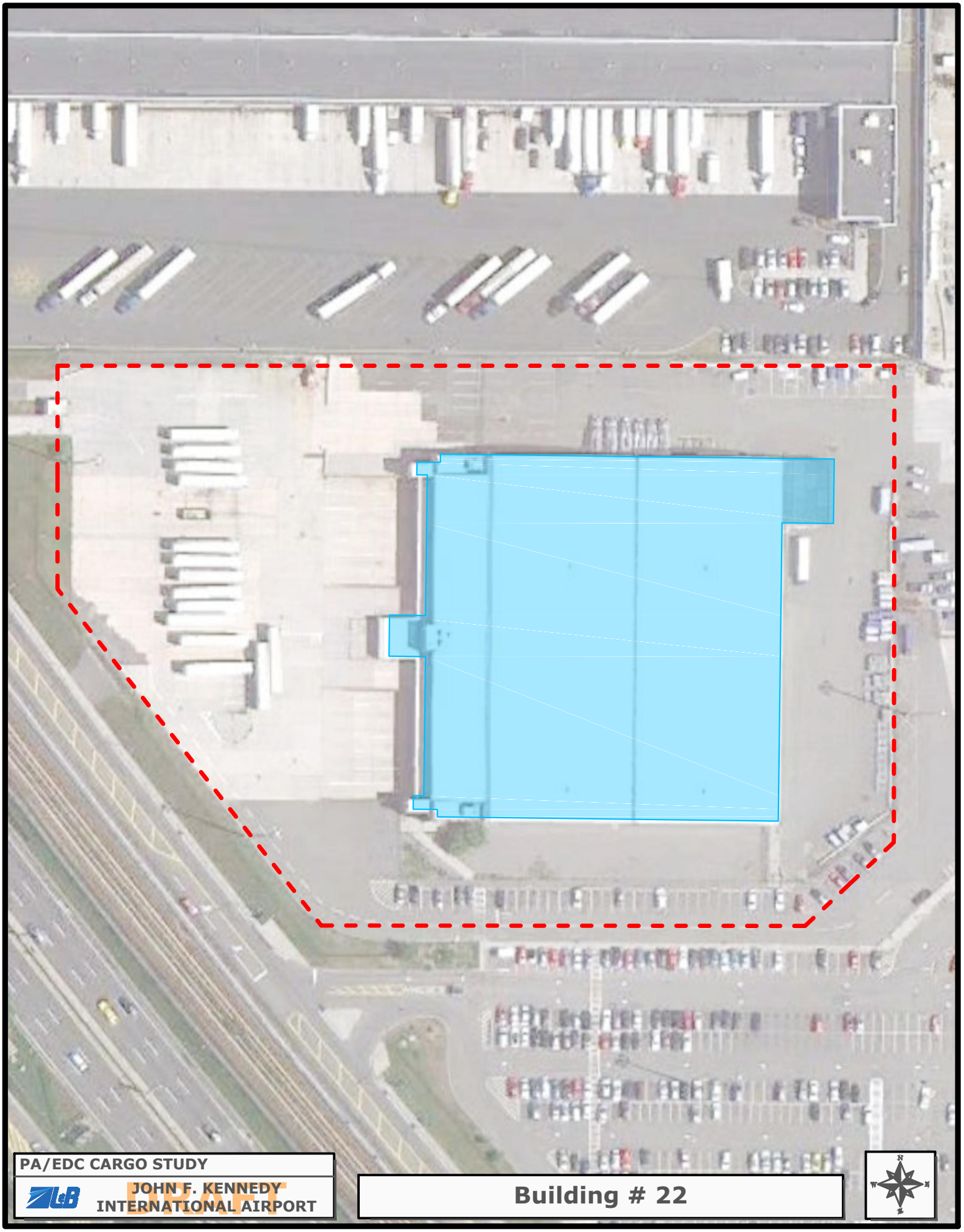
Narrow Body Parking Positions – 0 positions

Tenant: Vacant (United)

HISTORY

BUILDING DESCRIPTION

PHYSICAL CONSTRAINTS


PA/EDC CARGO STUDY
JOHN F. KENNEDY
INTERNATIONAL AIRPORT
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Building # 22
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BUILDING 23 VIABLE

Cargo Zone B

GENERAL DATA

Location: Located off of the North Service Road between Buildings 21 and 22

Year Built: 2003

Number of Stories:

Height:

Warehouse – 24 feet

Hangar –

Office –

Floor Area:

Shop/Warehouse – 236,263 ft²

Office 1st Floor – 26,252 ft²

Office 2nd Floor –

Office 3rd Floor –

Total Floor Area: 262,515 ft²

Building Footprint: 234,296 ft²

Site Area: 24 acres

Auto Parking:

Area 1 Spaces – 315 spaces

Area 2 Spaces –

Total Parking Area – 162,230 ft²

Truck Dock:

Doors/Bays/Spaces – 56 spaces

Linear Footage – 810 feet

Total Dock Area – 157,140 ft²

Airside Apron:

Apron Area – 474,354 ft²

Wide Body Parking Positions – 4 positions

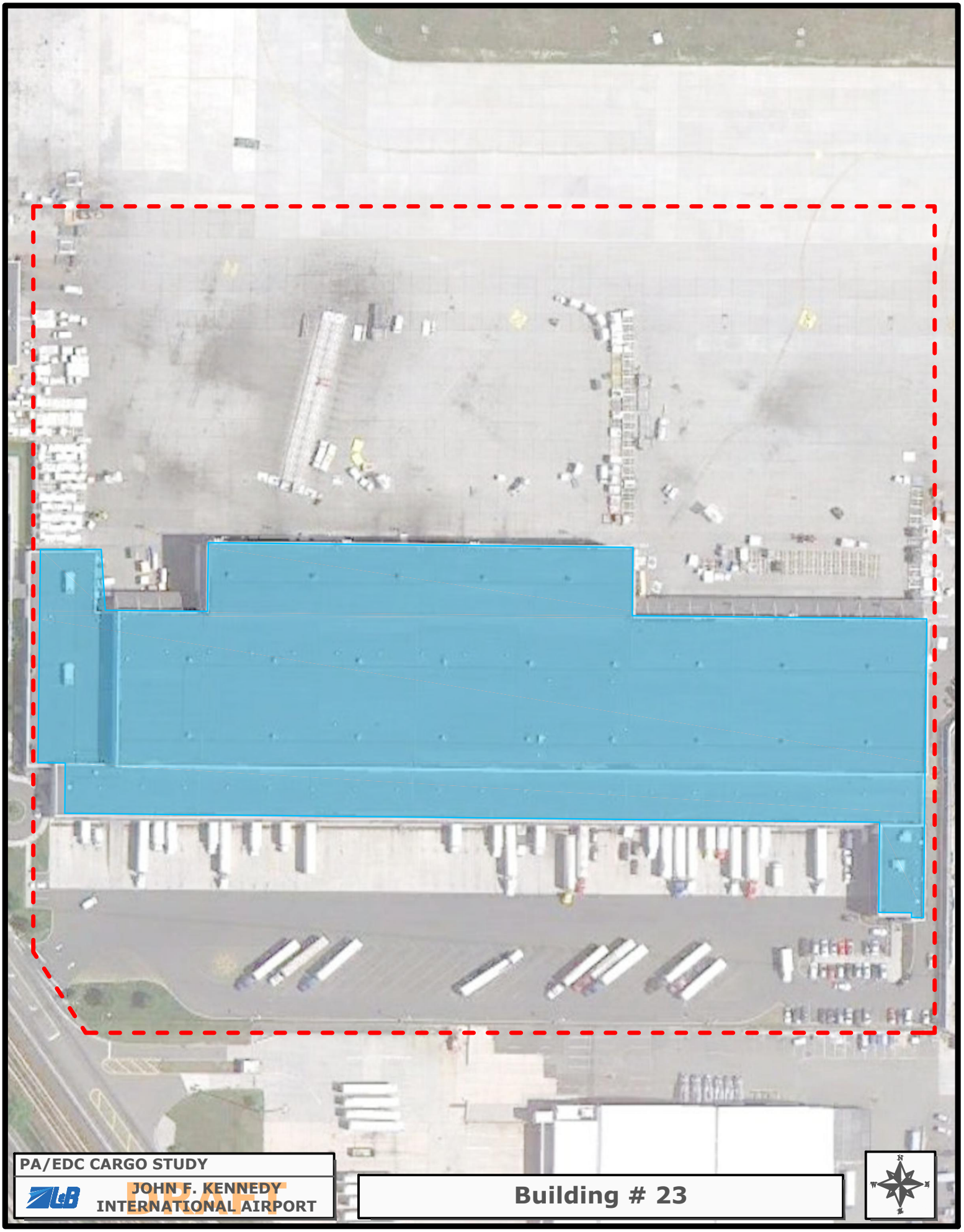
Narrow Body Parking Positions – 0 positions

Tenant: Aeroterm/ LH/ AGI

HISTORY

BUILDING DESCRIPTION

PHYSICAL CONSTRAINTS



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Building # 23

BUILDING 66 NONVIABLE

Cargo Zone B

GENERAL DATA

Location: Off Cargo Service Road; East of Building 69 and 70

Year Built: 1964 (original)/ 1971 (cargo building addition)

Number of Stories: 2

Height:

Warehouse – 46 feet

Hangar –

Office –

Floor Area:

Shop/Warehouse – 97,900 ft²

Office 1st Floor –

Office 2nd Floor –14,800 ft²

Office 3rd Floor –

Total Floor Area: 112,000 ft²

Building Footprint: 104,010 ft²

Site Area: 11 acres

Auto Parking:

Area 1 Spaces – 90 spaces

Area 2 Spaces –

Total Parking Area – 85,460 ft²

Truck Dock:

Doors/Bays/Spaces – 20 spaces

Linear Footage – 494 feet

Total Dock Area – 64,210 ft²

Airside Apron:

Apron Area – 238,550 ft²

Wide Body Parking Positions – 2 positions

Narrow Body Parking Positions – 0 positions

Tenant: CAS

HISTORY

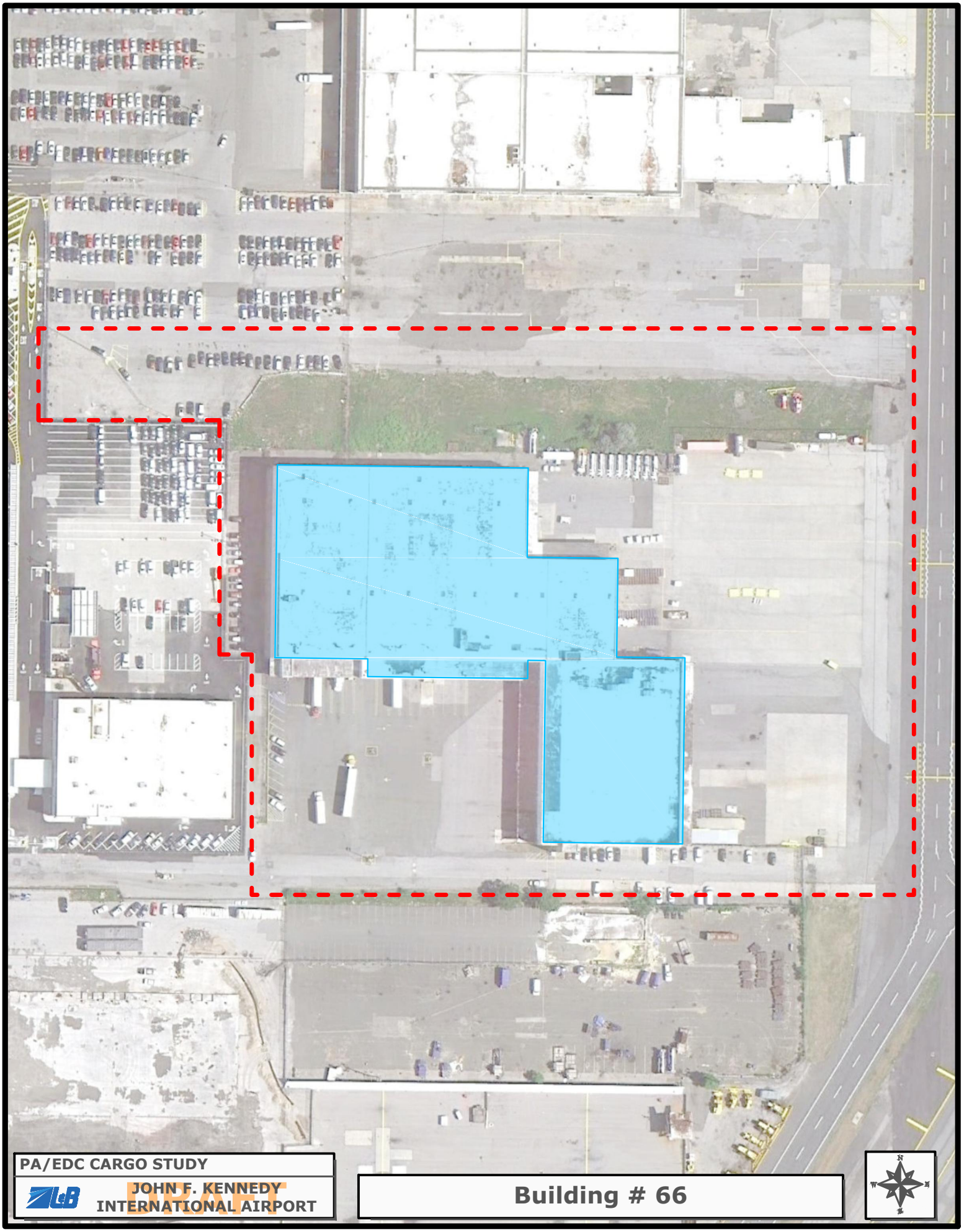
The original cargo building was constructed in 1964. The additional cargo building was constructed by British Airways in 1971.

BUILDING DESCRIPTION

The cargo building is a two story steel structure consisting of an open cargo handling area with steel roof trusses. The second floor office area is suspended below the steel trusses along the side of the cargo handling area.

PHYSICAL CONSTRAINTS

The design of the building is for a jet engine maintenance facility with and adjacent 2-story office and maintenance shops.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Building # 66
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BUILDING 67 NONVIABLE

Cargo Zone B

GENERAL DATA

Location: Located off Cargo Service Road at the north end of the Airport

Year Built: 1965 (original)/ early 1970's (cargo extension building)/ 1980 (cargo extension building)

Number of Stories: 3

Height:

Warehouse – 50.42 feet

Hangar –

Office –

Floor Area:

Shop/Warehouse – 196,200 ft²

Office 1st Floor – 71,550 ft²

Office 2nd Floor – 36,900 ft²

Office 3rd Floor –

Total Floor Area: 267,750 ft²

Building Footprint: 232,504 ft²

Site Area: 19 acres

Auto Parking:

Area 1 Spaces – 550 spaces

Area 2 Spaces –

Total Parking Area – 390,430 ft²

Truck Dock:

Doors/Bays/Spaces – 39 spaces

Linear Footage – 213 feet

Total Dock Area – 60,200 ft²

Airside Apron:

Apron Area – 223,320 ft²

Wide Body Parking Positions – 2 positions

Narrow Body Parking Positions – 0 positions

Tenant: This space is currently vacant.

HISTORY

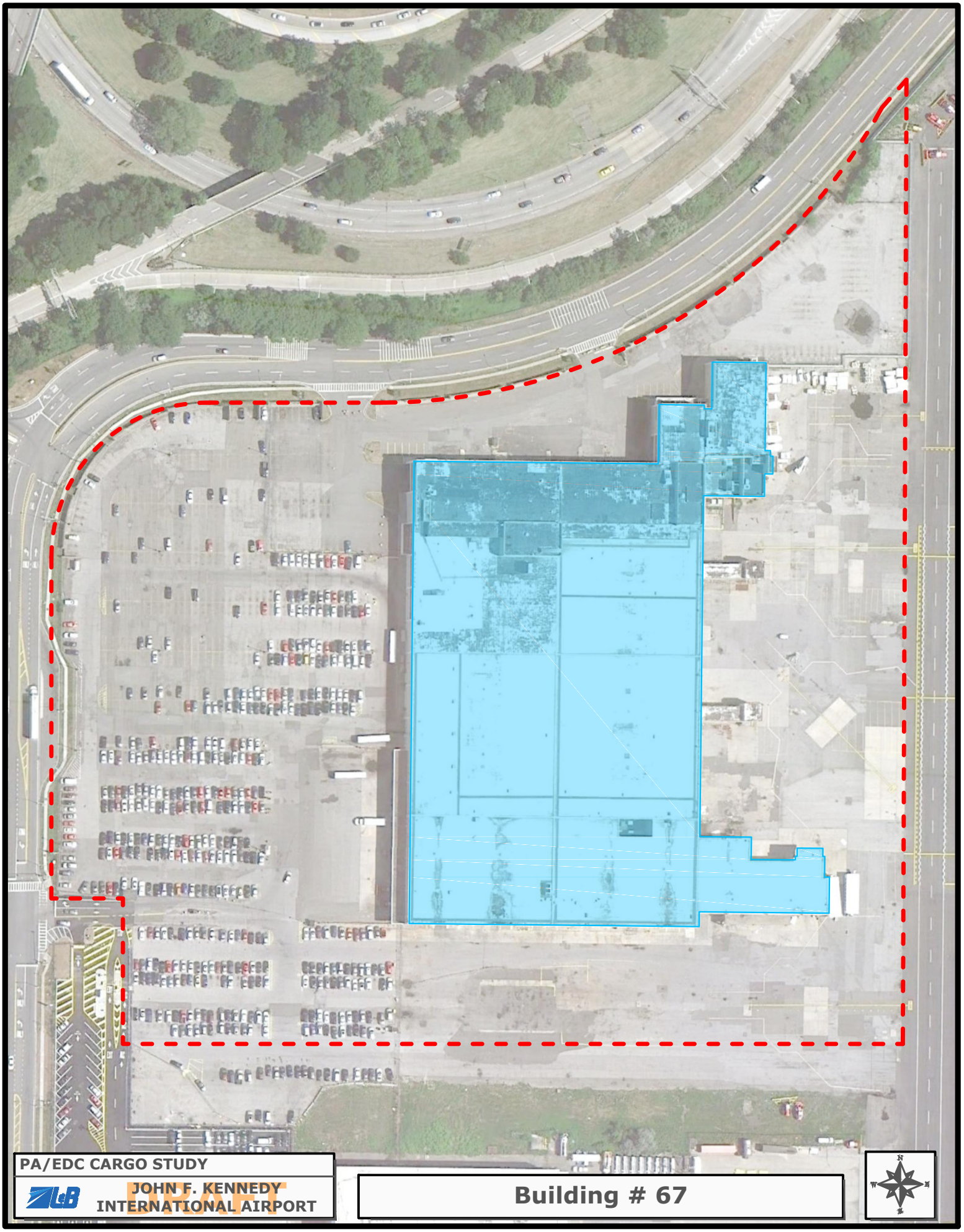
Building 67 was constructed in 1965 for Pan American World Airways. The building has undergone 3 major expansions in 1970 and 1980.

BUILDING DESCRIPTION

The original building is comprised of warehouse, cargo office, and handling areas. This includes a north west corner, north east corner, and interior truck loading area, as well as, 2nd and 3rd floor offices. Building 67 is a steel framed structure.

PHYSICAL CONSTRAINTS

The design of the building is for a jet engine maintenance facility with and adjacent 2-story office and maintenance shops.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INTERNATIONAL AIRPORT
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Building # 67

BUILDING 68 NONVIABLE

Cargo Zone C

GENERAL DATA

Location: Bounded on the north by Compass Road, on the east by Pilot Road, and the south by Building 80

Year Built: 1963

Number of Stories: 1 (with mezzanine)

Height:

Warehouse – 14 feet

Hangar –

Office – 13 feet

Floor Area:

Shop/Warehouse – 29,640 ft²

Office 1st Floor – 4,580 ft²

Office 2nd Floor – 4,000 ft²

Office 3rd Floor –

Total Floor Area: 34,210 ft²

Building Footprint: 35,267 ft²

Site Area: 3 acres

Auto Parking:

Area 1 Spaces – 100 spaces

Area 2 Spaces – 417 feet

Total Parking Area – 41,347 ft²

Truck Dock:

Doors/Bays/Spaces – 40 spaces

Linear Footage – 417 feet

Total Dock Area – 96,285 ft²

Airside Apron:

Apron Area – 0 ft²

Wide Body Parking Positions – 0 positions

Narrow Body Parking Positions – 0 positions

Tenant: This facility is currently vacant.

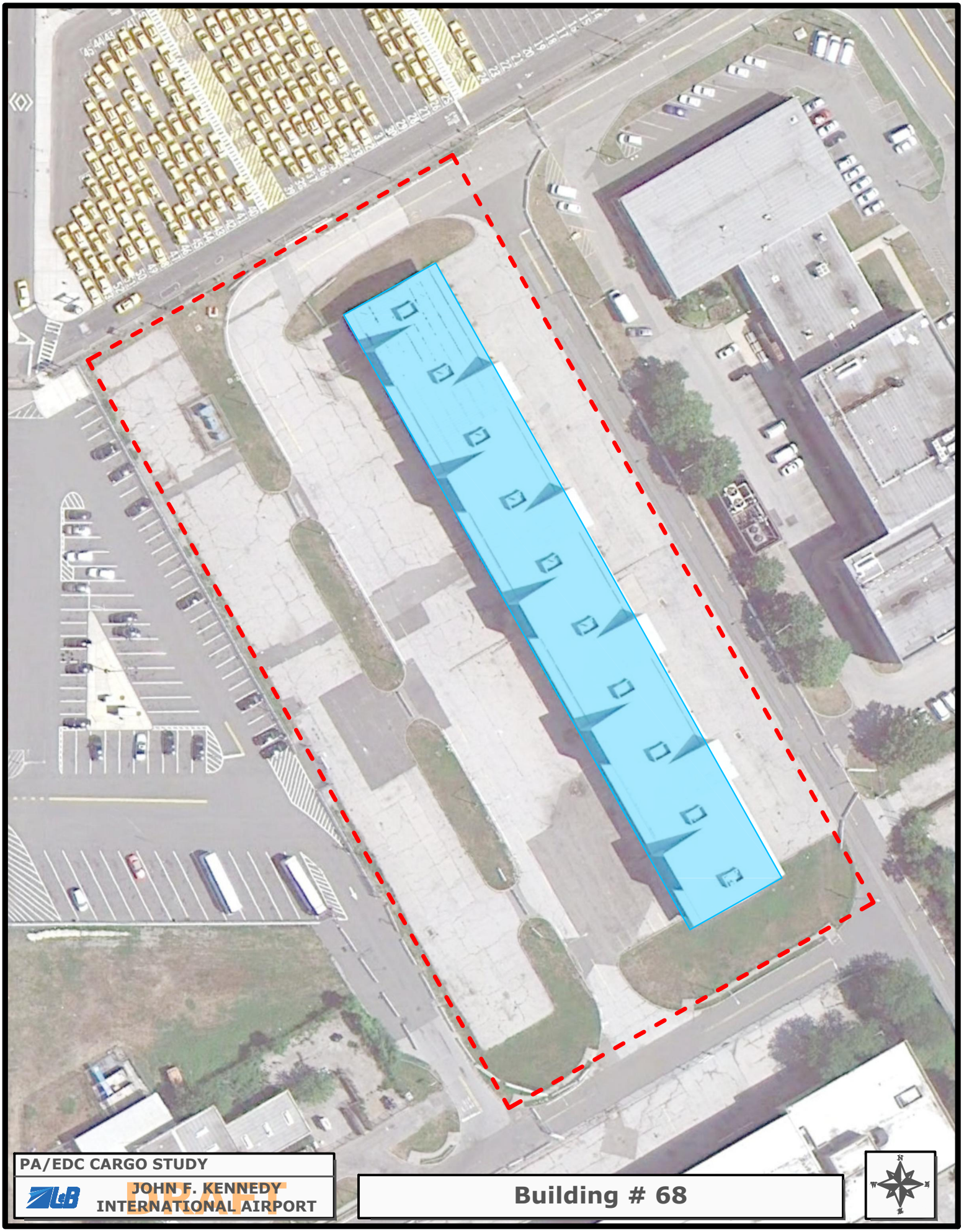
HISTORY

Building 68 was constructed in 1963 and was previously identified as cargo building "A".

BUILDING DESCRIPTION

Building is a one-story steel framed structure, CMU exterior walls with mezzanine. Building 68 has a sloped roof with a ridge along its center. Building columns are founded on piles.

PHYSICAL CONSTRAINTS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Building # 68
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BUILDING 81 NONVIABLE

Cargo Zone C

GENERAL DATA

Location: Situated between Building 83 and 179 on South Cargo Road

Year Built: 1950

Number of Stories: 1

Height:

Warehouse – 33 feet

Hangar –

Office –

Floor Area:

Shop/Warehouse – 41,770 ft²

Office 1st Floor – 6,000 ft²

Office 2nd Floor –

Office 3rd Floor –

Total Floor Area: 47,770 ft²

Building Footprint: 41,770 ft²

Site Area: 9 acres

Auto Parking:

Area 1 Spaces – 154 spaces

Area 2 Spaces – None

Total Parking Area – 22,000 ft²

Truck Dock:

Doors/Bays/Spaces – 13 spaces

Linear Footage – 380 feet

Total Dock Area – 10,000 ft²

Airside Apron:

Apron Area – 0 ft²

Wide Body Parking Positions – 0 positions

Narrow Body Parking Positions – 0 positions

Tenant: JetBlue/ GIB Maintenance Hangar

HISTORY

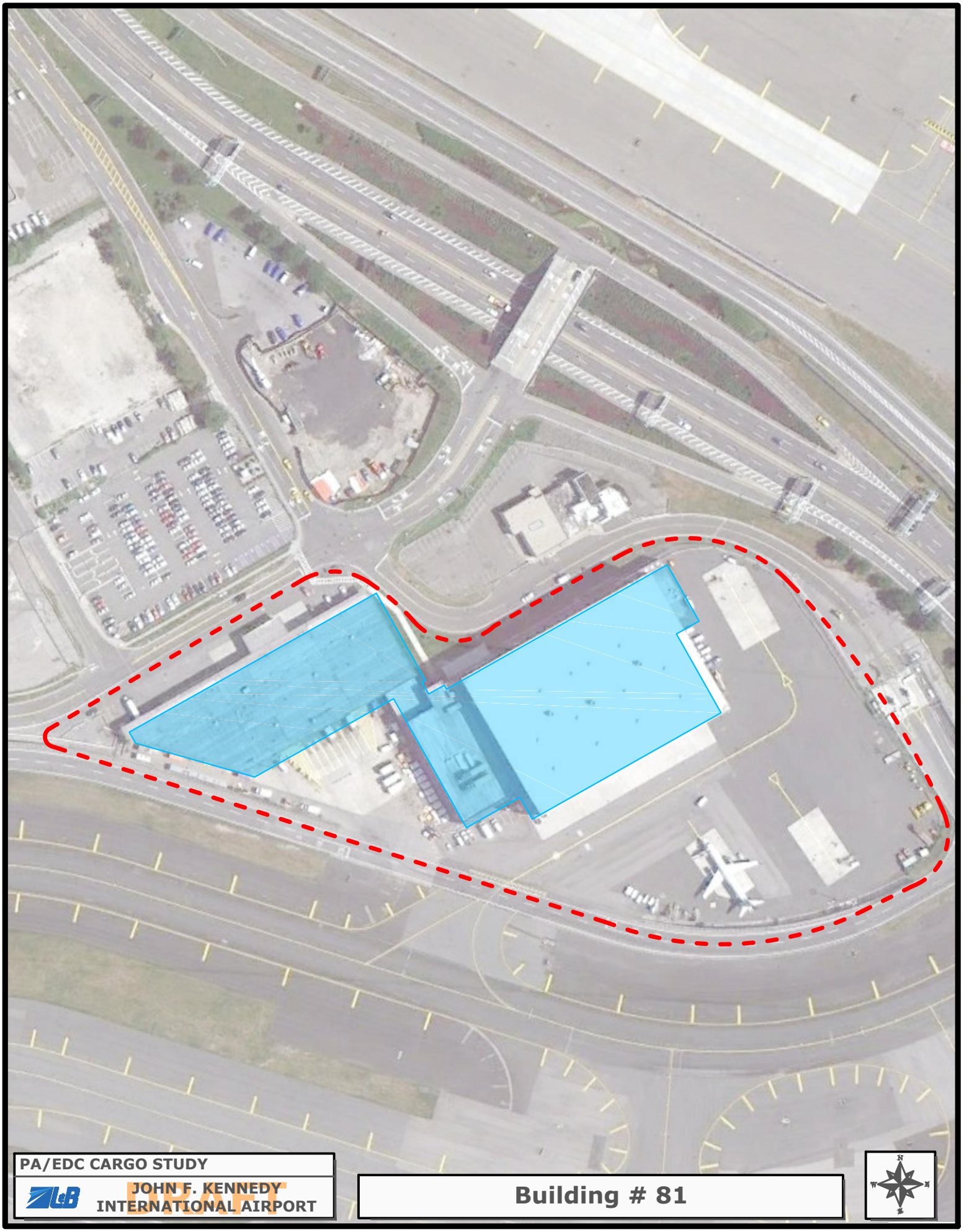
The original structure was constructed in the late 1950's. To make room for the construction of the Taxiway "I & O" expansion, a portion of the building was demolished around 1990.

BUILDING DESCRIPTION

The building is a long one-story cargo building. The floor space is open except for office areas that are partitioned off in each tenant area. The building is used to receive and send airplane cargo. Building 81 is a structural steel framed buildin topped with metal roof decking. Building columns are founded on either timber or steel pipe pile with concrete pile masonry and brick caps for interior/exterior walls.

PHYSICAL CONSTRAINTS

The site is very small for any type of operation. The site has been added to building 179 when FEDEX occupied the area.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INTERNATIONAL AIRPORT
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Building # 81
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BUILDING 83 NONVIABLE

Cargo Zone C

GENERAL DATA

Location: Located at the intersection of Cargo Plaza and South Cargo Road

Year Built: 1950

Number of Stories: 2 (1-original, 2-additions)

Height:

Warehouse – 21 feet

Hangar –

Office –

Floor Area:

Shop/Warehouse – 125,700 ft²

Office 1st Floor – 17,800 ft²

Office 2nd Floor –

Office 3rd Floor –

Total Floor Area: 142,800 ft²

Building Footprint: 143,500 ft²

Site Area: 13 acres

Auto Parking:

Area 1 Spaces – 200 spaces

Area 2 Spaces –

Total Parking Area – 54,920 ft²

Truck Dock:

Doors/Bays/Spaces – 37 spaces

Linear Footage – 970 feet

Total Dock Area – 62,510 ft²

Airside Apron:

Apron Area – 234,520 ft²

Wide Body Parking Positions – 4 positions

Narrow Body Parking Positions – 0 positions

Tenant: This space is currently vacant.

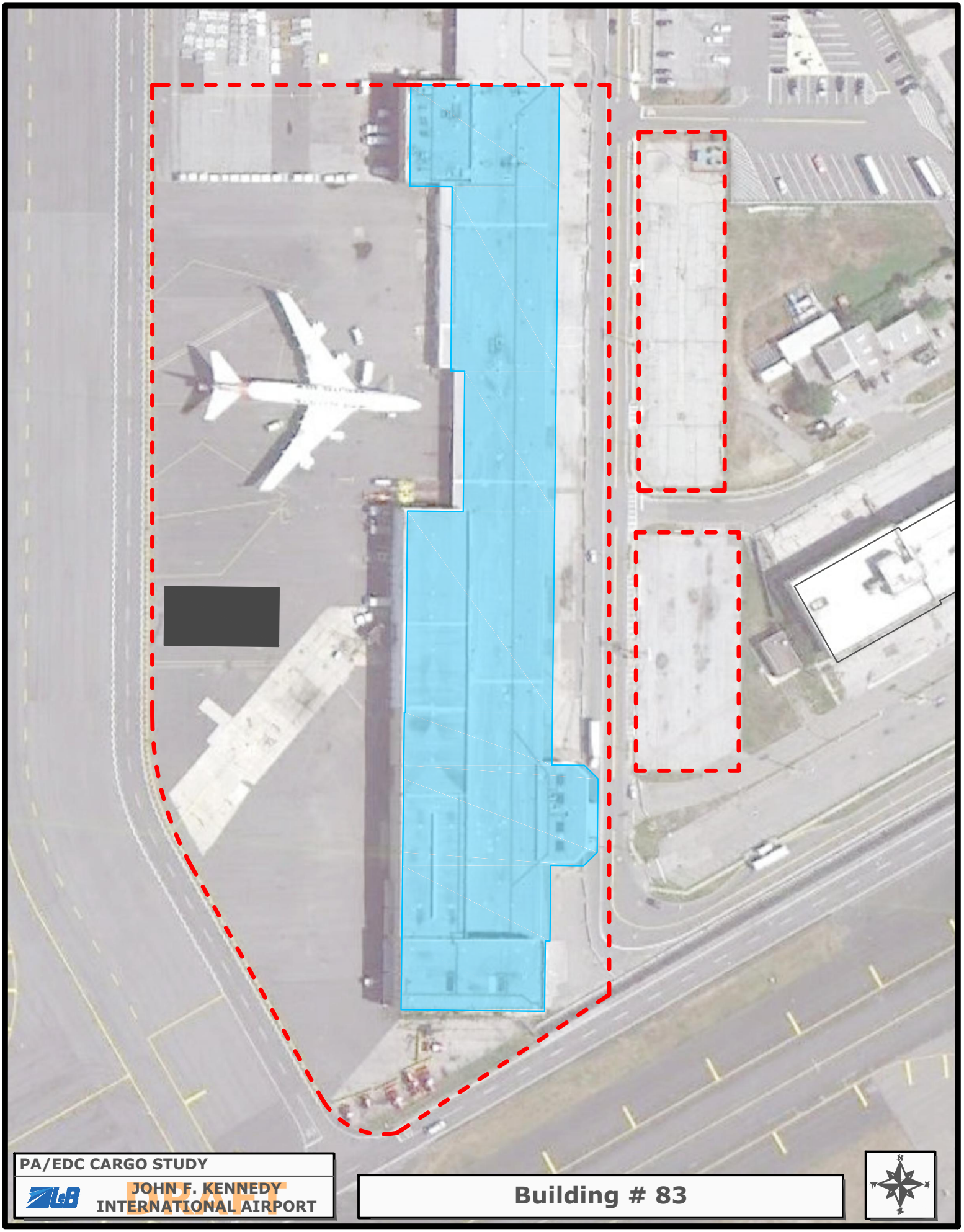
HISTORY

The original building was constructed in the late 1950's. Several additions were made to the building at undetermined times. Two of the additions were 2 stories.

BUILDING DESCRIPTION

Building 83 is a long one-story flat steel framed structure. Masonry and brick are used for the exterior walls. The east elevation of the building is lined with truck loading docks. The west provides access to an apron for loading and unloading airplanes.

PHYSICAL CONSTRAINTS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Building # 83

BUILDING 84 NONVIABLE

Cargo Zone C

GENERAL DATA

Location: Located on the Southwestern side of Cargo Zone C; East elevation parallels Cargo Plaza.

Year Built: 1950

Number of Stories: 1

Height:

Warehouse – 15 feet

Hangar –

Office –

Floor Area:

Shop/Warehouse – 59,883 ft²

Office 1st Floor – 24,500 ft²

Office 2nd Floor –

Office 3rd Floor –

Total Floor Area: 91,700 ft²

Building Footprint: 82,451 ft²

Site Area: 10 acres

Auto Parking:

Area 1 Spaces – 300 spaces

Area 2 Spaces –

Total Parking Area – 26,215 ft²

Truck Dock:

Doors/Bays/Spaces – 26 spaces

Linear Footage – 750 feet

Total Dock Area – 58,765 ft²

Airside Apron:

Apron Area – 237,580 ft²

Wide Body Parking Positions – 3 positions

Narrow Body Parking Positions – 0 positions

Tenant: UPS

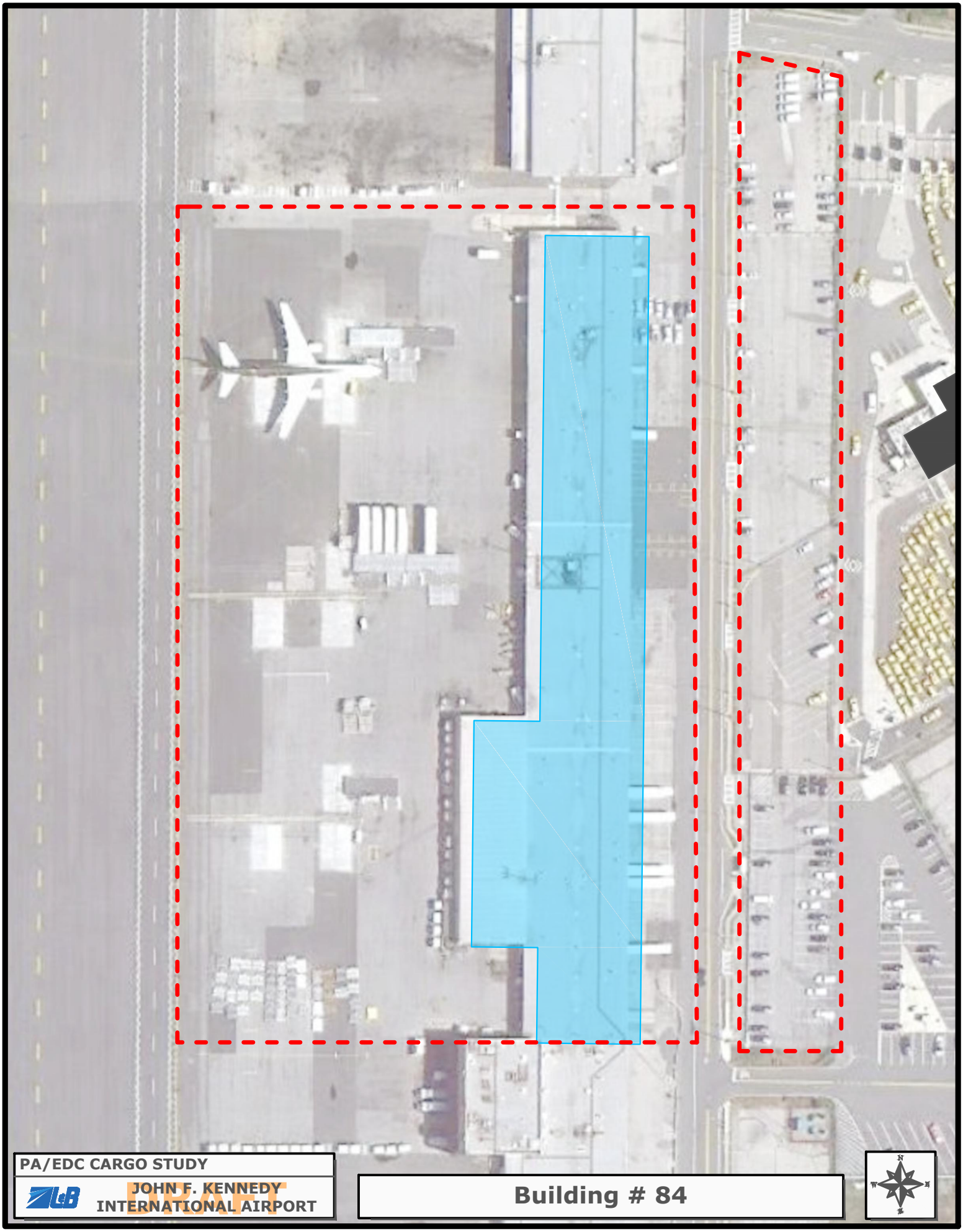
HISTORY

The building was constructed in the late 1950's.

BUILDING DESCRIPTION

Building 84 is a one-story structural steel frame structure. Masonry and brick are used for the exterior walls. The floor space is open except for office areas that are partitioned off.

PHYSICAL CONSTRAINTS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Building # 84
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BUILDING 86 NONVIABLE

Cargo Zone C

GENERAL DATA

Location: Situated between Buildings 84 and 87 on Cargo Plaza Road; Centrally located in Cargo Zone C

Year Built: 1960

Number of Stories: 1

Height:

Warehouse – 14 feet

Hangar –

Office –

Floor Area:

Shop/Warehouse – 64,124 ft²

Office 1st Floor – 12,000 ft²

Office 2nd Floor –

Office 3rd Floor –

Total Floor Area: 76,124 ft²

Building Footprint: 77,627 ft²

Site Area: 10 acres

Auto Parking:

Area 1 Spaces – 200 spaces

Area 2 Spaces –

Total Parking Area – 54,850 ft²

Truck Dock:

Doors/Bays/Spaces – 20 spaces

Linear Footage – 800 feet

Total Dock Area – 50,200 ft²

Airside Apron:

Apron Area – 583,860 ft²

Wide Body Parking Positions – 3 positions

Narrow Body Parking Positions – 0 positions

Tenant: MSN-Handler/TACA Lot

HISTORY

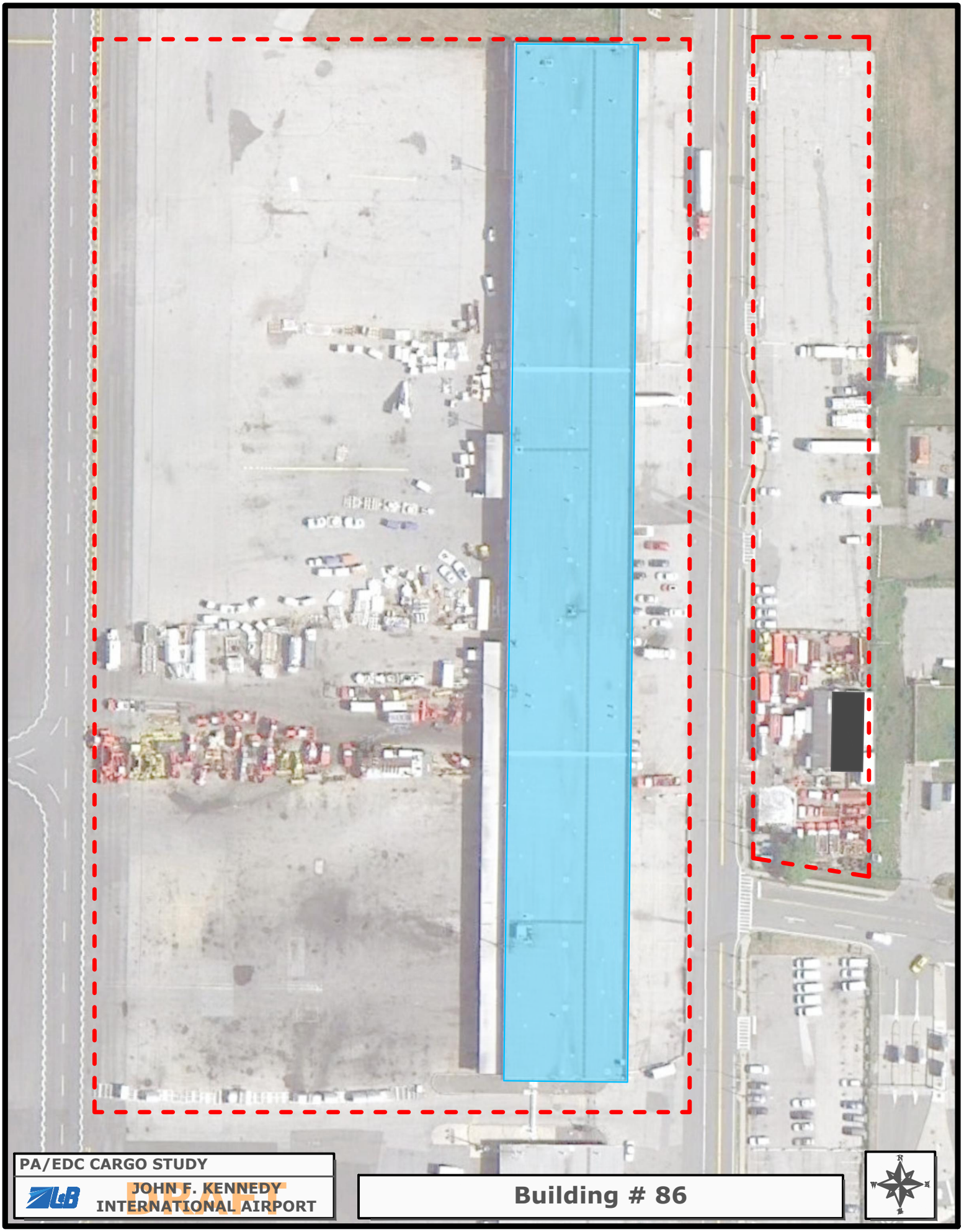
The building was constructed in the early 1960's.

BUILDING DESCRIPTION

The building is a long one-story cargo building. The floor space is open except for office areas that are partitioned off in each tenant area. The building is used to receive and send airplane cargo. Building 86 is a structural steel framed structure topped with metal roof decking. Building columns are founded on either timber or steel pipe pile with concrete pile caps and masonry and brick interior/exterior walls.

PHYSICAL CONSTRAINTS

The northern portion of the building is within the clear 20NE of RWY 13L. Building heights would be restricted. Any new construction will require clearance from the FAA.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INTERNATIONAL AIRPORT
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Building # 86

BUILDING 87 NONVIABLE

Cargo Zone C

GENERAL DATA

Location: Located on the northern side of Cargo Area C; South of Cargo Service Road

Year Built: 1960

Number of Stories: 1 (with mezzanine)

Height:

Warehouse – 39 feet

Hangar –

Office – 17 feet

Floor Area:

Shop/Warehouse – 133,500 ft²

Office 1st Floor – 19,500 ft²

Office 2nd Floor –

Office 3rd Floor –

Total Floor Area: 153,000 ft²

Building Footprint: 145,342 ft²

Site Area: 20 acres

Auto Parking:

Area 1 Spaces – 160 spaces

Area 2 Spaces –

Total Parking Area – 93,070 ft²

Truck Dock:

Doors/Bays/Spaces – 50 spaces

Linear Footage – 1,102 feet

Total Dock Area – 88,200 ft²

Airside Apron:

Apron Area – 544,590 ft²

Wide Body Parking Positions – 4 positions

Narrow Body Parking Positions – 0 positions

Tenant: Evergreen (Polar Air)

HISTORY

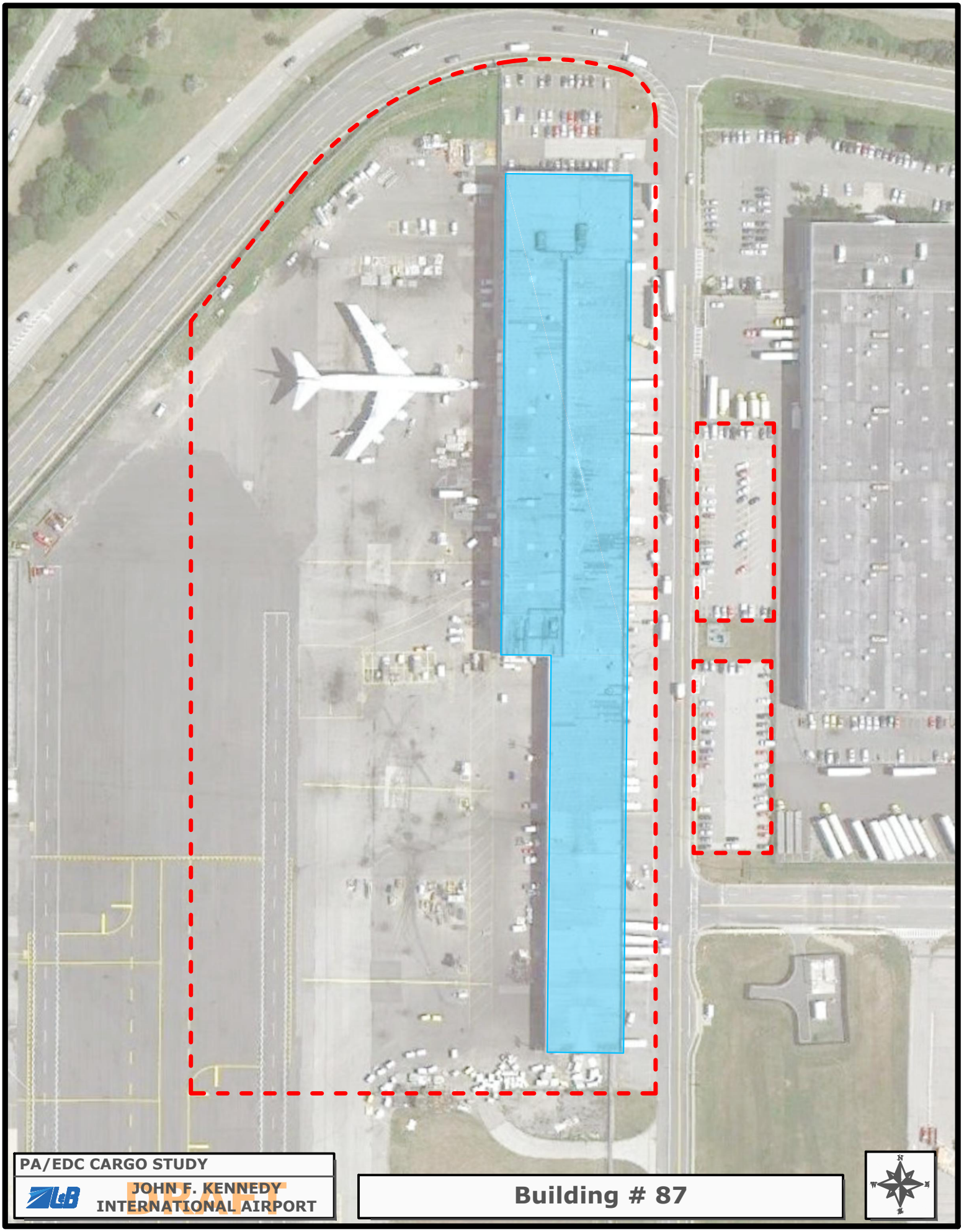
The original building was constructed in the early 1960's. Three additions were made to the original construction in the late 1970's.

BUILDING DESCRIPTION

Building 87 is a one-story cargo building and is used to receive and send airplane cargo. The building is a structural steel framed structure topped with metal roof decking. Masonry and brick are used for the exterior walls. Building columns are found on either timber or steel pipe piles and are covered with concrete pile caps.

PHYSICAL CONSTRAINTS

The southern portion of the building is within the clear 20NE of RWY 13L. Building heights would be restricted. Any new construction will require clearance from the FAA.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INTERNATIONAL AIRPORT
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Building # 87
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BUILDING 89 VIABLE

Cargo Zone C

GENERAL DATA

Location: Located at 147th Avenue; North side of Cargo Zone C

Year Built: 1963 (Combined with building 88- 1961/1965), 1998 (updates)

Number of Stories: 2

Height:

Warehouse – 26 feet

Hangar –

Office – 13 feet

Floor Area:

Shop/Warehouse – 90,000 ft²

Office 1st Floor –

Office 2nd Floor – 15,000 ft²

Office 3rd Floor –

Total Floor Area: 105,000 ft²

Building Footprint: 110,583 ft²

Site Area: 8 acres

Auto Parking:

Area 1 Spaces – 90 spaces

Area 2 Spaces – 80 spaces

Total Parking Area – 81,100 ft²

Truck Dock:

Doors/Bays/Spaces – 32 spaces

Linear Footage – 510 feet

Total Dock Area – 4,337 ft²

Airside Apron:

Apron Area – 0 ft²

Wide Body Parking Positions – 0 positions

Narrow Body Parking Positions – 0 positions

Tenant: DHL Global Forwarding

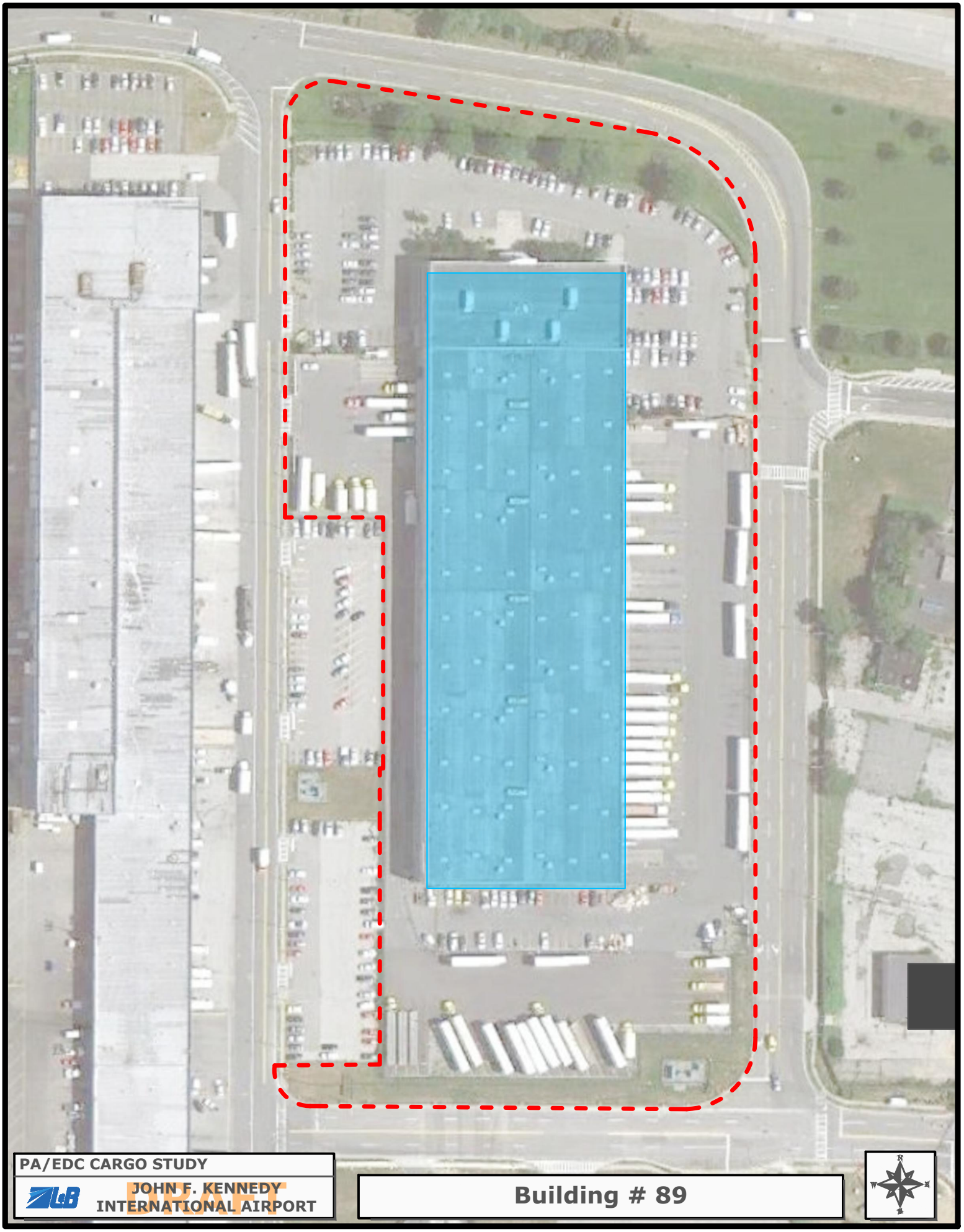
HISTORY

The original building 89 was constructed in 1963 as a warehouse and cargo handling facility. Before combing with building 89, building 88 was constructed in 1961 for the Emery Air Freight Corporation.

BUILDING DESCRIPTION

Building 89 is a two-story steel framed structure and masonry exterior walls. The building serves as a warehouse and cargo handling facility. Building 88, now a part of building 89, consisted of a two-story central office portion with a one-story warehouse area extending from the north and south office areas. The building was a one and two story steel frame structured supported on pile foundation.

PHYSICAL CONSTRAINTS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JOHN F. KENNEDY INTERNATIONAL AIRPORT
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Building # 89

BUILDING 5 NONVIABLE

Cargo Zone D

GENERAL DATA

Location: Located on the southwestern side of Cargo Zone D; South of Hangar Road; Intersects Farmers Blvd. and Rockaway Blvd.

Year Built: 1950, 2004 (combined with buildings 3 and 4)

Number of Stories: 2 (1-cargo, 2-offices #'s 128 & 129)

Height:

Warehouse – 25 feet (81 foot crown)

Hangar –

Office –

Floor Area:

Shop/Warehouse – 270,000 ft²

Office 1st Floor –

Office 2nd Floor – 30,000 ft²

Office 3rd Floor –

Total Floor Area: 300,000 ft²

Building Footprint: 268,550 ft²

Site Area: 9 acres

Auto Parking:

Area 1 Spaces – 57 spaces below building

Area 2 Spaces – None

Total Parking Area – No auto parking besides under building

Truck Dock:

Doors/Bays/Spaces – 8 spaces

Linear Footage – 460 feet

Total Dock Area – 45,480 ft²

Airside Apron:

Apron Area – 665,970 ft²

Wide Body Parking Positions – 6 positions

Narrow Body Parking Positions – 0 positions

Tenant: No Tenants

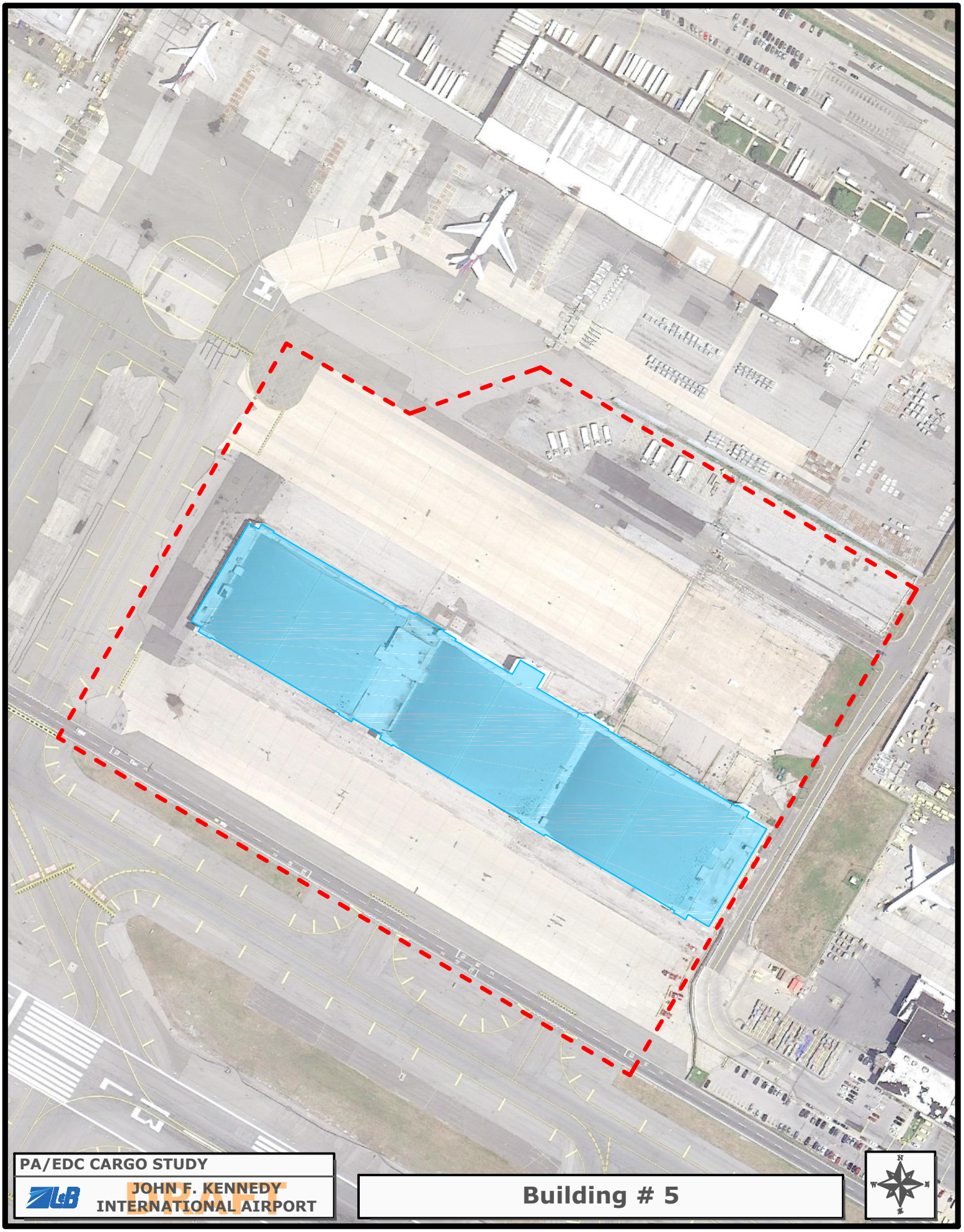
HISTORY

The building was built in 1950 and combined with Buildings 3 and 4 in 2004.

BUILDING DESCRIPTION

Part of a 3-hinged arched structures (3, 4, and 5) steel framed buildings supported on spread footings. All three were originally constructed as identical hangars, but building 5 has been modified and used as warehouse for the past eight years.

PHYSICAL CONSTRAINTS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BUILDING 6 NONVIABLE

Cargo Zone D

GENERAL DATA

Location: Located just North of Building 5 in Cargo Zone D; South of Hangar Road; Intersects Farmers Blvd. and Rockaway Blvd.

Year Built: 1953

Number of Stories: 1

Height:

Warehouse – 45 feet

Hangar –

Office –

Floor Area:

Shop/Warehouse – 188,014 ft²

Office 1st Floor –12,240 ft²

Office 2nd Floor –

Office 3rd Floor –

Total Floor Area: 200,254 ft²

Building Footprint: 198,155 ft²

Site Area: 27 acres

Auto Parking:

Area 1 Spaces – 265 spaces

Area 2 Spaces –

Total Parking Area – 220,110 ft²

Truck Dock:

Doors/Bays/Spaces – 40 spaces

Linear Footage – 799 feet

Total Dock Area – 234,290 ft²

Airside Apron:

Apron Area – 487,910 ft²

Wide Body Parking Positions – 0 positions

Narrow Body Parking Positions – 2 positions

Tenant: FedEx

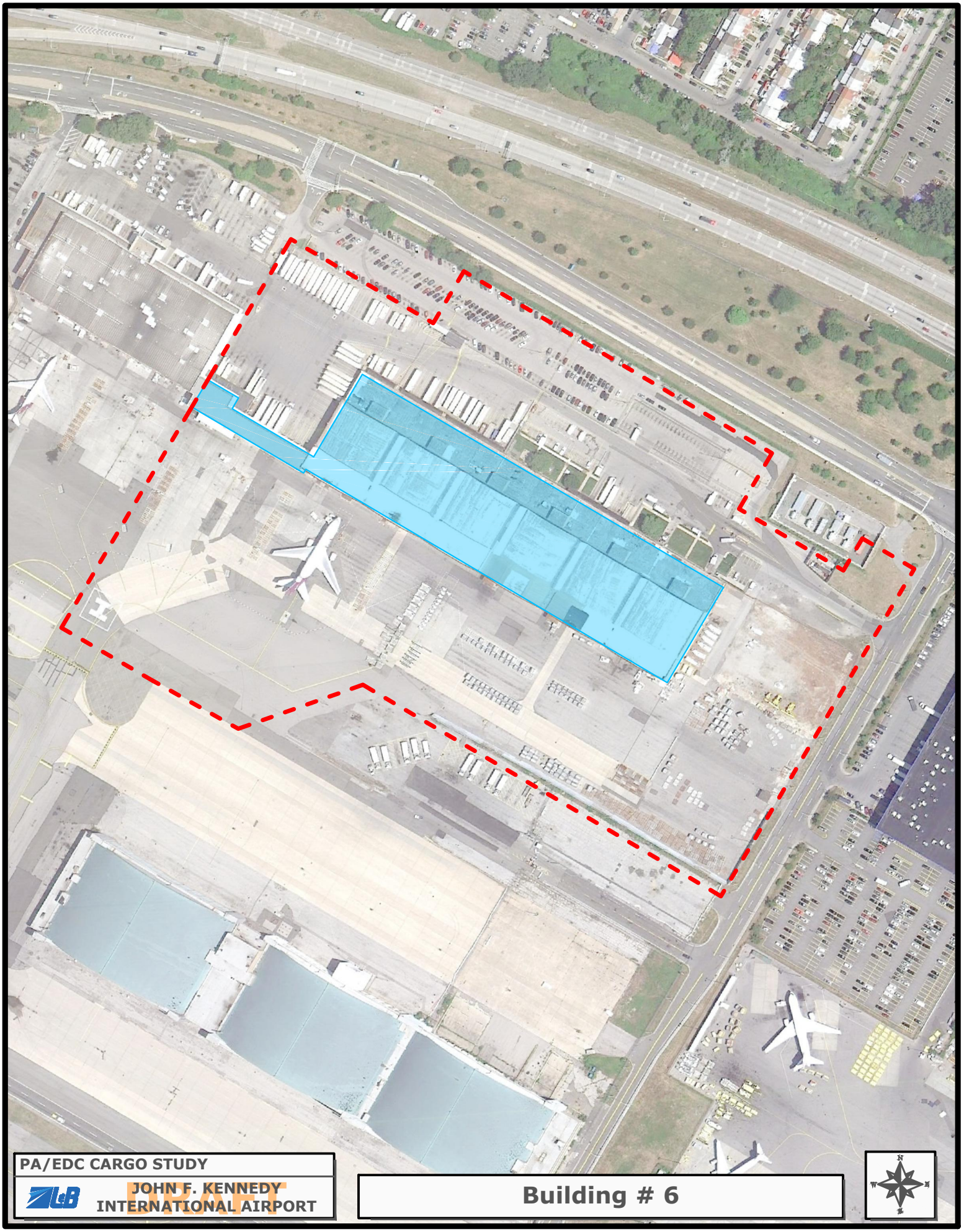
HISTORY

Building was constructed in 1953 and had two major alterations in 1964 and 1980. The previous tenant was Flying Tigers.

BUILDING DESCRIPTION

Building 6 is a single story pile-supported structure originally built for Aircraft maintenance, but currently used as a cargo handling facility. Building consists of low portion for offices and loading docks.

PHYSICAL CONSTRAINTS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Building # 6
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BUILDING 7 NONVIABLE

Cargo Zone D

GENERAL DATA

Location: Located on the southeastern side of Cargo Zone D just north of Perimeter Road; Situated on the south side of Hangar Road

Year Built: 1954

Number of Stories: 2 (1-cargo, 2-offices)

Height:

Warehouse –

Hangar – 32 feet

Office –

Floor Area:

Shop/Warehouse – 105,000 ft²

Office 1st Floor –

Office 2nd Floor – 62,000 ft²

Office 3rd Floor –

Total Floor Area: 167,000 ft²

Building Footprint: 139,000 ft²

Site Area: 25 acres

Auto Parking:

Area 1 Spaces – 380 spaces

Area 2 Spaces – None

Total Parking Area – 121,000 ft²

Truck Dock:

Doors/Bays/Spaces – 19 spaces

Linear Footage – 480 feet

Total Dock Area –24,000 ft²

Airside Apron:

Apron Area – 597,000 ft²

Wide Body Parking Positions – 4 positions

Narrow Body Parking Positions – 0 positions

Tenant: Vacant

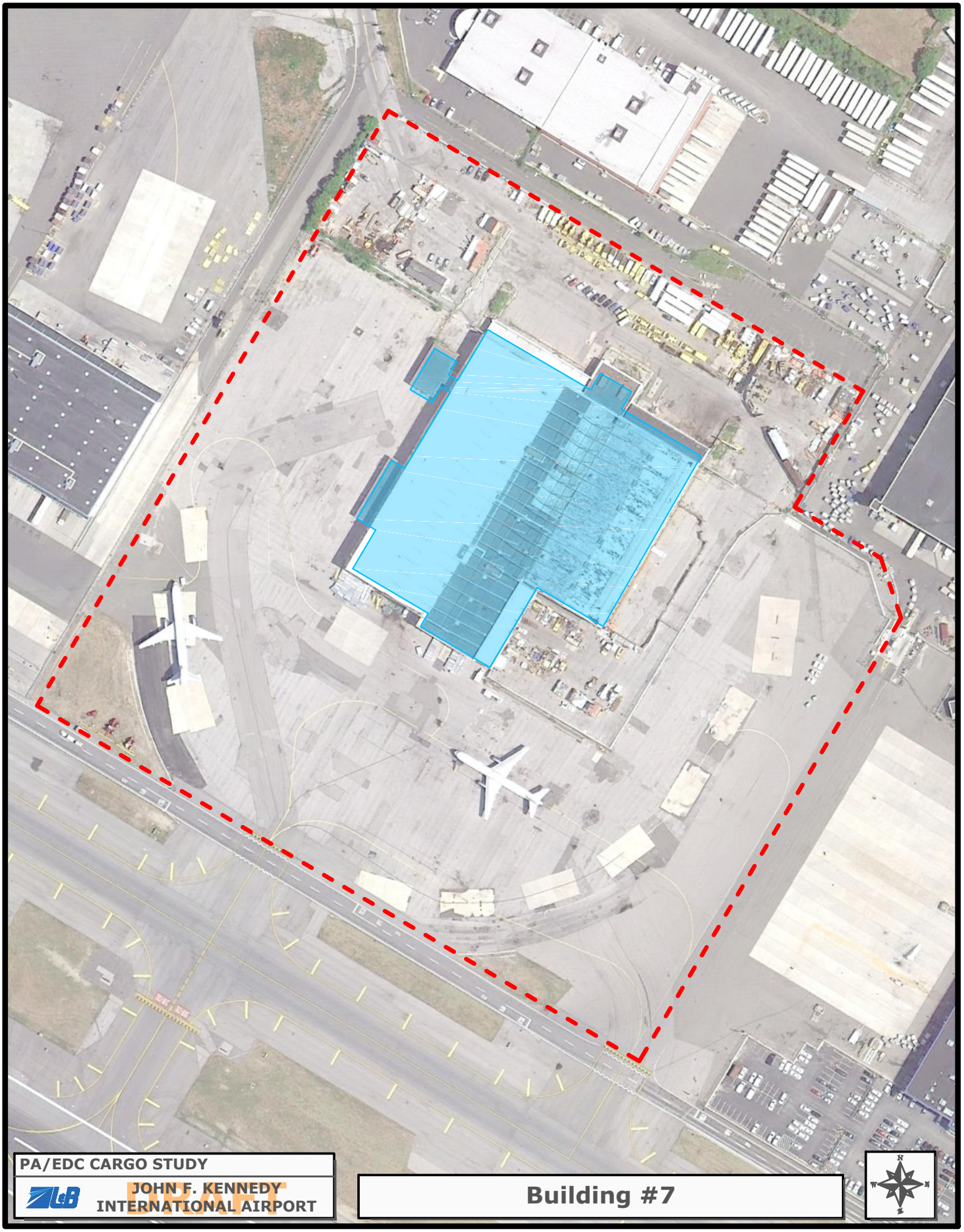
HISTORY

The building was constructed in 1954 for aircraft maintenance and was converted to a cargo handling facility. Building entrances were altered and truck loading docks added.

BUILDING DESCRIPTION

Pile supported steel structures, built for A/C maintenance, but currently used as a cargo-handling facility. Building consists of 2-story central spine, flanked by open hangar areas on both sides.

PHYSICAL CONSTRAINTS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JOHN F. KENNEDY INTERNATIONAL AIRPORT
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Building #7
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BUILDING 71 VIABLE

Cargo Zone D

GENERAL DATA

Location: Located on the southeaster side of Cargo Zone D; Connected to Building 73; Sits adjacent to Building 7

Year Built:

Number of Stories:

Height:

Warehouse –

Hangar –

Office –

Floor Area:

Shop/Warehouse – 54,000 ft²

Office 1st Floor – 8,500 ft²

Office 2nd Floor –

Office 3rd Floor –

Total Floor Area: 62,500 ft²

Building Footprint: 58,915 ft²

Site Area:

Auto Parking:

Area 1 Spaces – 79 spaces

Area 2 Spaces – None

Total Parking Area – 41,347 ft²

Truck Dock:

Doors/Bays/Spaces – 15 spaces

Linear Footage – 200 feet

Total Dock Area – 51,292 ft²

Airside Apron:

Apron Area – 151,554 ft²

Wide Body Parking Positions – 0 positions

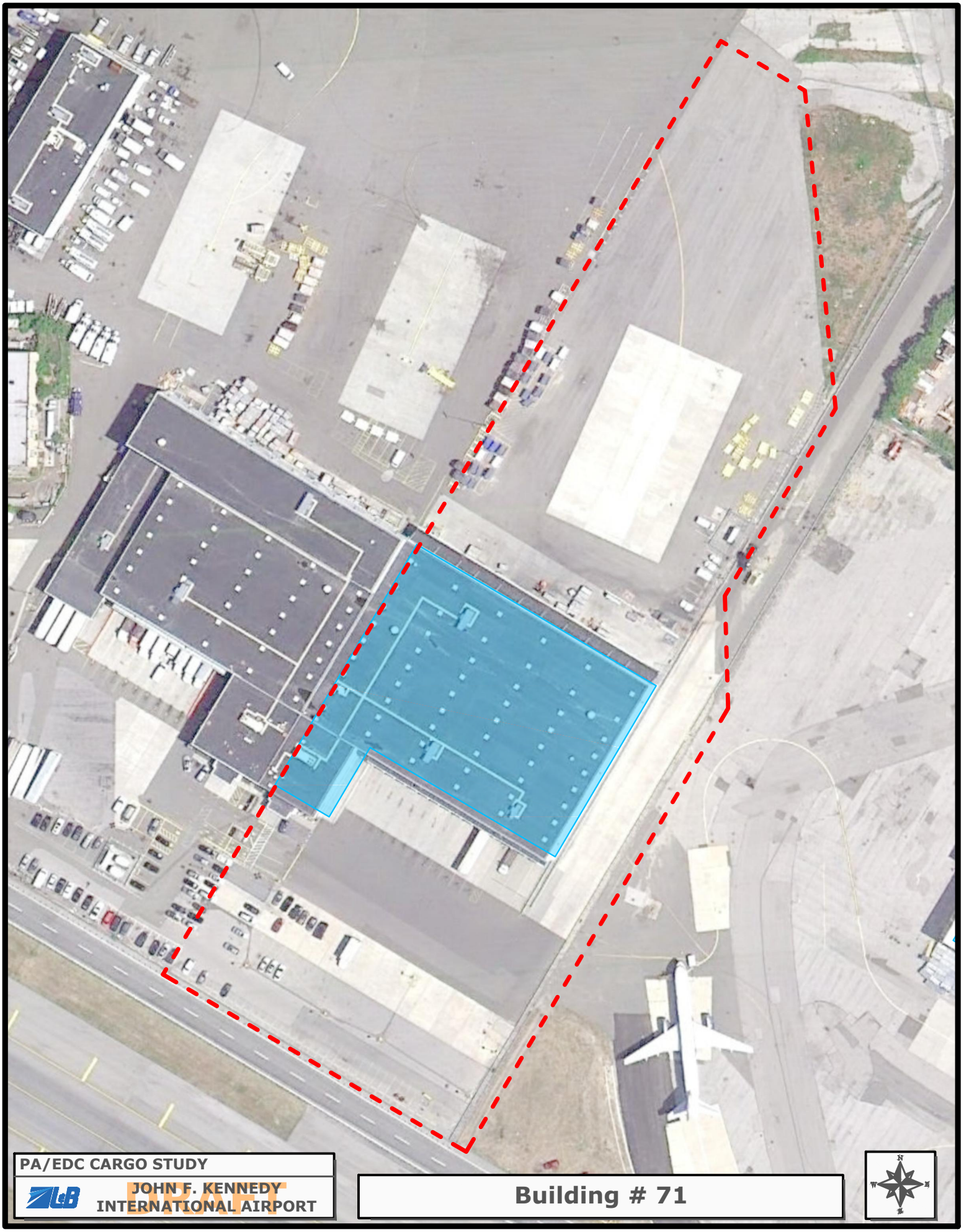
Narrow Body Parking Positions – 1 positions

Tenant: Continental

HISTORY

BUILDING DESCRIPTION

PHYSICAL CONSTRAINTS


PA/EDC CARGO STUDY
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INTERNATIONAL AIRPORT
DRAFT
Building # 71

BUILDING 73 VIABLE

Cargo Zone D

GENERAL DATA

Location: Located on the southeaster side of Cargo Zone D; Connected to Building 71; Sits adjacent to Buildings 175 and 177

Year Built:

Number of Stories:

Height:

Warehouse –

Hangar –

Office –

Floor Area:

Shop/Warehouse – 59,600 ft²

Office 1st Floor – 22,128 ft²

Office 2nd Floor –

Office 3rd Floor –

Total Floor Area: 81,728 ft²

Building Footprint: 62,603 ft²

Site Area:

Auto Parking:

Area 1 Spaces – 61 spaces

Area 2 Spaces – None

Total Parking Area – 54,559 ft²

Truck Dock:

Doors/Bays/Spaces – 12 spaces

Linear Footage – 194 feet

Total Dock Area – 57,430 ft²

Airside Apron:

Apron Area – 150,390; 58,360 ft²

Wide Body Parking Positions – 2 positions

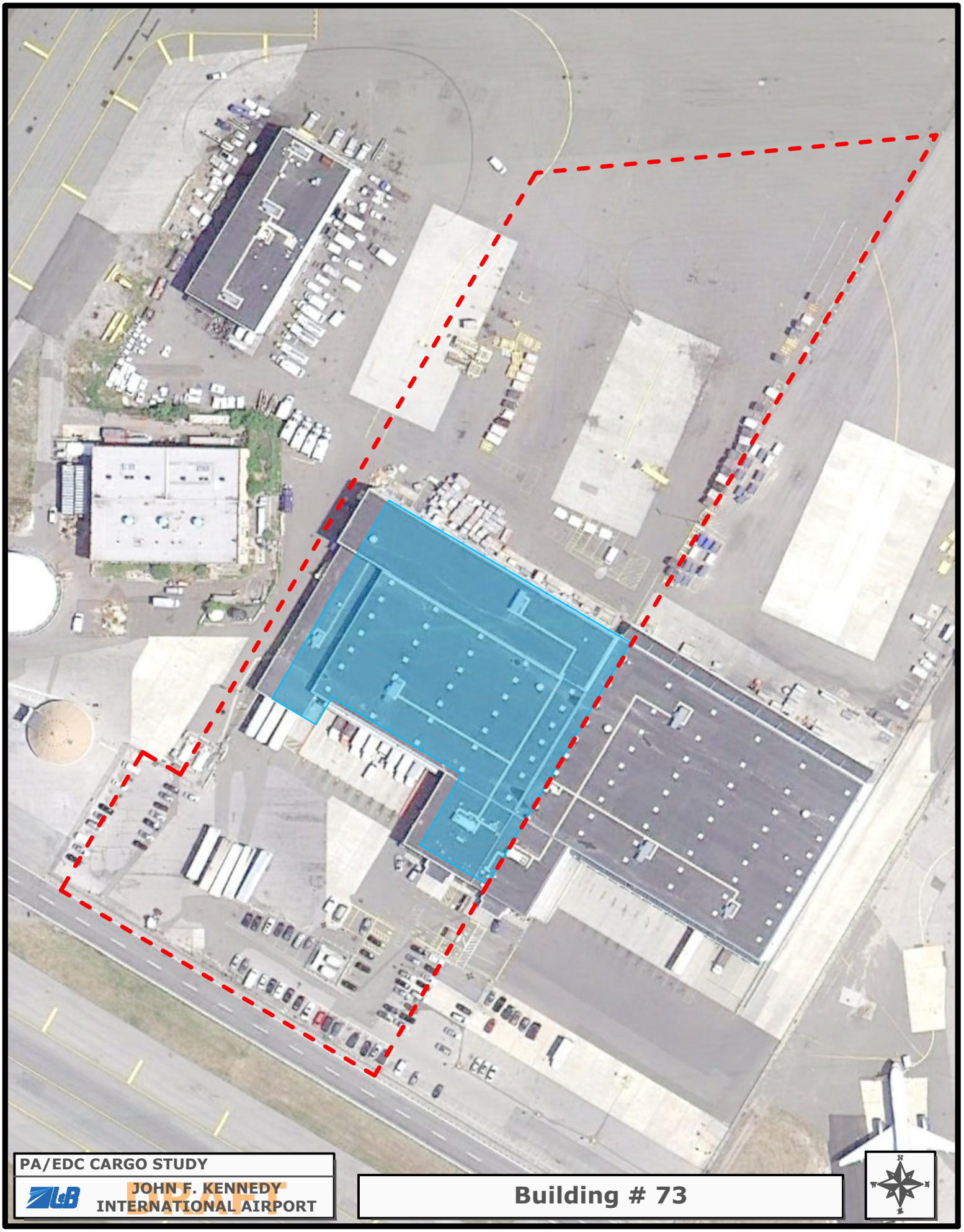
Narrow Body Parking Positions – 0 positions

Tenant: Emirates

HISTORY

BUILDING DESCRIPTION

PHYSICAL CONSTRAINTS


PA/EDC CARGO STUDY
JOHN F. KENNEDY
INTERNATIONAL AIRPORT
DRAFT
Building # 73
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BUILDING 75 VIABLE

Cargo Zone D

GENERAL DATA

Location: Corner of North Hangar Road and North Boundary Road

Year Built: 1987

Number of Stories: 2

Height:

Warehouse – 26 feet

Hangar –

Office – 9 feet

Floor Area:

Shop/Warehouse – 100,000 ft²

Office 1st Floor –

Office 2nd Floor – 100,000 ft²

Office 3rd Floor –

Total Floor Area: 200,000 ft²

Building Footprint: 100,000 ft²

Site Area: 10 acres

Auto Parking:

Area 1 Spaces – 500 spaces

Area 2 Spaces –

Total Parking Area – 249,460 ft²

Truck Dock:

Doors/Bays/Spaces – 44 spaces

Linear Footage – 834 feet

Total Dock Area – 90,500 ft²

Airside Apron:

Apron Area –0 ft²

Wide Body Parking Positions – 0 positions

Narrow Body Parking Positions – 0 positions

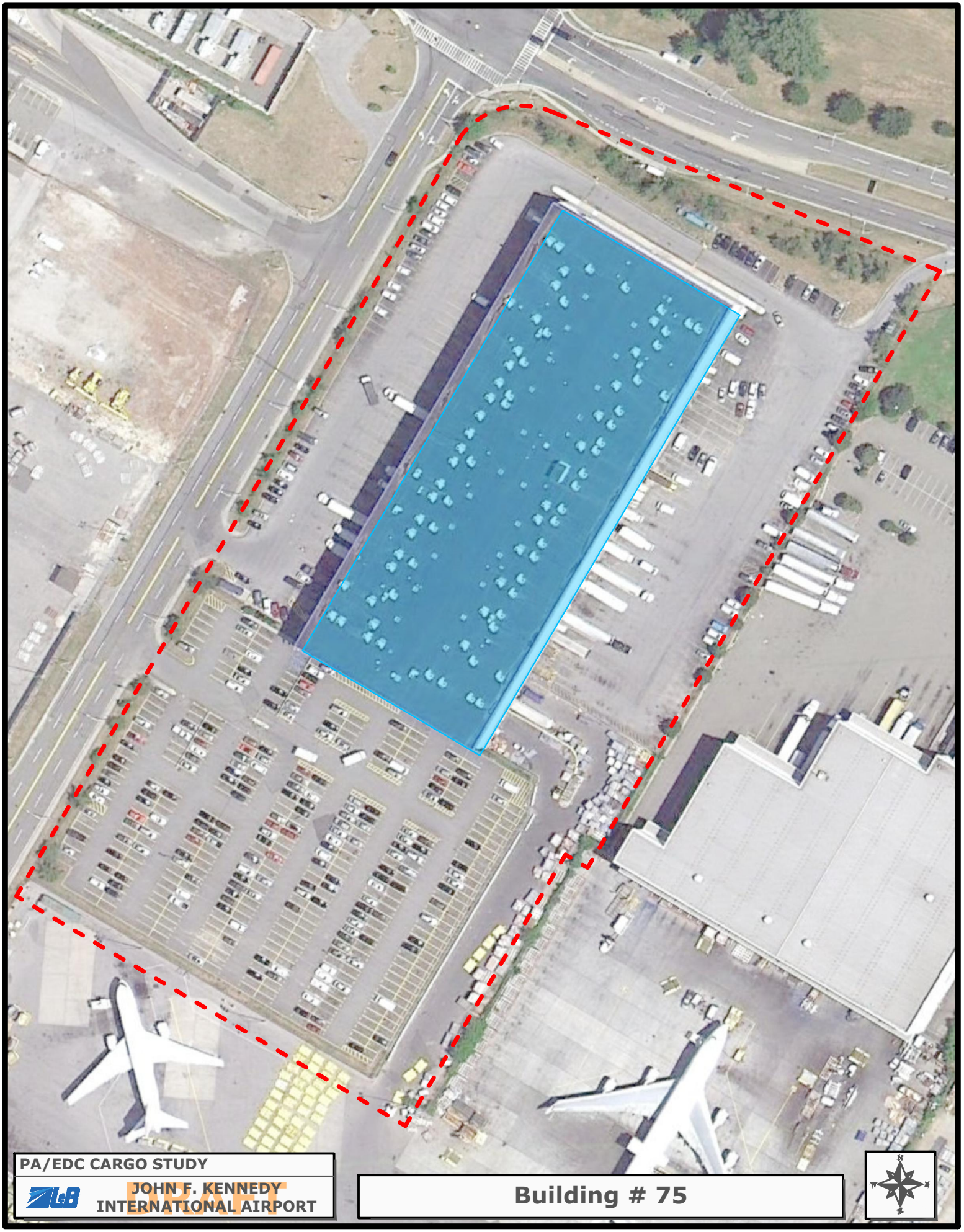
Tenant: Prologis AMB

HISTORY

The building plans are dated May, 1987 and the building was constructed as a cargo handling building facility for HALMAR.

BUILDING DESCRIPTION

PHYSICAL CONSTRAINTS


PA/EDC CARGO STUDY
JOHN F. KENNEDY
INTERNATIONAL AIRPORT
DRAFT
Building # 75
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BUILDING 76 VIABLE

Cargo Zone D

GENERAL DATA

Location: Located immediately south of North Boundary Road on the Northern end of Cargo Zone D

Year Built: 1991

Number of Stories: 2 (1-warehouse, 2-offices)

Height:

Warehouse – 63.5 feet (top of parapet)

Hangar –

Office –

Floor Area:

Shop/Warehouse – 64,970 ft²

Office 1st Floor – 8,100 ft²

Office 2nd Floor – 8,100 ft²

Office 3rd Floor –

Total Floor Area: 81,170 ft²

Building Footprint: 76,473 ft²

Site Area: 10 acres

Auto Parking:

Area 1 Spaces – 108 spaces

Area 2 Spaces –

Total Parking Area – 124,990 ft²

Truck Dock:

Doors/Bays/Spaces – 13 spaces

Linear Footage – 158 feet

Total Dock Area – 68,780 ft²

Airside Apron:

Apron Area – 174,070 ft²

Wide Body Parking Positions – 2 positions

Narrow Body Parking Positions – 0 positions

Tenant: China Airlines

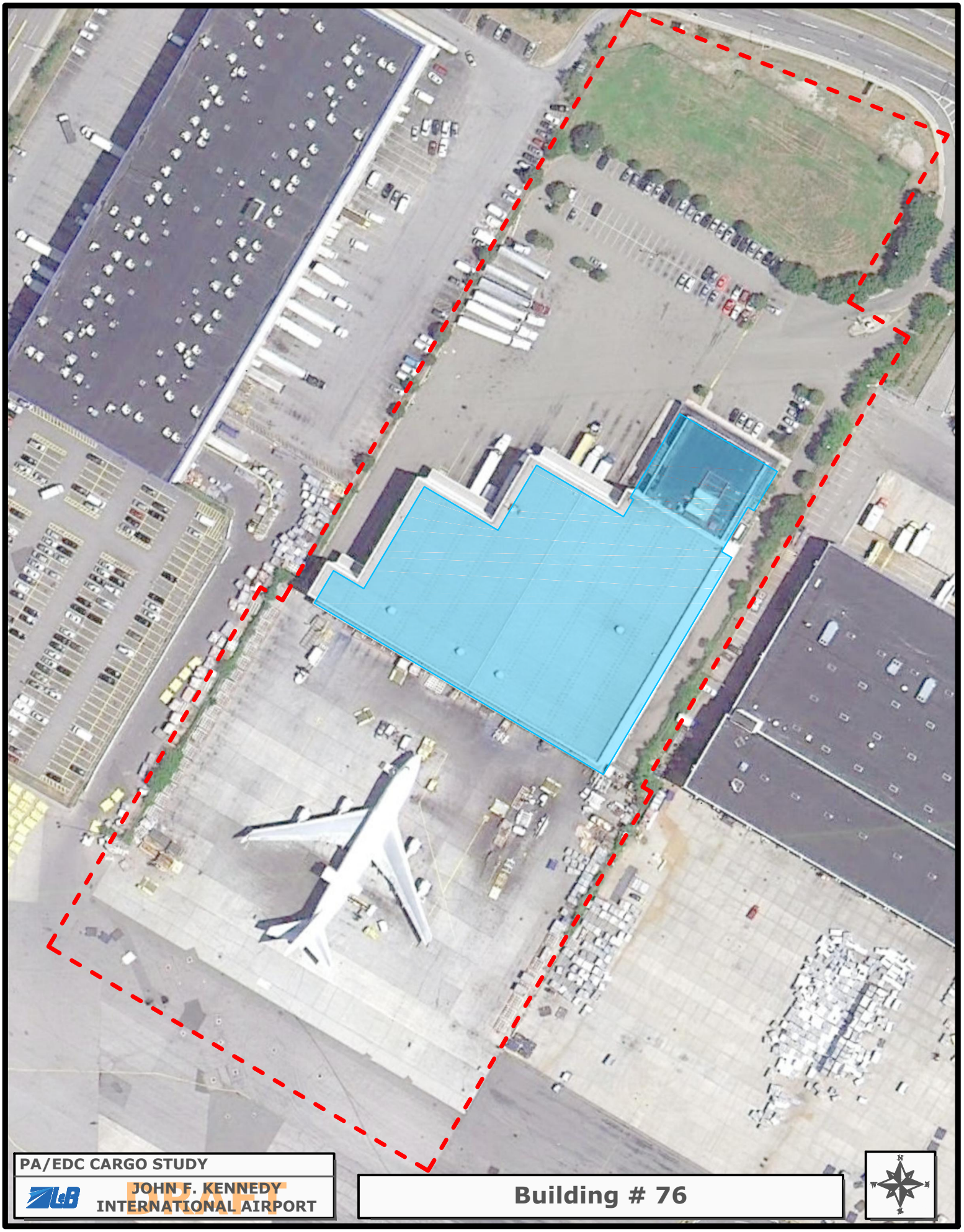
HISTORY

The building was constructed in 1991 for China Airlines office and cargo facilities.

BUILDING DESCRIPTION

Building 76 is a pile supported building and was built as a cargo handling facility.

PHYSICAL CONSTRAINTS


PA/EDC CARGO STUDY
JOHN F. KENNEDY
INTERNATIONAL AIRPORT
DRAFT
Building # 76

BUILDING 77 VIABLE

Cargo Zone D

GENERAL DATA

Location: Bounded by building 250 to the north, Building 7 to the west, and restricted service road to the south and east

Year Built: 1991

Number of Stories: 3 (plus a penthouse for mechanical operations)

Height:

Warehouse – 66.75 feet

Hangar –

Office –

Floor Area:

Shop/Warehouse – 107,329 ft²

Office 1st Floor – 32,036 ft²

Office 2nd Floor – 91,169 ft²

Office 3rd Floor – 15,204 ft² (penthouse)

Total Floor Area: 230,500 ft²

Building Footprint: 91,808 ft²

Site Area: 15 acres

Auto Parking:

Area 1 Spaces – 641 spaces

Area 2 Spaces – None

Total Parking Area – 276,320 ft²

Truck Dock:

Doors/Bays/Spaces – 19 spaces

Linear Footage – 250 feet

Total Dock Area – 51,230 ft²

Airside Apron:

Apron Area – 234,040 ft²

Wide Body Parking Positions – 2 positions

Narrow Body Parking Positions – 0 positions

Tenant: Prologis AMB

HISTORY

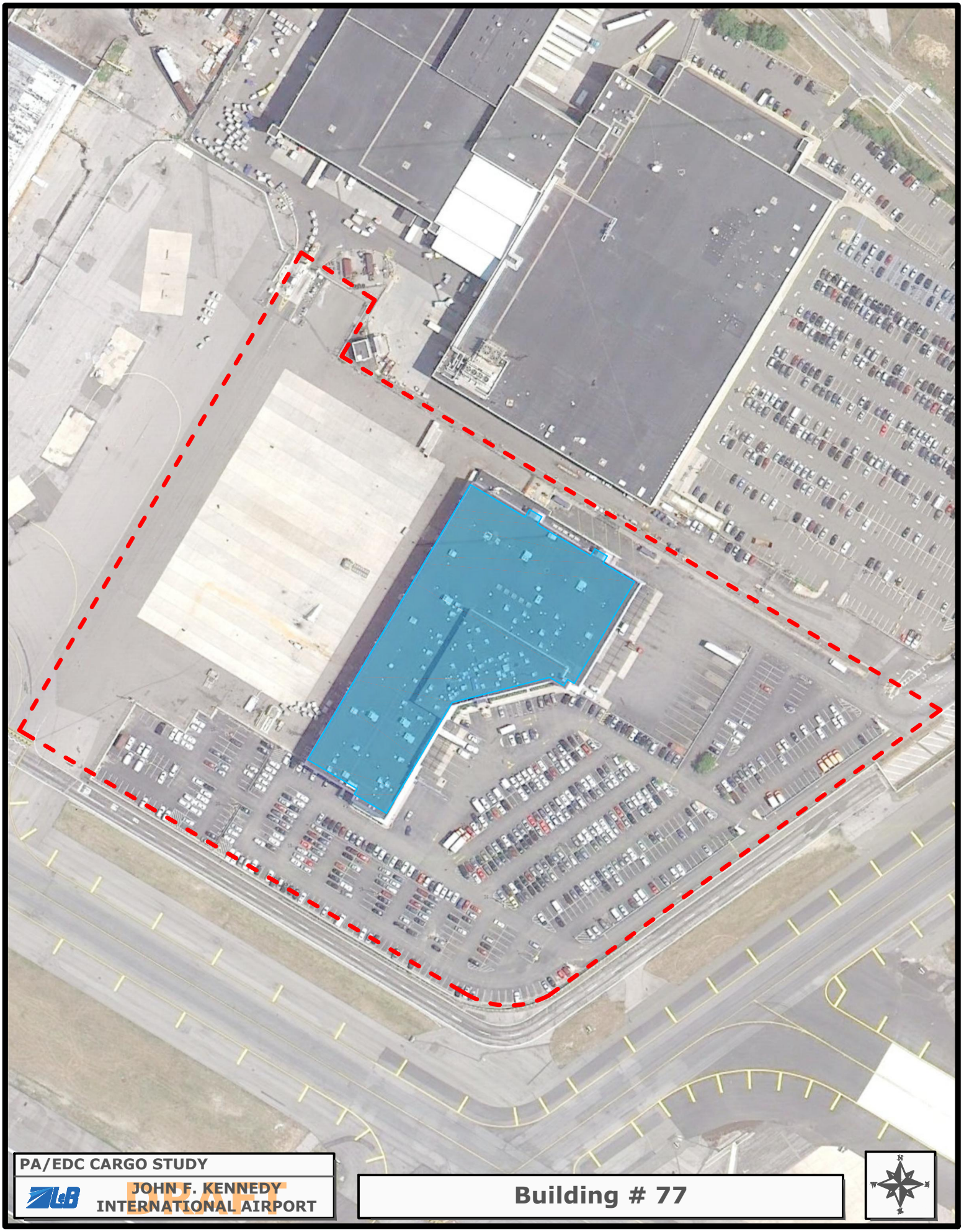
Building 77 was constructed in 1991, originally designed as a perishable center and U.S. Customs warehouse.

BUILDING DESCRIPTION

The structure is steel framed with a 3-story office and high ceiling warehouse.

PHYSICAL CONSTRAINTS

There is some height restrictions because of the side slope clearance required for RWY 13L/31R, however, these are not unduly restrictive.


PA/EDC CARGO STUDY
JOHN F. KENNEDY
INTERNATIONAL AIRPORT
DRAFT
Building # 77
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BUILDING 78 VIABLE

Cargo Zone D

GENERAL DATA

Location: Located along North Boundary Road at JFK Airport

Year Built: 1986

Number of Stories: 2 (offices)

Height:

Warehouse – 26 feet

Hangar –

Office –

Floor Area:

Shop/Warehouse – 139,000 ft²

Office 1st Floor –

Office 2nd Floor –15,000 ft²

Office 3rd Floor –

Total Floor Area: 154,000 ft²

Building Footprint: 158,743 ft²

Site Area: 14 acres

Auto Parking:

Area 1 Spaces – 320 spaces

Area 2 Spaces –

Total Parking Area – 90,880 ft²

Truck Dock:

Doors/Bays/Spaces – 21 spaces

Linear Footage – 587 feet

Total Dock Area – 126,600 ft²

Airside Apron:

Apron Area – 237,980 ft²

Wide Body Parking Positions – 2 positions

Narrow Body Parking Positions – 0 positions

Tenant: This facility is currently vacant.

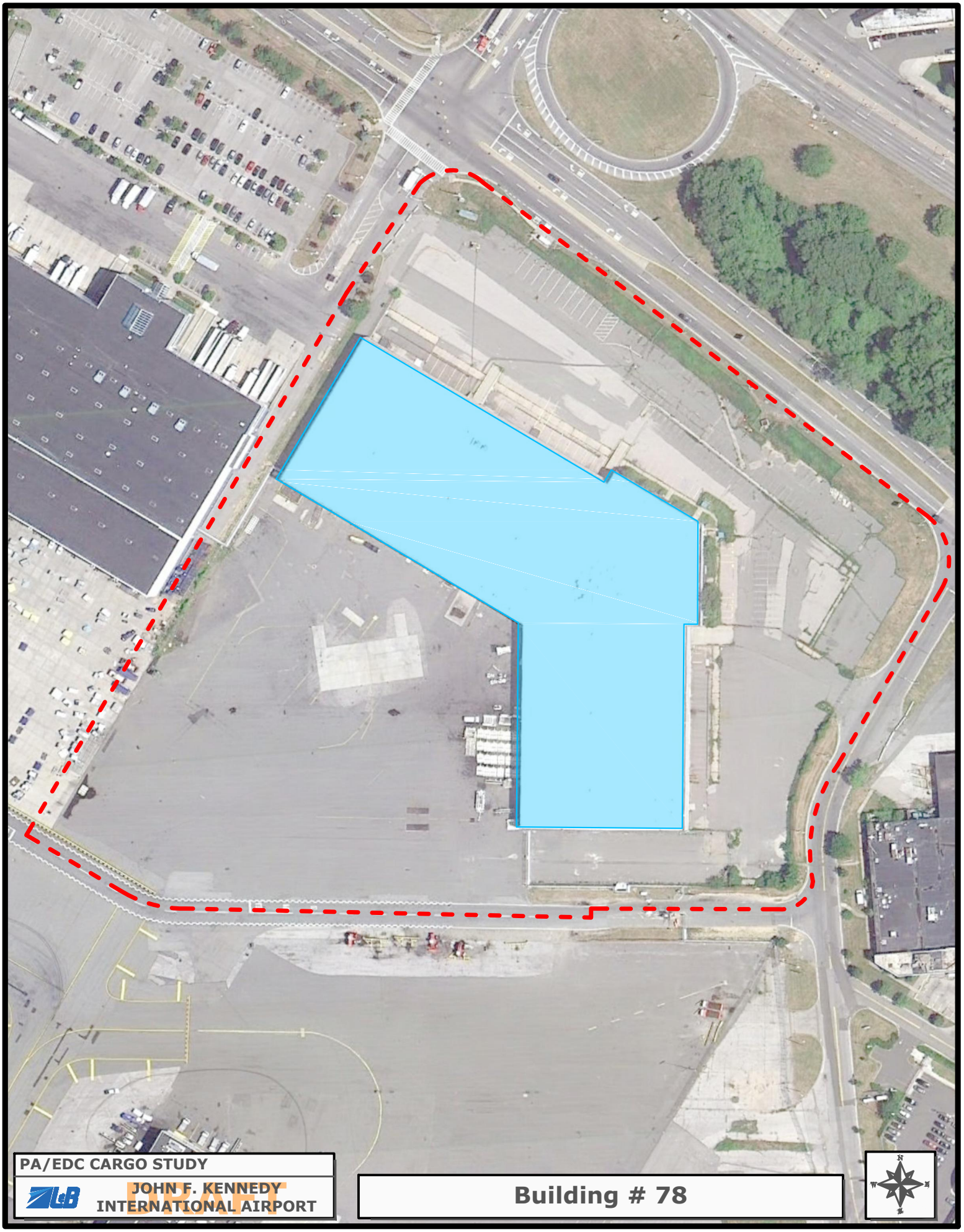
HISTORY

The building is L-shaped and comprised of two-warehouse/loading dock areas separated by a two story center office core. Building 78 is bounded on the north and east by a bituminous aircraft apron.

BUILDING DESCRIPTION

The structure is a pre-engineered steel-rigid frame covered by a standing seam metal roof.

PHYSICAL CONSTRAINTS


PA/EDC CARGO STUDY
JOHN F. KENNEDY INTERNATIONAL AIRPORT
DRAFT
Building # 78
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BUILDING 79 VIABLE

Cargo Zone D

GENERAL DATA

Location: Located in front of North Boundary Road with Building 78 to the south and east

Year Built: 1993

Number of Stories: 2

Height:

Warehouse – 43.42 feet

Hangar –

Office –

Floor Area:

Shop/Warehouse – 144,858 ft²

Office 1st Floor – 36,163 ft²

Office 2nd Floor –

Office 3rd Floor –

Total Floor Area: 181,000 ft²

Building Footprint: 148,705 ft²

Site Area: 15 acres

Auto Parking:

Area 1 Spaces – 257 spaces

Area 2 Spaces –

Total Parking Area – 202,020 ft²

Truck Dock:

Doors/Bays/Spaces – 24 spaces

Linear Footage – 400 feet

Total Dock Area – 57,210 ft²

Airside Apron:

Apron Area – 302,675 ft²

Wide Body Parking Positions – 2 positions

Narrow Body Parking Positions – 0 positions

Tenant: AA Cargo

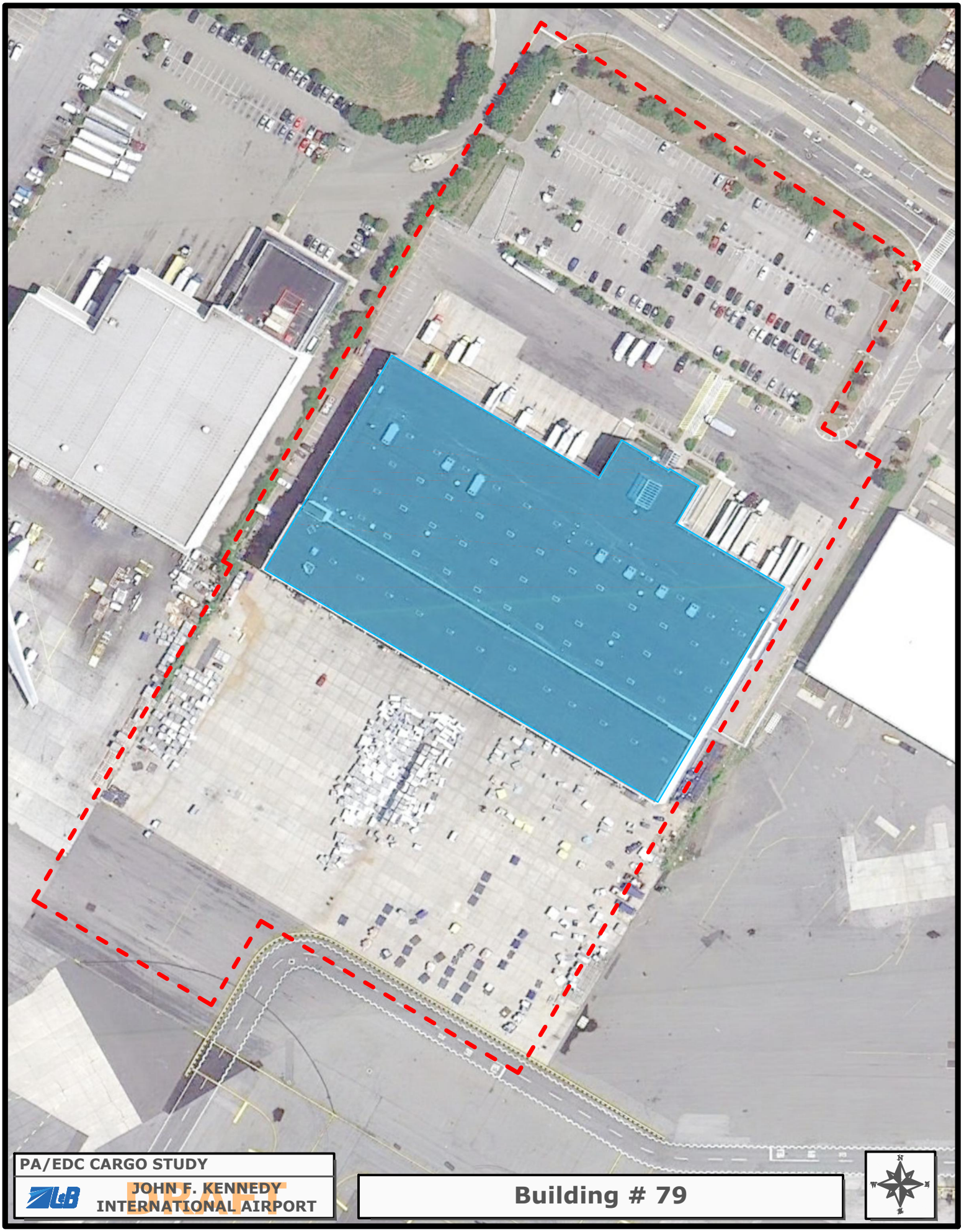
HISTORY

This property was previously undeveloped and the building was built in 1993 to house Nippon Cargo Airlines and currently houses AA Cargo.

BUILDING DESCRIPTION

The structure is a pile supported with brick and vertical ribbed metal siding.

PHYSICAL CONSTRAINTS


PA/EDC CARGO STUDY
JOHN F. KENNEDY
INTERNATIONAL AIRPORT
DRAFT
Building # 79
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BUILDING 197 NONVIABLE

Cargo Zone D

GENERAL DATA

Location: Located on the East end of Cargo Zone D; Located off of Old Rockaway Blvd.

Year Built: 1955

Number of Stories: 1

Height:

Warehouse – 16 feet

Hangar –

Office –

Floor Area:

Shop/Warehouse – 49,500 ft²

Office 1st Floor – 5,000 ft²

Office 2nd Floor –

Office 3rd Floor –

Total Floor Area: 54,500 ft²

Building Footprint: 56,895 ft²

Site Area: 4 acres

Auto Parking:

Area 1 Spaces – 100 spaces

Area 2 Spaces – None

Total Parking Area – 167,740 ft²

Truck Dock:

Doors/Bays/Spaces – 22 spaces

Linear Footage – 140 feet

Total Dock Area – 126,845 ft²

Airside Apron:

Apron Area – 0 ft²

Wide Body Parking Positions – 0 positions

Narrow Body Parking Positions – 0 positions

Tenant: Multi-Tenant

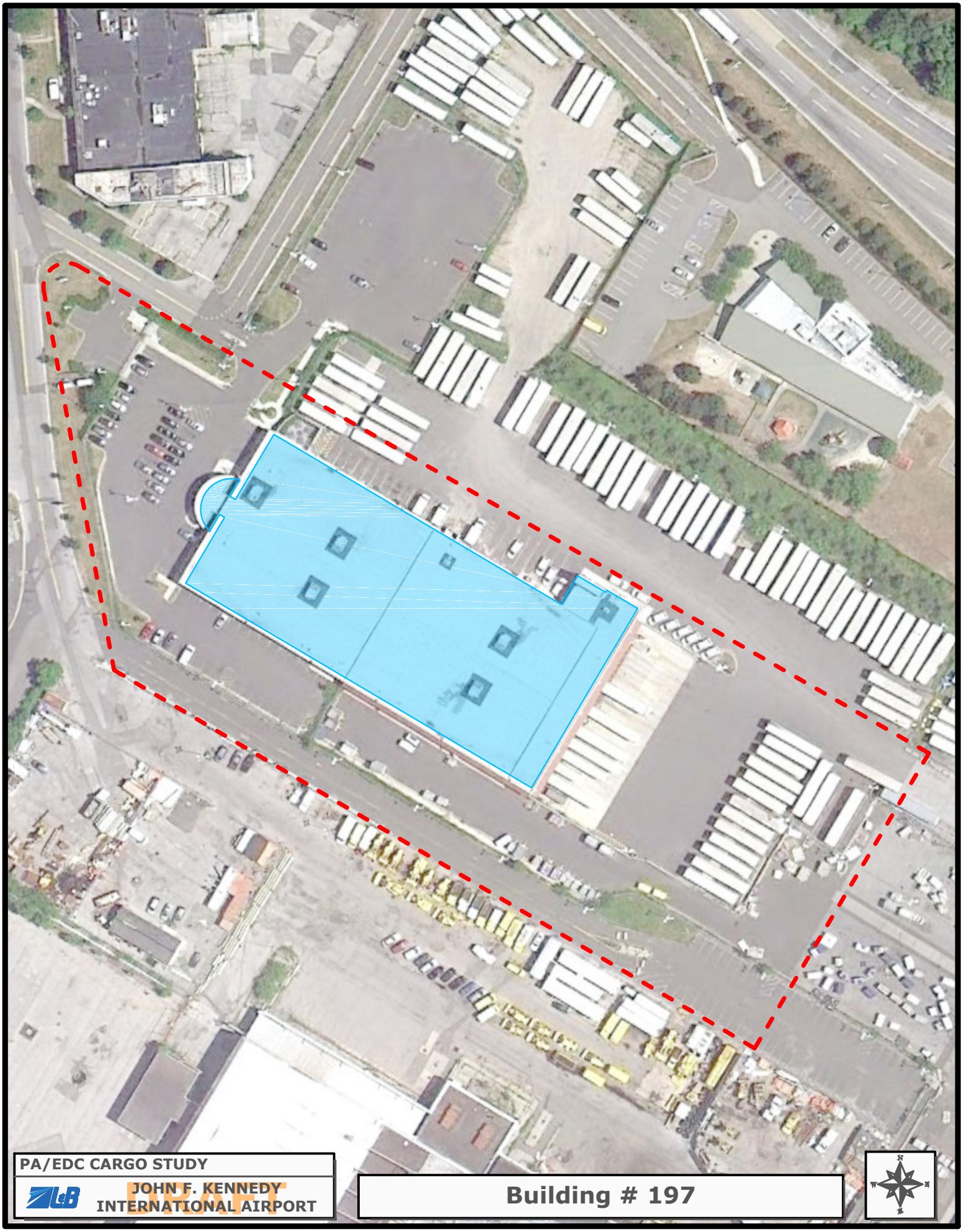
HISTORY

The building was constructed in 1955. Numerous renovations of the building interior have taken place since its original construction.

BUILDING DESCRIPTION

The building is a single story steel frame structure supported by pile foundation, and serves as a bonded storage facility.

PHYSICAL CONSTRAINTS


PA/EDC CARGO STUDY
JOHN F. KENNEDY
INTERNATIONAL AIRPORT
DRAFT
Building # 197

BUILDING 250 NONVIABLE

Cargo Zone D

GENERAL DATA

Location: Off Farmer's Blvd. and the corner of Eastern Road

Year Built: 1976

Number of Stories: 2

Height:

Warehouse –

Hangar –

Office –

Floor Area:

Shop/Warehouse – 311,900 ft²

Office 1st Floor –

Office 2nd Floor – 359,350 ft² (penthouse)

Office 3rd Floor –

Total Floor Area: 671,250 ft²

Building Footprint: 311,900 ft²

Site Area: 21 acres

Auto Parking:

Area 1 Spaces – 940 spaces

Area 2 Spaces – None

Total Parking Area – 524,930 ft²

Truck Dock:

Doors/Bays/Spaces – 42 spaces

Linear Footage – 1,170 feet

Total Dock Area – 90,990 ft²

Airside Apron:

Apron Area – 0 ft²

Wide Body Parking Positions – 0 positions

Narrow Body Parking Positions – 0 positions

Tenant: MAK

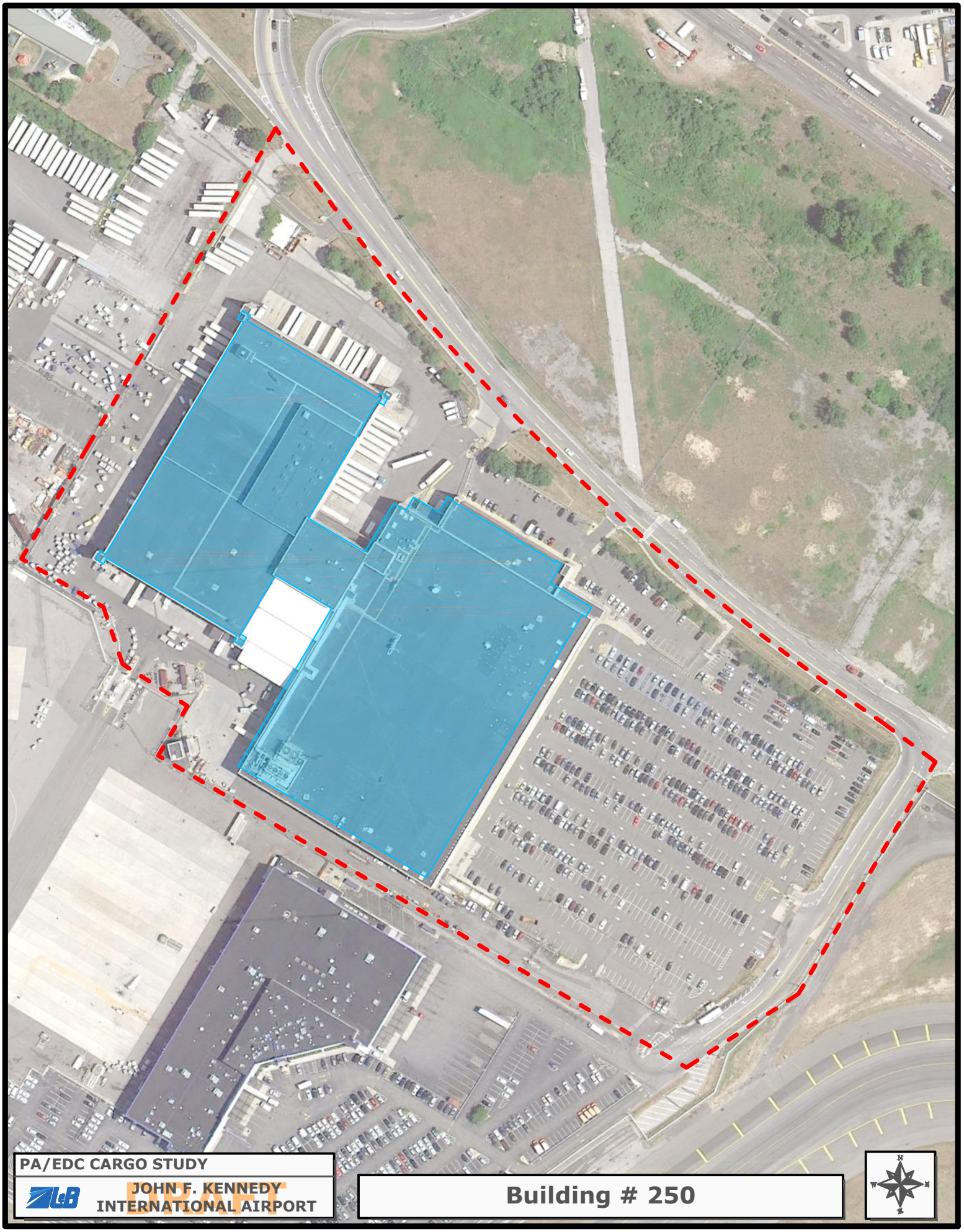
HISTORY

The contract plans are dated October 1976, and is was occupied by the United States Postal Service as an international mail handling facility.

BUILDING DESCRIPTION

Building 250 is a two-story reinforced concrete structure. The building is divided into three basic inspection units: processing, building, connector, and platform building.

PHYSICAL CONSTRAINTS


PA/EDC CARGO STUDY
JOHN F. KENNEDY INTERNATIONAL AIRPORT
DRAFT
Building # 250
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BUILDING 260 NONVIABLE

Cargo Zone D

GENERAL DATA

Location: Situated near the intersection of North Broadway Road and 150th Street

Year Built: 1970

Number of Stories: 2 (1-warehouse, 2-offices)

Height:

Warehouse – 26 feet

Hangar –

Office –

Floor Area:

Shop/Warehouse – 75,800 ft²

Office 1st Floor –

Office 2nd Floor – 36,400 ft²

Office 3rd Floor –

Total Floor Area: 105,000 ft²

Building Footprint: 117,220 ft²

Site Area: 14 acres

Auto Parking:

Area 1 Spaces – 78 spaces

Area 2 Spaces –

Total Parking Area – 62,550 ft²

Truck Dock:

Doors/Bays/Spaces – 25 spaces

Linear Footage – 600 feet

Total Dock Area – 98,500 ft²

Airside Apron:

Apron Area – 289,800 ft²

Wide Body Parking Positions – 1 positions

Narrow Body Parking Positions – 1 positions

Tenant: Vacant/ DJ Air Service/ Ultimate Air/ De-icing Truck Storage

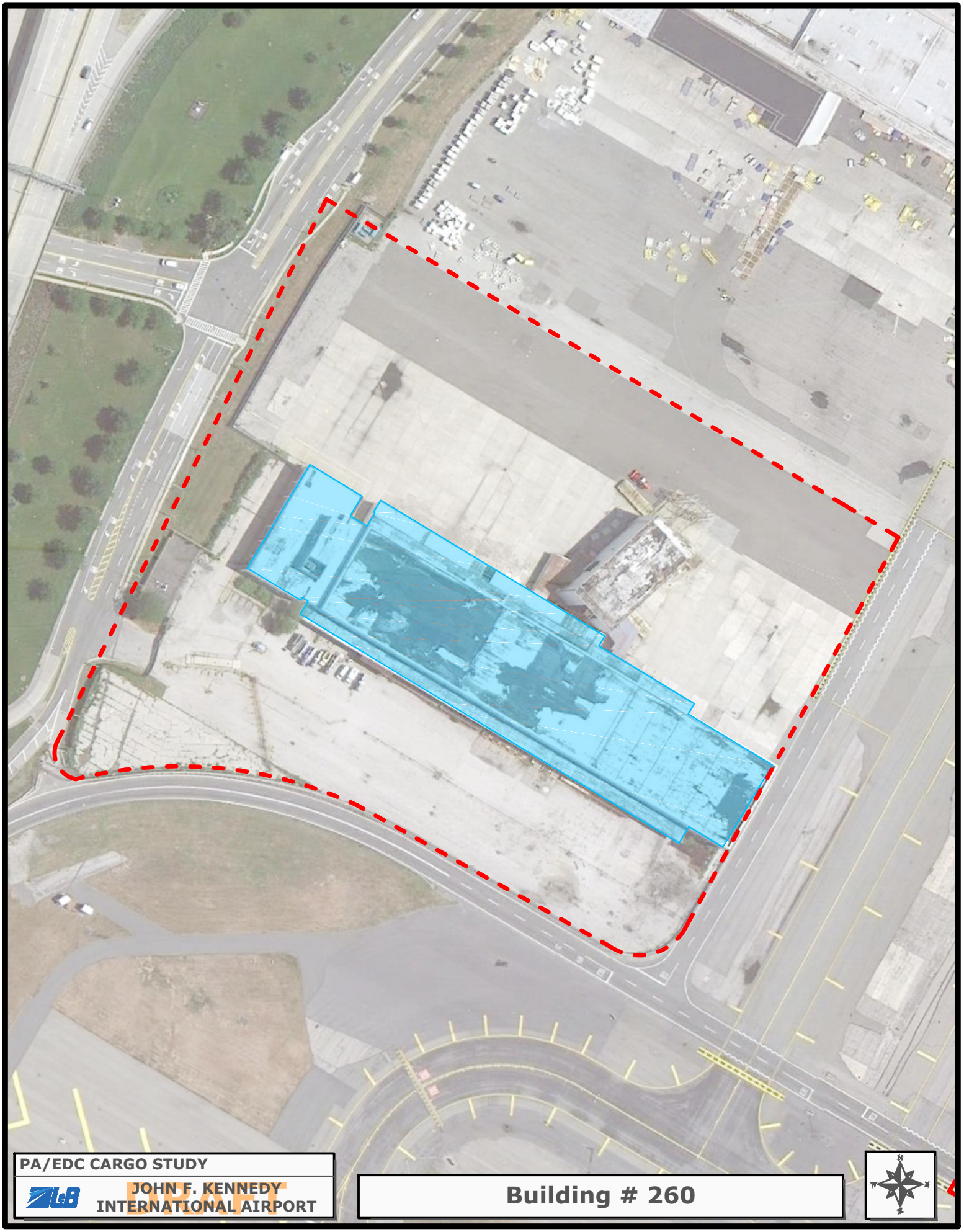
HISTORY

The building was constructed as a cargo handling facility around 1970. The present tenant is Korean Air.

BUILDING DESCRIPTION

Building 260 is a rectangular shape steel structure with reinforced concrete floor slab and masonry walls. Aircraft access is on the north side of the building and truck docks are found on the south side.

PHYSICAL CONSTRAINTS


PA/EDC CARGO STUDY
JOHN F. KENNEDY
INTERNATIONAL AIRPORT
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Building # 260
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BUILDING 261 NONVIABLE

Cargo Zone D

GENERAL DATA

Location: Located on North Boundary Road southwest of Building 262

Year Built: 1971

Number of Stories: 1 (with mezzanine)

Height:

Warehouse – 26 feet

Hangar –

Office –

Floor Area:

Shop/Warehouse – 141,406 ft²

Office 1st Floor –32,650 ft²

Office 2nd Floor – 11,250 ft²

Office 3rd Floor – 16,578 ft²

Total Floor Area: 174,056 ft²

Building Footprint: 137,445 ft²

Site Area: 12 acres

Auto Parking:

Area 1 Spaces – 149 spaces

Area 2 Spaces –

Total Parking Area – 91,170 ft²

Truck Dock:

Doors/Bays/Spaces – 30 spaces

Linear Footage – 450 feet

Total Dock Area – 61,520 ft²

Airside Apron:

Apron Area – 306,035 ft²

Wide Body Parking Positions – 2 positions

Narrow Body Parking Positions – 0 positions

Tenant: KLM/CAS

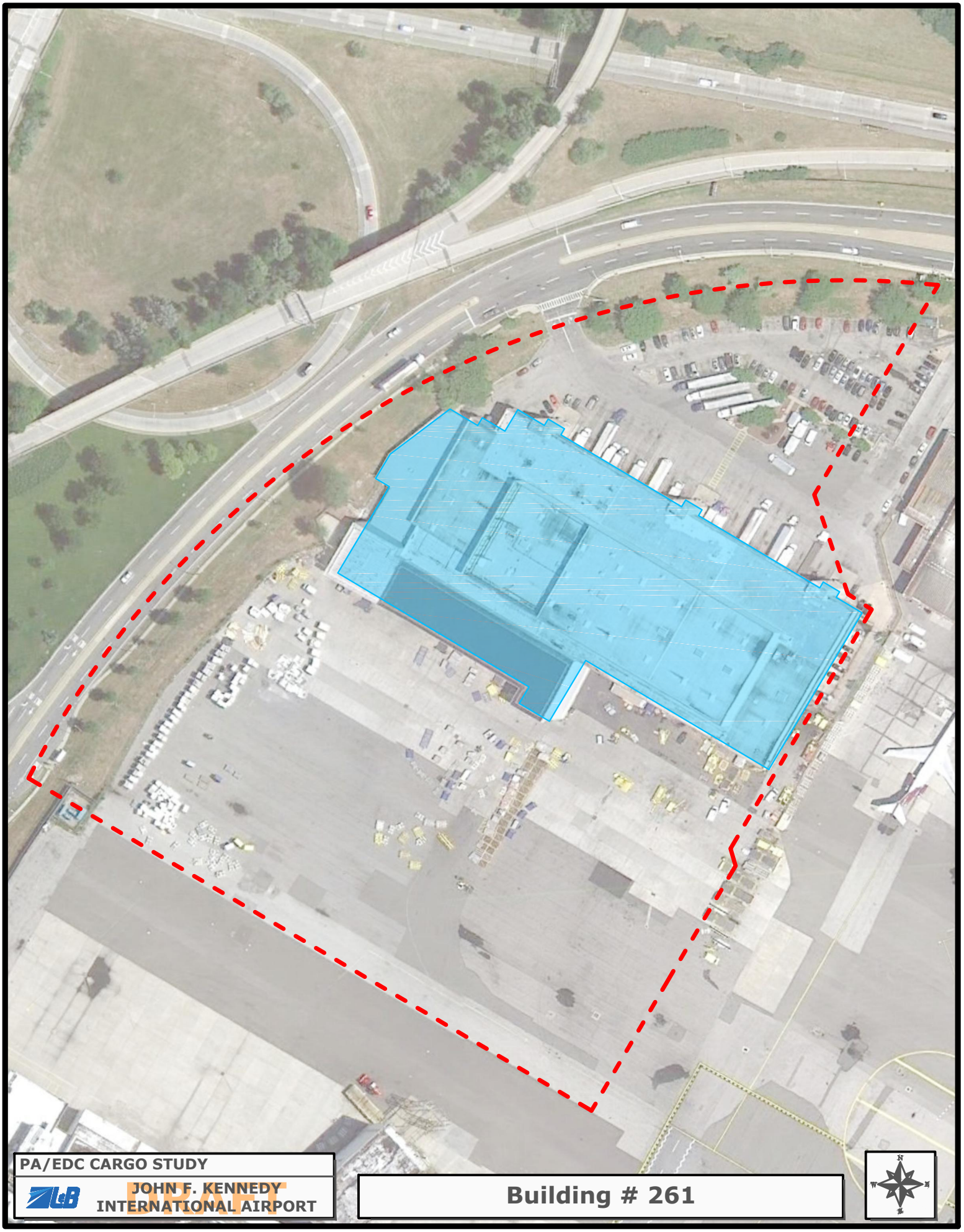
HISTORY

Building 261 was built in 1971 as an air cargo terminal.

BUILDING DESCRIPTION

Building 261 is a pile supported structure having a reinforced concrete slab, steel framing and masonry walls.

PHYSICAL CONSTRAINTS


PA/EDC CARGO STUDY
JOHN F. KENNEDY
INTERNATIONAL AIRPORT
DRAFT
Building # 261
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BUILDING 262 NONVIABLE

Cargo Zone D

GENERAL DATA

Location: Located on North Boundary Road attached to Building 6 on the north end of Cargo Zone D

Year Built: 1974

Number of Stories: 2 (1-Warehouse, 2-Offices)

Height:

Warehouse – 40 feet

Hangar –

Office –

Floor Area:

Shop/Warehouse – 88,435 ft²

Office 1st Floor –

Office 2nd Floor – 18,000 ft²

Office 3rd Floor –

Total Floor Area: 260,000 ft²

Building Footprint: 84,930 ft²

Site Area: 38 acres

Auto Parking:

Area 1 Spaces – 134 spaces

Area 2 Spaces –

Total Parking Area – 20,820 ft²

Truck Dock:

Doors/Bays/Spaces – 32 spaces

Linear Footage – 400 feet

Total Dock Area – 118,600 ft²

Airside Apron:

Apron Area – 254,810 ft²

Wide Body Parking Positions – 1 position

Narrow Body Parking Positions – 1 position

Tenant: FedEx

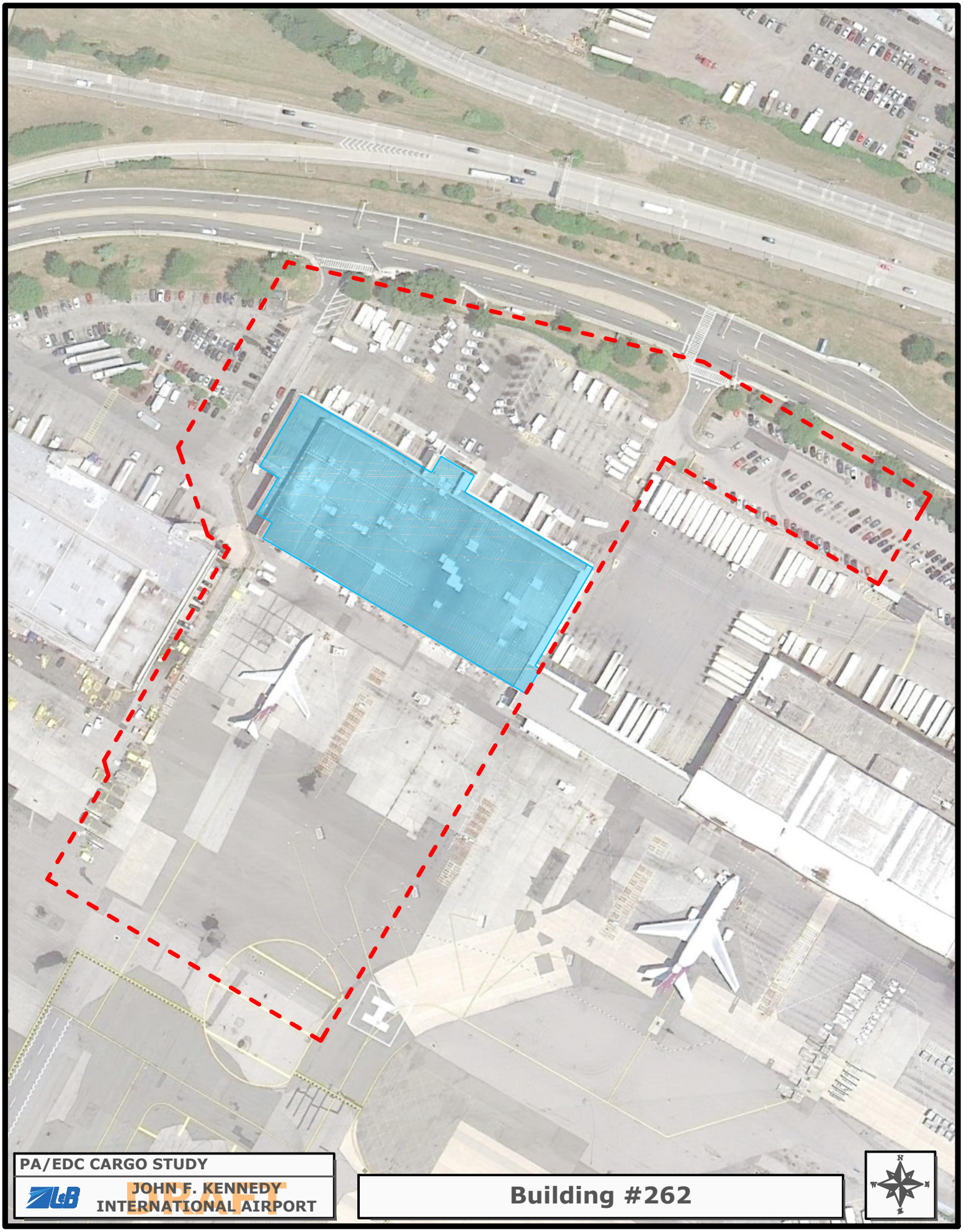
HISTORY

This building was built in 1974 for the Flying Tiger Line Inc. and has recently been taken over by Federal Express. Building 262 has always been used as a cargo terminal.

BUILDING DESCRIPTION

Building 262 is a pile supported structure, with reinforced concrete floor slab steel framing and metal siding exterior walls.

PHYSICAL CONSTRAINTS


PA/EDC CARGO STUDY
JOHN F. KENNEDY
INTERNATIONAL AIRPORT
DRAFT
Building #262
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BUILDING 263 NONVIABLE

Cargo Zone D

GENERAL DATA

Location: Located on North Hangar Road; South centrally located in Cargo Zone D

Year Built: 1971

Number of Stories: 2

Height:

Warehouse – 44 feet

Hangar –

Office –

Floor Area:

Shop/Warehouse – 79,000 ft²

Office 1st Floor – 37,000 ft²

Office 2nd Floor –

Office 3rd Floor –

Total Floor Area: 116,000 ft²

Building Footprint: 167,603 ft²

Site Area: 11 acres

Auto Parking:

Area 1 Spaces – 242 spaces

Area 2 Spaces –

Total Parking Area – 214,670 ft²

Truck Dock:

Doors/Bays/Spaces – 24 spaces

Linear Footage – 540 feet

Total Dock Area – 50,700 ft²

Airside Apron:

Apron Area – 146,370 ft²

Wide Body Parking Positions – 0 positions

Narrow Body Parking Positions – 4 positions

Tenant: DHL (50%)/ Vacant (50%)

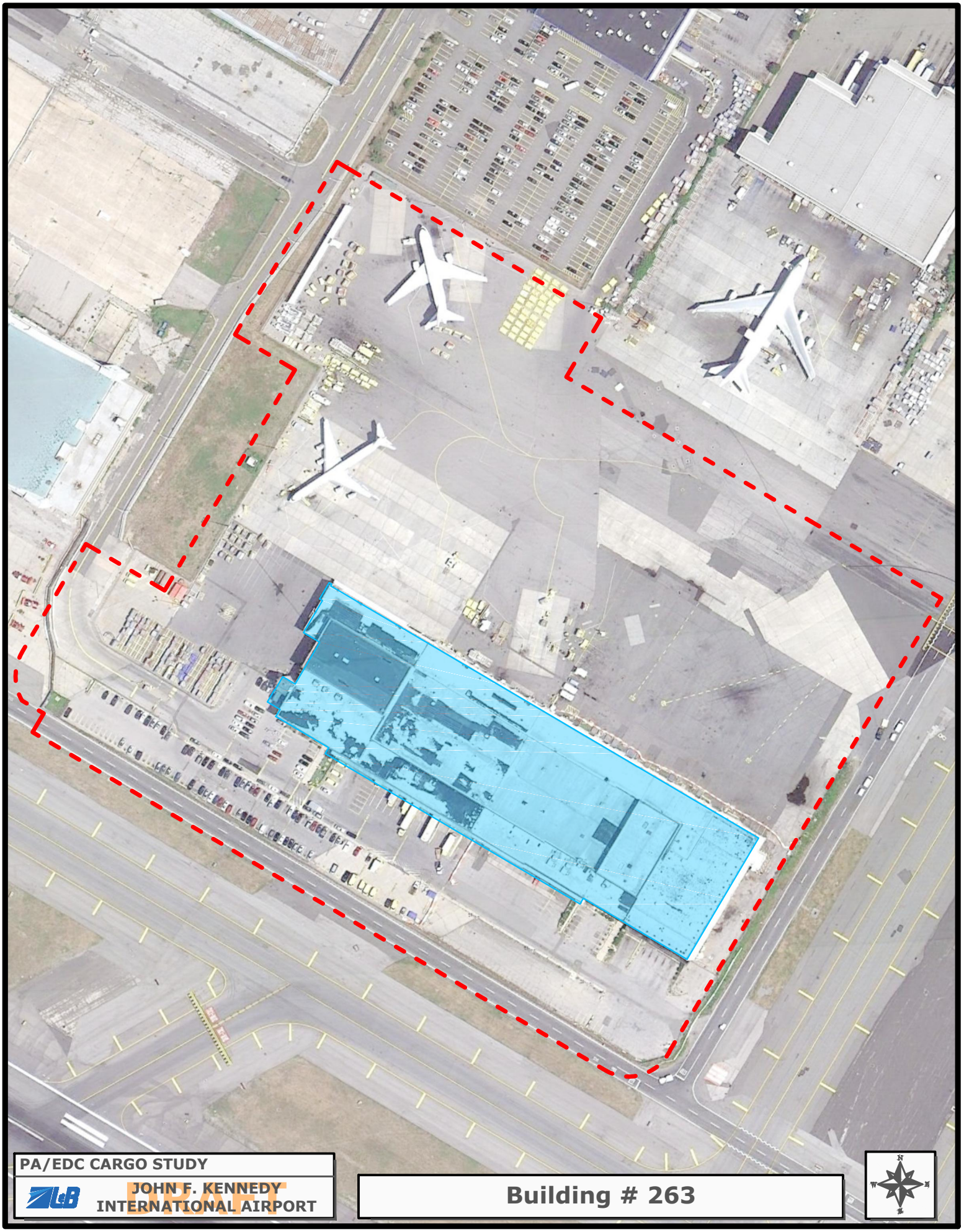
HISTORY

This building was constructed in 1971 as a cargo handling facility. Previous tenants were Japan Airlines (JAL) and Scandinavian Airlines Systems (SAS)

BUILDING DESCRIPTION

Building 263 is rectangular in shape and on the ground floor are the cargo handling space, loading docks, etc. On the second floor are offices and SAS sublets to 14 subtenants, including Kuwait and TAP cargo. Building 263 has pile supported steel framing and masonry walls.

PHYSICAL CONSTRAINTS


PA/EDC CARGO STUDY
JOHN F. KENNEDY
INTERNATIONAL AIRPORT
DRAFT
Building # 263
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JFK AIR CARGO STUDY

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Appendix K

Aviation Planning at the Leading Edge

APPENDIX K
INVENTORY AND VACANCY LISTINGS FOR THE JFK OFF-AIRPORT SUB-MARKET

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APPENDIX K
INVENTORY AND VACANCY LISTINGS FOR THE JFK OFF-AIRPORT SUB-MARKET

Building Address	Existing Rentable Building Area	Direct SF Vacant	Direct Vacant %	Total SF Vacant	Total Vacant %	Total SF Available	Direct SF Available	Sublet SF Available	Max SF Contig	Avg Rate
13516 128th St	3,000		0.0%		0.0%					
135-02-135-08 131st St	3,520		0.0%		0.0%					
150-10-150-30 132nd Ave	133,329	2,327	1.7%	2,327	1.7%	2,327	2,327	0	2,327	
151-02 132nd Ave	67,491		0.0%		0.0%					
153-07 134th Ave	6,036		0.0%		0.0%					
130-29 135th Ave	5,225		0.0%		0.0%					
165-15 145th Dr	13,630		0.0%		0.0%					
165-15 145th Dr	13,530		0.0%		0.0%					
165-35 145th Dr	28,440		0.0%		0.0%					
227-02 145th Rd	64,000		0.0%		0.0%					
167-17 146 Rd	15,000		0.0%		0.0%					
154-09 146th Ave	45,962		0.0%		0.0%					$12.00/fs
169 146th Ave	14,701		0.0%		0.0%					
16716 146th Ave	10,200		0.0%		0.0%					
165-11 146th Rd	7,000		0.0%		0.0%					
167-11 146th Rd	7,643		0.0%		0.0%					
155-11 146th St	24,146		0.0%		0.0%					
17620 147 Ave	15,000		0.0%		0.0%					
165-25 147th Ave	151,068		0.0%		0.0%					
167-16 147th Ave	9,675		0.0%		0.0%					
167-41 147th Ave	14,816		0.0%		0.0%					
177 147th Ave	16,284		0.0%		0.0%					
182-16 147th Ave	93,731		0.0%		0.0%					
167-33 148th Ave	10,091		0.0%		0.0%					
175-11 148th Rd	29,473	1,370	4.6%	1,370	4.6%	1,370	1,370	0	1,370	
175-35 148th Rd	6,614		0.0%		0.0%					
175-52 148th Rd	9,800		0.0%		0.0%					

Building Address	Existing Rentable Building Area	Direct SF Vacant	Direct Vacant %	Total SF Vacant	Total Vacant %	Total SF Available	Direct SF Available	Sublet SF Available	Max SF Contig	Avg Rate
175-57 148th Rd	17,644	0	0.0%	0	0.0%	2,600	2,600		2,600	
179-14-20 149th Ave	11,980		0.0%		0.0%					
179-17 149th Ave	27,618	870	3.2%	870	3.2%	1,345	1,345	0	870	
177-11 149th Rd	9,585		0.0%		0.0%					
177-14 149th Rd	12,150		0.0%		0.0%					
177-15 149th Rd	9,575	0	0.0%	0	0.0%	9,575	6,725	7,500	7,500	$14.00+util
179-15 149th Rd	15,578	15,578	100.0%	15,578	100.0%	15,578	15,578	0	15,578	$13.50/lg
179-16 149th Rd	10,000		0.0%		0.0%					
179-20 149th Rd	11,200		0.0%		0.0%					
179-22 149th Rd	11,200		0.0%		0.0%					
182-09 149th Rd	40,739		0.0%		0.0%					$14.00/lg
182-16 149th Rd	94,203	0	0.0%	0	0.0%	3,457	3,457	0	2,887	$15.35/+util
184-54 149th Rd	67,600	0	0.0%	0	0.0%	67,600	67,600	0	67,600	$16.00/+util
179-14 149th St	11,980		0.0%		0.0%					
177-09 150th Ave	12,150		0.0%		0.0%					
179-02 150th Ave	72,075		0.0%		0.0%					
182-11-182-25 150th Ave	93,000		0.0%		0.0%					
179-15 150th Rd	3,200		0.0%		0.0%					
179-29 150th Rd	28,000		0.0%		0.0%					
182-30 150th Rd	58,418	4,801	8.2%	4,801	8.2%	4,801	4,801	0	1,500	
144-25 155th St	7,898		0.0%		0.0%					
145-47 155th St	5,800		0.0%		0.0%					
145-61-145-63 155th St	6,700	6,700	100.0%	6,700	100.0%	6,700	6,700	0	6,700	$14.25+util
144-18 156th St	6,323		0.0%		0.0%					
144-24 156th St	16,168	7,000	43.3%	7,000	43.3%	7,000	7,000	0	7,000	$14.00+util
144-29 156th St	4,750		0.0%		0.0%					
144-40 156th St	27,345		0.0%		0.0%					
145-03 156th St	5,000	5,000	100.0%	5,000	100.0%	5,000	5,000	0	5,000	
145-07 156th St	6,000	5,965	99.4%	5,965	99.4%	5,965	5,965	0	3,597	
145-30 156th St	86,850	7,135	8.2%	7,135	8.2%	7,135	7,135	0	2,857	
145-45 156th St	35,751		0.0%		0.0%					

Building Address	Existing Rentable Building Area	Direct SF Vacant	Direct Vacant %	Total SF Vacant	Total Vacant %	Total SF Available	Direct SF Available	Sublet SF Available	Max SF Contig	Avg Rate
145-54 156th St	12,350		0.0%		0.0%					
14564 156th St	24,146		0.0%		0.0%					
144-30 157th St	21,158		0.0%		0.0%					
144-59 157th St	4,539		0.0%		0.0%					
145-20-145-40 157th St	62,133		0.0%		0.0%					$13.32/fs
144-02-144-20 158th St	50,363		0.0%		0.0%					
145-58 167th St	30,000		0.0%		0.0%					
146-27-146-35 167th St	19,170		0.0%		0.0%					
148-15 175th St	29,000		0.0%		0.0%					
147-17 176th St	11,310		0.0%		0.0%	11,310	11,310		11,310	
147-25 176th St	10,485		0.0%		0.0%	10,484	10,484		10,484	
147-31 176th St	20,280	20,280	100.0%	20,280	100.0%	20,280	20,280	0	20,280	
14704 176th St	4,600		0.0%		0.0%					
14717 176th St	11,310		0.0%		0.0%					
14730 176th St	12,350		0.0%		0.0%					
149-05 177th St	6,300	1,500	23.8%	1,500	23.8%	1,500	1,500	0	1,500	
149-15 177th St	11,730		0.0%		0.0%					
149-35 177th St	17,727	6,066	34.2%	6,066	34.2%					
147-02-147-20 181st St	34,268		0.0%		0.0%					
147-11 181st St	18,745		0.0%		0.0%					
147-31 181st St	10,000		0.0%		0.0%					
147-37 181st St	15,900		0.0%		0.0%					
147-14 182nd St	17,471	17,471	100.0%	17,471	100.0%	17,471	17,471	0	17,471	$14.00/lg
147-29 182nd St	27,359	0	0.0%	0	0.0%	27,359	27,359	0	27,359	$14.00/+util
147-34 182nd St	10,000		0.0%		0.0%					
147-38 182nd St	15,102		0.0%		0.0%					
147-48 182nd St	13,277	4,145	31.2%	4,145	31.2%	13,277	13,522	0	9,377	$14.00/nnn
149-40 182nd St	26,148	0	0.0%	0	0.0%	1,371	1,371	0	1,371	
147-04-147-16 183rd St	47,847		0.0%		0.0%					
147-15 183rd St	17,206		0.0%		0.0%					
147-16 183rd St	17,207	15,000	87.2%	15,000	87.2%	15,000	15,000	0	15,000	

Building Address	Existing Rentable Building Area	Direct SF Vacant	Direct Vacant %	Total SF Vacant	Total Vacant %	Total SF Available	Direct SF Available	Sublet SF Available	Max SF Contig	Avg Rate
147-29-147-35 183rd St	18,064		0.0%		0.0%					
149-09 183rd St	305,980	33,000	10.8%	33,000	10.8%	33,000	33,000		33,000	
150-40 183rd St	28,000		0.0%		0.0%					
147-40 184th St	39,000	16,500	42.3%	16,500	42.3%	16,500	16,500	0	16,500	$18.00/lg
144-18 186th St	6,323		0.0%		0.0%					
145-77 226th St	7,750		0.0%		0.0%					
145-35-145-79 226th St	123,100	7,750	6.3%	7,750	6.3%	7,750	7,750	0	7,750	$13.00/lg
145-55 226th St	7,750		0.0%		0.0%					
145-36 227th St	30,240		0.0%		0.0%					
146-19 228th St	2,500		0.0%		0.0%					
14544-14568 228th St	106,000		0.0%		0.0%					
15202 Baisley Blvd	61,600		0.0%		0.0%					
248-10 Brookville Blvd	3,000		0.0%		0.0%					
248-23 Brookville Blvd	26,868		0.0%		0.0%					
248-29 Brookville Blvd	26,000	6,000	23.1%	6,000	23.1%	8,000	6,000	0	5,000	$12.00/nnn
227-15 N Conduit Ave	110,600		0.0%		0.0%					
155-06 S Conduit Ave	15,011	1,479	9.9%	1,479	9.9%	1,479	1,479	0	759	
453 Doughty Blvd	10,000		0.0%		0.0%					
461 Doughty Blvd	80,000		0.0%		0.0%					
475 Doughty Blvd	77,751	0	0.0%	77,751	100.0%	77,751	0	77,751	77,751	$8.00/lg
555 Doughty Blvd	7,500	7,500	100.0%	7,500	100.0%	7,500	7,500		7,500	
67 East Ave	11,000		0.0%		0.0%					
181-25 Eastern Rd	0	0	0.0%	0	0.0%	0	0	0	0	
147-22-147-32 Farmers Blvd	15,000		0.0%		0.0%					
147-35 Farmers Blvd	38,565		0.0%		0.0%					$14.00/+util
147-45 Farmers Blvd	10,750	2,170	20.2%	2,170	20.2%	870	870	0	870	
147-95 Farmers Blvd	17,000		0.0%		0.0%					
14757 Farmers Blvd	7,200		0.0%		0.0%					
14765 Farmers Blvd	25,000		0.0%		0.0%					
148-08 Guy Brewer Blvd	10,000		0.0%		0.0%					
147-17 Guy R Brewer Blvd	43,898	43,898	100.0%	43,898	100.0%	43,898	43,898	0	43,898	$14.00/mg

Building Address	Existing Rentable Building Area	Direct SF Vacant	Direct Vacant %	Total SF Vacant	Total Vacant %	Total SF Available	Direct SF Available	Sublet SF Available	Max SF Contig	Avg Rate
148-09 Guy R Brewer Blvd	12,936		0.0%		0.0%					
148-19 Guy R Brewer Blvd	1,860		0.0%		0.0%					
148-27 Guy R Brewer Blvd	7,626		0.0%		0.0%					
148-36 Guy R Brewer Blvd	29,773	695	2.3%	695	2.3%	695	695	0	695	
149-03 Guy R Brewer Blvd	4,370		0.0%		0.0%					
149-39 Guy R Brewer Blvd	15,000	14,975	99.8%	14,975	99.8%	14,975	14,975	0	14,975	$12.00/+elec
148-04 Guy R. Brewer Blvd	12,500		0.0%		0.0%					
30 Inip Dr	92,000		0.0%		0.0%					
40 Inip Dr	24,024		0.0%		0.0%					
41 Inip Dr	38,352		0.0%		0.0%					
55 Inip Dr	30,000		0.0%		0.0%					
60 Inip Dr	30,000		0.0%		0.0%					
71 Inip Dr	25,000		0.0%		0.0%					
85 Inip Dr	28,360		0.0%		0.0%					
90 Inip Dr	25,000		0.0%		0.0%					
95 Inip Dr	136,200	136,200	100.0%	136,200	100.0%	136,200	136,200	0	136,200	$9.00/nnn
100 Inip Dr	166,000		0.0%		0.0%					
230-19 International Airport Ctr Blvd	99,521		0.0%		0.0%					
230-39 International Airport Ctr Blvd	107,782		0.0%		0.0%					
230-79 International Airport Ctr Blvd	141,782	1,791	1.3%	1,791	1.3%	1,791	1,791	0	1,791	$19.50/nnn
JFK - Bldg 77	227,718		0.0%		0.0%					
JFK - Building 75	199,313		0.0%		0.0%					
1 Johnson Rd	84,441		0.0%		0.0%					
1 Johnson Rd	46,000		0.0%		0.0%					
55 Johnson St	114,000		0.0%		0.0%					
122-20 Merritt Blvd	50,349		0.0%		0.0%					
147-05 New York Blvd	10,000		0.0%		0.0%					
167-04 Porter Rd	10,091		0.0%		0.0%					
16721 Porter Rd	22,800		0.0%		0.0%					

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16743 Porter Rd	12,000		0.0%		0.0%					
1 Rason Rd	34,821		0.0%		0.0%					$13.50/nnn
137-22-137-30 Rockaway Blvd	8,250		0.0%		0.0%					
142-82 Rockaway Blvd	31,000		0.0%		0.0%					
152-01 Rockaway Blvd	27,500	27,500	100.0%	27,500	100.0%	27,500	27,500	0	27,500	$12.00/n
152-09 Rockaway Blvd	7,000		0.0%		0.0%					
152-15 Rockaway Blvd	3,052		0.0%		0.0%					
152-17 Rockaway Blvd	2,280		0.0%		0.0%					
152-21 Rockaway Blvd	10,100		0.0%		0.0%					
152-32 Rockaway Blvd	10,300		0.0%		0.0%					
152-32 Rockaway Blvd	7,870		0.0%		0.0%					
152-35 Rockaway Blvd	10,100		0.0%		0.0%					
152-65 Rockaway Blvd	67,000		0.0%		0.0%			2,000	2,000	
153-04 Rockaway Blvd	21,500		0.0%		0.0%					
153-07 Rockaway Blvd	5,000		0.0%		0.0%					
153-39 Rockaway Blvd	2,880		0.0%		0.0%					
153-40 Rockaway Blvd	15,875		0.0%		0.0%					
153-41 Rockaway Blvd	6,200		0.0%		0.0%					
153-55 Rockaway Blvd	23,172		0.0%		0.0%					
153-66 Rockaway Blvd	20,517		0.0%		0.0%					
153-75 Rockaway Blvd	13,000		0.0%		0.0%					
158-01 Rockaway Blvd	10,377		0.0%		0.0%					
162-05 Rockaway Blvd	1,000		0.0%		0.0%					
162-15 Rockaway Blvd	1,350		0.0%		0.0%					
167-25 Rockaway Blvd	22,300		0.0%		0.0%					
168-01 Rockaway Blvd	10,213	0	0.0%	0	0.0%	4,000	4,000	0	4,000	$15.00/+util
248-06 Rockaway Blvd	55,000		0.0%		0.0%					
248-58 Rockaway Blvd	13,110		0.0%		0.0%					
16301 Rockaway Blvd	7,000		0.0%		0.0%					
200 Roger Ave	17,200		0.0%		0.0%					
245 Roger Ave	150,000		0.0%		0.0%					

Building Address	Existing Rentable Building Area	Direct SF Vacant	Direct Vacant %	Total SF Vacant	Total Vacant %	Total SF Available	Direct SF Available	Sublet SF Available	Max SF Contig	Avg Rate
			0.0%		0.0%					
Grand Totals (180 Bldgs)	5,966,581	420,666	7.1%	498,417	8.4%	640,414	558,058	87,251	621,727	$11.28/nnn

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