International Transport Forum

Upgrading to World Class: The Future of the New York Region's Airports

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An Update

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1. INTRODUCTORY REMARKS

This paper is intended to serve three purposes. First, it presents a slightly abbreviated version of the summary of the book published by Regional Plan Association (RPA)[1] in January 2011 about the serious capacity and delay problems at the three major airports in New York and what might be done about it.[2] Second, the paper provides information on the response by the Port Authority of New York and New Jersey, the owners and operators of the three airports and what has transpired in the two years since the book was published. Third, the paper discusses some relevant emerging issues that will likely further affect the ability to address the growing problem of capacity and delays at these airports.

2. SUMMARY OF 2011 RPA REPORT

Intercity travel is at the core of an increasingly interconnected and competitive global economy. Without the ability to efficiently transport business and leisure travelers and time-sensitive cargo, both domestic and international business would grind to a halt. Since virtually all long-distance travel is by air, along with a high proportion of shorter distance travel between cities, metropolitan economies depend on their ability to provide high-quality airline service to many destinations. This is especially true for world-city regions like the New York metropolitan area that are even more dependent on industries with a high propensity for flying. In New York, New Jersey and Connecticut, the leading economic sectors all rely on frequent air travel to many destinations. Indeed, the region's status as a nexus for domestic and international air travel is intricately linked to its role as a premier center of global commerce.

This crucial link between air travel and economic prosperity is threatened by a lack of adequate capacity in the region's aviation system, including air space, airports and landside connections. This is manifested in flight delays that greatly exceed those of every other major airport in the United States. These delays cost the region hundreds of

1. Regional Plan Association (RPA) is an independent, not-for-profit regional planning organization that seeks to improve the quality of life and the economic competitiveness of the 31-county New York-New Jersey-Connecticut region through research, planning, and advocacy.

2. Upgrading to World Class: The Future of the New York Region's Airports by Jeffrey M. Zupan, Richard E. Barone, and Matthew H. Lee. The full report is available online at *http://www.rpa.org/2011/01/major-new-rpa-study-finds-new-airport-capacity-needed.html*.

millions of dollars each year in lost wages and business income. In the future, without additional capacity the impacts will be far more severe. While delays cost valuable time and can inhibit some from flying, having too few flights to handle demand will prevent millions from flying and cost the region thousands of jobs and billions of dollars.

Strained capacity at the airports is more than a local problem. Delays at the region's three major airports – Kennedy, Newark and LaGuardia – ripple through the national aviation network causing delays from Washington, DC, to Los Angeles, CA. Constraining the New York region's capacity for air travel growth would also weaken the nation's ability to compete for global business in finance, media and other industries for which New York is the nation's leading international center.

Solutions will require both short-term and long-term actions, as well as a coordinated strategy by a number of public and private sector participants, including the Port Authority of New York and New Jersey, which operates the three airports, the Federal Aviation Administration (FAA), which regulates and controls the nation's airspace, the private airlines that operate terminals and schedule flights, and the city and state agencies responsible for the roads and transit network connecting to the airports.

Today, the region's three airports regularly rank worst delays among the nation's airports, with more flights than the region's constrained airports and airspace can handle. To limit the delays created by the excessive flights scheduled during peak times, the FAA placed a cap on hourly flights at all three major airports. This action limits the ability of the three airports to meet current or projected growth.

The demand for air travel is almost certain to continue to increase substantially over the coming decades. Air traffic has increased in every decade since commercial flights were introduced, and a growing international service economy will drive up demand in the future. It is expected that passenger demand, which was 104 million in 2010, will reach 150 million by as early as 2030, if the capacity is available. The growth is fueled by global economic expansion, the continuing attraction of the New York region for visitors, and expected growth in the New York region's population.

If they can be accommodated, these additional air passengers represent a major source of growth for the region's economy. In 2009, air passengers and cargo generated $16.8 billion in wages and $48.6 billion in sales to the region, and supported nearly 415,000 jobs. Without additional capacity, the region will forego an increasing number of jobs, wages and sales each year. By the 2030s, these losses could reach as many as 125,000 jobs, $6 billion in wages and $16 billion in sales each year.

To both reduce delays and accommodate future demand for air travel, the region will need to expand capacity by 78 additional flights per hour – or one third more than today. This added capacity will be needed to serve an additional 39 million passengers, who without it would be unable to fly into and out of the region's airports with reasonable predictability. Just to maintain the current uncompetitive level of 20-minute delays, there would still be a need for 45 more flights per peak hour to handle an additional 22 million passengers.

Creating this capacity will require a combination of actions, some of which can be implemented in the next few years while others could take two decades or more to complete. RPA examined six categories of potential investments and demand management.

1. Implement NextGen I and II, a phased implementation of technological investments and operational and procedural changes that would transform the nation's air traffic control system

2. Encourage the use of outlying airports – Stewart International in Orange County and MacArthur in Suffolk County – to free up capacity at the three major airports

3. Improve intercity rail service to free up capacity at the airports by shifting passengers from shorter-distance flights

4. Build a new airport to handle growing demand

5. Manage demand to reduce peak period flights

6. Expand runway capacity at the three major airports

These actions vary widely in terms of the capacity potential, cost, timeframes, implementation barriers and environmental impacts. Some actions have benefits beyond their potential to increase the effective capacity of the region's airports, and may be regional priorities even if their ability to relieve airport congestion is limited.

The potential to add capacity or reduce demand for peak-period flights was quantified for each set of actions, and the probable magnitude of costs and other impacts were considered in developing recommendations. Because of the costs and possible environmental impacts associated with runway expansion, all other possible actions were thoroughly examined to determine if, taken together, they could preclude the need to physically expand the airports.

Of all the actions considered, expansion at Kennedy and Newark airports provide the greatest potential for increasing capacity and reducing delays. The implementation of NextGen could potentially address capacity needs in the next five to ten years, but it would not alleviate the need for eventual airport expansion. Other actions would only slightly delay the need for airport expansion, yet many also provide other benefits. To ensure that New York maintains a world-class aviation system, it should strive for the dual objectives of meeting a projected demand of 150 million passengers by 2030 and reducing average delays from 20 minutes to the national norm of 10 minutes.

The only way to meet these objectives is through the expeditious implementation of NextGen and immediate planning for the eventual expansion of Kennedy and Newark airports. Other short-and-intermediate-term actions, especially expanding service at Stewart and MacArthur airports, should be encouraged to serve nearby markets, although they will have little effect on the need for new runways at Kennedy and Newark. Improving intercity rail service should also be implemented to increase traveler options.

The benefits and issues for each set of actions, including the potential of each to expand the capacity to handle peak-period demand is summarized below.

NextGen I and II. The FAA's *NextGen* program is a package of new technologies, such as Global Positioning Systems, that is used to track and guide aircraft, as well as a suite of operational and procedural changes. NextGen, which is being deployed by the FAA over the next few years, is capable of reducing delays and expanding airport landing and take-off capacity. This report concludes that NextGen could have a favorable effect on capacity if deployed for that purpose, but only for the next five to ten years. NextGen I, with full

implementation expected by 2018, could add the capacity for 21 flights an hour in the peak period. The impact of NextGen II is more difficult to predict. But even with the most optimistic projections, however, growing air passenger volumes will overwhelm its ability to keep pace with demand.

Expanding the Use of Outlying Airports. The report examined the potential for shifting demand to the region's outlying airports, opening up more capacity at the three core airports. We concluded that Stewart Airport in Orange County, acquired by the Port Authority in 2007, and MacArthur Airport in Suffolk County, each would have a positive but limited effect, attracting only 2.5 million of the 150 million passengers expected in the 2030s, or about 5 of the 80 additional peak-periods flights needed by the 2030s. Expansion of air service at these airports would bring other benefits, including better access for locally generated traffic in the Hudson Valley and Long Island, and give a boost to those local economies.

Improved and High-Speed Intercity Rail. Higher speed intercity rail service is another means to attract air passengers, as it has done in recent years with improved service in the Northeast Corridor. The promise of still faster trains could attract still more customers. The expected progress in rail speeds by 2030 could shift 2 million air passengers, or the equivalent of about nine peak period flights. Truly high-speed trains, which would require significant investments in new rights-of-way, would expand rail's attractive power to over 4 million passengers. A number of factors prevent these estimates from being higher. In particular, only 15 percent of the air passenger trips to and from the airports in the region are to locations within 500 miles, and a large share of air passengers flying short distances are connecting at the New York airports to other places, making their use of rail to reach New York inconvenient for making connections. In addition to these modest improvements in flight capacity, high-speed rail would add a new dimension to intercity travel with a number of other travel and economic benefits.

Build a New Airport. Building an entirely new airport is difficult in a region as densely developed as the tri-state metropolitan area. There must be sufficient land in locations that are both suitable for development and accessible to enough potential passengers that would choose it over existing airports. An exhaustive search for parcels large enough to hold a new airport within 40 miles of the Manhattan central business district (CBD) located no appropriate sites. The possibility of expanding existing small outlying airports was also examined, but these sites were either too small or too far from the region's core. Finally, the concept of constructing an airport island to serve the region was evaluated. It was concluded that the costs for a project of this scale, along with the requirement to close either Kennedy or Newark to open up airspace for the new airport, made this option untenable.

Managing Demand. A number of potential demand management tools have been suggested to use existing capacity at the three major airports more effectively by encouraging higher capacity aircraft and by better utilizing the times when airport capacity is not fully used. These include bans of small-sized aircraft (under 50 seats), ban of short flights (under 250 miles), a cap on the frequency in over-served markets, pricing of peak flights to encourage shifts to the off-peak, and auctions. Most of these either proved unworkable or had only a small impact on freeing capacity.

A limited number of recommendations emerged from this investigation, including the possibility of thinning out service in saturated markets. These recommendations, most of which would be resisted by some constituencies, deserve consideration for their

beneficial effects on the margin, particularly in the long term at La Guardia, since physical expansion is not feasible there.

Regulation can play another role though. As passengers respond to higher speed rail service or shift to outlying airports, there is no guarantee that airlines will respond by dropping peak-hour flights. The establishment of a process to encourage airlines to drop peak-hour flights would make these other travel options more effective to free up peak airport capacity.

Ground Access and Impact on Airport Capacity. The report concludes that the limitations of ground access, while in need of attention, do not limit growth. While traffic conditions may cause additional delay and may deter some prospective passengers, they will not discourage a large number from flying if the imperatives to fly are there. Collaboration among the transportation agencies is recommended to ease traffic congestion and to develop the promising short- and long-term bus and rail transit options to all three airports outlined in this report.

Expand Existing Airports. After consideration of all the potential capacity-increasing and delay-reducing, this report concludes that expansion of the capacity at Kennedy and Newark will be necessary. Options to expand La Guardia, with a smaller footprint in a more developed area, would be untenable.

The Port Authority should begin to plan now since airport expansion will not happen overnight and serious capacity deficiencies will become even more apparent in the next ten years. At Kennedy, four alternative configurations meet basic airspace and capacity criteria. Each has its advantages and disadvantages. The choice among them, or with possible variations and phasing plans, should be made by the Port Authority, working with the local and environmental communities, in the next few years. At Newark, one configuration stands out. It is within the airport footprint, minimizing impacts off-site, but it would require the redesign and relocations of one or more of three terminals on the airport.

Conclusion. A successful expansion or reconfiguration at Kennedy and Newark, along with NextGen, can meet the twin goals of capacity and delay reduction in the 2030s and beyond. Inaction will result in an economic drain on the region. It will discourage business, limit visits, and prevent our region from fully participating in the global economy.

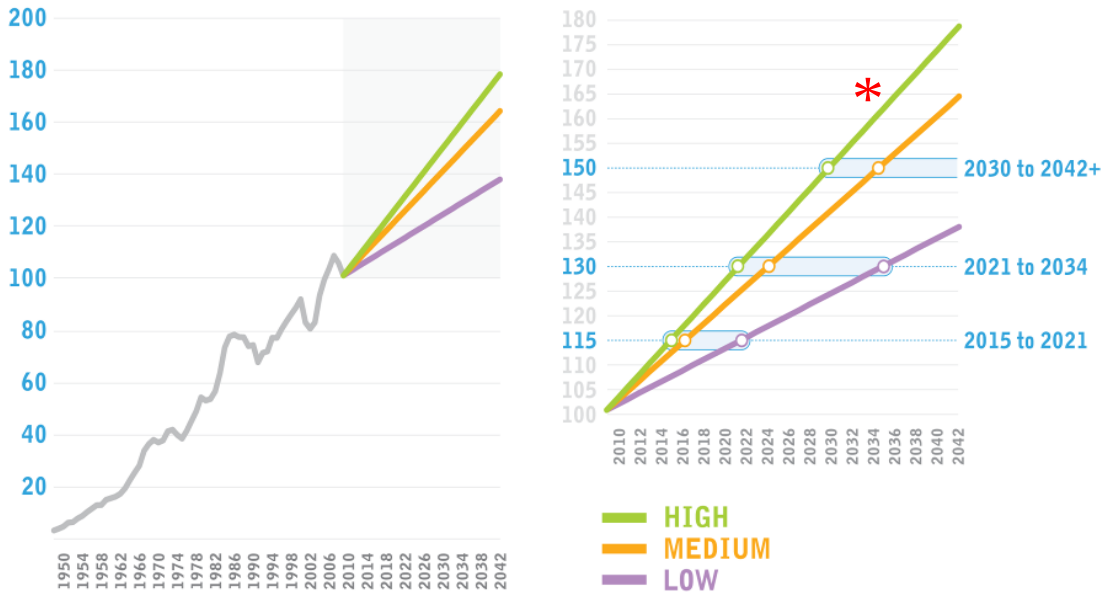
The inability of the combined impacts of NextGen, outlying airports and faster intercity rail to stem the need for eventual airport capacity expansion should not be viewed as a reason to deemphasize these actions. To the contrary, they are each of great value. NextGen will allow the reduction of delays and the expansion of capacity through more accurate tracking and more flexible airspace opportunities. Outlying airports such as Stewart and MacArthur will serve localized areas, building up local economies and offering air travel options. Faster rail travel, particularly in the Northeast Corridor, will divert travelers from the highways and knit together the economies of the Northeast.

3. DEVELOPMENTS SINCE

The Regional Plan Association report summarized above was released in January 2011. Soon after that the Port Authority of New York and New Jersey launched their own analysis, with consultant assistance. The instructions to the consultant: validate the analysis and conclusion of the RPA report, accounting for the interactions of the three airports and of Teterboro Airport, an important general aviation airport in the region. If the findings indicated that runway capacity expansion at Kennedy and/or Newark is needed, develop design options that that met the future needs. This work is underway.

Passenger Projections. In their current efforts, the Port Authority has revised the number of air passengers they are planning for, extending it to 170 MAP (million air passengers). Rate of growth the PA assumed is now higher than the highest of range of three that RPA used in its report. This would result in the 170 MAP being reached by the early2030s, while the highest RPA projection suggested that 150 MPA would not be achieved until after 2032. These differences are shown in Figure 1, taken from the RPA report, with the asterisk added to indicate where the Port Authority projection falls.

Figure 1. **Air Passenger Projections**



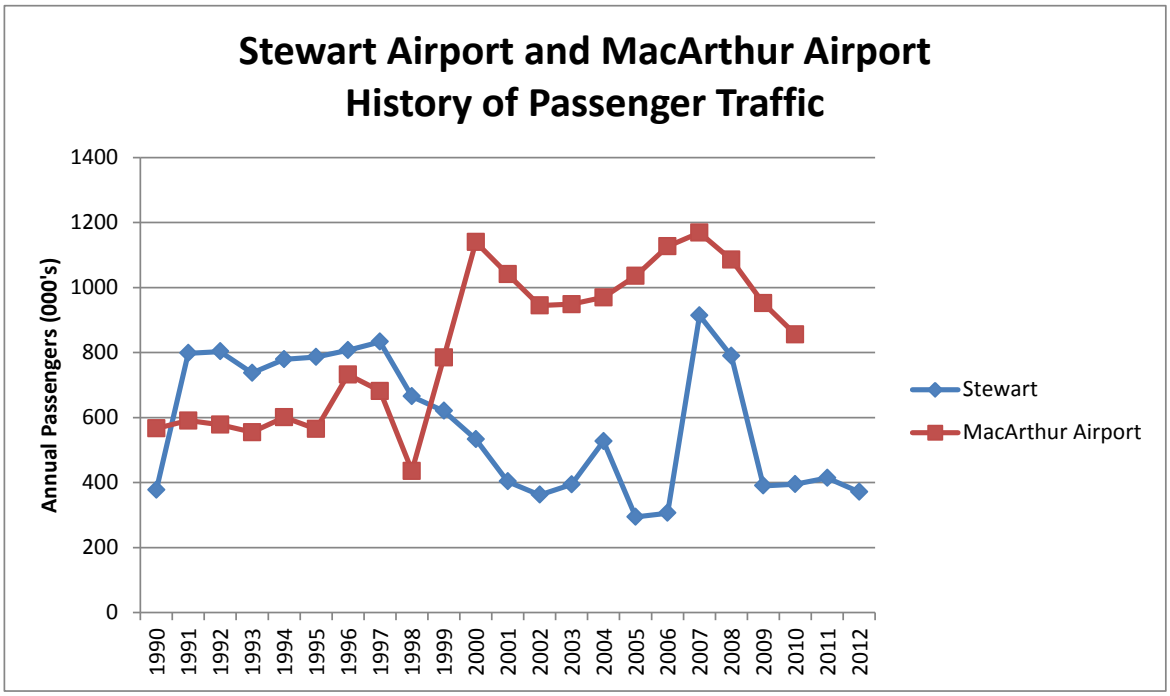
Source: Upgrading to World Class: The Future of the New York Region's Airports; Regional Plan Association

Next Gen. In discussions with the Federal Aviation Administration (FAA), who are charged with implementing NextGen, it has become clear that capacity gains in the near-term

are not a given. The Port Authority and the FAA are working together to determine how much additional aircraft operating capacity can be gained over the next several years. This leaves uncertain how much of the gain of 21 flights per hour assumed in the RPA report can be realized by the 2018 implementation timeline for NextGen I. However, in the long term (2025-2035), many of the Next Gen capacity benefits articulated in the RPA report are likely to materialize if airlines are able and willing to equip their aircraft to take advantage of the new technologies.

Validation. The Port Authority consultant has essentially validated the conclusions that RPA reaches regarding the impact of Stewart and MacArthur airports, intercity rail improvements, management of demand at the existing airports, and the viability of a new large airport in the region. None of these options will, even when taken together, obviate the need for new runway capacity at Kennedy and Newark. Figure 2 shows the difficulty in attracting demand to the two outlying airports identified in the RPA report.

Figure 2. **Passenger Traffic History at Two Outlying Airports**



Source: Port Authority of New York and New Jersey; Landrum and Brown

Note: MacArthur Traffic is for fiscal years ending on September 30

Design of Additional Runways. To date, results of the search for a workable design for new runway capacity at Kennedy and Newark are not yet clear.

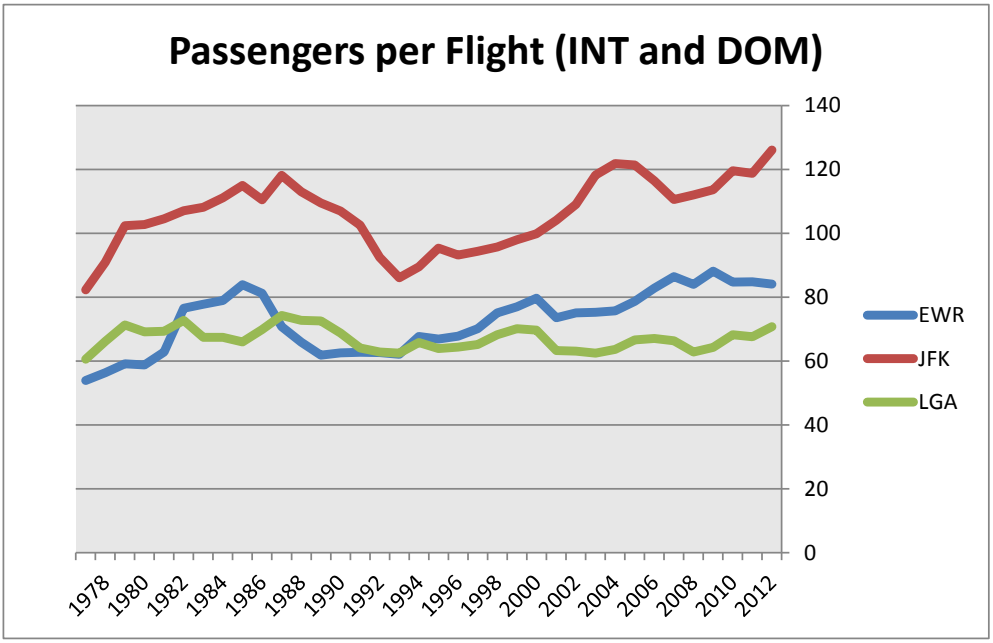
4. OTHER POTENTIALLY SIGNIFICANT DEVELOPMENTS

Passenger Demand. The RPA report was produced during a period of deep decline in air passenger demand, a direct result of the recession that began in 2008. In 2007 passenger demand at the three airports reached 109.1 MAP, the culmination of continuous growth since 1991, interrupted only briefly by the flying public's reaction to the terrorist attacks of 2001. By 2009 the passenger volume plummeted to 101.7 MAP, resulting in the largest two-year drop in history in absolute terms (again with the exception of the terrorist attacks period).

Since then traffic has begun to climb and 2012 is expected to almost reach the 2007 levels. The slow but steady recovery of the region's economy over the past two years has led to a surge in air passenger traffic with 2012 almost reach 2007 levels. However, only if one believes that the rebound will continue more or less indefinitely, then the Port Authority's use of a more aggressive projection of 170 MAP by the early 2030s is justified. One thing is clear; the region has lost almost five years of growth due to the "great recession." One might argue that this reduces the urgency for action, but this is hardly the case. Very little has been accomplished during the past five years and the Port Authority is essentially back where it was during the height of air passenger demand in the region, with essentially the same facilities and constraints that existed in 2007.

Higher Aircraft Occupancy. One of the underlying factors in RPA's projections of aircraft operations at the three airports was the expected increase in the average number of passengers on each flight, following a long term trend of larger aircraft and higher occupancy rates. RPA projected that the average flight taking off and landing would grow from 91.4 passengers in 2007 to 99.8 passengers by the 2030s, driving down the number of projected aircraft movements. This trend has accelerated, even in the last five years; the average occupancy at the three airports has reached 103.9 passengers, already exceeding the RPA projection for the 2030s. Figure 3 shows the history of aircraft occupancy at the three airports. As airlines strive for greater profitability (or less loss), using the slots within their control, and as international travel continues to grow faster than domestic travel, these trends should continue.

Figure 3. **Passengers per Aircraft -Three New York Airports 1978 to 2012**



Source: Port Authority of New York and New Jersey

Slot Use. At the three New York Airports (and at Reagan National Airport) the FAA limits the number of hourly aircraft movements to reduce likely delays from the overscheduled flights. The US General Accounting Office recently completed an examination[3] of the slot rules and concluded that they have the unintended effect of lowering the passenger carrying capacity of these airports. The current rules require airlines to use their slots only 80 percent of the time, allowing some existing airport capacity to go unused. The rules apply to each airlines pool of slots, rather than individual ones, adding to the number of slots unused and unavailable to other carriers that do not hold them. Furthermore, for those slots that are used there is a tendency to use some of them more inefficiently with smaller aircraft to ensure the carrier meets the "80 percent rule" and does not forfeit any slots. If these rules are changed the New York airports can realize gains in peak capacity that can absorb some of the traffic growth. The FAA is expected to address some of these limitations before the current orders imposing slots controls expire this October (2013).

Consolidation. It can be expected that the consolidation of the airline industry with fewer and larger airlines serving each of the New York airports, will result in fewer larger aircraft in each market. To identify this trend, the 2003 and the 2012 distribution of air passengers by airline was compared for both domestic and international markets at the three airports. Six tables – one for each year for each of the airports are provided in the Appendix. The tables also note whether the airline can be considered a hub or whether the airline is a low cost carrier.

3. http://www.gao.gov/assets/650/648219.pdf

The highlights from these tables:

At JFK (Tables A-1 and A-2)

In 2003 six airlines carried 95.6 percent of all domestic traffic; by 2012 the top six carried virtually all traffic, 99.2 percent. The top three airlines in 2003 carried 27.9 percent of all international traffic and in 2012 they carried 39.6 percent of all international traffic.

At EWR (Tables A-3 and A-4)

In 2003 Continental carried 63 percent of domestic and 51 percent of international traffic: in 2012, with the Continental/United merger, the shares of the new United Airlines carries 72 percent of domestic and 68 percent of international traffic.

In 2012, domestic market "runner up," Delta Airlines carries 1/12 as much as did United.

Today, United has virtually no competition internationally among the American flag carriers.

At LGA (Tables A-5 and A-6)

While there is some consolidation at LGA, it is not as pronounced as it is at the other two airports; the share among the top seven airlines has grown from 88.1 percent to 97.9 percent.

Interchangeability Among Airports. The argument has been made that the three airports duplicate their services and that the some of the airlines can consolidate their operations at one airport rather than two, or even three. To examine this issue, the data in the Appendix tables were used to examine the four largest domestic airlines to determine how there traffic is distributed among the three airports. These airlines carry 70 percent of the passengers at the three airports. In Table 1 the 2012 passenger volumes (first eleven months) and the shares by airport are shown for domestic and international flights.

Table 1. **Share of Traffic by Airport - Four Largest Domestic Airlines 2012**

			JFK	EWR	LGA	TOTAL
United	**Domestic**	**Number**	**1 002 126**	**16 463 325**	**2 397 616**	**19 863 067**
		Percent	5.0	82.9	12.1	100.0
	International	**Number**	**0**	**7 644 563**	**1 099**	**7 645 662**
		Percent	0.0	100.0	0.0	100
Delta	**Domestic**	**Number**	**7 374 559**	**1 399 455**	**8 943 620**	**17 717 634**
		Percent	41.6	7.9	50.5	100.0
	International	**Number**	**4 074 812**	**115 000**	**129 582**	**4 319 394**
		Percent	94.3	2.7	3.0	100.0
Jet Blue	**Domestic**	**Number**	**9 445 035**	**1 321 512**	**1 128 123**	**11 894 670**
		Percent	79.4	11.1	9.5	100.0
	International	**Number**	**2 381 556**	**0**	**0**	**2 381 556**
		Percent	100.0	0.0	0.0	100.0
American	**Domestic**	**Number**	**4 414 071**	**1 053 795**	**4 793 635**	**10 261 501**
		Percent	43.0	10.3	46.7	100.0
	International	**Number**	**3 442 884**	**0**	**265 352**	**3 708 236**
		Percent	92.8	0.0	7.2	100.0

Source: Port Authority of New York and New Jersey

Table 1 indicates that none of the four airlines divides their traffic more or less equally between JFK and EWR. Three of the four – United the exception – have at least four times more traffic at JFK than at EWR. United is overwhelming concentrated at EWR, the legacy of their Continental Airlines merger. There are several good reasons by none of these airlines would give up even there minority airport between these two. First, the markets using JFK and EWR are very different. The share of west of Hudson River (New Jersey and some New York counties) based passengers who use EWR over JFK is 83.5 percent. They find access to JFK difficult, either having to negotiate the traffic through much of New York City, or deal with a multiple seat transit ride. If these three airlines dropped airline service to EWR, these passengers would be hard pressed to use JFK and would be further relegated to one airline – United – that largely controls flights to most destinations out of EWR.

The situation in reverse would not be true. In this case relatively small number of air passengers who fly by United Airlines from JFK would still have their choice among the other three major airlines who carry about 20 times as many passengers combined as United. They would not be forced to travel across the Hudson to reach a flight.

The relationship between JFK and LGA offers a different dynamic since the two airports are about 20 minutes apart. As Table 1 shows Delta and American airlines split their domestic traffic between the two airports about equally. However, this hides the fact that LGA flights are confined to shorter distances, which leads these two airlines to divide the traffic for these two airlines by individual markets based on distance. Remove one airline from LGA, for example would tend to transfer those flights to JFK where there are fewer flights today. The same would be true if flights and airlines were shifted from JFK to LGA. The effect would not likely lower the number of flights.

One way of showing this is to look at the top-ranked destinations for these two airports. Of the top 14 destinations for JFK only four are also the top 14 for LGA. Seven of the other ten for JFK are western cities, well beyond the LGA distance limit of 1,500 miles.[4] The closer destinations, by necessity have gravitated toward LGA and the longer ones to JFK. In other words, there already is a separation by market. The four exceptions are three Florida cities and Boston. It may be that the added traffic volume from international traffic transferring at JFK keeps these closer cities in play there even though they are less than 1,500 miles away and are natural LGA market cities.

Improved Ground Access to EWR. The Port Authority has begun a study of extending their PATH rapid transit system to EWR, spurred on by an RPA study which concluded it would be of considerable value as a ground connection from Manhattan's financial district. PATH now connects lower Manhattan to downtown Newark and the extension would be about two miles. The extensions value for addressing the airport capacity problem at EWR and JFK is uncertain. If runway expansion occurs at EWR but not at JFK, the PATH extension could help to shift some demand to the airport with added capacity – EWR. However, if the expansion occurs at JFK but not EWR, the PATH extension would only have value as a ground access improvement.

4 Denver is the one exception, having been "grandfathered" in, despite being more than 1 600 miles away.

APPENDIX

Tables of Airline Use at Three Port Authority Airports: 2003 and 2012

Table A-1

JFK International Airport **2003**

			Passengers			Percent			Cumulative Percent		
Airline	HUB?	LCC?	Domestic	International	Total	Domestic	International	Total	Domestic	International	Total
JetBlue	Yes	Yes	7,165,455	0	7,165,455	43.6	0.0	22.6	43.6	0.0	22.6
American *	Yes		4,017,328	3,119,034	7,136,362	24.4	20.4	22.5	68.0	20.4	45.1
Delta **	Yes		2,826,529	1,155,761	3,982,290	17.2	7.6	12.5	85.2	27.9	57.6
United			912,200	345,391	1,257,591	5.6	2.3	4.0	90.8	30.2	61.6
British Airways			0	1,256,784	1,256,784	0.0	8.2	4.0	90.8	38.4	65.5
American West		Yes	651,983	0	651,983	4.0	0.0	2.1	94.8	38.4	67.6
Air France			0	650,581	650,581	0.0	4.3	2.1	94.8	42.7	69.6
Lufthansa			0	572,523	572,523	0.0	3.7	1.8	94.8	46.4	71.5
Virgin Atlantic		Yes	0	516,272	516,272	0.0	3.4	1.6	94.8	49.8	73.1
Aer Lingus			0	441,514	441,514	0.0	2.9	1.4	94.8	52.7	74.5
El Al			0	436,179	436,179	0.0	2.9	1.4	94.8	55.5	75.8
Air Jamaica			0	420,223	420,223	0.0	2.7	1.3	94.8	58.3	77.2
Northwest			138,920	226,746	365,666	0.8	1.5	1.2	95.6	59.8	78.3
Alitalia			0	335,288	335,288	0.0	2.2	1.1	95.6	61.9	79.4
KLM			0	274,725	274,725	0.0	1.8	0.9	95.6	63.7	80.2
Korean			0	274,585	274,585	0.0	1.8	0.9	95.6	65.5	81.1
Swiss Air Int'l			0	230,055	230,055	0.0	1.5	0.7	95.6	67.0	81.8
Top 20			15,712,415	10,255,661	25,968,076	95.6	67.0	81.8			
Total Airport			16,434,651	15,297,795	31,732,446	100.0	100.0	100.0			

Table A-2

JFK International Airport **2012**

			Passengers				Percent		Cumulative Percent		
Airline	HUB?	LCC?	Domestic	International	Total	Domestic	International	Total	Domestic	International	Total
JetBlue	Yes	Yes	9,445,035	2,381,556	11,826,591	39.1	9.5	24.1	39.1	9.5	24.1
Delta	Yes		7,374,599	4,074,812	9,084,652	30.5	16.3	18.5	69.6	25.9	42.6
American	Yes		4,414,071	3,442,884	7,856,955	18.3	13.8	16.0	87.9	39.6	58.6
Virgin America/Atantic		Yes	1,070,365	546,782	2,641,382	4.4	2.2	5.4	92.3	41.8	63.9
British Airways			0	1,227,697	1,227,697	0.0	4.9	2.5	92.3	46.8	66.4
United			1,002,126	0	1,002,126	4.1	0.0	2.0	96.5	46.8	68.5
Air France			0	903,666	903,666	0.0	3.6	1.8	96.5	50.4	70.3
Caribbean Air			0	735,590	735,590	0.0	2.9	1.5	96.5	53.3	71.8
Cathay Pacific			0	666,474	666,474	0.0	2.7	1.4	96.5	56.0	73.2
US Airways			657,953	0	657,953	2.7	0.0	1.3	99.2	56.0	74.5
Lufthansa			0	543,574	543,574	0.0	2.2	1.1	99.2	58.2	75.6
Emirates Airlines and SK			0	532,648	532,648	0.0	2.1	1.1	99.2	60.3	76.7
Korean			0	424,444	424,444	0.0	1.7	0.9	99.2	62.0	77.6
Turkish Air			0	417,164	417,164	0.0	1.7	0.8	99.2	63.7	78.4
KLM			0	415,670	415,670	0.0	1.7	0.8	99.2	65.3	79.3
Aer Lingus			0	415,452	415,452	0.0	1.7	0.8	99.2	67.0	80.1
Alitilia			0	406,899	406,899	0.0	1.6	0.8	99.2	68.6	80.9
Tam Brazilian			0	399,116	399,116	0.0	1.6	0.8	99.2	70.2	81.8
El Al			0	398,862	398,862	0.0	1.6	0.8	99.2	71.8	82.6
Top 20			23,964,149	17,933,290	40,556,915	99.2	71.8	82.6			
Total Airport			24,153,321	24,968,964	49,122,285	100.0	100.0	100.0			

Table A-3

Newark International Airport 2003

			Passengers			Percent			Cumulative Percent		
Airline	HUB?	LCC?	Domestic	International	Total	Domestic	International	Total	Domestic	International	Total
Continental *	Yes		13,622,664.0	3,937,632.0	17,560,296.0	62.6	51.3	59.7	62.6	51.3	59.7
American			1,951,950.0	5,584.0	1,957,534.0	9.0	0.1	6.7	71.6	51.4	66.3
United			1,468,109.0	111,567.0	1,579,676.0	6.7	1.5	5.4	78.3	52.9	71.7
Delta			1,550,603.0	54.0	1,550,657.0	7.1	0.0	5.3	85.4	52.9	77.0
Northwest			838,284.0	122,652.0	960,936.0	3.9	1.6	3.3	89.3	54.5	80.2
US Airways			550,980.0	-	550,980.0	2.5	0.0	1.9	91.8	54.5	82.1
American West		Yes	487,584.0	-	487,584.0	2.2	0.0	1.7	94.1	54.5	83.8
SAS			-	390,945.0	390,945.0	0.0	5.1	1.3	94.1	59.6	85.1
American Trans Air			336,369.0	4,303.0	340,672.0	1.5	0.1	1.2	95.6	59.6	86.2
Virgin Atlantic		Yes	-	310,140.0	310,140.0	0.0	4.0	1.1	95.6	63.7	87.3
British Airways			-	295,354.0	295,354.0	0.0	3.9	1.0	95.6	67.5	88.3
Alitalia			-	248,322.0	248,322.0	0.0	3.2	0.8	95.6	70.8	89.1
Airtran Airways		Yes	245,359.0	-	245,359.0	1.1	0.0	0.8	96.7	70.8	90.0
Air Canada			-	242,186.0	242,186.0	0.0	3.2	0.8	96.7	73.9	90.8
Lufthansa			-	207,254.0	207,254.0	0.0	2.7	0.7	96.7	76.6	91.5
Air India			-	169,257.0	169,257.0	0.0	2.2	0.6	96.7	78.8	92.1
El Al			-	147,894.0	147,894.0	0.0	1.9	0.5	96.7	80.8	92.6
Air France			-	147,621.0	147,621.0	0.0	1.9	0.5	96.7	82.7	93.1
Air Portugal			-	141,502.0	141,502.0	0.0	1.8	0.5	96.7	84.5	93.6
Top 20			21,051,902.0	6,482,267.0	27,534,169.0	96.7	84.5	93.6			
Total Airport			21,760,266.0	7,668,633.0	29,428,899.0	100.0	100.0	100.0			

Table A-4

Newark International Airport 2012

			Passengers			Percent			Cumulative Percent		
Airline	HUB?	LCC?	Domestic	International	Total	Domestic	International	Total	Domestic	International	Total
United	Yes		16,463,325	7,644,563	24,107,888	72.1	68.2	70.8	72.1	68.2	70.8
Delta			1,399,450	115,000	1,514,450	6.1	1.0	4.4	78.2	69.2	75.2
Jet Blue		Yes	1,321,512	0	1,321,512	5.8	0.0	3.9	84.0	69.2	79.1
US Airways			245,009	0	245,009	1.1	0.0	0.7	85.1	69.2	79.8
Southwest		Yes	1,137,587	0	1,137,587	5.0	0.0	3.3	90.0	69.2	83.2
American			1,053,795	0	1,053,795	4.6	0.0	3.1	94.7	69.2	86.3
Lufthansa			0	534,959	534,959	0.0	4.8	1.6	94.7	74.0	87.8
SAS			0	432,562	432,562	0.0	3.9	1.3	94.7	77.8	89.1
Air Canada			0	397,659	397,659	0.0	3.5	1.2	94.7	81.4	90.3
Virgin Atlantic		Yes	0	375,325	375,325	0.0	3.3	1.1	94.7	84.7	91.4
British Airways			0	341,363	341,363	0.0	3.0	1.0	94.7	87.8	92.4
Porter Airlines			0	334,692	334,692	0.0	3.0	1.0	94.7	90.8	93.4
Alaska Airlines			198,166	0	198,166	0.9	0.0	0.6	95.5	90.8	94.0
Air Portugal			0	180,712	180,712	0.0	1.6	0.5	95.5	92.4	94.5
El Al			0	155,179	155,179	0.0	1.4	0.5	95.5	93.7	94.9
Jet Airways			0	134,556	134,556	0.0	1.2	0.4	95.5	94.9	95.3
Swiss Air Int'l			0	102,832	102,832	0.0	0.9	0.3	95.5	95.9	95.6
Air India			0	97,146	97,146	0.0	0.9	0.3	95.5	96.7	95.9
Alitalia			0	84,950	84,950	0.0	0.8	0.2	95.5	97.5	96.2
OpenSkies			0	84,889	84,889	0.0	0.8	0.2	95.5	98.2	96.4
Top 20			21,818,844	11,016,387	32,835,231	95.5	98.2	96.4			
Total Airport			22,841,456	11,213,266	34,054,722	100.0	100.0	100.0			

Table A-5

LaGuardia Airport **2003**

			Passengers			Percent			Cumulative Percent		
Airline	**HUB?**	**LCC?**	**Domestic**	**International**	**Total**	**Domestic**	**International**	**Total**	**Domestic**	**International**	**Total**
Delta *	Yes		5,640,210	145,073	5,785,283	26.3	13.8	25.7	26.3	13.8	25.7
American **	Yes		5,102,228	185,185	5,287,413	23.8	17.7	23.5	50.1	31.5	49.2
US Airways ***	Yes		4,067,604	94,615	4,162,219	19.0	9.0	18.5	69.1	40.6	67.8
United			1,454,981	-	1,454,981	6.8	0.0	6.5	75.9	40.6	74.2
Northwest			1,418,746	-	1,418,746	6.6	0.0	6.3	82.5	40.6	80.5
Spirit Airlines		Yes	955,330	-	955,330	4.5	0.0	4.2	87.0	40.6	84.8
Air Tran Airways		Yes	736,718	-	736,718	3.4	0.0	3.3	90.4	40.6	88.1
American Trans Air		Yes	703,818	-	703,818	3.3	0.0	3.1	93.7	40.6	91.2
Continental ****			702,779	-	702,779	3.3	0.0	3.1	97.0	40.6	94.3
Air Canada			-	558,897	558,897	0.0	53.4	2.5	97.0	93.9	96.8
Midwest Airlines		Yes	235,420	-	235,420	1.1	0.0	1.0	98.1	93.9	97.9
Frontier		Yes	133,245	-	133,245	0.6	0.0	0.6	98.7	93.9	98.5
Top 20			21,151,079	983,770	22,134,849	98.7	93.9	98.5			
Total Airport			21,435,246	1,047,524	22,482,770	100.0	100.0	100.0			

Table A-6

LaGuardia Airport **2012**

			Passengers			Percent			Cumulative Percent		
Airline	**HUB?**	**LCC?**	**Domestic**	**International**	**Total**	**Domestic**	**International**	**Total**	**Domestic**	**International**	**Total**
Delta	Yes		8,943,620	129,582	9,073,202	37.1	9.3	35.6	37.1	9.3	35.6
American	Yes		4,793,635	265,352	5,058,987	19.9	19.0	19.8	57.0	28.3	55.4
US Airways	Yes		3,394,697	-	3,394,697	14.1	0.0	13.3	71.0	28.3	68.7
United			2,397,666	1,099	2,398,765	9.9	0.1	9.4	81.0	28.3	78.1
Southwest		Yes	1,892,964	-	1,892,964	7.9	0.0	7.4	88.8	28.3	85.5
Spirit		Yes	1,165,533	-	1,165,533	4.8	0.0	4.6	93.7	28.3	90.1
JetBlue		Yes	1,128,123	-	1,128,123	4.7	0.0	4.4	98.4	28.3	94.5
Air Canada			-	855,634	855,634	0.0	61.2	3.4	98.4	89.5	97.9
Frontier		Yes	395,650	-	395,650	1.6	0.0	1.6	100.0	89.5	99.4
WestJet		Yes	-	146,081	146,081	0.0	10.5	0.6	100.0	100.0	100.0
Miami Air Intl			993	-	993	0.0	0.0	0.0	100.0	100.0	100.0
Top 20			24,112,881	1,397,748	25,510,629	100.0	100.0	100.0			
Total Airport			24,112,881	1,397,748	25,510,629	100.0	100.0	100.0			

Source: Port Authority of New York and New Jersey

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