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THE REGION'S AIRPORTS: TWO ISSUES

Prepared by Jeffrey M. Zupan, Senior Fellow - Transportation,
with assistance from John D. Dean, Research Associate,
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INTRODUCTION

Two issues of public policy involve the future of the three major airports in the New York Region.

- o Should they be joined by a fourth airport to meet the growing needs of air travel in the Region?
- o Should access to the three airports, and possibly the fourth, be improved using transit that can bypass mounting road traffic?

Each of these issues has been discussed for many years. Each has defied easy answers. In the case of the fourth airport, finding a suitable site, large enough to accommodate modern aviation needs, but close enough to the markets it must serve, has been difficult.

In the case of airport access, it has been argued for many years that the existence of high quality transit on a separate right-of-way not subject to serious road congestion could improve the attractiveness of the three airports and strengthen the international competitiveness of the Region.

Inaction has been the result of the absence of agreement as to the best configuration of new transit service to accomplish the objective, the absence of sufficient funding, and the absence of agreement as to whose is responsibility for implementation.

This report explores these two issues and suggests specific next steps to reach a decision on airport access that is in the best interest of the Region.

A FOURTH AIRPORT

Since the late 1950s the matter of whether and when the New York Metropolitan Region should construct another major airport to complement Kennedy, LaGuardia, and Newark, has been a matter of public discussion. The unprecedented growth in air travel after World War II, with air passengers growing by almost 4 1/2 times in twelve years from 3.6 million in 1948 to 16.0 million in 1960 (Table 1 and Figure A-2), created growing concerns about the adequacies of the existing facilities.

During this period the search for a site for a fourth major airport began in earnest, with the Port Authority of New York and New Jersey (then the Port of New York Authority), the operator of the three existing airports since 1946, proposing "the Great Swamp" site in southern Morris County. Ultimately, this site was rejected after much controversy as a coalition of local land-owners and environmentalists fought successfully to have much of the site converted to federal and state parkland.

Table 1
Domestic and Overseas Airline Passengers by Airport
1948–1990

Year	J.F. Kennedy	LaGuardia	Newark	Total
1948	62.2	2,709.2	800.5	3,571.9
1949	222.6	3,284.2	834.9	4,341.8
1950	394.3	3,631.3	1,055.4	5,081.0
1951	779.6	4,464.3	1,354.4	6,598.3
1952	2,346.7	4,207.0	269.8	6,823.5
1953	2,401.2	4,690.6	1,122.8	8,214.5
1954	2,929.8	4,843.5	1,459.1	9,232.3
1955	3,647.2	5,274.8	1,806.3	10,728.3
1956	4,475.5	5,330.8	2,168.6	11,974.9
1957	5,177.5	5,616.0	2,488.8	13,282.4
1958	5,884.8	5,031.7	2,511.0	13,427.5
1959	6,972.2	5,290.9	3,108.3	15,371.4
1960	8,803.7	4,227.8	2,935.6	15,967.0
1961	10,417.1	3,292.8	2,861.2	16,571.0
1962	11,510.4	3,057.5	3,107.6	17,675.5
1963	12,751.6	2,929.0	4,101.8	19,782.3
1964	14,615.9	3,737.3	4,511.1	22,864.3
1965	16,208.1	4,750.4	4,867.8	25,826.2
1966	17,086.2	6,274.0	5,144.0	28,504.2
1967	19,988.6	8,136.3	6,070.3	34,195.1
1968	19,573.6	10,482.0	6,716.6	36,772.2
1969	19,507.7	11,736.4	7,130.5	38,374.6
1970	19,096.7	11,845.1	6,460.5	37,402.3
1971	19,310.7	12,796.0	6,105.1	38,211.8
1972	20,725.7	14,234.7	6,752.4	41,712.8
1973	21,389.2	14,027.4	6,835.2	42,251.7
1974	20,216.4	13,703.0	6,415.9	40,335.3
1975	19,475.8	13,185.8	6,265.8	38,927.3
1976	21,033.0	14,088.8	6,752.7	41,874.5
1977	22,545.5	15,807.5	7,303.6	45,656.6
1978	24,860.8	17,095.0	7,469.5	49,425.2
1979	26,976.7	18,391.0	9,296.9	54,664.7
1980	26,796.1	17,468.0	9,223.3	53,487.3
1981	25,752.7	18,146.2	10,181.9	54,080.8
1982	26,452.5	18,516.9	12,092.4	57,061.8
1983	27,904.5	18,813.4	17,411.3	64,129.1
1984	29,934.8	20,302.5	23,654.2	73,891.5
1985	28,945.3	20,542.5	28,576.6	78,064.3
1986	27,192.9	22,188.9	29,433.0	78,814.8
1987	30,192.5	24,225.9	23,475.3	77,893.6
1988	31,165.7	24,158.8	22,495.6	77,820.0
1989	30,323.1	23,158.3	20,927.9	74,409.3
1990	29,786.7	22,753.8	22,255.0	74,795.5

Source: Port Authority of NY and NJ.

In the 1960s and the coming of the jet age, air passengers more than doubled, increasing from 16.0 million in 1960 to 38.2 million in 1969, and the search for an acceptable site continued. Locations as distant as eastern Long Island and southern New Jersey were considered, but none of more than 30 sites examined fit either the needed requirements of accessibility to the air passenger market, or minimal impact on existing airspace use.

In the early 1970s, the Metropolitan Transportation Authority mounted a serious proposal to make Stewart Air Force Base in Orange County the fourth airport. Two events during this period took the pressure off the search for another airport. The New York Region's economic decline reduced air passenger travel: from 1969 to 1975 there was no growth in air passenger volumes. The nation's first energy crisis of 1973-1974, with its higher fuel prices and lower fuel availability, coupled with static or declining demand and more seats on larger planes, forced the airlines to consolidate flights, thereby reducing runway demand. The impetus for Stewart stalled.

While the popular portrayal of the airport crisis of the from the late 1950s through to the early 1970s focussed on the growth in passenger volumes, the critical weak link in the airport system has always been the excess of peak hour demand for aircraft take-offs and landings over the ability of the airports' runways to handle them. In 1969, and again in 1973, Regional Plan Association highlighted this distinction in two reports, The Region's Airports, and The Region's Airports Revisited. These reports demonstrated that factors other than annual air passenger volumes were at work, and that one could not only tie the need for more airports to passenger growth, or that building additional airports was the only way to achieve the needed peak period capacity.

Among these factors were:

Aircraft size - larger aircraft could lower aircraft movements even with growing passenger traffic;

Peaking characteristics - by spreading the peak period over more hours in the day the peak hour demands would be eased;

High speed intercity rail - diversion of air passengers to rail for shorter trips of perhaps 300 miles of less could ease airport demands;

V/STOL, i.e. vertical or short take-off and landing aircraft - by using facilities located closer to air passengers origins and destination, these aircraft could also divert many air passengers from the existing airports;

Pricing out general aviation aircraft from peak periods - non-airline traffic, including corporate aircraft and pleasure aircraft, enjoyed landing fees related to their weight rather than to the burden they placed on the peak runway capacity. By imposing landing fees tied to the use of the runway capacity, i.e., charging more in peak periods, rather than according to the weight of the aircraft as is commonly done, lighter aircraft that carry few people would be coaxed from critical peak times. After initially objecting that approach and preventing Logan airport in Boston from doing so, the Federal Aviation Administration is now proposing such regulations nationwide; and,

Air navigational improvements - these improvements reduce the time required between aircraft movements.

The pressure to build another airport for the Region disappeared in the early 1970s, especially after the first energy crisis of the winter of 1973-1974. This event occurred in the midst of the New York Region's economic downturn which lasted from 1969 to the mid-1970s. From 1969 to 1975 air passenger traffic hovered in

the 38 million to 42 million range and only began to increase rapidly again after 1975; traffic doubled again between 1975 and 1986. However, the pressure to find the fourth airport did not resume, a result of a number of factors.

First, air passenger traffic projections never materialized to the extent forecast. The inaccuracy of such forecasts and their volatility are documented in the Appendix of this report.

Second, aircraft size had been growing appreciably with the advent of the Boeing 747 about 1970, followed by other wide-bodied aircraft such as the Lockheed 1011 and the Douglas DC-10. Table 2 traces the growth in airline movements and passenger per aircraft movement. Note the surge of the latter at both the time of the widespread introduction of jets in the early 1960s, and of wide body jets in the late 1970s. The ratio of passengers to aircraft movements is essentially the same today as it was in 1982.

Third, peak period slot allocations imposed by the Federal Aviation Administration to reduce air traffic congestion and delay, had the effect of spreading the peak.

Fourth, the increases in speed on the Northeast Corridor rail line, especially between New York and Washington diverted substantial numbers of air passengers. Amtrak now carries more people between those two cities than any of the airlines.

On the other hand, the potential for V/STOL has stalled in a three-cornered Catch 22; the aircraft were not perfected by the manufacturers without advance orders from the airlines, the airlines would not commit in advance to ordering an

Table 2
Passengers Per Aircraft Movement at Regional Airports
1948–1990

Year	Airline Passengers	Aircraft Movements	Airline Passengers Per Aircraft Movement
1948	3,571.9	260.1	13.7
1949	4,341.8	271.0	16.0
1950	5,081.0	264.9	19.2
1951	6,598.3	317.8	20.8
1952	6,823.5	318.0	21.5
1953	8,214.5	367.7	22.3
1954	9,232.3	999.9	9.2
1955	10,728.3	452.1	23.7
1956	11,974.9	500.9	23.9
1957	13,282.4	552.1	24.1
1958	13,427.5	545.2	24.6
1959	15,371.4	604.4	25.4
1960	15,967.0	604.8	26.4
1961	16,571.0	597.1	27.8
1962	17,675.5	605.8	29.2
1963	19,782.3	635.4	31.1
1964	22,864.3	686.7	33.3
1965	25,826.2	764.1	33.8
1966	28,504.2	852.5	33.4
1967	34,195.1	939.4	36.4
1968	36,772.2	997.3	36.9
1969	38,374.6	947.9	40.5
1970	37,402.3	868.1	43.1
1971	38,211.8	846.4	45.1
1972	41,712.8	859.5	48.5
1973	42,251.7	872.5	48.4
1974	40,335.3	767.9	52.5
1975	38,927.3	766.1	50.8
1976	41,874.5	791.2	52.9
1977	45,656.6	821.6	55.6
1978	49,425.2	863.5	57.2
1979	54,664.7	849.0	64.4
1980	53,487.3	821.9	65.1
1981	54,080.8	793.5	68.2
1982	57,061.8	880.8	64.8
1983	64,129.1	896.7	71.5
1984	73,891.5	995.0	74.3
1985	78,064.3	1013.9	77.0
1986	78,814.8	1030.1	76.5
1987	77,893.6	1009.9	77.1
1988	77,820.0	1036.9	75.1
1989	74,409.3	1019.2	73.0
1990	74,795.5	1039.4	72.0

Source: Port Authority of NY and NJ.
Note: Air Passengers and Aircraft Movements in thousands.

unproven technology without places set aside to land, and no places were set aside to land without proof that the aircraft was perfected, and that the airlines were prepared to operate them.

Fifth, general aviation has been effectively priced out of the peak period as a result of increases imposed by the Port Authority, as recommended by the two RPA reports.

Sixth, some air navigational improvements have increased runway capacity.

Seventh, the growth in air passenger traffic occurred disproportionately at less crowded Newark Airport, a result of the steeply discounted fare policies of People Express. From 1981 to 1986 Newark's traffic grew incredibly from 10.2 million to 29.4 million, and Newark became the busiest airport in the Region, with over 37 percent of the traffic. By 1990, Newark's share dropped back down to 30 percent of the Region's traffic with the demise of People Express, but still considerably higher than the 15 to 20 percent share it held throughout the 1960s and 1970s.

Now, interest in a fourth airport has been revived for a variety of reasons. The changes in air travel that have forestalled the need for more runways have, for the most part occurred, leaving diminishing return from such measures as peak spreading and pricing out general aviation. Passenger loads per aircraft movement are no longer growing as airlines have adopted the hub and spoke concept, which tends to lower the pressure, at least temporarily, for larger and larger aircraft, keeping passengers per aircraft movement from increasing rapidly. Significant further improvements in rail speeds, with the possible exception of the New York to Boston corridor, are not likely in the near term.

The continued dispersal of population and employment to the outer reaches of the New York Region has made the three existing airports less desirably located for some, raising the question as to whether an airport closer to the Region's fringe might not fill a major need. Indeed, McArthur-Islip and Westchester County Airports have served that purpose from many years. McArthur-Islip provides direct non-stop airline service to 11 cities and served 1.2 million air passengers in 1990. Westchester provides direct non-stop service to eight cities and served 400,000 air passengers in 1990. Each of these airports is restricted by its size from expanding significantly. In the case of Westchester Airport, local opposition to increased traffic has resulted in a limit of no more than 240 passengers per half hour, effectively ensuring its uselessness as a major airline airport.

In 1989 airline operations began at Stewart Airport in Orange County with one airline. Five airlines now provide direct service to six cities, with 1990 traffic at 400,000 and growing rapidly. Unlike the other fringe airports, Stewart has substantial room to expand, once again raising the possibility of it assuming the role of the fourth major airport in the Region.

Meanwhile, discussions have begun regarding the use of Calverton Air Force Base on eastern Long Island as a freight airport.

In Tables 3.1 and 3.2 the population and employment growth of the Region is shown by sector for the 1950 to 1970 and the 1970 to 1990 periods, and as projected to 2010. In the 1950 to 1970 period the highest growth sector was Long Island with an increase of 170 percent. The Mid-Hudson grew by a substantial 57 percent, with Putnam and Rockland counties growing about as fast as Long Island. In the last 20-year period Long Island virtually stopped growing.

Table 3.1
Regional Population Growth
1950–2010, in thousands

Region	1950	1970	*Pct Change 1950–1970*	1990	*Pct Change 1970–1990*	2010*	*Pct Change 1990–2010*
New York City	7,892.0	7,895.6	0.05	7,322.6	-7.26	7,772.6	6.15
Long Island	948.9	2,555.9	169.35	2,609.2	2.09	2,861.4	9.67
Connecticut (1)	1,149.0	1,681.8	46.37	1,805.9	7.38	1,957.0	8.37
New Jersey (2)	3,999.2	5,802.7	45.10	6,079.5	4.77	6,846.0	12.61
Mid–Hudson	1,157.8	1,818.8	57.09	2,025.9	11.39	2,335.0	15.26
Dutchess	136.8	222.3	62.50	259.5	16.73	319.1	22.97
Orange	152.3	221.7	45.57	307.6	38.75	379.8	23.47
Putnam	20.3	56.7	179.31	83.9	47.97	111.1	32.42
Rockland	89.3	229.9	157.45	265.5	15.48	318.4	19.92
Sullivan	40.7	52.6	29.24	69.2	31.56	94.0	35.84
Ulster	92.6	141.2	52.48	165.3	17.07	201.9	22.14
Westchester	625.8	894.4	42.92	874.9	-2.18	910.7	4.09
TOTAL	15,146.9	19,754.8	30.42	19,843.1	0.45	21,772.0	9.72

Table 3.2
Regional Employment Growth
1950–2010, in thousands

New York City	4,030.0	4,226.6	4.88	4,177.4	-1.16	4,671.9	11.84
Long Island	282.7	874.4	209.30	1,456.4	66.56	1,712.4	17.58
Connecticut (1)	511.6	749.9	46.58	1,095.3	46.06	1,303.5	19.01
New Jersey (2)	1,745.1	2,539.7	45.53	3,569.7	40.56	4,337.5	21.51
Mid–Hudson	440.3	725.6	64.80	1,088.5	50.01	1,361.6	25.09
Dutchess	65.7	95.1	44.75	145.4	52.89	180.8	24.35
Orange	61.5	88.0	43.09	141.6	60.91	190.0	34.18
Putnam	3.7	11.9	221.62	26.7	124.37	38.4	43.82
Rockland	31.5	76.6	143.17	131.6	71.80	171.2	30.09
Sullivan	18.8	24.8	31.91	37.6	51.61	50.8	35.11
Ulster	37.0	51.3	38.65	79.7	55.36	105.8	32.75
Westchester	222.1	377.9	70.15	525.9	39.16	624.6	18.77
TOTAL	7,009.7	9,116.2	30.05	11,387.3	24.91	13,386.9	17.56

Source: Regional Plan Association projections
Notes: * – Projection
(1) Includes Fairfield, Litchfield and New Haven Counties
(2) Includes Bergen, Essex, Hudson, Hunterdon, Mercer, Middlesex, Monmouth, Morris, Ocean, Passaic, Somerset, Sussex, Union, and Warren Counties

Meanwhile, Mid-Hudson sector growth has been the fastest in the Region, at 11 percent, with the growth in the more northerly counties of Orange, Putnam, and in Sullivan County outside the NYMTC Region, the most pronounced. Projections suggest a continuation of this trend with Mid-Hudson population projected to increase by 15 percent in the next twenty years, twice the rate of the rest of the Region.

Employment growth parallels these trends and projections. In the two twenty year periods, the Region's jobs grew by 30 and 25 percent, respectively, while the Mid-Hudson sector grew by 65 and 50 percent. Projections continue to indicate faster growth for the Mid-Hudson sector.

As a rough measure of the increasing potential for Stewart Airport, Table 4 indicates the airport used by air passengers originating in each of the counties in the Region. The table also ranks the travel time from each county to the three airports plus Stewart as a rough measure of the relative attractiveness of Stewart. In 1985 counties containing only 3.9 percent of the Region's air passenger market were closer to Stewart than to the other airports.

This small share of the market could grow with increasing traffic congestion to the core airports, while Stewart's location near the intersection of the New York Thruway and Interstate 84 continues to provide fast, uncongested access. Excellent truck access is similarly available and could play an increasingly major role in distributing air cargo in the Region.

In contrast, highway access to the three existing airports, especially LaGuardia and Kennedy, are subject to significant congestion delays, especially on the Van

Table 4
Average Daily Trips to Regional Airports
By County of Origin

	Total Trips To:				*Closest by Auto:*				
Origin County	LaGuardia	JFK	Newark	Totals	LGA	JFK	NIA	SIA	
Midtown	6,792	4,054	2,177	13,023	1	2	3	4	
Valley	1,171	904	626	2,701	1	2	3	4	
Downtown	970	541	452	1,963	1	2	3	4	
Other Manh	2,815	2,049	1,135	5,999	1	2	3	4	
Bronx	514	785	331	1,630	2	1	3	4	
Kings	963	1,989	784	3,736	2	1	3	4	
Queens	2,336	3,061	471	5,868	1	1	3	4	
Richmond	50	249	450	749	3	2	1	4	
Nassau	2,293	2,736	351	5,380	2	1	3	4	
Suffolk	969	1,213	206	2,388	2	1	3	4	
Westchester	2,067	1,652	622	4,341	1	2	3	4	*
Putnam	47	65	40	152	2	3	4	1	
Dutchess	196	197	124	517	2	3	4	1	
Orange	105	65	248	418	2	4	2	1	
Rockland	233	209	418	860	1	4	2	2	*
Bergen	511	693	2,718	3,922	2	3	1	4	
Essex	132	479	2,456	3,067	2	3	1	4	
Hudson	60	214	835	1,109	2	3	1	4	
Hunterdon	4	43	392	439	2	3	1	4	
Mercer	27	109	722	858	3	2	1	4	
Middlesex	31	276	1,863	2,170	3	2	1	4	
Monmouth	20	219	1,568	1,807	3	2	1	4	
Morris	79	251	2,486	2,816	2	3	1	4	**
Passaic	61	222	829	1,112	2	3	1	4	**
Somerset	16	90	900	1,006	3	2	1	4	
Sussex	14	18	254	286	2	3	1	4	**
Union	49	191	1,953	2,193	3	2	1	4	
Warren	0	0	168	168	3	2	1	4	
Fairfield	2,380	1,500	524	4,404	1	3	4	2	*
New Haven	320	653	176	1,149	1	3	3	1	
Litchfield	65	52	16	133	2	3	4	1	
Middlesex CT	22	52	7	81	2	3	4	1	
Hartford	69	347	116	532	2	3	4	1	
TOTAL	25,381	25,178	26,418	76,977					

	Percent Closest to Stewart (1's)	3.9%
*	Maximum "Congestion" Diversion to Stewart	12.5%
**	Potential for Diversion from Improved Access with I-287	5.5%

Source: Port Authority of NY and NJ, "1985 Airport Access Survey"

Wyck Expressway leading to Kennedy Airport. It can be expected that without substantial new highway capacity, and in the absence of new transit services that could bypass highway congestion, the choice of the two Queens airports, and to Fairfield, Westchester, and Rockland counties are not the closest to Stewart now, but with increased road congestion in Queens, Stewart could become the airport of choice for increasing numbers of air travellers in those counties. These three counties now send 12.5 percent of the Region's airport passengers to the three airports. Finally, with the completion of Interstate 287 in northern New Jersey, another 5.5 percent of the Region's air passengers will be considerably closer to Stewart in time than they are today.

If Stewart captures most of the market now closer to it, and a sizeable share of Fairfield, Westchester and Rockland counties, plus some air passengers brought closer to Stewart with the completion of Interstate 287, it may reach upwards of 10 percent of the Region's air passenger traffic. Of course, the airlines serving Stewart, and perhaps some others would need to provide flights to more of the nation's destinations.

The Outlook

The evaluation of the need for added airports in the Region has historically been based on projections of air passenger travel. In the early heady years of aviation growth, it was quite natural to rely almost solely on these projections. without any consideration of what has now come to be known as transportation systems management and transportation demand management. The last twenty years or so has taught us that the reliance on this one factor is dangerous. This is so for two reasons. First, the projections are seldom accurate. Second, many other

factors determine if an airport is beyond capacity. Having been chastened by this history, what then should be said about the need for a fourth airport site in the New York Region?

Regarding air travel growth, it is unlikely that the growth rates of the last generation will be seen again. The growth in the late 1940s and 1950s occurred because the range of aircraft enlarged significantly. With the replacement of the DC-3, the mainstay of the airline fleet, it was no longer necessary for multiple stops to reach destinations more than 300 miles away. The growth of the 1960s was also fueled by improvements in fleet performance, this time the speed of jets. Air travel markets were created that never existed before as latent demand to reach far off destinations expanded rapidly. Additional demand came from shifts away from the ground modes of rail, bus, and auto. In the current more mature aviation market, with better aircraft performance no longer a factor, much of the growth in air travel will depend on the state of the economy. Thus, rates of growth are almost certain to be more modest in the absence of a quantum jump in aircraft speed.

Regarding the other factors that could reduce the need for more peak period runway capacity, many have now been tapped, at least partially. Aircraft are not carrying more passengers per movement because aircraft are not getting larger (at least for now), which means that the number of aircraft movements needed to accommodate growing traffic will grow at a rate closer to that of air passengers; the peak has already been spread out; general aviation aircraft in the peak have largely been priced out; high speed rail has captured sizable shares of the market (although some more may be possible eventually); V/STOL development has stalled; and Newark Airport's capacity has been more effectively used.

Whatever the changes that may be coming in the air travel market in this Region, they are almost certain to happen at a slower pace than in the last generation. Slow growth in air passengers and aircraft size, and the long lead time for high speed rail or maglev, make it possible to plan and build incrementally. This will allow Stewart Airport, to absorb whatever air travel growth that comes by as a natural consequence of the Mid-Hudson area's growth, combined with the increasing attractiveness as a preferred choice of air travellers, especially if the difficulty of reaching the Region's other airports continues to grow. This raises the next issue, airport access.

AIRPORT ACCESS

This section of the report turns to the issue of improved access to the three existing airports, and possibly to a fourth.

Many have argued that the absence of high quality transit to the Region's airports has been a serious handicap to the economic health of this Region. Moreover, the argument goes, that when access to our airports is compared to other "world" cities, this Region suffers by comparison. New York serves as a gateway for tourism from overseas, and the absence of first class access from our airports, particularly Kennedy, creates a decidedly poor first impression of the Region. Reaching our airports is time consuming, unreliable, inconvenient and lacking in the amenity air passengers value and expect. The absence of quality befitting a world class city is especially acute.

This Region is alone among world center cities in lacking rail access to our airports. Tokyo, London, and Paris, all world cities, each provide fast convenient rail transit to their airports; New York, attempting to hold its place in the international community, does not. In the United States rail access to airports exists or is committed to in Boston, Philadelphia, Cleveland, Chicago, Atlanta, Washington, and even in auto-addicted Los Angeles. In this Region, perhaps no other transportation project has caused more frustration among both the planners and the public than transit access to our two airports in Queens. In New York, proposals to extend the subway system to Kennedy and LaGuardia airports, to extend the commuter rail system to Kennedy, and to build a people-mover to connect the two airports with each other and to Jamaica Railroad Station, each have been proposed at various times. Similarly, access to Newark Airport has been the subject of a long series of studies. It is instructive to consider why, despite many access concepts nothing has been built to date.

Three reasons are offered here. Inaction has been the result of the absence of agreement as to the best configuration of new transit service to accomplish the objective of bringing people to the airports. Transportation agencies and planning professionals have not reached agreement on a preferred mode, routing or service for access to either airport, or who should operate the system.

Inaction stems from the absence of funding in light of other pressing transportation priorities. The possible use of an air passenger head tax to pay for off-airport access now exists and could be used for this purpose if the Federal Aviation Administration rules that the tax serves airport purposes.

Finally, there has been an absence as to responsibility for the implementation of the airport access project. The argument has been advanced that the Port Authority is the most logical agency, since it is responsible for the operation of the airports, but if the system that ultimately gets constructed is on the MTA's right-of-way and possibly operated by them, then an argument for their responsibility for planning and construction can be made. Much will depend on the mode selected (if it is a people-mover separated from MTA facilities then the Port Authority seems the most logical).

But what system is to be built? The history of proposals is a long one and no attempt will be made here to detail them. For further details the reader is referred to the references cited at the end of this report. Yet, it is instructive to have a sense of these proposals only to understand why they haven't achieved acceptance.

Among commuter rail options, access to Kennedy was first proposed from Penn Station and from Jamaica Station using the Atlantic branch of the LIRR. This proposal was abandoned because of community opposition, chiefly because of the need for aerial construction for a portion of the route. As a result an alternative using the abandoned Rockaway Beach Branch line with a new two mile extension into the airport was advanced. This proposal was also opposed by residents along the line. Ironically, much of the opposition came from an apartment house complex built alongside the right-of-way, whose parking lot was leased to them by the Transit Authority. This alternative would require a short tunnel under Forest Park to serve Jamaica Station, which also drew opposition.

Commuter rail service to LaGuardia has also been proposed with an extension from Sunnyside Yard, either directly to the airport or by rerouting the Port Washington Branch of the LIRR, and with connections from the Hell Gate Bridge to serve Metro North lines from the north. Neither the costs nor the potential markets for these options have been estimated. The LIRR is about to launch a study of strategic network options that can serve to shed light on these options for the railroad.

Subway options to both airports have been also been proposed. To Kennedy, the use of the Rockaway Beach Branch line has been revived as a subway option by the NYC Department of Transportation, using the 63rd Street tunnel, then through Sunnyside Yard, and eventually along the old Rockaway Beach right-of-way to Howard Beach, where an extension into the airport would be built. This proposal, like all the others to serve Kennedy airport, must address the matter of circulation on the airport. The multiple terminal destinations raises the dilemma as to the best way of carrying people to their destinations. A loop as an extension of the off-airport system will get people to their destinations without transferring, but may take an excessive time to do it. A hub and spokes concept could reduce the number of stops, but creates an additional transfer.

Subways options proposed for LaGuardia Airport involve either the use of the Queens Boulevard line, with service branching off at Sunnyside Yard along the Brooklyn-Queens Expressway, or the extension of the Astoria Line.

Recently, the use of an automated people-mover has also been suggested. One alignment under serious consideration by the Port Authority would connect Kennedy to Jamaica Station via the Van Wyck Expressway and then to LaGuardia

via the Grand Central Parkway. Transfer points at selected subway stations would be possible. The Borough President of Queens has adapted and extended this proposal to serve Flushing and to continue beyond LaGuardia westward to Sunnyside Yard and into the 63rd Street Tunnel using a light rail technology. The concept was also seen as a means to generate development along the corridor, but a study by the Urban Land Institute for the Port Authority apparently discovered limited potential. The impacts on parkland might be serious obstacle. Some have questioned whether the segment to LaGuardia would carry enough riders to warrant its construction. The absence of direct service to Manhattan is also seen as a deterrent to it use. Fairleigh Dickinson University study has proposed using a people-mover to connect Sunnyside Yard with LaGuardia Airport.

In the last two years, with the re-emergence of Stewart Airport as a possible fourth airport for the Region, the idea of accessing it by rail has also resurfaced. In the early 1970s when the MTA was promoting it to be the fourth airport, the idea of extending the commuter rail line now known as the Port Jervis Line (operated by NJ TRANSIT for the MTA), was discussed. More recently, as part of their study of options for extending rail service to west of the Hudson locations, Metro North as been examining the use of either the Port Jervis Line or the West Shore Line for passenger service to Stewart. These options, if instituted, would be a by-product of commuter service rather than the main objective. The MTA is seeking $5 million as part of its next five year capital program to continue studying these options.

There is no absence of ideas to serve the two airports. How does this Region decide which of these ideas among many has enough merit? The remainder of

this section addresses the questions that should be asked (and answered), the criteria to be considered, and the issues that must be addressed, if a decision of this magnitude is to be properly reached.

Evaluating Alternatives

The Market First among the evaluation criteria is the market -- who will use the system? the suburbs, the Manhattan Central Business District, the outer boroughs? Different systems serve these areas differently depending on how well they are integrated with the existing rail network--the LIRR and the city subway. It is important to examine how air passengers currently reach the airports, where in the region they start and end their trip, and for what purpose they are travelling.

As shown in Table 5, the overwhelming majority of air passengers use private transportation, either their own automobile, a rented car, a taxi, or a limousine. To Kennedy, 43 percent travel by private automobile, another 23 percent use taxis, and 21 percent use limousines. Nine percent use bus transit. To LaGuardia, the percentages are a little lower by private automobile, but much higher by taxi, leaving only 6 percent for transit. Newark has a higher proportion of people reaching it by private automobile than the other two airports do, yet more use buses too, 12 percent.

There is no direct access by rail to any of the three airports, although when the survey was conducted in 1985 the JFK Express was in operation, involving a semi-express subway trip to a bus transfer just outside of Kennedy Airport. Other rail transit traffic undoubtedly "buried" in the bus data includes transfers to bus

Table 5
Overall Modal Shares to Regional Airports
All Trip Types, in percent

Mode:	J.F. Kennedy	LaGuardia	Newark
Auto	42.7	30.9	60.7
Rental Car	3.7	5.5	9.0
Taxi	22.5	39.8	6.0
Limousine	21.1	17.4	12.2
Bus	8.8	6.0	11.7
Air	1.1	0.3	0.4
Total	100.0	100.0	100.0

Source: Port Authority of NY and NJ, "1985 Airport Access Survey."

Table 6.1
Overall Mode Share to Kennedy Airport
All trip types

Origin	Auto	Rent a Car	Taxi	Limo	Bus	Air	Total	Pct
Midtown	7.3	2.0	46.6	25.5	16.6	2.0	4,054	16.9
Valley	25.7	0.6	34.8	17.6	20.0	1.3	904	3.8
Downtown	8.3	0.0	47.5	22.2	16.3	5.7	541	2.3
Other Manh	27.9	2.9	36.6	17.2	13.6	1.9	2,049	8.5
Bronx	67.6	1.7	15.9	4.7	10.1	0.0	785	3.3
Kings	60.5	3.7	24.0	8.2	3.4	0.2	1,989	8.3
Queens	54.4	4.5	21.5	4.3	15.3	0.0	3,061	12.8
Long Island	64.2	2.9	12.3	20.5	0.2	0.0	3,948	16.5
Mid-Hudson	49.0	7.9	10.0	30.6	2.4	0.0	1,998	8.3
SW Conn.	33.4	8.5	0.4	55.4	1.5	0.9	1,517	6.3
Other CT	0.0	0.0	0.0	0.0	0.0	0.0	0	0.0
North Jersey	53.7	4.0	8.4	27.8	5.1	1.0	1,184	4.9
Core NJ	52.6	3.6	7.6	22.4	9.6	4.2	1,138	4.7
Outer NJ	56.5	5.2	4.7	28.4	5.2	0.0	729	3.0
Other NJ	0.0	0.0	0.0	0.0	0.0	0.0	0	0.0
Other	37.2	0.0	12.8	22.1	0.0	27.9	86	0.4
Total	42.7	3.7	22.5	21.1	8.8	1.1	23,983	100.0

Source: Port Authority of NY and NJ, "1985 Airport Access Survey"

Table 6.2
Overall Mode Share to LaGuardia Airport
All trip types

Origin	Auto	Rent a Car	Taxi	Limo	Bus	Air	Total	Pct
Midtown	5.7	1.3	69.8	13.7	9.5	0.1	6,792	27.3
Valley	9.8	0.0	64.5	13.3	12.4	0.0	1,171	4.7
Downtown	11.0	1.3	63.0	19.0	5.7	0.0	970	3.9
Other Manh	17.7	2.3	64.1	12.0	3.7	0.3	2,815	11.3
Bronx	56.8	2.5	26.7	12.1	1.9	0.0	514	2.1
Kings	46.2	3.8	37.8	10.6	1.6	0.0	963	3.9
Queens	44.3	3.8	34.1	5.4	12.4	0.0	2,336	9.4
Long Island	61.5	7.2	10.2	19.6	1.3	0.2	3,264	13.1
Mid-Hudson	50.9	11.0	7.9	24.8	5.3	0.0	2,466	9.9
SW Conn.	40.5	17.2	0.5	40.4	1.0	0.4	2,386	9.6
Other CT	0.0	4.0	0.0	0.0	0.0	0.0	4	0.0
North Jersey	51.4	9.6	14.1	20.4	2.1	2.4	666	2.7
Core NJ	54.6	17.9	12.0	8.9	6.5	0.0	291	1.2
Outer NJ	41.0	23.0	4.0	32.0	0.0	0.0	100	0.4
Other NJ	0.0	0.0	0.0	0.0	0.0	0.0	0	0.0
Other	37.6	10.3	9.4	23.1	0.0	19.7	117	0.5
Total	30.9	5.5	39.8	17.4	6.0	0.3	24,855	100.0

Table 6.3
Overall Mode Share to Newark Airport
All trip types

Origin	Auto	Rent a Car	Taxi	Limo	Bus	Air	Total	Pct
Midtown	16.1	4.6	17.6	14.1	47.5	0.0	2,177	8.3
Valley	16.8	0.5	10.9	12.9	58.9	0.0	626	2.4
Downtown	10.4	0.7	23.2	17.3	46.7	1.8	452	1.7
Other Manh	20.2	2.3	12.1	10.8	53.9	0.7	1,135	4.3
Bronx	58.3	0.0	31.1	0.0	10.6	0.0	331	1.3
Kings	62.0	3.6	7.1	5.4	21.9	0.0	784	3.0
Queens	56.3	5.3	4.2	0.6	33.5	0.0	471	1.8
Long Island	68.5	4.1	0.0	17.1	10.3	0.0	556	2.1
Mid-Hudson	72.1	15.3	2.9	5.3	3.6	0.8	1,331	5.1
SW Conn.	52.7	11.6	0.0	32.4	1.1	2.1	524	2.0
Other CT	0.0	0.0	0.0	0.0	0.0	0.0	0	0.0
North Jersey	70.7	11.0	3.2	14.1	1.0	0.0	6,282	24.0
Core NJ	73.2	8.9	6.4	7.0	4.2	0.4	5,693	21.8
Outer NJ	69.7	11.6	1.4	16.3	1.0	0.1	5,632	21.5
Other NJ	0.0	0.0	0.0	0.0	0.0	0.0	0	0.0
Other	37.4	11.1	3.5	15.8	6.4	25.7	171	0.7
Total	60.7	9.0	6.0	12.2	11.7	0.4	26,165	100.0

Source: Port Authority of NY and NJ, "1985 Airport Access Survey"

service at Newark Penn Station for trips to Newark Airport and from subway stations in Queens to reach LaGuardia by local bus.

The choice of travel mode is influenced by many factors. Origin or destination within the Region, purpose of trip, whether the traveller is a resident of the region, and size of group travelling together, and time of day and day of week of travel, all may have a bearing on what mode of travel is used to reach or leave the airport. Moreover, the choice is complicated for residents of the Region since they may have to decide on which mode is best for them for both the departure and arrival portions of their trip. They may be departing from home and coming back to go to their work site, for example. Or they may have a choice of using transit for the departure, but may be returning late at night when transit is unavailable. Thus, they may choose to use an automobile even if it is not the optimum choice for one direction, because it is the only choice for both directions.

Tables 6.1, 6.2, and 6.3 show the mode of travel to and from the airport by location in the Region for the three airports. To Kennedy Airport, automobile use generally falls in the 50 to 65 percent range for suburban locations but drops for Manhattan trips, where taxi trips are in the 35 to 45 percent range, and transit trips are in the 10 to 20 percent range. Transit use from the suburbs is largely insignificant from suburban areas, except from the core counties in New Jersey where it reaches almost 10 percent.

Manhattan trips to and from LaGuardia Airport are predominantly by taxi, reaching almost 70 percent, largely because the business trip predominates at that airport and the business traveler is more sensitive to time than to cost. Transit use rarely exceeds 10 percent, and then only slightly.

Newark Airport-based travel tends to have the higher shares by auto from suburban locations than the other airports do. However, transit predominates for travel to and from Manhattan, and is much higher than for the two Queens airports. This is in part a result of the absence of reasonably priced taxi service from Newark and the excellent bus service to both midtown and lower Manhattan from Newark Airport. Yet it is rather remarkable that the two New York City airports have such a low transit share. Put another way, if Newark Airport can have 50 percent of its Manhattan travellers use transit, why can't Kennedy and LaGuardia?

Notable in these series of tables is the high incidence of limousine use from Connecticut, where a well organized limousine program is in effect with designated park and ride areas. The somewhat linear nature of the settlement pattern in the I-95/Merritt Parkway corridor tends to work in favor of a limousine network that operates relatively efficiently. A recent experiment to provide similar service to Newark Airport from a park and ride lot along Route 17 in Ridgewood in Bergen County was unsuccessful.

Aside from location, the choice of mode is likely to be influenced by the purpose of the air trip. The business traveller is more likely to be reimbursed for travel expenses, which leads to less concern about trip cost. Yet, business travellers tend to have less luggage and probably find it easier to negotiate transit systems. The personal traveller is often in a family group, which raises the relative price of transit travel.

Table 7
Modal Shares to the Region's Airports – Daily Trips, 1985
By Trip Purpose and Location, in percent

Airport	Passenger	Trip Purpose	Origin	Auto	Rental Car	Taxi	Limo	Bus	Air	Total	*Total Number of Trips*
Kennedy	Resident	Business	*Manhattan*	19.1	0.9	40.6	22.7	11.6	5.1	100.0	1,365
			Non–Manhattan	44.2	4.2	16.7	31.2	2.1	1.6	100.0	2,993
		Personal	*Manhattan*	28.5	0.7	30.6	20.6	19.0	0.6	100.0	1,651
			Non–Manhattan	61.5	1.0	13.2	21.1	2.9	0.2	100.0	8,848
	Visitor	Business	*Manhattan*	6.8	1.7	53.9	23.1	11.8	2.5	100.0	2,484
			Non–Manhattan	33.0	25.1	12.8	16.2	10.4	2.5	100.0	1,265
		Personal	*Manhattan*	11.9	3.9	39.7	21.5	22.1	0.9	100.0	2,048
			Non–Manhattan	57.5	6.5	10.5	11.9	13.4	0.2	100.0	3,329
LaGuardia	Resident	Business	*Manhattan*	14.0	0.5	65.8	16.0	3.2	0.6	100.0	2,917
			Non–Manhattan	55.1	3.6	14.9	24.2	1.4	0.8	100.0	4,934
		Personal	*Manhattan*	16.1	0.4	54.3	17.3	11.9	0.0	100.0	1,414
			Non–Manhattan	56.5	2.0	18.2	20.6	2.6	0.2	100.0	3,906
	Visitor	Business	*Manhattan*	4.7	2.0	72.1	12.9	8.3	0.0	100.0	5,205
			Non–Manhattan	24.9	40.9	9.3	16.8	7.7	0.4	100.0	1,979
		Personal	*Manhattan*	10.2	1.8	66.4	9.9	11.6	0.0	100.0	2,212
			Non–Manhattan	51.0	6.4	15.4	17.4	9.7	0.0	100.0	2,288
Newark	Resident	Business	*Manhattan*	28.7	3.1	19.7	15.8	32.7	0.0	100.0	860
			Non–Manhattan	74.0	2.1	4.4	17.8	1.7	0.0	100.0	7,191
		Personal	*Manhattan*	17.5	0.0	10.3	9.7	62.5	0.0	100.0	1,061
			Non–Manhattan	78.7	1.6	3.9	11.8	3.4	0.6	100.0	7,664
	Visitor	Business	*Manhattan*	10.2	8.1	20.6	18.9	40.9	1.4	100.0	1,165
			Non–Manhattan	33.6	48.4	4.0	9.3	4.2	0.4	100.0	3,070
		Personal	*Manhattan*	13.8	0.9	13.4	10.0	61.8	0.0	100.0	1,304
			Non–Manhattan	28.7	0.5	14.0	4.0	52.8	0.0	100.0	593

Source: Port Authority of NY and NJ, "1985 Airport Access Survey"

Similarly, a resident of the Region is likely to be influenced by different factors than are visitors. For example, the resident is more likely to be familiar with the transit system in the Region, but also is more likely to have an automobile available or a have a relative or friend available to pick them up or drop them off, rather than having to rent one.

In an effort to gain some insight as to the importance of these factors, Table 7 is presented which simultaneously stratifies each of the three airports by trip type, i.e., personal or business travel, resident or visitor, by Manhattan or non-Manhattan trips and by access mode. The relative size of each of these categories is important. Table 7 shows for each airport the number of travellers in each of the four trip types, stratified by Manhattan and non-Manhattan trips.

Some 24,000 air passengers travel to Kennedy Airport on an average day. Less than one-third, or 7,500, are travelling to Manhattan. Of these, almost two-thirds are visitors, with the business/visitor category the larger category than the personal/visitor. The business/resident group is the smallest. This suggests that a transit system connecting Kennedy with Manhattan must have special appeal to out-of-towners. Good clear information that will not bewilder strangers is especially important. The 16,400 Kennedy travellers originating outside of Manhattan are dominated by the resident travelling for personal reasons. A network with wide coverage, low cost, and ease of baggage handling would be critical, if this group is to be wooed to public transit.

The LaGuardia Airport market is more Manhattan oriented than is Kennedy's. Just half of the 23,600 trips originated in Manhattan, and half of those are for business. Fares will be less critical as will accommodating baggage. Most in this

market will be travelling alone. Of the non-Manhattan market, almost half are resident business travellers. To capture them, good connections to the regional rail system would be helpful, since they are more likely to be familiar with it than the visitor.

Newark Airport provides the smallest Manhattan market by far. This market will provide lower ridership payoff than will the two other airports, especially given the high use of transit, mostly express bus services directly to the Port Authority Bus Terminal and to Lower Manhattan. The non-Manhattan market to Newark is large, however, with a strong majority being local residents widely dispersed.

The market for travelling between airports also needs to be assessed. The relative size of these markets may have fallen in recent years because of airline mergers, and because the three airports in the Region have taken on multiple functions. Many mergers have reduced the need for passengers to connect between domestic and international flights at separate local airports. Also, with Newark becoming a legitimate international airport, connecting from overseas to domestic flights there obviates many Kennedy-to-LaGuardia connections. The availability of direct flights from overseas to non-New York Region airports also diminishes this local connecting market. One of the options for airport access, the "people-mover", relies on serving this market for some of its appeal.

Often overlooked in considering airport access is the employee at the airport. Their numbers often exceed the air traveller. At Kennedy, the 50,000 employees, making 100,000 trips per day are double the number of air travellers. Shifting them to transit has achieved some urgency since employee parking has become an increasingly serious problem, since the space occupied can often be used for

"higher" economic purposes. These people tend to live closer to the airports. They have the potential to be regular customers for transit, unlike a separate set of potential riders among air passengers, who must "sold" every day on using transit. This group will need low cost transit, often at odd hours.

In sum, any serious evaluation of new transportation access to the three airports must consider the diverse markets wishing to reach them.

Benefits of Airport Access Aside from assessing how many people a particular access option will serve, at least as important is how much will it mean in benefits to those who do use it, and beyond that to those who do not and to the entire Region.

The traditional transportation planning measures of user benefits such as travel time, waiting time, fare or costs, frequency of service, and span of service, all should be included in any analysis. Some user criteria become of heightened importance for the air traveller. Numbers and ease of transfers, reliability, and ease of fare media, especially for international visitors, will need to weighted heavily in any evaluation.

What can be said of the generic access alternatives proposed regarding these measures. While much will depend on the specific system proposed, some generalizations are possible. Commuter rail is likely to be quicker than the subway, and has the potential to hook up with the regional rail network at either Penn Station, Grand Central Terminal, or Jamaica Railroad Station. The off airport "people-mover" might be automated, making it possible to provide more service at lower operating cost. The people mover might lend itself to joint development

as well. It may require more transferring for many potential riders. The subway will likely be more frequent and run over longer periods than commuter rail, but both provide extensive coverage in the Region. The subway will likely cost the least, although that may be a policy matter. But the quality of the subway ride is likely to be inferior to commuter rail or a new automated system, turning away potential riders. The negative reputation of the New York City subway system, especially to out-of-towners, must be addressed.

Costs and Financial Considerations Absent from many of the recent studies and reports have been estimates of the costs of construction of these alternatives. Any serious evaluation of these alternatives must include enough engineering to arrive at a reasonable estimate of the cost.

Operating costs must also be determined, matched against the revenue expected from the projected ridership, and a level of subsidy, if any, determined. Many valid ways exist to compare the financial performance of alternatives. No one indicator is sufficient for the necessary comparisons, suggesting the need to acquire enough information to compare alternatives in different ways.

Who pays for the operating subsidy may depend on who operates it. And who operates it will likely depend on what system is chosen.

The potential source of funding will be critical. New legislation makes it possible to impose a passenger head tax at airports, but the Federal Aviation Administration must rule on its use. In the past they have not looked too kindly at off airport access for federal funds, but the expectations are more positive. Their

acceptance may depend on how well the off-airport system serves on airport needs, affecting the choice of routings or technology.

Other sources, including funds from those who benefit from air travel such as the airlines, hotels, and tourism industries should be viewed as potential sources. The airlines, given their current financial state, are likely to resist. But, some options may prove more attractive to them, and consequently, result in a contribution. Private developers may also be a source of funding, particularly if development sites are made more attractive by the preferred option.

Other Considerations It may well be difficult to justify a new rail access line to an airport based on the volume of airport-bound riders alone. Any alternative that can provide transportation benefits other than airport access will have an advantage in any evaluation process, notwithstanding FAA concerns about applicability.

Many of the alternatives proposed use existing rights-of-way of operating rail lines and are integrated with existing services. Operating complexities may result, affecting the performance of the existing system. This may be a particular problem where current peak period operations are at or near capacity, and the imposition of new service may not be possible without a major negative impact on the existing services. Combined operations will require agreements among the parties on cost allocations and revenues. In addition, the merger of operations of two separate rail systems may result in labor objections. These issues should not be viewed as a reason to favor one alternative to another, but they do raise issues requiring careful attention.

How Do We Make A Choice?

Recently, Governor Mario Cuomo announced a series of actions he is supporting to assist the City of New York in its current fiscal difficulties. Among them was his support for the people-mover alternatives through Jamaica Station. Although this particular alternative may have merit, it also carries with it many unanswered questions that make it far from clear that it is the superior option, as measured by ridership, cost, or impacts. But the Governor's action can galvanize the Region to finally take action on the issue of airport access. It is proposed here that the Governor appoint a multi-agency commission, co-chaired by the Port Authority and the MTA, and including all other major transportation agencies affected, and representatives of affected parties, such as the airlines, hotel and tourism, environmental, civic, business, labor and community groups. This commission will establish a process for decision-making, including all relevant criteria, and be empowered to collect information, commission any additional studies necessary (beyond those being planned by Metro North and the LIRR) to assist in arriving at a decision, and to explore and recommend funding alternatives. They will be required to make a recommendation to the Governor on a preferred alternative in eighteen months.

Appendix

The History of Regional Air Passenger Forecasts

It is charitable, at best, to call the accuracy of air passenger traffic forecasts for the New York Region's three major airports spotty. From the late 1950s and extending into the early 1970s, first the Port Authority, then RPA, and then the MTA each overestimated air passenger traffic growth.

In Figure A-1 actual annual air passenger volumes for Kennedy, LaGuardia, and Newark airports combined are depicted for 1948 to 1990 along with the air passenger forecasts made by a variety forecasters over a number of years. Table A-1 provides this information in tabular form.

The first forecast by the Port Authority in 1957 was reasonably accurate, at least in the short term; the estimate for 1965 traffic was 1 1/2 million off, but the 1975 estimate was 5 million too high. In 1960, the Port Authority updated those estimates with only slight changes. However, by 1966 the 1970 estimate was 3 million too high and the 1975 estimate exceeding the eventual traffic by 15 million. Similarly, their estimates for 1980 were well off the mark, projecting 65 million, while only 53.5 million actually used the three airports. None of the Port Authority forecasts anticipated the levelling of, and even decline in air travel, of the 1969 to 1975 period.

In 1969 Regional Plan Association made its first forecast of air passenger traffic. RPA had the misfortune of making their forecast just before the bottom dropped out of the Region's economy, and consequently, the market for air travel. Its forecasts for 1975, 1980, 1985, and 1990 were far in excess of what eventually

occurred. In fact, the 1980 projection of 91 million has yet to materialize. In 1973, as part of its efforts to advance Stewart as the fourth airport, the MTA issued similarly high projections. By that time, RPA was toning down its projections somewhat, but still was much higher than the eventual volumes. By 1975, with the full "benefit" of the impact of the economic downturn in hand, the MTA issued much more modest growth forecasts to 1985 that turned out to be below the actual 1985 traffic. The Tri-State Regional Planning Commission forecasts of 1975 (not shown in Figure A-1), reacted similarly, projected still lower air traffic than did the MTA. The call for Stewart Airport as a fourth airport had been silenced for the time being.

Chastened by the inaccuracy of projections of air travel, the regional agencies have been wary in recent years. It is apparent that the heady days of double-digit growth is long past, with the maturity of the market (Figure A-2). In the 1950s and 1960s the latent demand for air travel was great as new markets were opened up with aircraft with more range and speed. Now the improvements in air travel are much more modest. Aircraft may be larger but do not perform any better from the customers perspective. Air travel growth is more closely tied to the state of the economy. Future projections can no longer be tied to extrapolating past relationships, but in recognizing future ones.

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