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COMMUTER AIRLINES AT BOSTON LOGAN INTERNATIONAL AIRPORT: 1973-1981

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DEPARTMENT OF AERONAUTICS & ASTRONAUTICS

FLIGHT TRANSPORTATION LABORATORY
Cambridge, Mass. 02139

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1. INTRODUCTION

The adequacy of air transportation in New England has been the subject of intermittent debate over the last ~~twenty years, cul~~minating in the Civil Aeronautics Board's 1970-1974 "New England Service Investigation" (Docket 22973). Spurred on by Senate hearings on the "Adequacy of Northern New England Air Service" (1971) in particular and by Senator Norris Cotton of New Hampshire in general, in 1974 the Board certificated Air New England as a local service carrier. It was the first certification of a commuter airline by the Board. The certification contradicted the advice of the Board's own Bureau of Operating Rights and the U.S. Department of Transportation and overturned the initial (1973) decision of Administrative Law Judge Greer M. Murphy, who held that existing commuter airlines could provide adequate service in New England without certification. A potentially successful commuter ("Air New England 1970-1974 ," MIT-FTL Report R75-9), millions of subsidy dollars later, Air New England is struggling financially and operationally and is now giving up many subsidized points to replacement commuter carriers.

Logan Airport, the major hub of New England, has one of the largest concentrations of commuter carriers in the U.S. During the last seven years, it has ranked in the top three. Some twenty commuters (including all cargo carriers) land at Logan, serving over fifty markets. However, of the passenger-carrying commuters, only four (including Air New England) have remained steady customers since 1973. The others are Command, Pilgrim, and Provincetown-Boston Airlines. This report is an attempt to analyze the pattern of commuter airlines operations at Logan. Since the events prior to 1973 are well documented, the emphasis is on the years 1973-1981. In Section 2, the theoretical background to analyze the commuter industry is provided. Section 3 gives the Boston market analysis. In Section 4, a brief description of the aircraft used by commuters is provided as well as a look ahead to the aircraft that will be available to the commuter industry in the 1980s. Finally, in Section 5 some recommendations are made to monitor the commuter activities at Logan airport.

2. DYNAMICS OF THE COMMUTER AIRLINE INDUSTRY

To intelligently choose an aircraft for a market requires an understanding of its performance, its operating cost, and the routes it will be expected to cover. All these items should enter into determining the supply of air service. Demand is a function of the total number of people in the markets, the price of the service, the quality of the service, and other factors such as distance between markets, alternative modes, and geographic barriers. In selecting an aircraft, then, an operator must consider both supply (cost) and demand (revenue).

Theoretically, an aircraft can trade off payload and fuel, carrying a large payload a short distance or a small payload a long distance. Actually, this trade-off is restricted by volume limitation on both fuel and seat capacity. This is sketched in Figure 1, a typical payload-range diagram. The aircraft can operate in any combinations of the payloads and ranges in the area bounded by points A-B-C-D. Point B is the longest distance the aircraft can fly (subject to the usual restrictions on alternate points, holding, etc.) with a full payload; point C is the maximum range the aircraft can cover with a reduced payload. Ceteris paribus, the longer the range of maximum payload, the more useful the aircraft; not only can it cover an absolutely longer distance, but it will also be able to make more stops without refueling, particularly important in short-haul markets.

Although it is physically feasible for the aircraft to fly at any of these payload-range combinations, a certain minimum payload is required to cover the cost of the operation. This minimum is a function of both the revenues received and the costs incurred. As revenues are usually computed on a mileage basis and costs per unit tend to decrease with distance, the breakeven load gets higher as the length of haul gets shorter. This phenomenon is shown in Figure 2. When

Figure 1

Typical Payload - Range Diagram

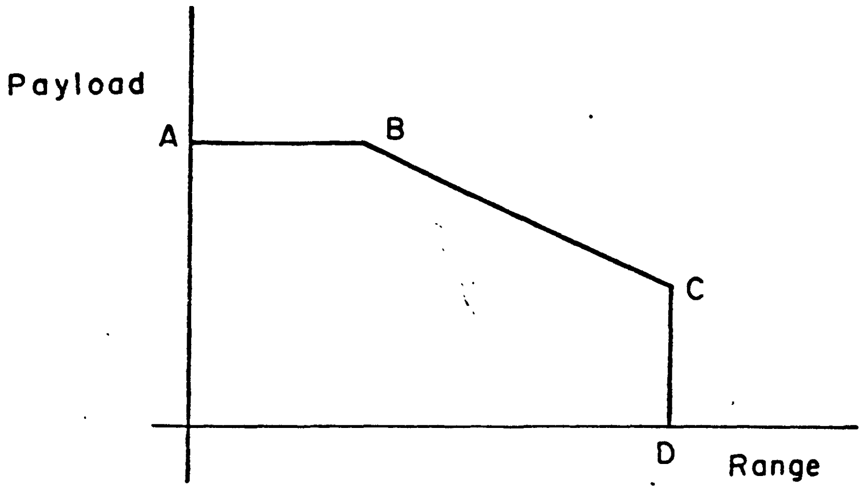
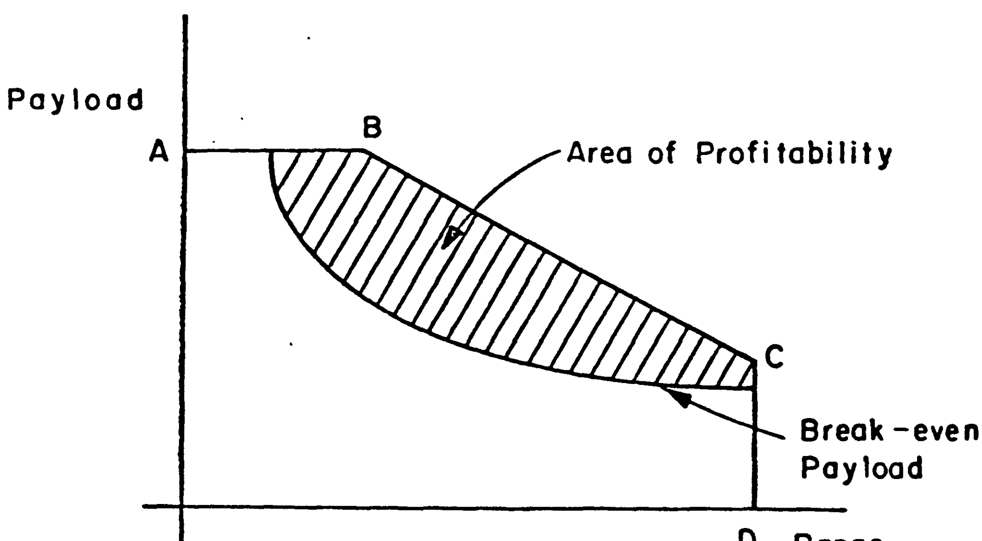


Figure 2

Area of Profitability



combined with the maximum payload-range capability of the aircraft, it can be seen that the aircraft can operate profitably anywhere in the shaded area.

Both the payload and the range generally increase with increasing aircraft size, and thus different areas of profitability exist for different aircraft. Given payload P_1 and range R_1, in Figure 3, both the large and the medium range aircraft could make a profit, while the small aircraft could not meet the mission requirements. Alternatively, while all aircraft can meet the mission specification of P_2 and R_2, only the small aircraft can do so at a profit. Thus, with a fixed revenue structure and fixed costs, below certain short ranges none of the aircraft can be operated profitably even at full payloads; below certain small payloads no aircraft can be operated at a profit, regardless how far this payload is carried. This lower boundary can be decreased to include more range-payload combinations (which can be carried at a profit) by increasing ticket prices or by lowering costs. This explains, partially, why commuter carriers with their lower cost structure can serve markets that are unprofitable for local service carriers. However, there will always remain some short-haul segments, when used by a very small number of people, which can never be self-supporting under a reasonable pricing schedule.

The demand for air service is determined by various factors. Overall market size is one. Alternative means of transportation is another. Each mode will be used by certain people depending on the relative price and service attributes. Generally, the overall demand for any mode, given alternative means of transportation, varies with price (price elastic). Similarly, demand will generally increase as total trip time (access and egress time, plus average waiting time, plus actual travel time) decreases (time elastic). Thus, trip time can be reduced by improving access facilities, increasing the speed of the vehicle performing the trip, or by offering more frequent service to reduce the waiting time.

Figure 3

Profitability for Various Aircraft Sizes

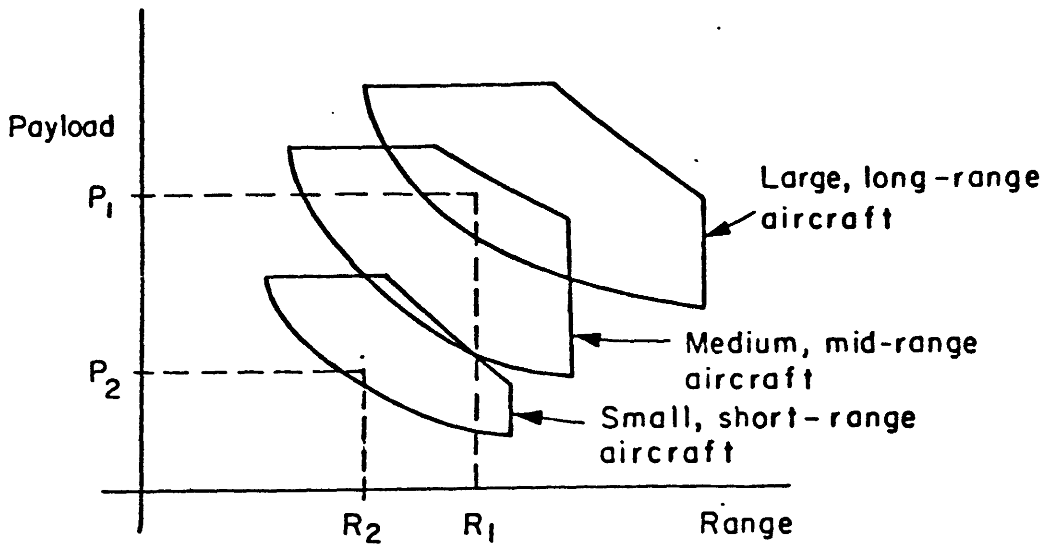
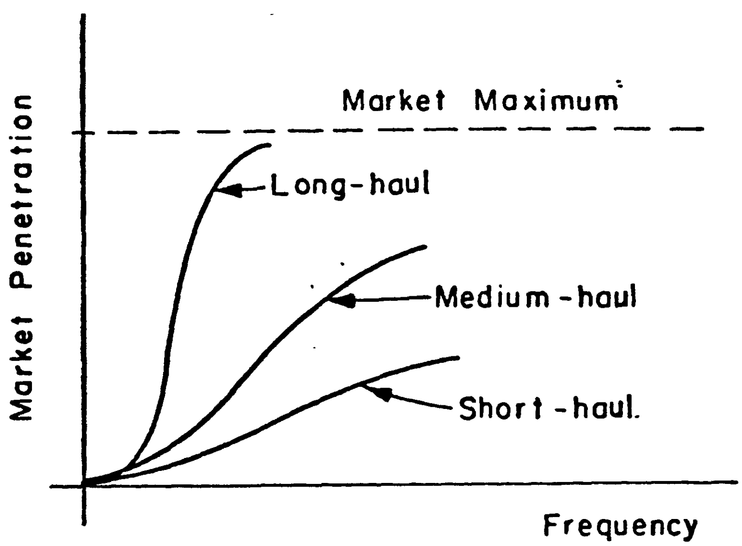
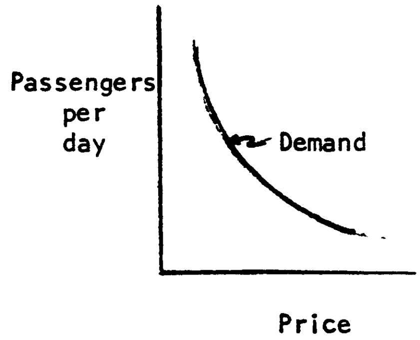
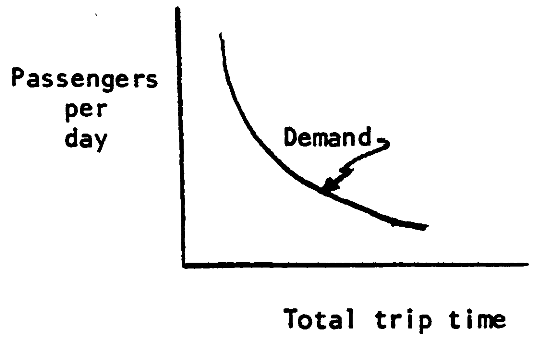


Figure 4

Market Penetration as a Function of Distance

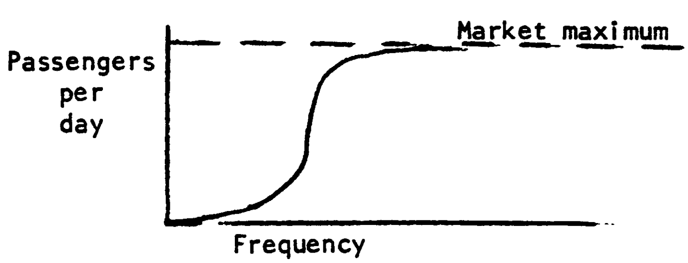






The typical demand-frequency relationship is S-shaped, as sketched below. Generally, low frequency implies inadequate service, and on the lower end of the curve traffic does not respond to small increases in service, since it is still poor. In the mid-portion, demand climbs rapidly as better and better service appears. Finally, near the top, frequency increases mean little, since service is already more than adequate. These effects vary with passenger trip distance, since waiting time (which is the only variable affected by frequency) generally makes up a shorter portion of the total trip time as the distance increases and alternatives to flying are less attractive. Thus, a few trips a day will normally saturate a long-haul market. Conversely, for short-haul travel, where the automobile is the principal alternative, much more frequency is required to attract passengers, as shown in Figure 4.

For a fixed trip distance, a given frequency will have the same overall percent penetration, regardless of market size. But clearly many more passengers will be attracted in a high-density market than a low-density market.



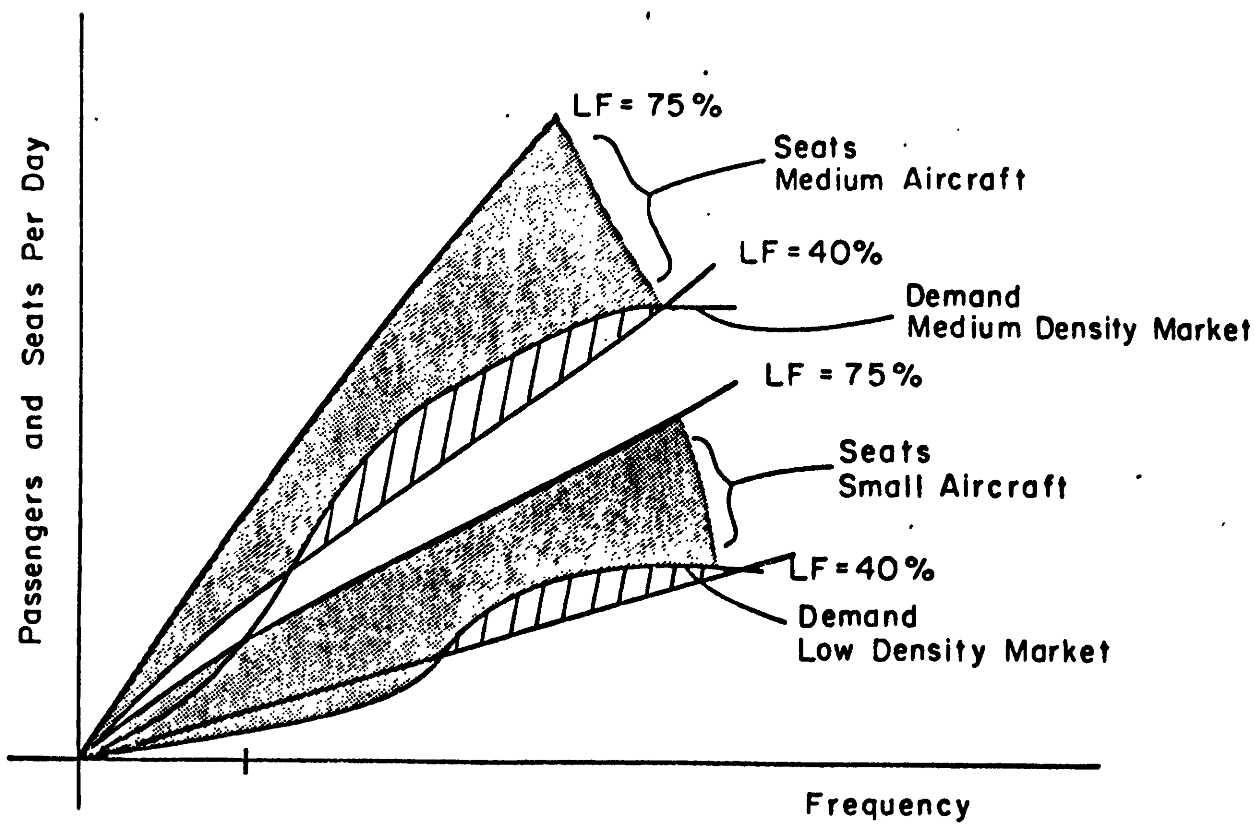
Given an estimate of the potential demand in a market and knowing the specifications and costs of aircraft, an operator must then choose the appropriate size aircraft and the correct schedule to serve that market. A small aircraft must obviously have a higher frequency than a large aircraft to supply the same number of seats. Having determined the breakeven load factor of the aircraft (given revenues and costs), the operator can then compute the payload (passengers per day) he has to carry to be in the aircraft's area of profitability. The number of seats per day that an operator can provide to a market, as a function of frequency, is shown in Figure 5 for both a medium and a small aircraft. Assuming a breakeven load factor of 40%, and further assuming that at an overall load factor of 75% people will be turned away during peak periods, the operator should attempt to match the number of seats within the shaded area to the expected demand.

The cross-hatched area represents the proper mix of aircraft, frequency, and demand where it is profitable to operate. A high frequency use of a medium sized aircraft generates more seats than demand exists in a low density market, whereas the high frequency of a small aircraft attracts more passengers than the supply of seats the small aircraft can provide in the medium density market (assuming the same distance for both markets).

Traditionally, in lower density markets local service airlines decreased service to lower costs, while sometimes increasing ticket prices. Both actions decreased demand, leading to further service reductions until the point was no longer served. The commuter industry, by using smaller aircraft to lower costs (to lower the breakeven load factor, sometimes for the same purpose increasing fares), and by increasing frequency to stimulate demand, has shown many hitherto unprofitable markets to be economically viable. The key is to match aircraft size, schedules, and fares to market distance and density.

Figure 5

Supply and Demand of Seats



3. MARKET ANALYSIS

The short-haul nature of the commuter business is demonstrated in Figure 6 which shows the majority of the airports served by commuters from Boston at some time during the past eight years. With very few exceptions (for example, Bangor and Presque Isle, Maine; and Princeton, New Jersey), these points lie within a 200-mile radius of Boston. In a 1976 study ("The Impact of Commuter Airlines in Short-Haul Major Hub Markets"), the Board found that 97% of the Boston commuter O&D passengers traveled less than 200 miles, about evenly divided between those whose trips were 0-100 miles (148,000) and those who traveled 101-200 miles (146,000).

For this analysis, all markets were considered which received direct service to Boston by commuters with two exceptions.*

(1) Markets which never received at least five frequencies per week: Block Island, Rhode Island; Fishers Island, New York; and Montauk Point, New York.

(2) Markets which received infrequent commuter service but which had good certificated service; i.e., points which had little potential for commuter growth: Montreal, Baltimore, New York City, Philadelphia, Syracuse, and Washington.

Thus, a total of 60 markets were considered. The markets were analyzed as the type of carrier (certificated/commuter), frequency, service (number of stops), and type of aircraft. The markets were considered both in the summer and the winter seasons. The February

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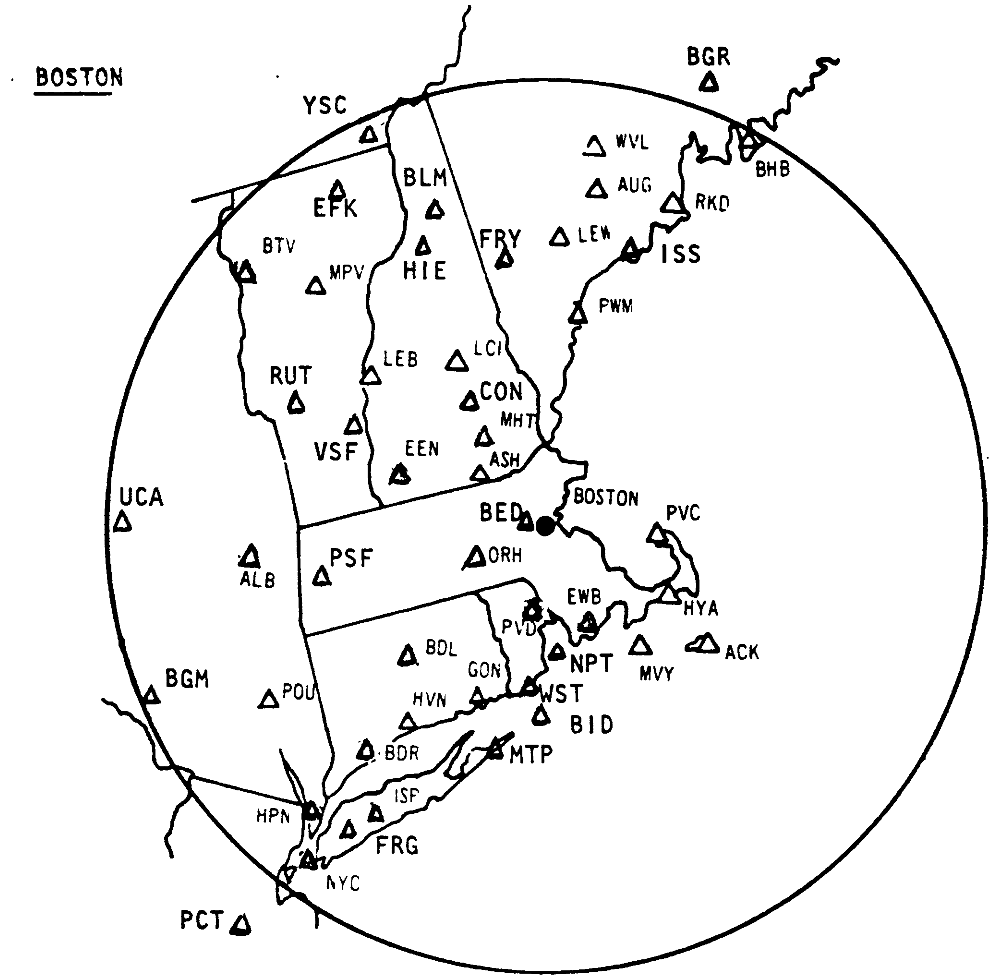
*Commuters include Air New England as well as all recently certificated former commuters (Air North, Empire, etc.).

Figure 6



CODE	POINT	CODE	POINT	CODE	POINT
ACK	Nantucket, MA	FRG	Farmingdale, NY	NYC	New York City, NY
ALB	Albany, NY	FRY	Fryeburg, ME	ORH	Worcester, MA
ASH	Nashua, NH	GON	New London, CT	PCT	Princeton, NJ
AUG	Augusta, ME	HPN	White Plains, NY	POU	Poughkeepsie, NY
BDL	Hartford, CT	HVN	New Haven, CT	PSF	Pittsfield, MA
BDR	Bridgeport, CT	HYA	Hyannis, MA	PVC	Provincetown, MA
BED	Bedford, MA	ISP	Islip, NY	PVD	Providence, RI
BGR	Bangor, ME	ISS	Wiscasset, ME	PWM	Portland, ME
BHB	Bar Harbor, ME	LCI	Laconia, NH	RKD	Rockland, ME
BID	Block Island, RI	LEB	Lebanon, NH	RVT	Rutland, VT
BLM	Berlin, NH	LEW	Lewiston, ME	UCA	Utica, NY
BTV	Burlington, VT	MHT	Manchester, NH	VSF	Springfield, VT
CON	Concord, NH	MPV	Montpelier, VT	WST	Westerly, RI
EEN	Keene, NH	MTP	Montauk, NY	WVL	Waterville, ME
EFK	Newport, VT	MVY	Martha's Vineyard, MA	YSC	Sherbrooke, Que
EWB	New Bedford, MA	NPT	Newport, RI	HIE	Whitefield, NH

and August Official Airline Guides were the source of the data. Appendices 1-4 present the data.

First an overall look at the markets to determine the changes in service that have taken place over the last seven years was taken. The results are summarized in Exhibit 1, showing the shift in service from the summer of 1973 to the summer of 1980. The exhibit shows the strong trend toward commuter service. Thus, of nine markets that had only certificated service in 1973, only two have retained certificated service. Four markets which had service in 1973 have lost it altogether, while eleven new markets have been created. In the meantime, fourteen markets have been tried and found wanting in the interim. Exhibit 2 shows these changes by city name. Although each market has its own characteristics, the routes abandoned are assumed not to have generated enough demand to warrant continued service. It is possible that other management decisions (aircraft size and scheduling, as discussed in Section 3) helped bring about the demise of these markets.

It is reasonable to assume that most of the cities that are likely to receive commuter service to Boston in the future appear in Appendix I; i.e., they are points that have had service in the past. (Possible exceptions are some cities in central and western Massachusetts, such as greater Springfield (via Westover Air Force Base, when available), Gardner, and Orange.) The replacement of certificated carriers by commuters is also largely over. The routes that the certificated carriers now fly are profitable and are not likely to be abandoned (with the exception of Providence).

Fifty-six markets were served by commuters in the summer of 1980, of which fifteen were served by all-cargo carriers. As shown in Exhibit 3,

EXHIBIT 1

SUMMARY OF CHANGE IN SERVICE: 1973 to 1980

Change from Summer 1973 \ to Summer 1980	Certificated Only	Certificated and Commuter	Commuter Only	No Service
Certificated only (9)	1	1	6	1
Certificated and Commuter (7)		4	2	1
Commuters only (19)			17	2
No service (25)			11	14

EXHIBIT 2

CHANGE IN SERVICE BY CITIES: 1973 TO 1980

Retaining Certificated Service

Providence

Certificated to Certificated and Commuters

Albany

Certificated to Commuters

Islip, Manchester, Utica, White Plains, Worcester, Binghampton

Certificated to No Service

Elmira

Retain Both Certificated and Commuter Service

Bangor, Burlington, Hartford, Portland

Certificated and Commuter to Commuter Only

Keene, Presque Isle

Certificated and Commuter to No Service

New Bedford

Retain Commuter Service

Augusta, Bar Harbor, Bridgeport, Hyannis, Laconia, Lebanon, Lewiston, Martha's Vineyard, Montpelier, Nantucket, New Haven, New London, Poughkeepsie, Provincetown, Quebec, Rockland, Waterville

Commuter to No Service

Berlin, Whitefield

No Service to Commuter

Atlantic City, Concord, East Hampton, Farmingdale, Ithaca, Nashua, Princeton, Rochester, Rutland, Sherbrooke, Springfield

Interim Service (Commuters Tried)

Asbury Park, Bedford, Chicopee, Fryeburg, Glen's Falls, Lawrence, Morristown, Newport (VT), Newport (RI), Pittsfield, Plymouth, Teterboro, Trenton, Wiscasset

EXHIBIT 3

EVOLUTION OF COMMUTER MARKETS AT LOGAN

Year	Number of Markets	Number of Commuters
1972	35	12
1973	40	14
1974	52	15
1975*	40*	16
1976	43	18
1977	46	20
1978	64	20
1979	57	20
1980	56	20

*Decrease in 1975 caused largely by certification of Air New England.

Source: CAB, "Commuter Air Carrier Traffic Statistics," various years.

in 1973, fourteen commuters served forty markets. The markets peaked in 1978 at 64, while the number of commuters has remained steady at twenty since then. These twenty, however, are not the same twenty; only twelve are. Just as in the markets served, then, there is substantial turnover in the commuter airlines. A detailed market analysis follows. (Appendix 4 contains the detailed summer and winter schedules in order of markets discussed as shown in Exhibit 2. Appendix 5 shows selected data for the 10 largest markets.)

At Providence, when Eastern reduced its slights from four poorly timed per day (1973) to none (1975), some five commuters have attempted to provide service, culminating in the summer of 1979 with three commuters on the route. However, none apparently made money and Eastern is once again alone with its tag end flights at night. It is quite possible that Eastern will abandon this route. There has never really been a Boston-Providence air market; competition from the trains and automobiles and buses using the Interstates has appeared too strong to overcome, although new commuters may attempt this market once again, especially with high frequency to provide connecting service.

At Albany, various commuters have attempted to provide supplementary service to Allegheny (US Air) flights. Unless US Air increases its frequencies, Albany will remain an attractive city for commuters and possibly other newly certificated carriers such as People Express and New York Air.

Binghampton has gone from a certificated carrier to a commuter by default; with three well-timed flights per day, Commuter Airlines is satisfying the O-D business travel between the two citites. If demand gains, a larger airplane will be used rather than increased frequency of the current small aircraft.

Following deregulation, Allegheny gave up Islip to Ransome Airlines (an Allegheny commuter), which quickly drove out Pilgrim from the route by providing high frequency (8) service with a larger aircraft (Nord 262 vs. the Twin Otter). Ransome will probably remain the only commuter on the route, unless it cuts back on its frequency considerably.

At Manchester, following Delta's withdrawal, Precision has initiated a very high frequency (14) service to provide connections in Boston. Unless traffic falls off substantially, this appears to be the optimum service pattern.

Utica lost all service after the summer of 1973 when Allegheny pulled out. Empire has attempted to fill the void for the business traveller since 1976 with three well-timed flights, but is currently pulling back. Another commuter will likely step in if Empire deletes this route.

After Allegheny pulled out in 1975 from White Plains, Command competed with two other commuters. By using its best equipment on the route (Short 330), Command alone has survived and will probably remain unchallenged.

Due to its proximity to Boston, from 1973 to 1979 Worcester had never had even passable service; however, since then, Precision has been attempting to provide high frequency connecting service. Frequencies have increased every year and will remain high unless the market fails altogether.

Elmira, New York, is simply too far for a commuter to reach non-stop and even when Allegheny flew the route, it was a one-stop. No service exists now, but a new commuter may be tempted to try this route, especially when the new generation, faster aircraft come along.

Bangor, Burlington, Hartford, and Portland are all well established markets for both certificated and commuter airlines and are likely to retain their current service patterns, with possibly some increase in frequencies by commuters if demand increases, followed by a change to new, larger commuter aircraft.

Keene received mixed service by a variety of commuters after Allegheny ceased service in 1974. Currently, it has its best service ever--four Twin Otter flights as the last stop of the Rutland-Springfield (Vermont)-Keene route by Precision. Since southern New Hampshire is growing rapidly (economically and in population), perhaps Keene will be able to sustain this service, or even expand to a high frequency connecting service such as Precision is attempting at Manchester.

Presque Isle is too distant a point for a commuter to provide high frequency service; hence, the replacement carrier (Bar Harbor) for Delta is providing twice-daily non-stop Convair service. There is unlikely to be much change in this market.

New Bedford has been the biggest loser of service to Boston: from Delta's FH227 and Air New England's B99 non-stops in 1973, gradually deteriorating service by ANE to complete cessation in 1977, and an unsuccessful attempt by Nor East to fly Navajos from 1977 to 1979. New Bedford is barely 30 minutes by Interstate to Providence and an hour away from Boston and thus faces the same problem that Providence has, except that the population base is much smaller. Service to New Bedford is unlikely to be revived.

The seventeen communities that have retained commuter service since 1973 are viable commuter markets, although it is certainly possible that there may be some changes in the name of the commuters that are providing the service (except Provincetown-Boston, probably the oldest commuter market in the U.S.). Larger turboprop aircraft are likely to appear in these fleets if traffic grows; this will certainly occur in the Cape and Island markets during the summer season. There is a high degree of seasonality in the Boston markets, with service doubling from the winter to the summer, especially in the Islands markets. Larger new and used aircraft are likely to appear during the summer.

Berlin and Whitefield are the classic low density points in New England and are unlikely ever to support unsubsidized service. Winnepesaukee Aviation attempted to extend its route from Laconia further north into New Hampshire during one summer (1974) without success.

The set of cities that received service in the summer of 1980 (but not in 1973) from commuters are a mixture of new and old points and some six have already been dropped since last summer. (Some of these may be seasonal withdrawals.) These include Atlantic City; Concord, New Hampshire; East Hampton; Farmingdale (where Cosmopolitan, after service for two years with small aircraft attempted flying a Convair 240, while bucking a superior service pattern by Ransome from nearby Islip (noted earlier)); Nashua (where Precision apparently has given up a fairly frequent service pattern); and Sherbrooke. Thus most of these markets can be considered as experiments that were underway in the summer of 1980, with the exception of Rutland and Springfield, Vermont. These two cities show a steady schedule pattern since 1977 by Precision and are now supporting Twin Otter service (replacing Navajos).

In basically the same category are the fourteen markets which have been tried by commuters for varying periods of time and not been continued through the summer of 1980. Asbury Park, New Jersey, had service for two years (1977-1979); it is exceptional because service was via B99. All the other markets, such as Chicopee (1976), were served with Navajos. Glen's Falls had service for one season (1976) after Allegheny pulled out; Lawrence for two years (1976-1978) ending with a high frequency attempt. Morristown, New Jersey, could be reached during one summer (1979); service is scheduled to begin anew in February 1981. Newport, Vermont, was added to Winnipesaukee's route out of Laconia for one summer (1974). Newport Aero of Newport, Rhode Island, extended its shuttle-type Newport-Providence Dove flights to Boston for a few years before giving up. Pittsfield had service for one winter (1980), as did Plymouth, Massachusetts. Teterboro, New Jersey, had service for one year (1976); Trenton for one winter (1980). Downeast tried Wiscasset, Maine, for one summer (1978).

Finally, Bedford, Massachusetts, served via Hanscom Field has had two different commuters attempt a high frequency shuttle-type service to Logan without success. Partially to blame are the air traffic delays at Logan Airport encountered on this fifteen-minute flight, especially during the summer. Other commuters will undoubtedly give this market another try, especially if the flights can be routed under or around normal ATC procedures.

Not all of these last three sets of routes are necessarily doomed to failure. Lack of success can be attributed to poor commuter management (poor scheduling, pricing, marketing) and lack of financial staying power as well as to insufficient demand, as discussed in Section 2.

4. COMMUTER AIRCRAFT: OLD AND NEW

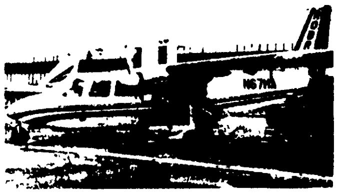
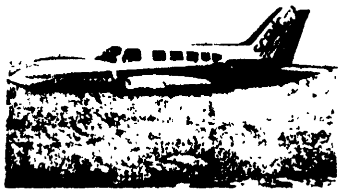
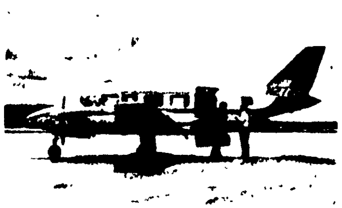
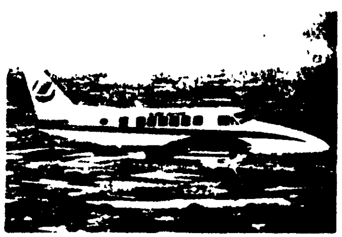
Exhibit 4 shows some typical commuter aircraft in current use. In addition to the aircraft now coming off production lines, many firms have design studies and marketing studies aimed at the commuter market. The new aircraft are generally in the 15-60 passenger range; no new aircraft in the 5- 14 passenger class are being contemplated. Thus the currently-available Piper Chieftain/Navajo, Cessna 402 and Titan 404, and the Britten-Norman Islander and Trislander will remain the basic airplanes for lower density service in the New England area into the 1980's. More foreign manufacturers than American are interested in the smaller passenger aircraft.

A combine of the French/Italian firms Aerospatiale/Aeritalia is attempting to define a larger commuter aircraft in the 40-passenger size. Previously known as the AS-35, it is now nameless, but is likely to be powered by two GE CT7 or Pratt and Whitney of Canada PT7 engines, cruise at 250 knots and have a non-stop range of 1,000-2,000 nautical miles. Aerospatiale has been contemplating producing a turboprop for commuters for many years: it remains to be seen whether this version becomes reality; if it does, the first aircraft is due to fly in 1984.

The Spanish and Indonesian governments are supporting development of a 35-seat aircraft (CN-235) to complement the currently-available 19-passenger CASA C-212, to be delivered in 1984-1985.

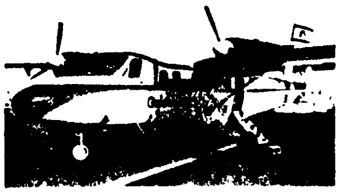
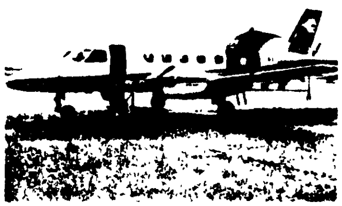
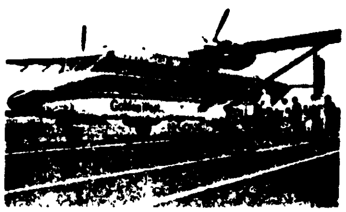
EXHIBIT 4

TYPICAL COMMUTER AIRCRAFT (1979)

	Aircraft Type (Year Type Series Introduced)	Passengers*	Gross Weight (lbs)	Cruising Speed (mph)*	Range (m)*	Price ($) (equipped)
	Britten - Norman Islander BN 2A-21 (1967)	8	6,600	160	717	255,000
	Cessna 402 Utiliner II (1966)	8	6,300	221	1,156	284,000
	Piper Chieftain PA 31-350 (1964)	8	7,000	254	869	324,000
	Beech B99 (1968)	15	10,900	280	723	(various used aircraft price

*Passengers: Normal commuter configuration
Normally Cruising Speed: Maximum speed, 75% power, at 10,000 feet
Range: Range with allowance for start etc. and 45 minutes reserves at 45% power at maximum cruising speed at 10,000 ft. with approximately 50% of payload for usable fuel (for more detail see Jane's All the World's Aircraft, (various years)

TYPICAL COMMUTER AIRCRAFT (1979) cont'd

	Aircraft Type (Year Type Series Introduced)	Passengers*	Gross Weight (lbs)	Cruising Speed (mph)*	Range (m)*	Price ($) (equipped)
	DeHavilland Twin Otter DHC-6-300 (1966)	19	12,500	210	775	1,150,000
	Swearingen Metro II SA-226TC (1970)	19	12,500	294	215	1,379,000
	Embraer EMB-110P Bandeirante (1973)	18	12,345	267	368	1,150,000
	Shorts 330 (1976)	30	22,400	227	1,042	2,160,000
	DeHavilland Dash 7 DHC-7 (1977)	50	43,500	271	810	4,600,000

DeHavilland of Canada long ago committed itself to a larger aircraft for denser commuter markets while retaining the STOL (short take off and landing) capabilities of its ubiquitous Twin Otter. The four-engine Dash 7 is becoming a success; 27 are now in service worldwide (14 in the U.S.) and they are being produced at the rate of three a month, double the rate of the comparably-sized F-27 and the BAe 748 combined. The STOL capability allows the Dash 7 to use otherwise-unavailable runways and airspace and points to one technological solution to the airport congestion problem. To complement the 19-passenger Twin Otter and the 50-passenger Dash 7, DeHavilland is developing the Dash-8, a "wide-body" 32-36 seater, powered by two PT7 engines, with deliveries available in mid-1984.

Dornier of West Germany has reasonably firm plans for the LTA (light transport aircraft), a 30-seater using a new technology wing for service entry in 1984 or 1985. Pressurized and unpressurized versions will be available. Embraer of Brazil has committed itself to the 30-passenger EMB-120 Brasilia, with deliveries to start in early 1984. This supplement to the 19-passenger Bandereite will be powered by two PT7 engines over a 350-n. mile range.

Fokker of Amsterdam now has six versions of its old war horse F.27 available, with seating capacity up to 56 passengers. Also for sale is the 80-passenger short-range jet F.28, which Altair and Empire have recently purchased as the first jet by U.S. commuters.

A combination of Saab of Sweden and Fairchild-Swearingen of Texas are designing the SF-340 for deliveries in early 1984. Essentially a large Metroliner, it will seat 34 passengers and be powered by two GE CT7 engines; it is quite similar to the proposed EMB-120.

Shorts of Northern Ireland, instead of designing a new aircraft, is stretching its 330; with more powerful engines it will seat 36 passengers. Deliveries thus are anticipated as early as 1982.

Back in the United States, Gulfstream American is offering for immediate sale the GAC-159C, a 37-seat stretch of the Grumman Gulfstream I executive turboprop (G-1C), vintage late 1950's. It is not as fuel-efficient as the new designs promise to be, but costs only $2 million versus about $4 million for the new aircraft. Some 200 Gulfstream I's are still flying and waiting to be converted; alternatively the company is studying the possibility of building a new "improved" model since it still has the production tooling for the aircraft.

Another "new, improved" model is coming from Beech Aircraft, the 15-passenger C99 version of the old B99, later this year (at $1 million). It also has for sale for mid-1983 delivery the 1900, a new 19-passenger twin turboprop version of the King Air (at $1.6 million).

Thus many new aircraft in the 30-40 passenger range will be available to the commuter industry in the mid-1980's, in addition to the used Convair 240/340/580/600, the YS-11s, and F27/FH227 (and, as always, the DC-3's). Certainly shortage of aircraft will not be a constraint on the growth of the commuters in the future.

5. SUMMARY AND RECOMMENDATIONS

Boston's Logan has been and will continue to be an airport which is attractive to commuter airlines. As the major air hub of New England, it attracts commuter airlines which bring in travellers from the surrounding region to connect to other flights. Since Boston is a major business and population center, travellers also come to Boston/Logan as a final destination. To the degree that commuters are competitive with alternative means of reaching Boston from other cities in New England, they are successful. They compete against automobiles (either personal or rental), limousines, buses, and, to a few cities, trains. Pricing, scheduling, marketing, financing, aircraft, and route selection all determine commuter profitability. The markets that have been successfully served by commuters over the past eight years (shown in Exhibit 2 as cities that have had continuous commuter and commuter/certificated service) will likely remain active markets into the future. Since business travel, which constitutes the major portion of commuter demand, grows with increasing economic activity, some increase in commuter activity from the southern and central portions of New Hampshire may be expected if growth of that region continues. The traffic from the south generally has Boston as its destination, since for connecting traffic New York area airports are available. Growth from this area will depend on the perceived attractiveness of Boston as a connecting point versus New York.

Finally, growth of the commuter industry will also be determined by such exogenous factors as relative energy costs of commuter aircraft versus ground transportation (automobiles, buses, trains); the availability of joint fares; and general economic health of the U.S.

The past eight years have seen a great deal of market experimentation by commuters, as well as providing replacement service for certificated carriers. This last phase is largely over, but it seems likely that service and schedule changes by commuters will continue for some time, in view of the availability of new commuter aircraft described in Section 3.

To help plan for the future, it is recommended that Massport consider the following activities in the commuter area:

(1) Monitor the volume and type (connecting or O&D) of traffic carried by the commuters (by aircraft type and itinerary). If connecting traffic is increasing, the likely outcome is increasing frequency by the commuters (with small aircraft). If origin-destination traffic is on the rise, the likely outcome is larger aircraft on the route, while maintaining the level of frequency.

(2) Monitor new commuter schedules. Analyze the likelihood of their success and thus their continuation or increase of service to Logan.

(3) Survey existing commuters as to their plans for the future (both schedules and aircraft types). Analyze the likelihood of these scenarios.

It is recommended that the first two of these activities be undertaken on a continuing basis, whereas the surveys should be annual or biannual events. In combination, these activities will allow Massport to plan ahead in order to provide adequate airside and landside facilities which will allow the commuter airlines to provide competent air transportation to the New England traveller.

APPENDIX 1

BOSTON MARKETS CITY CODE

Albany, NY	ALB	Morristown, NJ	MMU
Asbury Park, NJ	ARX	Nantucket, MA	ACK
Atlantic City, NJ	ACY	Nashua, NH	ASH
Augusta, ME	AUG	New Bedford, MA	EWB
Bangor, ME	BGR	New Haven, CT	HVN
Bar Harbor, ME	BHB	New London, CT	GON
Bedford, MA	BED	Newport, RI	NPT
Berlin, NH	BML	Newport, VT	EFK
Binghampton, NY	BGM	Pittsfield, MA	PSF
Bridgeport, CT	BDR	Plymouth, MA	PYM
Burlington, VT	BTV	Portland, ME	PWM
Chicopee, MA	CEF	Poughkeepsie, NY	POU
Concord, NH	CON	Presque Isle, ME	PQI
East Hampton, NY	HTO	Princeton, NJ	PCT
Elmira, NY	ELM	Providence, RI	PVD
Farmingdale, NY	FRG	Provincetown, MA	PVC
Fryeburg, ME	FRY	Quebec, QUE	YQB
Glen's Falls, NY	GFL	Rochester, NY	ROC
Hartford, CT/Springfield, MA	BDL	Rockland, ME	RKD
Hyannis, MA	HYA	Rutland, VT	RUT
Ithaca, NY	ITH	Sherbrooke, QUE	YSC
Keene, NH	EEN	Springfield, VT	VSF
Laconia, NH	LCI	Teterboro, NJ	TEB
Lawrence, MA	LWM	Trenton, NJ	TTN
Lebanon, NH	LEB	Utica, NY	UCA
Lewiston, ME	LEW	Waterville, ME	WVL
Long Island, Macarthur, NY (Islip)	ISP	Whitefield, NH	HIE
Manchester, NH	MHT	White Plains, NY	HPN
Martha's Vineyard, MA	MVY	Wiscasset, ME	ISS
Montpelier, VT	MPV	Worcester, MA	ORH

APPENDIX 2

BOSTON COMMUTER CODE

Code	Airline Name	Current Service
CB	Commuter Airlines	X
DE (also WY)	Downeast Airlines	
DD	Command Airways	X
ER	Rainbow Air Systems	
EX	Executive Airlines	
HO	Air Atlantic	
HX	Cosmopolitan Aviation Corp.	
NE (also XQ)	Air New England	X
NF	Newport Aero now EJA/Newport, Inc.	
NO	Air North	X
OY (also ZE)	Merrimack Airlines and N.J. Airways	
PM	Pilgrim Airlines	X
PN	Princeton Aviation Corp.	X
PT	Provincetown-Boston Airline and Naples Airline Division	X
QK	Aroostook Airways	
QO	Bar Harbor Airlines	X
RI	Providence Commuters	
RP	Precision Valley Aviation	X
RQ	Rutland Airways	
TT	Business Aircraft Corp.	
UR	Empire Airlines	X
VM	Monmouth Airlines	
VS	Green Mountain Airlines	
WP	Air Speed	
XQ (also NE)	Air New England	
XW	Lebanon Airport Development Corp.	
XY (also DE)	Downeast Airlines	
YB	Hyannis Aviation	X
YL	Montauk Caribbean Airways and Ocean Reef Airways	
YN	Nor-East Commuter Airlines	
YW	Will's Air	X
ZE (also OY)	Merrimack Airways	
ZM	Winnipesaukee Aviation	

APPENDIX 3

AIRCRAFT CODE

Aircraft Code	Aircraft Name
DC-3	Douglas DC-3
DHT, DTO	DeHavilland Twin Otter
B99	Beech 99
PAN, PNV	Piper Navajo
CN4, 402, TC4	Cessna 402
BNI	Britten Norman - Islander
FK7, FH7	Fokker Friendship 227
A50	Aero Commander 500
CES	Cessna/Cessna 206
PAZ	Piper Aztec
DHV, DDV	DeHavilland Dove
MU2	Mitsubishi MU-2G
B80	Beech Queen 80
ACD	Aero Commander
BET	Beechcraft Turboprop
SH3	Short Bros. SD 330
BGL	Beagle
ACD	Aero Commander
DHR	DeHavilland Riley 400
CNA	Cessna (all series, multi-engine)
PAF	Piper Chieftain
298	Nord 298
PAG	Piper (all series, multi-engine)
ND2	Nord 262
MR4	Martin 404
GRS	Grumman Gulfstream I

APPENDIX 4

DETAILED MARKET DESCRIPTIONS

POINT: PVD

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
73 W	4	0	C	72S,727,D9S
73 S	3	0	C	72S,727
74 W	2	0	C	727, D9S
74 S	1	0	C	72S
75 W	-	-	-	-
75 S	2	0	C	72S
	2	0	NF	DDV
76 W	1	0	NF	DDV
76 S	1	0	C	B11
	3	0	NF	DDV
77 W	1	0	C	B11, 72S
	3	0	NF	DDV
77 S	1	0	C	72S
	3	0	NF	DHD
	3	0	RI	DHR
	2	0	ZE	PAN
78 W	3	0	C	72S, D9S
	3	0	YB	CNY
78 S	3	0	ZE	PAN
	2	0	YB	CN4
79 W	3	0	YB	CN4
	1	0	ZE	PAN
79 S	1	0	C	D9S
	2	0	PM	DHT
	2	0	NF	PAF
	2	0	ZE	PAN
80 W	1	0	C	727
	2	0	OY	PAG
80 S	1	0	C	72S
81 W	2	0	C	727, 72S

POINT: ALB

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
73 W	5	0	C	BAC, 727
73 S	5	0	C	B11, 727
74 W	6	0	C	B11
74 S	-	-	-	-
75 W	3	0	C	72S, B11
75 S	4	0	C	D9S, B11
76 W	4	0	C	D9S, B11
76 S	3	0	C	D9S,
77 W	3	0	C	D9S, B11
	1	1	ZE	PAN
77 S	3	0	C	D9S, B11
	4	1	ZE	PAN
78 W	3	0	C	D9S, D95
	1	1	C	B11
	1	0	ZE	PAN
	2	1	ZE	PAN
78 S	3	0	C	D9S, B11
	1	1	C	B11
	1	0	ZE	PAN
	1	1	ZE	PAN
79 W	3	0	C	D9S, B11
	1	1	C	D9S
	1	0	ZE	PAN
	1	1	ZE	PAN
79 S	3	0	C	D9S
	1	0	ZE	PAN
	2	1	ZE	PAN
80 W	3	0	C	D9S, B11
	4	0	QO	BET, PAG
	3	1	QO	PAG, BET
80 S	3	0	C	D9S, 727
	2	0	QO	BET
	2	1	QO	BET
81 W	3	0	C	D9S, 727
	1	0	NO	GRS

POINT: BGM

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
73 W	2	0	C	BAC
73 S	2	0	C	B11
74 W	1	0	C	D9S
74 S	1	0	C	D9S
75 W	1 2	0 1	C DD	D9S BE99
75 S	1 2	0 1	C DD	D9S BE9
76 W	1 2	0 2	C DD	D9S BE9
76 S	1 2	0 2	C DD	D9S BE9
77 W	1 2	0 1	C DD	D9S BET
77 S	3 2	0 1	CB DD	PAN, SWM BE9
78 W	3	0	CB	PAN, SWM
78 S	3	0	CB	PAN, SWM
79 W	3	0	CB	SWM, PAN
79 S	3	0	CB	SWM, PAN
80 W	3	0	CB	SWM, PAG
80 S	3	0	CB	SWM, PAG
81 W	3	0	CB	SWM, PAG

POINT: ISP

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
73 W	3	0	C	C5
	2	1	C	C5
73 S	5	0	C	CV5
74 W	-	-	-	-
74 S	1	0	C	CV5
	3	1	C	CV5
75 W	2	0	C	CV5
	1	1	C	CV5
75 S	1	0	C	CV5
	2	2	C	CV5
76 W	1	0	C	CV5
	1	1	C	CV5
76 S	3	1	C	B11
77 W	3	1	C	B11
77 S	2	0	C	CV5
	1	1	C	CV5
78 W	2	0	C	B11
78 S	2	0	C	D9S, B11
	2	0	PM	BE9
	1	1	PM	DHT
79 W	2	0	C	D9S, B11
	2	0	PM	BE9
	1	1	PM	BE9
79 S	8	0	AL Com	298
	1	0	PM	DHT
	2	1	PM	DHT
80 W	8	0	AL Com	ND2
80 S	8	0	AL Com	ND2
81 W	5	0	AL Com	ND2

POINT: MHT (Manchester)

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
73 W	2	0	C	D9S
73 S	2	0	C	D9S
74 W	2	0	C	D9S
74 S	2	0	C	D9S
75 W	2	0	C	D9S
75 S	2	0	C	D9S
76 W	2	0	C	D9S
76 S	2	0	C	D9S
	1	0	HO	B80
	1	0	ZE	PNV
77 W	2	0	C	D9S
	1	0	ZE	PAN
77 S	1	0	C	D9S
	7	0	RP	PAN
	1	0	ZE	PAN
78 W	1	0	C	D9S
	13	0	RP	PAN
	1	0	ZE	PAN
78 S	16	0	RP	PAN
79 W	1	0	C	72S
	14	0	RP	PAN
	2	1	RP	PAN
79 S	1	0	C	72S
	16	0	RP	PAN
	3	1	RP	PAN
80 W	2	0	C	72S
	14	0	RP	DHT, PAG
	2	1	RP	DHT, PAG
80 S	14	0	RP	PAG, DHT
	1	0	QO	BET
	2	1	RP	PAG
81 W	14	0	RP	DHT, PAG

POINT: UCA (Utica)

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
73 S	1	1	C	B11
74 W	-	-	-	-
74 S	-	-	-	-
75 W	-	-	-	-
75 S	-	-	-	-
76 S	1 1	0 1	HO HO	MU2 MU2
76 S	2 2	0 0	HO UR	B80 PNV
77 W	2	0	UR	PAN
77 S	2	0	UR	PAN
78 W	2	0	UR	PAN
78 S	2	0	UR	PAN, SWM
79 W	3	0	UR	SWM, PAF
79 S	3	0	UR	PAF, SWM
80 W	3	0	UR	PAG, SWM
80 S	3	0	UR	SWM
81 W	1	0	UR	SWM

POINT: HPN (White Plains)

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
73 W	2	0	C	CV5
73 S	2	0	C	CV5
74 W	-	-	-	-
74 S	1	0	C	CV5
	1	1	C	CV5
75 W	1	0	C	CV5
	1	1	C	CV5
75 S	3	0	DD	BE9
	3	0	WP	PAZ
76 W	5	0	DD	BE9
	3	0	WP	PAZ
	2	1	WP	PAZ
76 S	5	0	DD	BE9
	2	0	ZE	PNV
	3	0	WP	PAZ
	3	1	WP	PAZ
77 W	12	0	WP	BE9, BGL
	4	0	ZE	PAN
	4	0	DD	SH3
77 S	8	0	WP	BGL
	4	0	ZE	PAN
	4	0	DD	SH3
78 W	4	0	DD	SH3
	4	0	ZE	PAN
78 S	3	0	DD	SH3
	2	0	ZE	PAN
	1	1	DD	SH3
79 W	3	0	DD	SH3
	3	1	ZE	PAN
	1	1	DD	SH3
79 S	3	0	DD	SH3
	7	0	ZE	PAN
	1	1	DD	SH3

POINT: HPN (White Plains) p. 2

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
80 W	3	0	DD	SH3
	6	0	OY	PAF
	1	1	DD	SH3
80 S	6	0	DD	SH3(3), DHT(3)
81 W	6	0	DD	SH3(3), DHT(3)

POINT: ORH

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
73 W	1	0	C	CV5
	2	1	C	D9S, CV5
73 S	1	0	C	CV5
	2	1	C	D9S, CV5
74 W	1	1	C	D9S
74 S	2	0	C	CV5
	1	1	C	D9S
	4	0	ER	BN1
75 W	1	1	C	D9S
	3	0	ZM	PNV
75 S	1	1	C	D9S
	4	0	ZM	PNV
76 W	1	1	C	D9S
76 S	1	1	C	D9S
77 W	1	1	C	D9S
77 S	1	1	C	D9S
	2	0	YB	CN4
78 W	1	1	C	D9S
78 S	-	-	-	-
79 W	1	1	C	72S
	7	0	RP	PAN
79 S	1	1	C	72S
	10	0	RP	PAN
80 W	1	1	C	72S
	10	0	RP	PAG
80 S	9	0	RP	PAG
81 W	12	0	RP	PAG

POINT: ELM (Elmira)

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
73 W	2	1	C	B11
73 S	2	1	C	B11
74 W	1	1	C	D9S
74 S	1	1	C	D9S
75 W	1	1	C	D9S
75 S	1	1	C	D9S
76 W	1	1	C	D9S
76 S	1	1	C	D9S
77 W	1	1	C	D9S
77 S	2	1	CB	SWM
78 W	2	1	CB	SWM
78 S	3	1	CB	SWM, PAN
79 W	3	1	CB	SWM, PAN
79 S	3	1	CB	SWM, PAN
80 W	-	-	-	-
80 S	-	-	-	-

POINT: BGR

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
73 W	2	1	Q0	B9(1), TC(1)
	1	ns	Q0	B9
	5	ns	DL	72S, D9S
	1	1	DL	72S
73 S	5	0	C	72S, 727, D9S
	3	0	Q0	B99, TC4
	4	1	Q0	B99, TC4
74 W	4	0	C	D9S, 72S
	1	1	C	72S
	6	1	Q0	B99, TC4
74 S	4	0	C	D9S, 72S
	1	1	C	72S
	1	0	Q0	B99
	5	1	Q0	TC4, B99
75 W	3	0	C	72S, D9S
	2	1	C	72S
	4	0	Q0	BE9, TC4
	2	1	Q0	BE9, TC4
75 S	4	0	C	72S, D9S
	1	1	C	72S
	3	0	Q0	BE9
	2	1	Q0	BE9, 402
76 W	4	0	C	72S, D9S
	1	1	C	72S
	2	0	Q0	BE9
	5	1	!0	BE9
76 S	4	0	C	72S
	4	0	Q0	BE9
	4	1	Q0	BE9
77 W	3	0	C	72S
	1	0	Q0	BE9
	5	1	Q0	BE9
77 S	4	0	C	72S
	1	1	C	72S
	1	0	Q0	BE9
	7	1	Q0	BE9
78 W	4		C	D9S, 72S
	1	1	C	72S
	3	0	Q0	BE9
	3	1	Q0	BE9

POINT: BGR (p. 2)

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
78 S	4	0	C	72S
	1	1	C	D9S
	2	0	QO	BE9
	5	1	QO	BE9
	1	2	QO	BE9
79 W	4	0	C	72S, D9S
	1	1	C	D9S
	1	0	QO	BE9
	7	1	QO	BE9
79 S	5	0	C	72S
	2	0	QO	BE9
	8	1	QO	BE9
	1	2	QO	BE9
80 W	4	0	C	72S
	1	1	C	72S
	1	0	QO	BET
	5	1	QO	BET
80 S	4	0	C	72S
	1	1	C	72S
	1	0	QO	BET
	6	1	QO	BET
	1	2	QO	BET
81 W	4	0	C	72S
	2	0	QO	BET, CVR
	1	1	QO	BET
	3	2	QO	BET

POINT: BTV

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
73 W	1	1	EX	TO
	5	2	EX	TO
	2	1	XQ	B9
	1	2	XQ	B9
73 S	2	0	C	727, D9S
	3	1	XQ	B99
	3	1	EX	DTO
	2	2	EX	DTO
74 W	1	0	C	D9S
	3	1	NE	DTO
	3	2	NE	DTO, B99
74 S	1	1	C	72S
	1	0	NE	DC3
	5	1	NE	B99, DTO
	1	2	NE	DTO
75 W	1	0	C	72S
	2	0	NE	DHT
	3	1	NE	DHT
	2	2	NE	DHT
75 S	1	0	C	D9S
	1	0	NE	DHT
	5	1	NE	DHT
	1	1	NE	DHT
76 W	1	0	C	D9S
	1	0	ZE	PNV
	6	1	NE	DHT
	2	2	NE	DHT
76 S	1	0	C	D9S
	5	1	NE	DHT
	1	1	ZE	PNV
	1	2	NE	DHT
77 W	2	0	C	D9S
	2	0	NE	PK7, DHT
	3	1	NE	FK7, DHT
	1	1	ZE	PAN
77 S	1	0	C	D9S
	1	0	NE	FK7
	4	1	NE	DHT, FK7
	2	1	ZE	PAN

POINT: BTV (p. 2)

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
78 W	1	0	C	D9S
	2	0	NE	FK7
	2	1	NE	FK7
	1	1	ZE	PAN
	1	2	NE	DHT
78 S	1	0	C	72S
	2	0	NE	FK7
	2	1	NE	FK7
	1	1	ZE	PAN
	1	2	NE	DHT
79 W	1	0	C	72S
	2	0	NE	FK7
	1	0	ZE	PAN
	2	1	NE	FK7, DHT
	1	2	NE	DHT
79 S	1	0	C	72S
	2	0	NE	FK7
	1	0	ZE	PAN
	2	1	NE	FK7, DHT
	1	2	NE	DHT
80 W	2	0	C	72S
	2	0	NE	FK7
	2	1	NE	FK7
80 S	3	0	C	72S
	1	0	NE	FK7
	3	1	NE	FK7
81 W	2	0	C	72S
	2	0	NE	FK7
	1	1	NE	FK7

POINT: BDL

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
73 W	8	0	C	72S, D9S
73 S	7	0	C	727, 72S, B11, 880, D9s, B3F
	2	0	PM	DTD
74 W	9	0	C	727, 72S, D9S, D8S, B3F, B11, L10
	1	0	PM	DTD
74 S	5	0	C	D8S, B11, 72S, B3F
	1	0	PM	DTO
75 W	6	0	C	D8S, 72S, 727
	1	0	PM	DHT
75 S	5	0	C	727, B11, D9S, 72S, D8S
	1	0	PM	DHT
76 W	5	0	C	727, 72S, B11, D8S,
	2	0	WP	PAZ
	1	0	PM	DHT
76 S	8	0	C	72S, 727, L10, B11, D8S, D95, B35
	1	0	PM	DHT
77 W	7	0	C	D9S, DC9, D8S, B11, 707
	1	0	PM	DHT
77 S	7	0	C	L10, 727, 72S, D95, B11
	1	0	PM	DHT
78 W	7	0	C	L10, 72S, 727, D8S, D9S
	1	0	PM	DHT
78 S	9	0	C	L10, 72S, B11, 727, 72S, D9S, D95
	2	0	QO	BE9
	1	0	PM	BE9
79 W	6	0	C	D95, 72S, L10, D85, D9S
	1	0	NE	FK7
	5	0	QO	BE9
	1	0	PM	DHT

POINT: BDL (p. 2)

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
79 S	8	0	C	L10, D95, D9s, 72S
	1	0	NE	FK7
	5	0	QO	BE9
	1	0	PM	DHT
80 W	6	0	C	L10, 72S, D9S, D95
	3	0	QO	BET
80 S	6	0	C	L10, 72S, D95
	5	0	QO	BET
81 W	6	0	C	L10, 72S, D9S, D95, D8S
	6	0	QO	BET

POINT: PWM (Portland, Maine)

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
73 W	5	0	C	727, 72S, D9S
	3	0	EX	DTD
	3	0	QO	BE9, TC4
	1	2	EX	DTO
73 S	5	0	C	72S, 727, D9s
	4	0	EX	DTO
	5	0	QO	B99, TC4
74 W	5	0	C	72S, 727, D9S
	5	0	NE	DTO
	8	0	QO	TC4, B99
74 S	5	0	C	72S, D9S
	4	0	NE	DHT
	8	0	QO	BE9, TC4
75 W	6	0	C	72S, D9S
	4	0	NE	DHT, DC3
	5	0	QO	BE9, TC4
75 S	6	0	C	D9S, 72S
	5	0	NE	DHT, DC3
	5	0	QO	BE9, 402
76 W	6	0	C	72S, D9S
	6	0	NE	DHT, FH7
	4	0	QO	BE9
76 S	5	0	C	72S, D9S
	6	0	NE	DHT, FH7, BE9
	6	0	QO	BE9
77 W	4	0	C	72S, D9S
	5	0	NE	DHT, FK7
	5	0	QO	BE9
77 S	4	0	C	72S
	3	0	NE	DHT, FK7
	8	0	QO	BE9
78 W	5	0	C	72S
	4	0	NE	DHT, FK7
	7	0	QO	BE9
78 S	6	0	C	72S, D9S
	4	0	NE	FK7, DHT
	7	0	QO	BE9

POINT: PWM (p. 2)

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
79 W	5	0	C	72S, D9S
	4	0	NE	DHT
	5	0	QO	BE9
79 S	5	0	C	72S
	4	0	NE	DHT
	8	0	QO	BE9
80 W	6	0	C	72S
	3	0	NE	DHT
	4	0	QO	BET
80 S	6	0	C	72S
	6	0	QO	BET
81 W	5	0	C	72S
	5	0	QO	BET

POINT: EEN

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
73 W	1	0	C	C5
	1	1	C	C5
	1	0	EX	DTO
	1	1	EX	DTO
73 S	1	0	C	CV5
	1	1	C	CV5
	2	0	EX	DTO
74 W	3	1	ER	TC4
74 S	2	1	C	CV5
	4	1	ER	BN1
75 W	3	1	ZM	PNV
75 S	4	1	ZM	PNV
76 W	2	0	ZM	PNV
76 S	-	-	-	-
77 W	3	0	RQ	CN4
77 S	3	0	RP	PAN
	3	0	ZE	PAN
78 W	3	0	RP	PAN
	2	0	ZE	PAN
	1	1	RP	PAN
78 S	3	0	RP	PAN
	1	1	RP	PAN
79 W	4	0	RP	PAN
	1	1	RP	PAN
79 S	3	0	RP	PAN
	3	1	RP	PAN
80 W	1	0	RP	PAG
	3	1	RP	PAG
80 S	1	0	RP	PAG
	3	1	RP	PAG
81 W	4	0	RP	DHT

POINT: PQI (Presque Isle)

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
73 W	1	0	QK	PN
	2	0	C	C9S
73 S	2	0	C	D9S
	3	2	QO	TC4
74 W	1	0	C	D9S
	1	1	C	D9S
	3	2	QO	TC4
74 S	1	0	C	D9S
	1	1	C	D9S
	3	2	QO	TC4
75 W	1	0	C	D9S
	1	1	C	D9S
	2	1	QO	BE9, TC4
	1	2	QO	BE9
75 S	1	0	C	D9S
	1	1	C	D9S
	2	1	QO	BE9, 402
	1	2	QO	BE9
76 W	1	0	C	D9S
	1	1	C	D9S
	2	1	QO	BE9
	3	2	QO	BE9
76 S	1	0	C	D9S
	1	1	C	D9S
	1	1	QO	BE9
	2	2	QO	BE9
77 W	1	0	C	D9S
	1	1	C	D9S
	1	1	QO	BE9
	3	2	QO	BE9
77 S	2	0	C	72S
	1	1	QO	BE9
	5	2	QO	BE9
78 W	2	0	C	72S
	2	1	QO	BE9
	2	2	QO	BE9

POINT: PQI (p. 2)

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
78 S	2	0	C	72S
	2	1	QO	BE9
	2	2	QO	BE9
	1	3	QO	BE9
79 W	2	0	C	72S
	1	1	QO	BE9
	2	2	QO	BE9
79 S	2	0	QO	CVR
	1	1	QO	CVR
	5	2	QO	BE9
	1	3	QO	BE9
80 W	2	0	QO	CVR
	2	2	QO	BET
80 W	3	0	QO	CVR
	1	1	QO	BET
81 W	2	0	QO	CVR
	1	1	QO	CVR
	1	2	QO	BET

POINT: EWB

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
73 W	1	0	XQ	B99
	2	3	XQ	B99
	1	0	C	FH7
73 S	1	0	C	FH7
	1	3	XQ	DTO
74 W	1	0	C	FH7
	2	0	NE	DTO, B99
	1	3	NE	B99
74 S	1	0	C	FH7
	1	0	NE	BE9
	1	3	NE	DHT
75 W	2	0	NE	DHT
	1	2	NE	DC3
	2	3	NE	DHT, BE9
75 S	1	2	NE	BE9
	2	3	NE	BE9
76 W	2	3	NE	DHT, BE9
76 S	-	-	-	-
77 W	-	-	-	-
77 S	4	0	YN	ACD
	2	3	NE	DHT
78 W	2	0	YN	PAN
	1	1	YN	PAN
78 S	3	0	YN	PAN
	1	1	YN	PAN
79 W	2	0	YN	PAN
	1	3	YN	PAN
79 S	1	0	HO	PAN
	1	0	YN	PAN
	2	1	YN	PAN
	1	2	YN	PAN
80 W	-	-	-	-
80 S	-	-	-	-
81 W	-	-	-	-

POINT: AUG

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
73 W	3	ns	EX	TO
	1	1	EX	TO
	3	ns	XQ	B9
	6	ns	Total Com	
	1	1	Total Com	
73 S	4	0	XQ	B99
	4	0	EX	DTO
	2	1	EX	DTO
	1	2	EX	DTO
74 W	3	0	NE	DC3, B99
	1	1	NE	DTO
	1	2	NE	DTO
74 S	4	0	NE	DC3, DTO
	2	1	NE	DTO
	1	2	NE	DTO
75 W	4	0	NE	DHT, DC3
	2	1	NE	DHT, DC3
75 S	5	0	NE	DC3, DHT
	2	1	NE	DC3, DHT
76 W	5	0	NE	DHT
	4	0	QO	BE9
	1	1	NE	DHT
76 S	5	0	NE	DHT
	4	0	QO	BE9
	1	1	NE	DHT
76 W	6	0	NE	DHT
	4	0	QO	BE9
77 S	8	0	NE	DHT
78 W	7	0	NE	DHT
	4	0	QO	BE9
78 S	8	0	NE	DHT
	4	0	QO	BE9
	1	1	QO	BE9
79 W	7	0	NE	DHT
	4	0	QO	BE9
79 S	8	0	NE	DHT
	4	0	QO	BE9
	1	1	QO	BE9

POINT: AUG (p. 2)

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
80 W	6	0	NE	DHT
	4	0	QO	BET
80 S	7	0	NE	DHT
	7	0	QO	BET
	1	1	QO	BET
81 W	5	0	NE	DHT
	4	0	QO	BET
	2	1	QO	BET

POINT: BHB

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
1973 W	3	ns	QO	B99, TC4
	1	1	QO	B99
73 S	4	0	QO	B99
	1	1	QO	TC4
74 W	1	0	QO	B99
	2	1	QO	TC4, B99
	1	2	QO	B99
74 S	4	0	QO	B99
	3	1	QO	B99, TC4
	1	2	QO	B99
75 W	2	1	QO	BE9
	1	2	QO	TC4
75 S	3	0	QO	BE9
	4	1	QO	BE9
76 W	3	1	QO	BE9
	1	2	QO	BE9
76 S	3	0	QO	BE9
	4	1	QO	BE9
77 W	3	1	QO	BE9
77 S	4	0	QO	BE9
	3	1	QO	BE9
78 W	4	1	QO	BE9
78 S	4	0	QO	BE9
	2	1	QO	BE9
	2	2	QO	BE9
79 W	2	1	QO	BE9
	2	2	QO	BE9
79 S	3	0	QO	BE9
	4	1	QO	BE9
	2	2	QO	BE9
80 W	3	1	QO	BET
	1	2	QO	BET
80 S	3	0	QO	BET
	4	1	QO	BET
81 W	4	1	QO	BET

POINT: BDR (Bridgeport)

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
73 W	2	0	C	CV5
	1	1	C	CV5
73 S	1	0	PM	DTO
	1	1	PM	DTO
	1	2	PM	DTO
74 W	1	1	PM	DTO
	2	2	PM	DTO
74 S	2	0	C	CV5
	1	1	PM	DTO
	1	2	PM	DTO
75 W	1	1	PM	DHT
	2	2	PM	DHT
75 S	2	0	C	CV5
	1	1	PM	DHT
76 W	1	0	PM	DHT
	1	1	PM	DHT
	2	2	PM	DHT
76 S	1	0	PM	DHT
	1	1	PM	DHT
	1	2	PM	DHT
76 W	1	0	PM	DHT
	1	1	PM	DHT
	1	2	PM	DHT
77 S	2	1	PM	DHT
	1	2	PM	DHT
78 W	2	1	PM	DHT
	1	2	PM	DHT
78 S	1	0	PM	DHT
	3	1	PM	DHT
79 W	1	0	PM	DHT
	3	1	PM	DHT
79 S	1	0	PM	DHT
	2	1	PM	DHT
	1	2	PM	DHT

POINT: BRD (p. 2)

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
80 W	2	0	PM	DHT
	1	1	PM	DHT
	1	2	PM	DHT
80 S	3	0	TT	PAG
	2	0	PM	DHT
	1	1	PM	DHT
	1	2	PM	DHT
81 W	2	0	PM	DHT
	1	2	PM	DHT

POINT: HYA

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
73 W	5	0	XQ	TO
	1	2	XQ	B9
73 S	12	0	XQ	DC3, DTO
	3	0	EX	DTO
	2	1	XQ	DTO, B99
	1	2	WQ	DTO
74 W	8	0	NE	DTO, B99
	1	2	NE	B99
	1	3	NE	DTO
74 S	14	0	NE	DTO, DC3
	1	1	NE	DTO
	1	3	NE	B99
75 W	9	0	NE	DHT, BE9, DC3
	1	3	NE	DHT
75 S	14	0	NE	FH7, DC3, DHT, BE9
	1	1	NE	DHT
76 W	9	0	NE	DHT, BE9
76 S	11	0	NE	DHT, FHT
	1	1	NE	DHT
77 W	8	0	NE	DHT, FK7
	1	2	NE	OHT
77 S	11	0	NE	DHT, FK7
	7	0	YN	PAN
	1	0	YB	CN4
78 W	8	0	NE	DHT, FK7
	3	0	YN	PAN
	2	1	YB	CN4
78 S	11	0	NE	DHT, FK7
	5	0	YN	PAN
	3	0	YB	CN4
79 W	7	0	NE	DHT, FK7
	2	0	YB	CN4
	1	0	YN	PAN
	1	1	YB	CN4
79 S	9	0	NE	DHT, FK7
	4	0	PT	CN4
	3	0	YB	CN4

POINT: HYA (p. 2)

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
80 W	8	0	NE	DHT
	4	0	PT	CNA
	4	0	YB	CNA
80 S	9	0	NE	FK7, DHT
	16	0	PT	MR4
	7	0	YB	CN4
81 W	6	0	NE	DHT
	6	0	PT	CNA

POINT: LCI (Laconia, N.H.)

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
73 W	3	0	ZM	PNV
73 S	8	0	ZM	PNV, PAP
74 W	2	0	ZM	PAD
74 S	5	0	ZM	PNV
75 W	4	0	ZM	PNV
75 S	6	0	ZM	PNV
76 W	3	0	ZM	PNV
	1	1	ZM	PNV
76 S	5	0	ZM	PNV
77 W	4	0	ZM	PAN
77 S	6	0	ZM	PAN
78 W	4	0	ZM	PAN
78 S	8	0	ZM	PAN
79 W	6	0	ZM	PAN
79 S	12	0	ZM	PAN
80 W	5	0	ZM	PAG
80 S	5	0	RP	DHT
81 W	5	1	RP	DHT

POINT: LEB

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
73 W	5	0	EX	TO
	1	1	EX	TP
	4	0	XQ	
73 S	4	0	XQ	DTO, B99
	6	0	EX	DTO
74 W	6	0	NE	DTO, B99
74 S	6	0	NE	DTO
75 W	6	0	NE	DHT
75 S	6	0	NE	DHT
76 W	6	0	NE	DHT
76 S	6	0	NE	DHT
77 W	5	0	NE	DHT, FK7
77 S	6	0	NE	DHT, FK7
78 W	6	0	NE	DHT, FK7
78 S	6	0	NE	DHT, FK7
79 W	7	0	NE	DHT, FK7
79 S	7	0	NE	DHT, FK7
80 W	5	0	NE	FK7, DHT
80 S	5	0	NE	FK7, DHT
81 W	4	0	NE	FK7

POINT: LEW

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
73 W	1	0	EX	TO
	2	1	EX	TO
73 S	1	0	EX	DTO
	2	1	EX	DTO
74 W	1	0	NE	DTO
	2	1	NE	DTO
74 S	2	0	NE	DTO
	1	1	NE	DTO
75 W	2	0	NE	DHT, DC3
	1	1	NE	DHT
75 S	2	0	NE	DHT
	2	1	NE	DHT
76 W	1	0	NE	DHT
	2	1	NE	DHT
76 S	1	0	NE	DHT
	2	1	NE	DHT
77 W	1	0	NE	DHT
	2	1	NE	DHT
77 S	2	0	NE	DHT
	1	1	NE	DHT
78 W	2	0	NE	DHT
	1	1	NE	DHT
78 S	2	0	NE	DHT
	1	1	NE	DHT
79 W	2	1	NE	DHT
79 S	2	1	NE	DHT
80 W	3	0	NE	DHT
80 S	3	0	NE	DHT
81 W	3	0	NE	DHT

POINT: MVY

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
73 W	2	1	XQ	B9(1), TO(1)
	3	2	XQ	TO
73 S	7	0	XQ	B99, DTO
	1	0	EX	DTO
	2	1	XQ	DTO
	3	1	EX	DTO
	2	2	XQ	DTO
	1	2	EX	DTO
74 W	4	1	NE	DTO, B99
	3	2	NE	DTO, B99
74 S	7	0	NE	DTO
	2	1	NE	DTO, B99
	2	2	NE	DTO
75 W	5	1	NE	DHT, DC3
	3	2	NE	DHT, BE9
75 S	8	0	NE	DHT
	2	1	NE	BE9, DHT
	3	2	NE	BE9, FHT
76 W	1	0	NE	DHT
	5	1	NE	DHT
	2	2	NE	DHT, BE9
76 S	8	0	NE	DHT
	1	1	NE	DHT
77 W	1	0	NE	DHT
	2	1	NE	DHT
	2	2	NE	DHT
77 S	8	0	NE	DHT
	1	1	NE	DHT
	2	2	NE	DHT
	6	0	YN	PAN
	3	1	YN	ACD
78 W	1	0	NE	DHT
	1	0	YN	PAN
	3	1	NE	DHT
	2	1	YN	PAN
	1	2	NE	DHT
78 S	8	0	NE	DHT
	5	0	YN	PAN
	2	1	YN	PAN
	1	2	NE	DHT

POINT: MVY (p. 2)

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
79 W	2	0	NE	DHT
	3	1	NE	DHT
	2	1	YN	PAN
	1	2	YN	PAN
79 S	8	0	NE	DHT
	5	0	YN	PAN
	1	1	NE	DHT
	3	1	YN	PAN
80 W	1	0	NE	DHT
	2	1	NE	DHT
	1	2	NE	DHT
80 S	9	0	NE	DHT
81 W	2	0	NE	DHT
	2	1	NE	DHT

POINT: MPV

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
73 W	3	0	EX, XQ	TO, B9
	6	1	EX, XQ	TO, B9
73 S	3	0	XQ	B99
	1	1	XQ	B99
	4	1	EX	DTO
74 W	2	0	NE	DTO
	3	1	NE	DTO, B99
74 S	5	0	NE	DHT, BE9
	1	1	NE	DHT
75 W	3	0	NE	DHT
	4	1	NE	DHT, BE9
75 S	6	0	NE	DHT, BE9
	1	1	NE	DHT
76 W	5	0	NE	DHT
	2	1	NE	DHT
76 S	4	0	NE	DHT
	1	1	NE	DHT
77 W	2	0	NE	DHT
	2	1	NE	DHT
77 S	3	0	NE	DHT
	1	1	NE	DHT
78 W	2	0	NE	DHT
	2	1	NE	DHT
78 S	2	0	NE	DHT
	2	1	NE	DHT
79 W	1	0	NE	DHT
	3	1	NE	DHT
79 S	2	0	US	PAF
	1	0	NE	DHT
	3	1	NE	DHT
80 W	3	0	NE	DHT
	2	0	US	PAG
80 S	3	0	NE	DHT
81 W	1	0	NE	DHT

POINT: ACK (Nantucket)

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
73 W	4	1	XQ	DTO
	1	2	WQ	DTO
73 S	9	0	XQ	DTO, DC3
	3	0	EX	DTO
	3	1	XQ	DTO
	3	1	EX	DTO
74 W	4	1	NE	DTO, B99
	3	3	NE	DTO
74 S	7	0	NR	DHT, DC3
	6	1	NE	DHT, DC3
	1	2	NE	BE9
75 W	3	1	NE	DHT, BE9
	4	2	NE	DHT
75 S	6	0	NE	DHT, DC3, BE9
	8	1	NE	DHT, BE9, FH7
76 W	3	0	NE	DHT
	5	1	NE	DHT
76 S	7	0	NE	DHT
	3	1	NE	DHT, FH7
77 W	1	0	NE	DHT
	4	1	NE	DHT
	1	2	NE	DHT
77 S	7	0	NE	DHT
	5	0	YN	PAN
	4	1	NE	DHT, FK7
	3	2	YN	ACD
78 W	3	0	NE	DHT
	2	1	NE	DHT
	3	1	YN	ACD, PAN
	2	2	YN	PAN
78 S	10	0	NE	DHT
	3	0	YN	PAN
	2	1	NE	DHT
	6	1	YN	PAN, CN4
	2	2	YN	PAN

POINT: ACK (p. 2)

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
79 W	3	0	NE	DHT
	2	1	NE	DHT
	2	1	YB	CN4
	1	1	YN	PAN
	2	2	YN	PAN
79 S	9	0	NE	DHT
	6	0	YN	PAN
	1	1	NE	DHT
	1	1	YN	PAN
	3	1	YB	CN4
80 W	2	0	NE	DHT
	3	0	YB	CNA
	2	1	NE	DHT
	4	1	YB	CNA
80 S	10	0	NE	DHT
	6	1	YB	CNA
	2	0	NE	DHT
	3	0	YW	PAG
	2	1	NE	DHT

POINT: HVN

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
73 W	3	1	PM	TO
73 S	1	0	PM	DTO
	3	1	PM	DTO
74 W	1	0	C	D9s
	1	0	PM	DTO
	3	1	PM	DTO
74 S	1	0	PM	DHT
	3	1	PM	DHT
75 W	1	0	PM	DHT
	3	1	PM	DHT
75 S	2	1	C	CV5
	1	0	PM	DHT
	1	1	PMD	DHT
76 W	1	0	C	CV5
	4	1	PM	DHT
76 S	2	0	C	B11
	3	0	PM	DHT
77 W	2	0	C	B11
	2	1	PM	DHT
77 S	1	0	C	CVR
	1	0	PM	DHT
	1	1	PM	DHT
78 W	1	0	PM	DHT
	1	1	PM	DHT
78 S	2	0	PM	DHT
	2	1	PM	DHT, BE9
79 W	2	0	PM	DHT
	2	1	PM	DHT, BE9
79 S	2	0	PM	DHT
	2	1	PM	DHT
80 W	1	0	PM	DHT
	3	1	PM	DHT
80 S	1	0	PM	DHT
	3	1	PM	DHT
81 W	3	1	PM	DHT

POINT: GON (New London)

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
73 W	3	0	PM	DTO
73 S	2	0	PM	DTO
74 W	2	0	PM	DTO
74 S	2	0	PM	DHT
75 W	2	0	PM	DHT
75 S	1	0	PM	DHT
76 W	3	0	PM	DHT
76 S	2 1	0 2	PM PM	DHT DHT
77 W	2	0	PM	DHT
77 S	1	0	PM	DHT
78 W	2	0	PM	DHT
78 S	2	0	PM	DHT
79 W	1	0	PM	DHT
79 S	1	1	PM	DHT
80 W	1	0	PM	DHT
80 S	1	0	PM	DHT
81 W	1	0	PM	DHT

POINT: POU (Poughkeepsie, N.Y.)

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
73 W	2	0	DD	B99
73 S	2	0	DD	B99
74 W	2	0	DD	B99
74 S	2	0	DD	BE9
75 W	2	0	DD	BE9
75 S	2	0	DD	BE9
	3	1	DD	BE9
76 W	2	1	DD	BE9
	3	2	DD	BE9
76 S	5	1	DD	BE9
77 W	2	0	DD	BE9
	2	1	DD	SH3
77 S	2	0	DD	BE9
	2	1	DD	SHS
78 W	1	0	DD	SH3
	2	1	DD	SH3
78 S	1	0	DD	SH3
	2	1	DD	SH3
79 W	1	0	DD	SH3
	2	1	DD	SH3
79 S	1	0	DD	SH3
	2	1	DD	SH3
80 W	1	0	DD	SH3
	2	1	DD	SH3
80 S	3	1	DD	SH3, DHT
81 W	3	1	DD	SH3 (2), DHT (1)

POINT: PVC (Provincetown)

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
73 W	2	0	PT	PRP (varies)
73 S	4	0	PT	PRP (varies)
74 W	2	0	PT	PRP
74 S	4	0	PT	PRP
75 W	3	0	PT	BNI
75 S	5	0	PT	DC3
76 W	3	0	PT	BNI
76 S	3	0	PT	DC3
77 W	3	0	PT	BNI
77 S	4	0	PT	DC3
78 W	3	0	PT	CN4
78 S	4	0	PT	DC3
79 W	3	0	PT	CN4
79 S	4	0	PT	DC3
80 W	3	0	PT	CNA
80 S	6	0	PT	DC3
81 W	3	0	PT	CNA

POINT: YQB (Quebec)

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
73 W	2	2	QU	B99, TC4
73 S	1 1	1 2	QO QO	B99 B99
74 W	1	2	QO	B99
74 S	1	1	QO	BE9
75 W	1	1	QO	BE9
75 S	1 1	1 2	QO WO	B99 402
76 W	1 1	1 2	QO QO	BE9 BE9
76 S	1 1	1 2	QO QO	BE9 402
77 W	1	0	QO	BE9
77 S	2 1	0 2	QO QO	BE9 BE9
78 W	2 1	0 2	QO QO	BE9 BE9
78 S	4	1	QO	BE9, CN4
79 W	2 1	1 2	QO QO	BE9 BE9
79 S	3	1	QO	BE9
80 W	2 1	1 2	QO QO	BET BET
80 S	1 1	1 2	QO QO	BET BET
81 W	-	-	-	-

POINT: RKD (Rockland)

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
73 W	3	0	XY	PNV
73 S	7	0	XY	PNV
74 W	3	0	DE	PNV
74 S	7	0	DE	PNV
75 W	3	0	DE	PNV
75 S	6	0	DE	PNV
76 W	4	0	DE	PNV
76 S	6	0	DE	PNV
77 W	4	0	DE	PAN
77 S	8	0	DE	PAN
78 W	4	0	DE	PAN
78 S	8	0	DE	DHT, PAF
79 W	4	0	DE	DHT
79 S	8	0	DE	PAF
80 W	4	0	DE	PAG
80 S	4	0	QO	BET
81 W	4 1	0 1	QO QO	BET BET

POINT: WVL

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
73 W	3	1	EX	DTO
	3	1	XQ	B99
	2	2	EX	DTO
73 S	4	1	EX	DTO
	3	1	XQ	B99
	1	2	EX	DTO
	1	3	EX	DTO
74 W	3	1	NE	DC3, B99
	1	3	NE	DTO
74 S	4	1	NE	DC3, DHT
	2	2	NE	DHT
	1	3	NE	DHT
75 W	4	1	NE	DC3, DHT
	2	2	NE	DC3, DHT
75 S	4	1	NE	DC3
	2	2	NE	DHT
76 W	5	1	NE	DHT
	1	2	NE	DHT
76 S	5	1	NE	DHT
	1	2	NE	DHT
77 W	6	1	NE	DHT
77 S	8	0	NE	DHT
78 W	7	1	NE	DHT
78 S	8	1	NE	DHT
79 W	7	1	NE	DHT
79 S	8	1	NE	DHT
80 W	6	1	NE	DHT
80 S	6	1	NE	DHT
81 W	4	1	NE	DHT

POINT: BML (Berlin, N.H.)

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
73 S	2	0	ZM	PAP
74 W	-	-	-	-
74 S	2	1	ZM	PNP
75 W	-	-	-	-
75 S	-	-	-	-
76 W	-	-	-	-
76 S	1	1	XW	ACD
77 W	-	-	-	-

POINT: HIE (Whitefield, N.H.)

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
73 S	2	1	ZM	PAP
74 W	-	-	-	-
74 S	-	-	-	-
75 W	-	-	-	-
75 S	-	-	-	-
76 W	-	-	-	-
76 S	1	0	XW	ACD
77 W	-	-	-	-

POINT: ACY (Atlantic City, N.J.)

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
80 W	1	3	OY	PAG
80 S	1	1	TT	PAG
81 W	-	-	-	-

POINT: CON (Concord)

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
78 S	5	0	RP	PAN
	2	1	RP	PAN
79 W	2	0	RP	PAN
	5	1	RP	PAN
79 S	2	0	RP	PAN
	5	1	RP	PAN
80 W	1	0	RP	PAG
	4	1	RP	PAG
80 S	1	0	RP	PAG
	4	1	RP	PAG
81 W	-	-	-	-

POINT: HTO (East Hampton)

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
80 S	2	0	YL	PAG
81 W	-	-	-	-

POINT: FRG (Farmingdale, N.Y.)

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
78 W	4	0	HX	CNA
78 S	3	0	HX	CNA
79 W	3	0	HX	PAF
79 S	3	0	HX	PAF
80 W	3	0	HX	PAG
80 S	3	0	HX	CNA
81 W	-	-	-	-

POINT: ITH (Ithaca, N.Y.)

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
78 S	3	1	CB	PAN, SWM
79 W	-	-	-	-
79 S	-	-	-	-
80 W	-	-	-	-
80 S	1	1	UR	SWM
81 W	1	1	UR	SWM

POINT: ASH (Nashua)

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
74 W	3	0	ER	TC4
74 S	-	-	-	-
75 W	-	-	-	-
75 W	-	-	-	-
76 W	-	-	-	-
76 S	-	-	-	-
77 W	-	-	-	-
77 S	-	-	-	-
78 W	-	-	-	-
78 S	-	-	-	-
79 W	6	0	RP	PAN
79 S	8	0	RP	PAN
80 W	7	0	RP	PAG, DHT
80 S	7	0	RP	PAG
81 W	-	-	-	-

POINT: PCT (Princeton, N.J.)

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
80 S	2	0	PN	PAG
81 W	2	0	PN	PAG

POINT: ROC (Rochester, N.Y.)

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
81 W	2	1	UR	FK7

POINT: RUT (Rutland)

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
74 W	4	1	RQ	CN4
77 S	3	2	RP	PAN
78 W	3	2	RP	PAN
78 S	3	2	RP	PAN
79 W	1	1	RP	PAN
	3	2	RP	PAN
79 S	3	0	RP	PAN
	2	1	RP	PAN
80 W	4	1	RP	PAG
80 S	4	1	RP	PAG
81 W	4	1	RP	DHT

POINT: YSC (Sherbooke, Quebec)

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
78 S	3	0	QO	BE9
79 W	2	0	QO	BE9
79 S	3	0	QO	BE9
80 W	2	0	QO	BET
80 S	1	0	QO	BET
81 W	-	-	-	-

POINT: VSF (Springfield, Vt.)

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
77 S	4	1	RP	PAN
78 W	3	1	RP	PAN
	1	2	RP	PAN
78 S	3	1	RP	PAN
	1	2	RP	PAN
79 W	3	1	RP	PAN
	1	2	RP	PAN
79 S	1	0	RP	PAN
	2	2	RP	PAN
80 W	2	0	RP	PAG
	1	1	RP	PAG
	1	2	RP	PAG
80 S	2	0	RP	PAG
	1	1	RP	PAG
	1	2	RP	PAG
81 W	4	1	RP	DHT

POINT: ARX (Asbury Park. N.J.)

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
77 S	2	0	VM	BE9
78 W	2	0	VM	BE9
78 S	2	0	VM	BE9
79 W	2	0	VM	BE9
79 W	-	-	-	-

POINT: BED

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
74 S	3	0	WP	B99
75 W	13	0	WP	CES
75 S	14	0	WP	CES, PAZ
76 W	13	0	WP	CES, PAZ
76 S	13	0	WP	CES, PAZ
	2	0	ZE	PNV
77 W	2	0	ZE	PAN
77 S	-	-	-	-
78 W	-	-	-	-
78 S	3	0	ZE	PAN
79 W	2	0	ZE	PAN
79 S	11	0	ZE	PAN
80 W	7	0	OY	PAG
80 S	-	-	-	-

POINT: CEF (Chicopee, Ma.)

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
76 S	2	0	ZE	PNV
77 W	1	0	ZF	PAN
77 S	-	-	-	-

POINT: FRY (Fryeburg, Me.)

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
78 S	1	0	ZM	PAN
	2	1	ZM	PAN
79 W	-	-	-	-

POINT: GFL (Flens Falls, NY)

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
75 S	1	0	C	CV5
76 W	1	0	HO	MU2

POINT: LWM (Lawrence, Ma.)

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
76 S	2	0	ZE	PNV
	2	1	ZE	PNV
77 W	2	1	ZE	PAN
77 S	2	0	ZE	PAN
78 W	7	0	ZE	PAN
78 W	-	-	-	-

POINT: MMV (Morristown, NJ)

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
79 S	3	0	HO	PAN
80 W	-	-	-	-
80 S	-	-	-	-
81 W	-	-	-	-

POINT: EFK (Newport, Vt.)

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
74 S	1	2	ZM	PNV

POINT: NPT (Newport, RI)

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
74 S	2	0	NF	A50
75 W	2	0	NF	A50
75 S	1	0	NF	DDV
	2	1	NF	DDV
76 W	1	1	NF	DDV
76 S	3	1	NF	DDV
77 W	3	1	NF	DHD
77 S	3	1	NF	DHD
	3	1	RI	DHR
78 W	-	-	-	-
78 S	-	-	-	-
79 W	-	-	-	-
79 S	2	1	NF	PAF
80 S	-	-	-	-

POINT: PSF (Pittsfield, Ma)

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
80 W	1	0	RP	PAG
	1	1	RP	PAG
80 S	-	-	-	-

POINT: PYM (Plymouth, Ma)

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
80 W	1	0	VS	PAG
80 S	-	-	-	-

POINT: TEB (Teterboro, NJ)

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
76 W	2	2	WP	PAZ
76 S	2	2	WP	PAZ
77 W	-	-	-	-

POINT: TTN (Trenton, N.J.)

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
80 W	1	2	OY	PAG
80 S	-	-	-	-

POINT: ISS (Wiscasset, Me.)

Year	Frequency (Flights per day)	Service (0:non-stop; 1:one-stop)	Carrier (C:Certificated)	Aircraft Type
78 S	4	0	DE	PAG
79 W	-	-	-	-

APPENDIX 5

Selected Data on Ten Largest Boston Commuter Markets

	City	1979 Population	Estimated 1979 Passengers (Non-Directional)	Direct Air Miles to Boston	Commuter Travel Time	Time for Alternative Travel (Personal Car)
1.	Augusta, ME	20,400	45,000	156	1:04	3:10
2.	Bangor, ME	31,800	20,000	201	1:10	4:00
3.	Burlington, VT	36,600	47,000	181	1:04	3:45
4.	Hyannis, MA	5,000	65,000	61	0:34	1:20
5.	Lebanon, NH	10,100	42,000	109	0:46	2:30
6.	Martha's Vineyard, MA	7,000	28,000	70	0:37	1:30 plus ferry
7.	Nantucket, MA	6,600	38,000	91	0:46	1:30 plus ferry
8.	Portland, ME	59,400	21,000	95	0:45	2:10
9.	Provincetown, MA	3,000	25,000	45	0:30	2:10
10.	Presque Isle, ME	12,500	15,000	332	1:45	6:40