

Economic Regulation of Air Service to Small Communities: Origins of Airline Deregulation Act of 1978

SAMUEL EWER EASTMAN

In 1947 the Civil Aeronautics Board (CAB) created a new class of certificated air carriers subject to federal regulation of rates and routes and eligible for subsidy—the feeder (later to become local service) air carriers. The purpose was to provide air service to small communities. During the years up to the passage of the Airline Deregulation Act of 1978, the CAB sought to balance pressure for more service and more points served against pressure to hold down rising subsidy costs. They did this by improving or strengthening the local's route structure. In a parallel development to the creation of the local service carriers, in 1952 the CAB formalized the transportation provided by the thousands of fixed-base operators that provide on-demand charter service (and some scheduled service) to small communities by issuing Part 298 of its economic regulations. Part 298 established air taxis as air carriers but exempted them from rate and route regulation subject to a basic limitation that they could not operate aircraft that exceeded 12 500 lb gross weight (about one-half the size of a DC-3). Part 298 was amended in 1965 to relieve earlier restrictions, in 1969 to establish the commuter air carrier class, and in 1972 to increase the allowable aircraft size to 30 passengers and 7500 lb payload. The Airline Deregulation Act of 1978 changed these two regimes of economic regulation that controlled air service to small communities. The act provides that essential air transportation is guaranteed to eligible points and introduced a new subsidy program (Section 219) to underwrite essential air transportation for 10 years if the service could not be provided without compensation. Although the thrust of the deregulation act is to free the airlines, in general, from the regulation of rates and routes, in determinations of essential service to small communities (as of August 1979), the CAB has undertaken to regulate service frequency and aircraft size in greater detail than ever before.

In March 1943 the Civil Aeronautics Board (CAB) had before it applications that covered 16 771 miles of feeder routes and 44 966 miles of airmail pickup routes (1). In response to an "avalanche of pressures generated by chambers of commerce, lower levels of government, prospective local service operators, and other components of the feeder movement", it announced its intention to investigate the feasibility of feeder air service (1). At the time the CAB and the U.S. Postal Service were not enthusiastic about the service due mainly to the prospective costs involved. The examiners in the case confirmed this, but the CAB decided to establish feeder air service on an experimental basis, in part to discharge its statutory responsibility (2, pp. 1-3) "...to encourage the development of an air transportation system properly adapted to the present and future needs of the commerce of the United States, the [U.S.] Postal Service, and the national defense, and to encourage the development of civil aeronautics generally."

ACTIONS TO LIMIT SUBSIDY

Much attention was devoted in the findings of the CAB to ways to limit the subsidy that was to be paid by the government (as it had been for the trunklines) in the form of mail compensation (2, pp. 1-3). A number of safeguards were adopted, including limitation of the certificate of operating authority to three years. To show a justifiable expectation of success, the CAB states as follows (2, pp. 1-3)

...It will be incumbent upon each applicant to meet the test of public convenience and necessity by showing a need for the service, the probable use that will be made of it, the effect on existing air services, and a cost to the government in mail compensation bearing a reasonable relation-

ship to these elements and to the character and quality of the service produced.

Later, in the area cases that were concerned with the actual award of feeder routes to particular carriers, the CAB was to limit service eligible for mail pay subsidy to two round trips per day over the route awarded, though the examiners had recommended against such a severe restriction (2, pp. 1-3).

Aircraft Type

The examiners' report showed that the traffic potential of many of the points to be served was small (2, pp. 1-3). Of 88 cities that had populations of less than 50 000 and received air service as of September 1940, 18 cities below 10 000 in population generated 4.05 daily arrivals and departures, 31 cities in the 10 000 to 20 000 bracket generated 5.7 daily arrivals and departures, and 39 cities in the 20 000 to 50 000 bracket generated 13.4 daily arrivals and departures (2). This, along with other considerations, led the examiners to make specific recommendations about the type of aircraft best adapted for local routes. The examiners reported the following consensus among the parties (excluding pickup planes) (2, pp. 1-3):

- (1) Multiple-engined; (2) payload of 2000-3000 pounds; (3) passenger [sic] capacity of 4-12, with appropriate apportionment of the remaining payload for mail and cargo; (4) a copilot who would also act as passenger attendant, ticket seller, cargo handler, and operator of pick-up mechanism where used; (5) cruising speed 150-180 miles per hour; (6) highly maneuverable at low speeds and altitudes; (7) landing speed 50-60 miles per hour; (8) tricycle landing gear, with the design emphasis on crosswind landing conditions; (9) take-off run not more than 1500 feet; (10) folding steps and cabin door which can be opened and closed from the cockpit; (11) space for some amount of luggage in the cabin; (12) bus type interiors without toilet, buffet, hostess facilities, etc.; (13) starter and batteries of sufficient size to dispense with ground batteries; (14) cockpit control of rudder and elevator locking device; (15) cruising range of 300 miles with full load, including fuel load; (16) original cost, including engines, \$25 000 to \$45 000.

Although the need to achieve economies in operation was recognized in order to keep the cost to the government within reasonable limits, the CAB rejected the examiners opinion with the following language (2, pp. 1-3):

The examiners, in emphasizing the necessity for such economies, refer to some specific items such as the use of smaller aircraft, operation with a single pilot, the elimination of luxury services, and the reduction of intermediate station personnel. We do not believe it would be appropriate to specify any such items at this time as being prerequisite to the issuance of the certificate. It is obvious that there are many opportunities

for accomplishing a saving in operating costs, but it is equally obvious that all of them could not be adopted in all cases. We believe that more can be accomplished by leaving the details to the ingenuity of the operators and confining our function at present to fostering overall economies.

New Carriers or Feeder Routes for Trunklines

The examiners also noted that, for any appreciable expansion of air service to have a chance of success at a reasonable cost to the government, operators of the new service would have to achieve substantial savings in operating cost over the cost levels of the trunklines at that time. The examiners went on to state (2, pp. 1-3), "Any substantial economy of operation will have to result from departures from the existing type of service. It is reasonable to assume that necessarily different standards of operation can best be developed by new carriers, organized for such a purpose." The CAB agreed. In addition, the trunklines were, by the mid-1940s well on their way to achieving subsidy-free operation. If the local service experiment failed, better to affect a few small carriers that serve minor routes than major carriers that provide the nation's long-haul air transportation. In the CAB's own language (2, pp. 1-3): "Needless to say, we have an obligation to avoid the adoption of any ill-considered policy with respect to a general expansion of air services that would endanger the results thus far achieved under the enlightened national policy established by [the] Act." In the area cases that followed, 19 new local service carriers were established by the CAB. The subsequent history of these airlines, their demises, and their mergers to the present are shown in Table 1 (3, pp. 499-509).

Protect Trunklines and Keep Locals Local

Having created the category of local service carriers,

the CAB, in making route awards in the area cases that followed the investigation (2), adopted that policy of requiring the feeder carrier to stop at every intermediate point between terminals on every flight. The purpose was twofold: to make the local service specialist carriers provide feeder service (e.g., serve every point on every flight) and, since the terminal points of many feeder routes were cities that already receive scheduled air service, the trunklines would be protected from the competition of the new carriers. This would be particularly important if there were existing nonstop trunkline service between the two local service terminals.

Eads (1) illustrates the effect on the quality of terminal-to-terminal service by imposing an every-stop-on-every-flight requirement by comparing Southwest's Los Angeles to San Francisco feeder route with a stop in Monterey with the air carriers that operate nonstop. With but a 2-min stop in Monterey, Southwest could fly its 401-mile Los Angeles to San Francisco route in 3 h 45 min (about 87 mph); however, the average nonstop time over the 321-mile straight-line route was about 2 h (between 150 and 170 mph). There is evidence that the restriction on Southwest accomplished its purpose of protecting the nonstop terminal-to-terminal service. In the CAB's March 1949 air traffic survey, only 80 of the 21 164 passengers who traveled by air between Los Angeles and San Francisco used Southwest, and only 68 used Southwest all the way (1).

The CAB protected the trunklines in other ways by the route awards that were made to the locals. For example, United and Western Airlines (both trunklines) objected to a single feeder to serve the entire area between Los Angeles and Seattle because intermediate points would not develop sufficient traffic to support regularly scheduled operations and the local would be compelled to seek nonstop authority. To keep the locals local and protect the trunks, the CAB awarded Southwest feeder routes from Los Angeles to Medford, Oregon, and West Coast Air-

Table 1. Chronology of certification and changes for local service carriers.

Carrier	Date of Certification	Date of Inauguration of Service	Initial Equipment	Change to Large Equipment			Date DC-2 Phased Out of Service
				Date	Type	No. of Seats	
Air West ^a	April 17, 1968	April 17, 1968	DC-3, F-27, DC-9				
Allegheny ^b	Jan. 1949	March 7, 1949	DC-3	June 1955	M-202	40	Aug. 1962
Bonanza ^c	Nov. 1949	Dec. 19, 1949	DC-3	March 1959	F-27	40	Nov. 1960
Central ^d	Nov. 1946	Sept. 15, 1949	Beechcraft Bonanza A-35-3 passenger				
		Nov. 1950	DC-3	March 1961	CV-240	40	
Frontier ^e	March 1946	Nov. 1946	DC-3	July 1959	CV-340	44	Nov. 1968
Lake Central ^f	Feb. 1948	Nov. 12, 1949	DC-3	March 1961	CV-340	44	
Mohawk ^g	June 1948	Sept. 19, 1948	DC-3	July 1955	CV-240	40	July 1962
North Central ^h	Oct. 1947	Feb. 24, 1948	Lockheed Electra-Lodestar-12 passenger				
		March 1951	DC-3	April 1959	CV-340	44	Nov. 1968
Ozark	Sept. 1950	Sept. 1950	DC-3	Jan. 1960	F-27	40	Nov. 1968
Piedmont	Dec. 1947	Sept. 1948	DC-3	Nov. 1958	F-27	40	Feb. 1963
Pioneer ⁱ	Nov. 1943	Aug. 1945	Lockheed Electra-Lodestar-12 passenger				
		1946	DC-3	June 1952	M-202	36	
Southern	Feb. 1949	June 1949	DC-3	Oct. 1961	M-404	40	Aug. 1967
Southwest ^k	May 1946	Dec. 1946	DC-3	Nov. 1952	M-202	40	Dec. 1962
Trans Texas ^l	Nov. 1946	Oct. 1947	DC-3	April 1961	CV-240	40	Nov. 1968
West Coast	May 1946	Sept. 1946	DC-3	Sept. 1958	F-27	40	

^a Formed by Merger of Bonanza, West Coast, and Pacific, April 1968.

^b Originally certificated under name of All American Airways; renamed Allegheny, February 1953.

^c Merged with Pacific, April 1968; Pacific changed its name to Air West on that date.

^d Merged with Frontier, October 1967.

^e Originally certificated under name of Summit Airways; renamed Challenger Airlines, March 1947; merged with Arizona Airways, June 1950 to form Monarch Airlines; renamed Frontier Airlines, June 1950.

^f Originally certificated under name of Roscoe Turner Aeronautical Company; renamed Lake Central, November 1950; merged with Allegheny, July 1968.

^g Originally certificated under name of Robinson Aviation; renamed Mohawk, August 1952.

^h Originally certificated under name of Wisconsin Central Airlines; renamed North Central, December 1952.

ⁱ Originally certificated under name of Esair; renamed Pioneer, May 1946; absorbed by Continental, April 1955.

^j In March 1953 Pioneer was forced to terminate Martin service and reconvert to DC-3s.

^k Renamed Pacific Airlines, March 1958; merged with Bonanza and West Coast to become Air West, April 1968.

^l Renamed Texas International, April 1969.

lines was awarded feeder routes from Medford north to Seattle (1).

Subsidy Payment

The examiners recommended the establishment of a maximum mail pay and subsidy rate of 25 cents/plane mile, which would provide substantial scheduled air service coverage of the United States at a cost to the government of \$57 million/year (2, pp. 1-3). The recommendation was based on costs of a 10-passenger, twin-engined aircraft, pilot and copilot who doubled as ticket agent and baggage handler, no-frills service, and part-time ground personnel. In its decision the CAB rejected a limit on either total mail pay or on the maximum mail pay per aircraft mile and instead relied on the issuance of a temporary three-year certificate to limit the liability of the government (2, pp. 1-3).

In the first feeder mail rate case, because of the widely varying costs and revenues for a carrier to start-up a new service, the CAB decided to establish a temporary mail rate subject to future readjustment before a permanent future mail rate was established (1). One commentator has suggested that the local service carriers operated essentially on a cost plus subsidy system while on temporary mail pay-subsidy rates, and this was a factor that contributed to the purchase of aircraft larger than needed to provide feeder service (1). As shown in Table 1, the locals had virtually eliminated all but 20-24 passenger DC-3s from their fleets by mid-1953 and, in later years, they bought even larger equipment. DC-3s were initially attractive because they had been operated successfully by the trunklines and would, therefore, make a positive contribution to the image of the new category of carriers created by the CAB to provide feeder service. Moreover, despite their higher operating costs on low-density feeder routes, DC-3s were available at reasonable prices at a time when capital was difficult for the local service carriers to obtain. Congress improved

the locals' position in capital markets by making their certificates permanent in 1955 (despite strong opposition from the CAB) and by making government guarantees of equipment loans available in 1957.

LIMITED ROUTE STRENGTHENING, 1958-1965

Mail pay and subsidy payment (later called public service revenues) by the federal government to the local service airlines increased steadily from the mid-1940s to the mid-1950s--from \$9 941 000 in 1948 to \$32 938 000 in 1958. An exception was a subsidy decrease in 1955 [see Tables 2 (3) and 3 (3)]. In an effort to hold down subsidy costs, the CAB took a number of actions, including progressive lessening of the restrictions imposed on the route awards to the local service carriers.

The CAB's policy of requiring the local service carriers to stop at every intermediate point between terminals on every flight had never been applied absolutely in all cases. As early as 1946, the CAB's route award to Pioneer Airlines allowed it to operate shuttle service between any two points named in its certificate (1). Modification of the requirement to serve all points on every flight in this way was of considerable value because it allowed Pioneer to operate nonstop between Houston and Austin, Texas, in direct competition with the trunklines. The CAB March 1949 air traffic survey showed that, of 1153 passengers who traveled between Houston and Austin, 651 traveled on Pioneer (1).

Further limitations on the restriction were granted to the following airlines (1):

1. To Southwest in 1948 (terminate flight short of terminal point),
2. To All American (later Allegheny) in 1949 (a maximum of three intermediate stops on a six-intermediate-stop route between Pittsburgh and New York but no nonstops between Scranton-Wilkes Barre and either New York-Newark or Pittsburgh, where trunkline service was already operating), and

Table 2. Selected statistics for local service carriers.

Year	Trunkline					Local Service				
	Passengers (000s)	Stations Served	Avg Passengers per Station		Avg Aircraft Capacity	Passengers (000s)	Stations Served	Avg Passengers per Station		Avg Aircraft Capacity
			Annual	Daily				Annual	Daily	
1948 ^a	12 324	353	34 912	95	33	426	312	1 365	4	20
1949	14 021	367	38 204	105	36	678	318	2 132	6	20
1950	15 978	385	41 501	114	40	969	370	2 619	7	18
1951	20 622	384	53 703	147	42	1 479	384	3 852	11	20
1952 ^a	22 760	385	59 117	162	45	1 735	388	4 472	12	22
1953	26 138	349	74 894	205	49	2 032	356	5 708	16	22
1954	29 347	357	82 204	225	53	2 433	373	6 523	18	22
1955	34 467	357	96 546	265	54	2 940	363	8 099	22	23
1956 ^a	37 596	358	105 017	287	56	3 457	367	9 420	26	23
1957	40 273	351	114 738	314	57	3 955	378	10 463	29	24
1958	39 515	348	113 549	311	59	4 265	401	10 636	29	25
1959	44 488	317	140 341	384	63	5 213	439	11 875	33	27
1960 ^a	45 184	323	139 889	382	71	5 591	459	12 181	33	29
1961	44 669	304	146 938	403	80	6 470	466	13 884	38	31
1962	46 759	294	159 044	436	88	7 651	477	16 040	44	34
1963	53 380	232	230 086	630	92	8 865	445	19 921	55	35
1964 ^a	60 532	234	258 684	707	96	10 481	450	23 291	64	36
1965	69 875	231	302 489	829	98	12 316	468	26 316	72	38
1966	79 382	231	343 645	941	100	15 540	461	33 709	92	42
1967	97 215	232	419 030	1148	102	18 146	459	39 534	108	48
1968 ^a	108 986	233	467 751	1278	108	22 177	463	47 898	131	58
1969	129 883	231	562 264	1540	117	24 547	465	52 789	145	65
1970	122 866	218	563 606	1544	117	26 472	433	61 136	167	70
1971	124 351	218	570 417	1563	122	27 432	432	63 500	174	72
1972 ^a	136 590	215	635 302	1736	126	30 501	422	72 277	197	72

^a Leap year (366 days).

Table 3. Ratio of average daily enplanements per station to average aircraft capacity for trunkline and local service carriers.

Year	Local Service Subsidy (\$000 000s)	Year	Ratio of Daily Enplanements per Station to Average Aircraft Capacity	
			Trunks	Locals
1948	10			
1949	14	1948	2.88	0.20
1950	17	1949	2.92	0.30
1951	19	1950	2.85	0.39
1952		1951	3.50	0.55
1953		1952	3.60	0.55
1954	24	1953	4.18	0.73
1955	22	1954	4.25	0.82
1956	25	1955	4.91	0.96
1957	31	1956	5.12	1.13
1958	33	1957	5.51	1.21
1959	43	1958	5.27	1.16
1960	55	1959	6.10	1.22
1961	62	1960	5.38	1.14
1962	67	1961	5.04	1.23
1963	67	1962	4.95	1.29
1964	63	1963	6.85	1.57
1965	63	1964	7.36	1.78
1966	56	1965	8.46	1.89
1967	51	1966	9.41	2.19
1968	41	1967	11.25	2.25
1969	36	1968	11.83	2.26
1970	34	1969	13.16	2.23
1971		1970	13.20	2.39
1972		1971	12.81	2.42
1973		1972	13.78	2.74
1974	67			
1975	57			
1976	70			

3. To Ozark in 1954 (need make only two intermediate stops between terminal points in certificate).

The Seven States Area Investigation, decided in 1958, was a case that was the start of a second round of area cases in which the CAB awarded route authority. In this case, the CAB overruled the examiners' recommendation of the two-stop "Ozark restriction" and stated that it would be general policy to allow the locals to offer nonstop flights between terminals in their certificates where there was no trunkline service. Also, the CAB would require only one intermediate stop where competitive trunkline service existed (1).

This general policy on restrictions to local service routes stood essentially unchanged from 1958 until 1966. The CAB sought to ensure adequate service to intermediate points by the requirement of a minimum of two round-trip services per day. However, the restrictions on awards of local service routes were no longer primarily the financial health of the trunklines (which had all gone off subsidy between 1949 and 1951). Where direct local-trunkline competition resulted, additional restrictions could be imposed on the locals. Rather, the CAB believed that, if the locals were given nonstop authority in noncompetitive markets and one-stop authority in competitive markets, costs would be lower because longer hops and the elimination of unnecessary stops minimize operating costs (1).

Replacement of Trunks by Locals

Another strategy employed by the CAB to strengthen the locals' routes and reduce mail pay subsidy was to suspend trunk service at a point and replace it with a local service carrier. At least 78 stations were involved during the years 1949-1964, and an av-

erage of about 9.5 passengers/day were generated. The strategy was probably most successful in strengthening the locals where the trunk suspension took place at a city that formerly received joint service by a trunkline and a local. The 51 cities where this was done averaged 31.2 passengers/day during the last year of joint trunk and local operation, so these were the more important traffic centers to begin with because they had more than three times the average of the 78 cities where trunk service was replaced earlier. For example, Atlantic City, New Jersey, originated 19 511 passengers during 1962 of which 10 620 flew on Allegheny and 8891 flew on Eastern Airlines. Eastern was allowed to suspend service at Atlantic City in 1963; in 1974 there were 20 248 passenger originations from Atlantic City, all Allegheny (1).

Certification of New Points

A third strategy of the CAB during this time period was to certificate new points for service by the local service carriers. Most of these came from cities that had poorer traffic potential than the cities the CAB had already authorized for local service (1).

In 1958 the average local station generated 27 passengers a day. The 79 stations added in 1959 (largely as a result of the Seven States Area Investigation) averaged only 4 passengers a day. The 42 stations added in 1960 generated an average of 6 passengers a day, while the 47 stations added during 1961 generated 11 passengers a day on the average. These added stations include trunkline transfers as well as points that had not previously received service, and in general, the former group of stations generated considerably more traffic than did the latter.

Use It or Lose It

In 1958 the CAB formalized a policy that allowed a local service carrier to drop any point that generated less than 5 passengers/day. However, cities resisted (with considerable success) the loss of subsidized air service. In 1966 traffic at 41 of 473 local service points certificated fell below the use-it-or-lose-it standard adopted by the CAB [see Table 4 (1, pp. 119-120)].

Aircraft Type

The theory behind the CAB's route strengthening of the certificates of the local service carriers by (a) modifying the all-points-on-every-flight restriction, (b) replacing trunks with locals, (c) the certification of the locals at new points, and (d) imposing a use-it-or-lose-it requirement at low-density points was to provide for the locals new, larger, and potentially more profitable markets that could offset the losses incurred in the less-dense markets in which they were still required to provide two round-trip services per day. In this way the CAB hoped to reduce the subsidy paid by the federal government.

Route strengthening also encouraged the locals to replace their DC-3s with larger aircraft for operation on their more dense routes. Larger equipment was available in the 1950s and early 1960s from trunkline retirements. At first the CAB resisted replacement of DC-3s. Specifically, when Pioneer replaced all of its DC-3s with 40-seat Martin-202 aircraft in 1952, the CAB disallowed the higher costs associated with the new equipment in computing Pioneer's subsidy payment and paid only the rate

Table 4. Traffic densities by city pair and station for local service carriers.

Avg Daily Passenger Enplanements Generated	Number of City-Pairs			
	1955	1960	1964	1966
City-pair densities				
Total served	^a	5114	6703	^a
<10	^a	4795 ^b	6142 ^c	^a
>10	^a	319	561 ^d	^a
>50	^a	39	93	^a
Points served densities				
<5	90	122 ^e	^a	41
<20	225	^a	^a	186

^a Data not reported.^b Accounts for 94 percent of the local carrier traffic.^c Accounts for 92 percent of the local carrier traffic.^d Accounts for 78 percent of the local carrier traffic.^e Reflects points added in area cases.

that would have been applicable for DC-3 operations. The larger aircraft lacked adaptability to points served by Pioneer. In the CAB's language (4):

It is our conclusion that management's forecasts and estimates were unreasonable and that a sound evaluation of the relative profit-and-loss potential to the carrier of the DC-3 and its replacement with the equipment considered and chosen by the carrier should have led to the retention of the DC-3s.

Two other airlines suffered the same fate, one in 1953 and one in 1955.

The 40-seat Fokker F-27 turboprop became available in 1958 and was the first aircraft purchased new in substantial numbers by the local service carriers. At the same time the trunk carriers began to acquire fleets of jet aircraft and large numbers of used M-404s, CV-340s, and CV-440s became available. These and their turboprop conversions, such as the CV-580, were purchased in addition to the F-27 (3). The table below shows the dates of first acquisition of aircraft types by the local service carriers during this period (3, p. 13).

Carrier	Date	Aircraft	Passenger Capacity
West Coast	Sept. 27, 1958	F-27	40-48
North Central	April 26, 1959	CV-340	44-52
Allegheny	July 1, 1959	CV-540	44-52
Mohawk	Aug. 28, 1959	CV-440	44-52
Pacific	Jan. 8, 1960	M-404	40
Frontier	June 1, 1964	CV-580	44-52
Lake Central	Oct. 29, 1965	Nord-262	26-29
Central	Dec. 1, 1965	CV-600	44-52
Mohawk	June 29, 1966	FH-227	40-52

By the late 1950s, the CAB concluded that aircraft larger than the DC-3 were justified on the denser routes, provided some DC-3s were retained for service to smaller communities. In 1959 the CAB approved Mohawk's mixed fleet of DC-3s and CV-240s with the following language (5, pp. 198-202):

Today, there is abundant evidence that no local service carrier can attain self-sufficiency while

flying only DC-3s. The economics of an all DC-3 operation make it clear that a step in the right direction is to reequip with more modern and efficient aircraft when the public will use the added capacity of the larger aircraft. What is more, we believe that the American traveling public is entitled to receive local-service air transportation with faster, more modern, and larger aircraft, providing, of course, that such service can be obtained at a reasonable subsidy cost. It is our expectation that by providing such better service, additional traffic will be stimulated, which, in turn, will ultimately benefit the local carriers by reducing their dependency upon subsidy support.

The equipment-guaranteed loan program enacted by Congress in 1957 materially assisted in reequipping the locals with larger aircraft during this period. As of the end of 1966, the federal government had guaranteed loans for 47 aircraft worth \$38 million--all for aircraft of 36 or more seat capacity (1).

Subsidy Payment

One observer has reported that between 1958 and 1960, the local service carriers were on open mail subsidy rates 80 percent of the time, despite the CAB's effort to establish the carriers on final rates. Only at this time, when the CAB and the carrier got around to making the rate final, did the CAB scrutinize the costs incurred during the open-rate period and determine those costs to be excluded from the final rate as not consistent with "honest, economical, and efficient management". Although the CAB could, and did, disallow as excessive costs a portion of executive salaries and mileage flown (which affected the carrier's profits), it was naturally reluctant to disallow a major portion of costs that could bankrupt a carrier, such as the operation of too large an aircraft on light-density routes. In this sense the local service carriers operated on a cost plus basis during periods of open rates (1).

Moreover, under this system of compensation, there was little incentive for a local carrier to invest in higher-cost equipment that had lower operating costs, because the higher operating cost of the older equipment during the open rate period would, in all likelihood, be allowed in determining the final rate. The existence of open rates also made it more difficult for the local service carrier to raise capital because it could not present a firm financial position to a would-be lender. Final rates could be reopened by either the CAB or the carrier based on changes in equipment, route patterns, and economic conditions, so it was difficult for the parties to keep the final rate final. To correct these and other deficiencies, the CAB introduced the class rate in 1961 that established a single subsidy rate for all local carriers. The rate was based on the number of available seat miles flown, adjusted for the individual carrier's density factor (miles flown per station) and experienced rate of return and capital structure (1). In 1963 the class rate was amended to make the subsidy neutral among aircraft, thus a bias was removed that made larger piston-engine aircraft profitable on a larger number of routes (1).

ROUTE STRENGTHENING WITHOUT RESTRICTION, 1966-1969

Subsidy payment by the federal government to the local service carriers increased from \$32 938 000 in 1958 to \$67 043 000 in 1963 and declined to \$56 439 000 in 1966. All of these payment levels were well above that experienced in the 1945-1957

period prior to the introduction of route strengthening by the CAB. The increase in subsidy during the period prompted President Kennedy, in 1962, to instruct the CAB (1) "...to develop ... a step-by-step program, with specific annual targets, to assure sharp reduction of operating subsidies...."

The results of the CAB's route strengthening program in city pairs and points served over the years 1958-1965 are summarized in Table 4. The 1966 route structure of the local service carriers was both strengthened and weakened by CAB policies. It was strengthened by a substantial increase in participation by local service carriers in city pair markets that generate more than 10 passengers/day (from 319 in 1960 to 561 in 1964), which accounted for 78 percent of all local service traffic in 1964; but it was weakened by the increase in participation in city pair markets that generate less than 10 passengers/day (4795 in 1960, 6142 in 1964). The number of low-density points served declined over the period, but in 1966 the locals still provided service at 41 points that generated less than 5 passengers/day--a level of traffic that could not support even DC-3 service and was below the use-it-or-lose-it standard.

The CAB's initial response to the challenge to reduce subsidy was a proposed \$43.5 million saving over five years based on (a) reduction in the number of flights per day the government was willing to subsidize, (b) consolidation of airports that were close together, and (c) continued application of the use-it-or-lose-it policy. The program achieved subsidy savings in 1964 and 1965 (1). In 1966 the CAB announced an expansion of the earlier route strengthening policies and applied fewer route restrictions in the certificates of the local service carriers. This provided for the award to the locals of nonstop rights in competition with trunklines in dense short- and medium-haul markets and the award of bypass routes that allowed the locals to overfly traditional traffic hubs into major traffic centers (New York, Washington, Chicago, and Los Angeles). In addition, the CAB allowed three mergers that in-

volved the then 13 local service carriers. To serve these new routes, the locals turned to the purchase of new jet equipment, as shown in Table 5 (1, p. 152).

During 1969-1972, the CAB reversed its action of previous years and put a moratorium on route awards. In 1972 the CAB's Bureau of Operating Rights completed a detailed study of service to small communities based on the operating data of Air West, Allegheny, Frontier, and Texas International. The study concluded (6) "...in general, operation of the standard 40- to 60-seat aircraft employed by local service carriers is economically justified only at points originating 40 or more passengers a day." And conversely, less than 40 originations means that substantial subsidy is required for the provision of two round-trips a day with standard local service equipment. After 1965 the subsidy paid to the local service carriers had been steadily decreasing, and the carriers had sought to discontinue service on their unprofitable, less-dense routes. The trend toward less certificated service on these routes was hastened by the substantial conversion to jet aircraft that could not operate into many small-city airports (6).

In the early 1970s a movement was articulated, initially by the Council of Economic Advisors in their 1970 annual report (7) to deregulate or at least substantially modify the CAB's authority over rate and route awards of the air carriers. In simplest terms, the council argued that CAB policies encouraged service competition at unnecessarily high rates, and that the carriers should be released from the CAB's heavy hand of economic regulation so that normal competition and market forces could prevail. A major study undertaken by the CAB's Bureau of Operating Rights, published in 1974, confirmed that there was (8) "...an overall volume of service that is excessive in relation to demand in competitive markets." The study manifested a regulatory data-processing breakthrough--It was possible to merge computerized route authority data with traffic, service, and financial data to make a comprehensive assessment of the domestic route system as a system.

These and other events set in motion both Senate and House hearings in the mid-1970s on airline regulatory reform, which ultimately culminated in the Airline Deregulation Act of 1978. But, first the other carriers that provided service to small communities (the Part-298 operators) must be considered to put the legislation in proper perspective. A major argument advanced in the early 1970s by both the trunklines and local service carriers against regulatory reform was that, under deregulation, service to small communities, even as it was known then, would disappear.

AIR TAXIS AND COMMUTER AIRLINES

In 1952 the CAB issued Part 298 of its economic regulations (1), which exempted all air carriers (then known as air taxis) that operated aircraft whose maximum takeoff gross weight was 12 500 lb or less from federal economic regulation and most of the data-reporting requirements the CAB imposed on the other air carriers. As has been outlined above, the local service carriers were subject to minute exercise of the CAB's economic control over routes, rates, and practices, on a case-by-case basis. The air taxis, on the other hand, could initiate and terminate operations as they saw fit at prices of their own choosing with two exceptions: They were not to carry mail nor were they to operate between two certificated points. This limitation was imposed to protect the CAB's route awards to both the trunklines and the locals. The weight limit, based

Table 5. Fleet of the local service carrier industry, by type and model of aircraft.

Aircraft	Number in Service on December 31				
	1966	1967	1968	1969	1970
Piston					
Douglas DC-3	97	58	10		
Convair CV-240	27	8			
Convair CV-340/440	56	27	11	4	
Martin 202/404	77	57	44	38	27
Piper PA-31		4	4	4	0
Beech 99					3
Total	257	154	69	46	30
Turboprop					
Nord N-262	0	12	12	1	0
Fairchild F-27/27J	57	44	41	33	28
Fairchild Hiller FH-227	8	48	48	48	47
Convair CV-600	17	28	35	25	25
Convair CV-580	34	66	96	107	107
Nihon YS-11			8	14	21
Total	116	198	240	228	228
Turbojet					
British Aircraft Corporation BAC-111	9	10	14	20	23
Douglas DC-9-10	9	21	31	30	34
Douglas DC-9-30		7	35	65	73
Boeing B-727	4	8	11	6	5
Boeing B-737			6	17	22
Total	22	46	97	138	157
Total	395	398	406	412	415

on approximately one-half the takeoff weight of a DC-3 (1), was imposed to protect the locals from air taxi competition. The air taxis were not eligible to receive mail pay subsidy.

During the mid-1950s and early 1960s, thousands of fixed-base operators at large and small airports all over the country provided on-demand air taxi services under the Part 298 exemption. Only a few operators offered scheduled air taxi service. Initially, such service was not viewed favorably either by the CAB or the locals. One operator was TAG airlines, which in mid-1956 operated nine-passenger DeHavilland Doves between Detroit City Airport and Cleveland Lakefront Airport--a popular, frequent, close-in airport service. In the 1960 Great Lakes service investigation, the CAB amended the certificates of both Lake Central and North Central to provide competitive service (1).

The composition of the scheduled air taxi and commuter industry remained fluid (e.g., carriers came and went) which, although hard on the parties affected, is not unusual when a new industry is in the stages of its early growth. Hard facts are difficult to come by since the requirement to report operating data to the CAB was not established until the last half of 1969. In a 1970 study for the Federal Aviation Administration (FAA) (9) it was noted that, as of November 1970, 168 commuter air carriers registered with the CAB, of which 105 were listed as providing scheduled service. Of the 168, 55 (about 1 in 3) were designated by the CAB as new commuter carriers. In the May 1, 1969, Official Airlines Guide (OAG), 98 commuter carriers are listed. In the November 1, 1970, OAG (16 months later) 57 of the earlier 98 were listed together with 39 new carriers not listed earlier. The 1970 study reports that 5 of the carriers listed by the CAB in November 1970 recently declared bankruptcy and that the records of the commuter trade association at the time, the National Air Transportation Conference, show that 17 commuters ceased operations in 1970 (9).

The numbers and kind of commuter aircraft reported to the CAB in 1970 are shown in the table below (9, p. 5). Note that the table excludes aircraft or carriers engaged solely in mail or cargo service.

Number of Seats	Aircraft	Scheduled Commuter Aircraft
>17	Beech 99	69
	Twin Otter	65
	DH Heron and conversion	19
	DH Dove and conversion	8
	AC-3	5
	Other	10
	Total	176
9-13	Beech 18	62
	Cessna 402	32
	Grumman G-21	19
	Queen Air	18
	Britten Norman Islander	10
	Other	8
	Total	149
<8	Total	212
Total		537

The Beech 18 aircraft was used largely for mail carriage. The important point to note is that, of the 17 seat and larger aircraft, 69 are Beech 99s and 65 are DHC-6 Twin Otters, together 134 out of 176. The design and construction of these two new turboprop feeder or commuter aircraft resulted, at least in

part, from the April 1963 report of the Design Committee of the Association of Local Transport Airlines (ALTA, the subsidized locals' trade association), which called for DC-3 replacement with 18-passenger aircraft that have cruise speed in excess of 300 mph, and pressurization and operating costs of 40 cents/aircraft mile. The 20-passenger Twin Otter was available in 1966 and the 15-passenger B-99 was available in 1967 (3). Thus, although the locals could and did avail themselves of the federal equipment loan guarantee program to purchase large, piston-engined turboprops and the new and even larger jets, the commuter air carriers purchased substantial numbers of two new aircraft types designed to provide service to small communities, and they did it with private funds. Federal equipment loan guarantees were not available to the commuter air carriers until the Airline Deregulation Act of 1978.

In addition to the availability in the late 1960s of new, modern, turboprop aircraft, properly sized for feeder or commuter service, a number of other factors contributed to the stability and growth of commuters. In 1965 the CAB amended Part 298 to allow the carriers that operated under the exemption to carry mail. The restriction that prohibited service between certificated points was also removed.

The latter was important because it paved the way for the commuter replacement agreement wherein a Part 298 exempted-commuter replaced a Section 401 of the Federal Aviation Act of 1958 certificated airline. Responsible commuters that operated the new equipment might be better able to serve small communities (e.g., provide more frequencies in the less-dense markets with smaller equipment) and frequencies that matched local and trunkline connections, that the CAB had awarded the locals, and that could not be operated by them without subsidy. The first such agreement, engineered by Allegheny in 1967, was (and still is) successful. A subsequent attempt, engineered by Frontier, has not been successful.

Commuter Replacement of Certificated Carriers

The first substitute service was at Douglas, Arizona, on July 2, 1967, when Apache, a scheduled air taxi, took over for American Airlines. Allegheny Airlines, in November 1967, proposed to the CAB that its service at Hagerstown, Maryland, be replaced by an air taxi operator who would operate under contract with Allegheny (1). The Beech 99 aircraft to be used in the service was to be equipped to full airline standards, a high level of performance was to be maintained, and reservations would be handled through Allegheny's reservation system. Allegheny agreed to forgo subsidy at Hagerstown and to reestablish service if the experiment was not successful.

The Allegheny commuter (Henson Aviation) was successful. In 1967, 6257 people flew Allegheny's two daily flights. Henson was able to double the traffic in the first year, and in 1976 operated 16 daily flights and carried 42 024 passengers (10). This average annual growth rate of 23.5 percent is far above the traffic growth experienced elsewhere by the trunkline and local service carriers during the same period.

The CAB has since agreed to suspend Allegheny at more than 20 additional points and has allowed other carrier's commuter replacement agreements. As of August 1, 1978, in addition to the 12 commuter airlines that serve points under Allegheny certificates, 4 commuters serve points certificated to Hughes Airwest, 4 serve Ozark points, 4 serve Texas International points, 2 serve points on Delta Airlines, and 1 each serves points on Continental,

Frontier, Hawaiian, National, North Central, and Southern.

Flow-Through Subsidy

Although the financial agreements between the certificated carriers and the commuters vary from case to case, all agreements are the same in that no federal government subsidy is paid for providing air service to the certificated point suspended, either to the certificated carrier or to the commuter. Since the commuter uses smaller, less costly to operate aircraft, the argument was made that replacement service could be provided at less subsidy cost to the government if part of the certificated carriers subsidy could be made to flow through to the commuter.

In April 1974 such an experiment was undertaken in which the commuter, Air Midwest, replaced Frontier at Dodge City, Great Bend, and Hutchinson, Kansas. Air Midwest was to receive \$131 891 for providing the service, which represented a net reduction in Frontier's subsidy and saved the government \$274 109 (11). On July 11, 1975, the U.S. Court of Appeals for the District of Columbia held that, under the law as then written, the CAB could not provide subsidy to an uncertificated air carrier [ALPA v. CAB, 515 Fed. 2nd 1010 (1975)]. Air Midwest and later Air New England were added by the CAB to the list of air carriers eligible for subsidy as a result of this decision. They have been classified as regional air carriers for the purpose of reporting publication only.

Commuter Industry Today

In 1969 the CAB amended Part 298 and recognized the commuter industry, for the first time, by defining a commuter air carrier as an air taxi operator that (a) performs at least five round trips per week between two or more points and publishes flight schedules that specify the times, days of the week, and places between which such flights are to be performed or (b) transports mail by air pursuant to a current contract with the U.S. Postal Service. In

1972 the limits on aircraft size for use by the commuters were raised to minimums of 7500 lb of payload or 30 passengers. Section 38 of the Airline Deregulation Act of 1978 raised the maximum to 56 passengers and 18 000 lb of payload in the case of cargo aircraft.

The commuters, as a category of air carriers, have experienced more rapid growth in the 1970s than have either the domestic trunks or local service carriers. As shown in Tables 6 (12, pp. 12-13) and 7 (12, pp. 12-13), the commuters more than doubled the number of revenue passenger miles flown from 1971 to 1977. Yet, in 1977 they produced less than 10 percent of the revenue passenger miles flown by the locals and less than 1 percent flown by the trunks. The commuter industry is characterized by a large number of small operators--242 reported traffic data to the CAB in 1977, down from 252 in 1976. The top 50 passenger commuter air carriers ranked by passengers are listed in Table 8 (12, p. 14).

Several problems for the commuter air carriers were identified in 1976 by the CAB Task Force on Service to Small Communities. These included the following (13):

1. The lack of a uniform program of joint fares available to all commuters for commuter or certificated carrier operations,
2. The difficulty commuters have in making arrangements with certificated carriers for interline ticketing and baggage matters,
3. The competitive disadvantage commuters face as a result of OAG policies in refusing to list (a) commuter flights chronologically with certificated carrier flights and (b) commuter connecting flights,
4. The difficulties commuters have in arranging for adequate facilities in the main terminals of major airports, and
5. The high fuel prices commuters are paying because of an inability to arrange wholesale contracts.

Perhaps the most progress has been made for the commuters in the increasing number of interline agreements with the certificated carriers. These are the agreements that cover acceptance of a ticket issued by one carrier by connecting carriers and the handling of baggage and freight from origin to destination over more than one carrier. Table 9 shows that the number of both passenger and freight interline agreements has grown substantially from 1976 through 1978.

Commuter air carriers, from the first days of the scheduled air taxis, have had an image problem because they often operate smaller aircraft from remote terminal locations. Where this has been overcome, the more frequent commuter service has usually attracted additional traffic. [For a discussion on the demand for short-haul air service see Eads (1), p. 11.] A number of problems remain, however. The Airline Pilots Association (the trade association of

Table 6. Selected statistics for commuter airlines.

Item	1977	1976	Change (%)
Carriers reporting	242	252	-4.0
Origin and destination passenger	8 505 453	7 304 996	16.4
Passenger miles	946 179 010	770 783 916	22.8
Cargo (lb)	271 241 568	216 811 423	25.1
Mail (lb)	71 395 261	108 596 524	-34.3
Airports served	764	781	-2.2
Passenger markets	1594	1412	12.9
Total markets	2258	2090	8.0

Table 7. Domestic trunk, local service, and commuter growth rates.

Year Ended June 30	Revenue Passenger Miles (000 000s)			Annual Growth Rate (%)		
	Domestic Trunk	Local Service	Commuter ^a	Domestic Trunk	Local Service	Commuter
1971	95 786.3	7 593.7	442.0			
1972	103 118.0	8 224.6	497.1	7.7	8.3	12.5
1973	112 018.6	9 438.8	549.1	8.6	14.8	10.5
1974	118 186.6	10 573.0	643.5	5.5	12.0	17.2
1975	115 917.4	10 365.2	708.0 ^b	-2.2	-2.0	10.0
1976	126 445.3	11 641.4	732.7	9.1	12.3	3.5
1977	134 642.1	12 675.9	834.2	6.5	8.9	13.9
12/31/77 ^c	141 276.3	13 541.7	946.2	7.5	11.7	22.8

^a Includes Caribbean and Alaskan Commuter Carriers.

^b Air New England, formerly a commuter air carrier, inaugurated service as a certificated carrier in January 1975.

^c Annual growth rate for calendar year 1977 is based on change from calendar year 1976.

Table 8. Top 50 passenger commuter air carriers.

Carrier Name	No. of Passengers	Carrier Name	No. of Passengers
Puerto Rico International Airlines, Inc.	738 411	Eagle Aviation	114 202
Golden West Airlines	510 449	Bar Harbor Airways	101 556
Ransome Airlines	375 458	Royale Airlines, Inc.	82 677
Air Wisconsin, Inc.	324 581	Command Airways, Inc.	81 314
Metro Airlines—Metroflight	304 413	Air Illinois	78 000
Antilles Air Boats	264 482	Midstate Airlines	75 008
Rio Airways, Inc.	244 823	Commuter Airlines, Binghamton, N.Y.	73 855
Henson Aviation, Inc.	218 837	Southern Jersey Airlines, Inc.	67 701
Pennsylvania Commuter Airlines	205 264	Chautauqua Airlines, Inc.	66 906
Britt Airlines, Inc.—Verco Air Service	197 715	Marco Island Airways, Inc.	65 714
Alaska Aeronautical Industries, Inc.	194 204	Scheduled Skyways, Inc., Fayetteville	63 465
Provincetown-Boston Airlines, Inc.	193 603	Mississippi Valley Airlines, Inc.	59 838
Royal Hawaiian Airways, Inc.	184 689	Crown Airways, Inc.	58 100
Swift Air Lines, Inc.	176 775	Capitol Airlines	54 122
Altair Airlines, Inc.	174 121	Catalina Airlines, Inc.	52 644
Mackey International Airlines	173 930	South Pacific Island Airways	51 227
Rocky Mountain Airways	164 826	Pocono Airlines, Inc.	48 855
Suburban Airlines	157 098	Vieques Air Link	44 443
Cascade Airways, Inc.	152 123	Davis Airlines, Inc.	43 552
Pilgrim Aviation and Airlines, Inc.	139 944	Chalk's International Airline	43 371
Scenic Airlines, Inc., Las Vegas	136 918	Sierra Pacific Airlines	42 027
Aeromech, Inc.	136 367	Florida Airlines	40 814
Air Sunshine—AAT Airlines	134 494	Harbor Airlines—Oak Harbor Airlines	37 640
Air Caribbean	123 227	Columbia Pacific Airlines, Inc.	36 291
Air North, Inc., Burlington, Vt.	115 390	Polar Airways, Inc.	33 308

Table 9. Summary of interline agreements.

Certificated Carriers	Rank		Number of Agreements with Commuter Airlines		
	1978	1977	1976	1977	1978
American Airlines	1	14	34	51	107
United Air Lines	2	1	63	95	105
Eastern Airlines	3	4	50	81	96
Trans World Airlines	4	6	48	76	94
Braniff International	5	5	44	80	91
Continental Air Lines	6	2	58	86	90
Delta Air Lines	7	3	46	82	89
Ozark Air Lines	8	7	48	73	84
Northwest Airlines	9	8	46	71	81
Western Airlines	10	10	31	64	80
Piedmont Airlines	11	9	46	70	78
Allegheny Airlines	12	11	37	58	67
Frontier Airlines	13	13	32	52	63
Hughes Airwest	14	15	36	50	59
National Airlines	15	12	21	56	59
Texas International	16	17	29	47	58
Southern Airways	17	16	33	47	55
North Central Airways	18	19	24	44	47
Alaska Airlines	19	18	29	46	45
Air New England	20	20	17	37	40
Pan American	21	21	1	35	37
Air Midwest	22	22		26	24

pilots of certificated airlines) scope clause restricts the right of certificated carriers from entering into replacement agreements with commuters without the pilots' approval. Since commuter pilots are generally paid less than their certificated counterparts, this affects the competitive cost advantage commuters otherwise enjoy. [See discussion in the CAB report (3), p. 54.] A second problem is the growing congestion at major airports. Since more than 50 percent of commuter traffic is for business and connects with a certificated carrier, the availability of slots or landing positions at connecting airports is an essential element in commuter service and growth.

REGULATORY REFORM AND SERVICE TO SMALL COMMUNITIES

During hearings held in 1974 on the CAB's practices and procedures, the Senate Subcommittee on Administrative Practice and Procedure of the Committee on

the Judiciary (Senator Kennedy was subcommittee chairperson) was concerned with the problem of loss of service that might result from regulatory reform. In an effort to obtain empirical information that would tend to show the extent to which increased competition might lead to the abandonment of service to small communities, the subcommittee asked the carriers to submit a list of those routes they believed would likely be abandoned if regulatory control of entry and services were significantly liberalized (without any change in the existing direct subsidy paid to the local service carriers). United Air Lines and the Air Transport Association of America (ATA) responded to the subcommittee request.

United reported that 58 out of the total 327 city pairs (17.7 percent) that it served did not cover incremental costs, were beneficiaries of cross-subsidy, and were therefore candidates for abandonment. After adjustment for routes flown to position aircraft, routes flown for their traffic-generating ability (feeder routes), and routes less than 60 miles in length, 29 route segments remained in the United system (8.9 percent of all route segments) that might lose service if regulatory control of entry and prices were significantly liberalized. The 29 segments averaged 155 miles in length, accounted for 0.5 percent of United's total domestic revenue passenger miles, and United lost \$5.5 million in 1974 by serving them.

ATA provided the subcommittee with a study based on the use of a computer model that showed that 372 out of 994 nonstop routes (37.4 percent) flown by the trunk carriers could be candidates for elimination of nonstop trunkline service in the event of liberalized federal regulation. Application of the same adjustments to these data as were applied to the United data leaves 148 nonstop route segments (14.9 percent) that the trunk carriers might cease to serve if federal regulation were changed substantially (14).

The U.S. Department of Transportation (DOT) conducted its own study of air transportation to small communities that challenged the United and ATA studies and went beyond consideration of just nonstop trunkline markets. DOT took the position that the certificated carriers (both trunkline and local service) had for years been abandoning service at low-density points for which they had obtained a certifi-

icate of public convenience and necessity. They pointed out that

1. Trunk carriers served 349 points in 1955 but only served 180 in 1975 and
2. Local service carriers served 477 points in 1962 (the peak year) but only served 380 points in 1975.

In addition, DOT showed (April 1976) that both the trunklines and local service carriers serve only a fraction of the markets for which they have authorization and provide service quality equal to the service quality authorized in an equally small percentage of the markets they do serve (15). From this, DOT concluded that the trunklines and local service carriers had already abandoned most of the low-density markets that they did not want to serve.

DOT's analysis concluded that, of 647 points that still received passenger service by certificated or commuter carriers, loss of all air service at 30 points (4.6 percent) would be a high estimate (16) "under complete deregulation and elimination of the present subsidy system." The 30 points that would lose all service were, almost without exception, points that were served by subsidized local service carriers. This DOT result was based on threshold levels of average daily passengers enplaned (ADPE) at these points that, in turn, determine the economic feasibility of commuter passenger service. The points that lose all service are those that have ADPEs too low for commuter replacement service or those at which stable commuter service had not already been established.

Limitations on Commuter Replacement Service

In their testimony on the Aviation Act of 1975 (S. 2551-H.R. 10261), the joint statement of state organizations (17) noted a number of limitations on commuter replacement of service at certificated points. Thus, as of October 1, 1975, the CAB listed 44 points that received service by commuter air carriers as replacement for certificated carriers. This was far fewer than the decrease of 81 points served by the certificated carriers between 1970 and 1975. They reported that this decrease in the amount of air service offered small communities led some states to establish air service both as a replacement for service abandoned by certificated carriers and as new service required in the public interest.

The state interests also recognized that the then regulatory-subsidy local service system had not provided many small communities with the scheduled and coordinated access to the national air transportation system to which they were entitled. Several reasons were reported for this. Of the 44 replacement points noted by the CAB, 27 (61 percent) were replacements by the Allegheny Airlines Commuter System. It would be difficult, if not impossible, reported the states, to establish such a system again due to existing labor agreements. Growth of commuter replacement service offered by the certificated carriers had been hampered by the restrictive scope clause in carrier labor contracts and by the refusal of the courts to allow flow-through subsidy in the Frontier-Midwest situation.

The state interests' testimony also noted that, although outstanding examples of commuters operating profitably without subsidy existed, in other situations commuter carriers have had to discontinue service. In Oregon, discontinuance was the result of inadequate financing, faulty community relations, or poor market planning. But the Oregon experience clearly demonstrated to the states the need for com-

muters that serve small communities to arrange joint fares and schedules with local public or paratransit operators who provided access to the airport from communities within a radius of 15-20 miles.

Failure of the Subsidy System to Provide Service to Small Communities

Whatever the precise loss of service to small communities that might result from major reform of the regime of federal economic regulation of the certificated carriers and the effectiveness of replacing certificated service with commuters, Congress came to the conclusion that the system of subsidy to the local service carriers had failed in its original purpose--to provide feeder service to small communities. The report of the Senate Committee on Commerce, Science, and Transportation on the Air Transportation Regulatory Reform Act of 1978 (S. 2493) addresses this subject by first noting that the Federal Aviation Act contained no statement of congressional policy on service to small communities and that the (10) "...time for creating a system by which the Congress can determine the direction and scope of support for small community service is long overdue." The report reviews the history and earlier studies of the subsidy system and concludes that the CAB, despite its best efforts to reduce total subsidy payments, has not been successful.

The committee was concerned that, although the local service subsidy had increased, the quality and level of service provided small communities had decreased (10). "The primary reason for this trend is the shift of the local service carriers to fleets of large jet equipment which are operationally and economically unsuitable for small community service. Concurrently, the local service carriers have been quietly, but consistently, pulling out of small communities." The committee was convinced that the trend must be stopped.

AIRLINE DEREGULATION ACT OF 1978

After more than three years of congressional hearings and countless studies, charges, and countercharges, Congress passed and the President signed the Airline Deregulation Act of 1978. The act was a compromise of the Kennedy-Cannon-Pearson Air Transportation Reform Act of 1976, passed by the Senate, and the Air Service Improvement Act of 1978, passed by the House.

The act, which is a comprehensive entire overhaul of the Federal Aviation Act of 1958, reduces the CAB's economic regulatory power over the routes and rates of the certificated carriers, provides for the CAB to transfer such remaining authority as it has to other federal agencies by January 1, 1985, and cease operations (sunset provision). It phases out the present subsidy (with some changes) to the local service carriers in seven years, extends the equipment loan guarantee program for five years, and makes commuter air carriers eligible for participation. Moreover, a new statement of policy regarding service to small communities is added. The act declares the public interest to be "the maintenance of a comprehensive and convenient system of continuous scheduled airline service for small communities and for isolated areas, with direct federal assistance where appropriate."

New Subsidy Program

To provide for direct federal assistance where appropriate, the act adds Section 419 to Title 4 of the Federal Aviation Act of 1958. The new section charges the CAB with the responsibility of providing

"essential air transportation" to "eligible points" and, if the CAB finds that essential air transportation will not be provided to any eligible point without compensation, the CAB is to establish a rate of compensation to be paid for providing essential air transportation. This new subsidy program is to last for 10 years from enactment of the legislation, and the authority to provide compensation for air transportation is to be transferred from the CAB to DOT on January 1, 1985.

Eligible points are defined as all cities listed on air carrier certificates on the date of enactment, including cities at which a certificated carrier has suspended service. Essential air transportation is to be not less than two daily round trips, five days a week, or the level of service actually provided during calendar year 1977. The legislation also provides for the addition of a limited number of new communities to be added to the new community-based subsidy program.

The act also includes specific provisions for the replacement of a subsidized carrier. After January 1, 1983, any carrier may file an application to replace a local service carrier that received subsidy under the old program (18): "The board is directed to grant the application if the applicant shows that it can provide a substantial improvement in the air service being provided and a decrease in the amount of compensation which is required. Any replacement service would be compensated under the new subsidy program." Under similar provisions, applications can be made to replace carriers that operated at a point for two years under the new subsidy program.

Aircraft Type

Guidelines for compensation are provided in Section 419(d) of the legislation. They are to "...include expense elements based upon representative costs of air carriers providing scheduled air transportation of persons, property, and mail, using aircraft of the type determined by the board to be appropriate for providing essential air transportation to the eligible point." The conference report states that the compensation is to be based on the needs of the community and the use of appropriate aircraft (18).

Implementation

The Airline Deregulation Act of 1978 addresses the major problems that have impeded service to small communities, as those problems were identified in the legislative history. Thus the act

1. Makes a deliberate switch in policy in that the communities are to be subsidized, not the carriers;
2. Guarantees service to a selected group of communities;
3. Makes subsidy available to the commuters that operate smaller aircraft; and
4. Requires the CAB to determine the appropriateness of the aircraft type in determining the compensation to be paid.

Although any conclusion as to the success of the act in addressing these matters would be woefully premature, a few comments about how the CAB and its staff have handled implementation of their new legislative responsibilities is appropriate.

Air Service at Carlsbad, Clovis, and Hobbs, New Mexico

In 1978 Texas International Airlines, a subsidized local service carrier, provided the only certifi-

cated scheduled air service between three small communities in New Mexico (Carlsbad, Clovis, and Hobbs) and Albuquerque, New Mexico. Two round trips were made daily by using 40-seat Convair 600 aircraft on a routing from Albuquerque to each of the three cities and back again five days a week, and a single round trip was scheduled on Saturday and Sunday. Average daily enplanements (excluding those of non-certificated carriers) at Carlsbad, Clovis, and Hobbs during the 12 months ended June 30, 1978, were 20.7, 22.1, and 19.4 passengers, respectively.

Texas International Airlines alleged to the CAB that it suffered substantial losses by serving this level of traffic with the 40-seat Convair 600, and on June 23, 1978, they petitioned for authority to suspend service at the three points. On July 21, 1978, Air Midwest, also a certificated carrier, applied to the CAB for a subsidy-eligible route segment that included service between the three small communities and Albuquerque. These filings generated a number of responsive pleadings and, after enactment of the Airline Deregulation Act on October 24, 1978, additional filings and petitions were made by, among others, the three communities, which asked the CAB to determine the level of essential air transportation service at each point, and by two commuter carriers, Crown Aviation and ZIA Airlines, which offered to provide substitute service for Texas International.

In its order (CAB Order 78-12-151, Dec. 21, 1978), the CAB determined, among other matters, that before Section 419 subsidy can be provided for essential air service at small communities, it must first be shown that essential service cannot be provided without federal compensation. The CAB went on to make an interim determination of essential air service for each of the three communities; to determine Crown, ZIA, and Air Midwest fit, willing, and able to perform that service without subsidy; and to grant Texas International an experimental 90-day suspension of service conditioned on the replacement carriers that meet the required level of essential service.

Two-Tiered Equipment and Frequency

In making an interim determination of essential air service, the CAB specified one of two levels of aircraft size and frequency (or presumably some combination of the two) in the following language, taken from the order of December 21, 1978:

For each point 12 nonstop round trips per week (or 24 one-stop round trips per week) between each community and Albuquerque with aircraft having 15 seats or more, to include no less than two round trips daily, Monday through Friday, and one daily round trip each weekend day.

If smaller equipment is used, at each point 24 nonstop round trips per week or 48 one-stop round trips per week, with no less than four round trips daily, Monday through Friday, and two daily round trips each weekend day.

The equipment must be at least twin-engined aircraft meeting all FAA requirements.

Thus, the Airline Deregulation Act of 1978 has swung the CAB full circle from its refusal in the late 1940s to influence the carriers in their selection of equipment. In this case there is a choice, essential air service can be met one of two ways. It is two-tiered: two sets of aircraft size and flight frequency. Either or a combination of both will meet the requirement.

Proposed Guidelines: Essential Air Transportation

The act requires the CAB to set the essential service level for the initial 555 eligible points by October 24, 1979. On May 3, 1979, the CAB issued two notices of proposed rulemaking to implement Section 419. Both were directed toward the determination of essential air service to each eligible point: One was devoted to proposing the procedures to be used (collective or individual point determination) (20), and the other proposed guidelines for use in essential air service determinations (21). Putting procedure to one side, the proposed guidelines identify four service factors to be considered in determining essential air transportation service (for points other than in Alaska)--hubs, equipment, frequencies including scheduling, and stops. The proposed guideline for the first and last of these factors is, in simplest terms, that essential service should consist in the usual case (and many exceptions are noted) of not more than two-stop service to the nearest hub (a point enplaning 0.05 percent or more of all passengers enplaned by certificated carriers in the United States).

Equipment and Frequencies

For equipment--the size and type of aircraft to be used in providing essential air transportation--the CAB's guidelines do not specify that a particular aircraft size be identified. Rather, they propose that FAA's safety standards be relied on. Aware of some public reluctance to accept small aircraft along with the experience on the other side that more frequent service with smaller aircraft has proven successful in developing traffic, the CAB was unwilling to set a minimum size in the proposed guidelines. For example, a lower limit of 10 seats would effectively ground a large portion of the commuter fleet and thus delay establishment of essential service to eligible points. Similarly, pressurized equipment was tentatively not required in the usual case.

Prohibition of service by FAA-certificated single-engined or single-pilot aircraft would have the same effect. The guidelines, however, define essential air service in the usual case, as service by at least twin-engined aircraft with a pilot and copilot. The grounds stated are that service quality, in addition to safety, is the standard to be maintained in this instance.

The guidelines-proposed service frequency is a minimum of two daily round trips, Sunday through Friday, to each designated hub point, and a lower level of service on Saturday, depending on traffic at the point on that day. Flights are to be operated at reasonable times (21) "geared to the nature of the traffic"--morning and late afternoon for one-day round trip business travel, and to match connecting arrivals and departures at the hub. Aircraft size and frequency of service, taken together, are to achieve approximately a 65 percent load factor.

Congress established a minimum guaranteed level of service to small communities, but no maximum. The guidelines adopt the philosophy of the act--minimum government interference--and propose that a self-sufficient service is provided when more than 40 passengers/day are enplaned at a point. At approximately 65 percent load factor, this would be 60 available seats each day in each direction (120 seats each day altogether). This is a level of service beyond which the CAB would not ordinarily guarantee service, a level of service that should be economically self-sufficient and not require federal

subsidy. This service requirement could be met with two round trips with 30-seat aircraft or four round trips with 15-seat aircraft or some other combination of frequencies and equipment. If intermediate points (between the eligible point and the hub) or beyond points are served, so that the available aircraft capacity is shared with other markets, an increased number of flights or turnaround operations would be required to meet the proposed guideline of 60 seats in each direction.

This language in the guidelines is consistent with the language in the CAB's order on air service at Carlsbad, Clovis, and Hobbs, New Mexico. A particular aircraft size is not specified to meet the essential air service requirement. Rather, based on ADPEs at the point and a 65 percent load factor standard, two alternatives of equipment size and frequency are determined. One may speculate that the CAB has adopted, or is in the process of adopting, a two-tiered standard of aircraft size and service frequency in determining essential service at eligible points as directed by the Airline Deregulation Act of 1978.

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Response to Terminal Access Problems at American and United Airlines—John F. Kennedy International Airport

FRANK LaMAGNA AND EDWARD M. WHITLOCK

Air travel at Kennedy International Airport has increased so much that ground transportation systems have become taxed beyond practical capacities. American and United Airlines, in conjunction with the Port Authority of New York and New Jersey, decided to act expeditiously to reconcile bottlenecks in front of the two respective terminals. Surveys were conducted of all traffic on the ground, including pedestrians and vehicles. Findings concluded that (a) curb frontage was insufficient; (b) much of the congestion resulted from the close proximity of the American Airlines exit roadways and United Airlines entrance roadways; (c) substantial through traffic on the same roadways was interacting negatively with the traffic destined for the American and United Airlines terminals; and (d) parking regulations were not being enforced sufficiently. Major change was suggested on the road system and new roads were constructed, which required taking a portion of the parking lot in the central terminal area. Further, through traffic was assigned to a new road system and diverted to a new road on the back side of the parking lot. Crossover areas were eliminated between the two terminals and new, independent hold areas for taxis were developed. Finally, commercial vehicles were separated from private vehicles and new regulatory measures were inaugurated to achieve necessary order and dignity, and thereby eliminate chaos. Construction commenced immediately, and all aspects of the recommended plan were completed within nine months. At a cost of some 100 parking spaces, a new road system produced substantial amenity for all ground travelers. The owners are of the opinion that the benefits far outweigh the costs. This project is a successful example of how carefully designed surveys and total cooperation between owners and operators can result in a properly engineered and constructed project to provide necessary amenity and utility to major ground vehicle-pedestrian congestion.

Continued escalation of air passenger volumes has created burdens on the existing roadway and curb frontage facilities at many air terminals throughout the world. This was the case at the American and United Airlines terminals at John F. Kennedy International Airport.

The airport was designed and opened in the 1950s to accommodate approximately 16 million passengers annually. Since then, the basic roadway system was modified to accommodate 21 million passengers in 1976 and 27 million passengers in 1980.

As passenger traffic continued to escalate, airport authorities undertook studies to revise the present road concept and devise a master plan that would eliminate much of the congestion and provide adequate capacity to handle future air passengers.

Because these plans were long term, American and United Airlines, with the cooperation of the Port Authority of New York and New Jersey, indicated their desire to develop plans that could alleviate some of their immediate problems, in view of the expected growth patterns.

PLANNING PHASE

To obtain a thorough knowledge of traffic activities, an extensive field study of all travelers was conducted at the American and United Airlines terminals. The date and time of survey were chosen by the carriers and consultant, Wilbur Smith and Associates, as representative of typical peak-period activity.

Figure 1 identifies the traffic survey stations and roadway configuration in existence at the time of the study. The existing roadway system was a one-way configuration that had free turns, merging lanes, and required minimum stops except at grade-level pedestrian crossings.

Special in-depth roadway surveys and passenger interviews were conducted to trace the vehicle paths in the vicinity of the two terminals. The studies provided passenger characteristics that were useful in developing future plans, including the following:

1. Mode of arrival and departure;
2. Arrival distribution patterns of passengers;
3. Number of visitors versus passengers;
4. Parking duration patterns at long-term and short-term parking lots; and
5. Vehicle dwell and loading-unloading times at curb.

Some of the key survey results are shown below and were the basis for the development of future plans.