

Final Report

Iowa Air Service Study

**Prepared for:
The Iowa Airlink Commission**

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TABLE OF CONTENTS

EXECUTIVE SUMMARY	i
FINDINGS	i
RECOMMENDED ACTIONS	ii
I. RECENT TRENDS IN IOWA AIR SERVICE	1
INTRODUCTION	1
PRESENT IOWA SERVICE LEVELS	2
Intra-State Service	2
Service Beyond Iowa	5
DEMAND FOR AIR SERVICE IN IOWA	10
PEER AIRPORT COMPARISON	14
II. BACKGROUND ON TRENDS IN AVIATION INDUSTRY AND GOVERNMENT	20
NATIONAL TRENDS IN THE AIRLINE INDUSTRY	20
Industry Environment	20
Hubbing	20
Computer Reservations Systems	21
Frequent Flier Programs	22
Aircraft Fleets	22
Code Sharing with Regional Airlines	22
Slots	24
Industry Consolidation and Economic Recession	25
CHANGING FEDERAL, STATE, AND LOCAL ROLES	28
Federal Government	28
State Government	28
Local Government	29
AIR SERVICE PROGRAMS IN OTHER STATES	29
Michigan	30
South Dakota	32
North Dakota	33
Other State Programs	34

TABLE OF CONTENTS (Cont'd)

III. AIR SERVICE OPTIONS	35
ADMINISTRATIVE ACTION	35
Short-Term Planning	35
Long-Term Planning	36
Promotions	37
AIR PASSENGER SERVICE	39
Market Development Grants	39
Carrier Subsidies	42
Subsidized Intra-State Service	43
Route Subsidies	44
Loan Guarantees/Interest Buy-downs	46
AIR CARGO GATEWAY STRATEGY	49
Marketing Strategy	50
Scheduling Options	51
Equipment Type	51
Proposed Routings	51

LIST OF APPENDICES

APPENDIX 1. SUMMARY OF DEVELOPMENT OPTIONS FOR INDIVIDUAL CITIES
APPENDIX 2. SPECIFIC CITY ECONOMIC FINDINGS
APPENDIX 3. AIRPORT SERVICE REGIONS
APPENDIX 4. DECEMBER 1990 SCHEDULE FOR IOWA AIRPORTS
APPENDIX 5. REVIEW OF MARKETING LITERATURE
APPENDIX 6. AIR CARGO TRAFFIC FORECAST METHODOLOGY
APPENDIX 7. ACKNOWLEDGEMENTS

LIST OF TABLES

TABLE 1. IOWA AIR SERVICE TO HUB CITIES	6
TABLE 2. MORNING ARRIVAL TIMES TO IOWA CITIES FROM MAJOR AIRLINE HUBS	9
TABLE 3. KEY INFLUENCES ON PASSENGER DEMAND BY AIRPORT	11
TABLE 4. JET CITY SCHEDULE COMPARISON	17
TABLE 5. COMMUTER CITY SCHEDULE COMPARISON	18
TABLE 6. MARKET DOMINANCE AT AIRLINE HUBS WITH DIRECT SERVICE (1988)	21
TABLE 7. TOP 10 IOWA DESTINATIONS DURING 1989	25
TABLE 8. SUMMARY OF STATE AIR-SERVICE PROGRAMS	30
TABLE 9. MICHIGAN AIRPORT PASSENGERS	31
TABLE 10. AIRCRAFT PURCHASE COSTS	47

LIST OF FIGURES

Figure 1. Intra-Iowa Air Service, 1987	3
Figure 2. Intra-Iowa Air Service, 1990	4
Figure 3. Number of Daily Non-Stop Flights From Iowa to Airline Hubs (1987)	7
Figure 4. Number of Daily Non-Stop Flights From Iowa to Airline Hubs (1990)	8
Figure 5. Enplanements Per Capita for Iowa Airports with Jet Service	12
Figure 6. Enplanements Per Capita for Iowa Airports with Commuter Service	13
Figure 7. Per Capita Enplanements for Peer Jet Airports	15
Figure 8. Per Capita Enplanements for Peer Commuter Airports	16
Figure 9. Current Aircraft Orders by Carrier	23
Figure 10. Daily Jet Fuel Costs Per Gallon	27

EXECUTIVE SUMMARY

Economic deregulation of the airline industry in 1978 dramatically altered the operating environment of the industry, with major impacts on mid-western states. Free from government regulation, airlines reorganized. For some cities, this meant a major increase in air service as they became airline hubs. Other communities saw passenger and service levels decline as airlines shifted limited resources to more profitable routes.

As with most mid-western states, Iowa was not spared the negative effects of deregulation. Jet service was withdrawn from all but three communities, service levels deteriorated, and travel to destinations within Iowa often meant flying first to Chicago, Minneapolis, or St. Louis. Not surprisingly, demand for air travel declined.

Given the economic and social importance of good air service, Iowa has joined other mid-western states in becoming pro-active in its efforts to improve service. Last year the State Legislature established the Iowa Airlink Commission to examine options for better services and to recommend a course of action.

FINDINGS

The findings of this report to the Commission vary by city and region but reach several common conclusions about Iowa's current air service:

- State-wide demand for air service has recovered strongly since its nadir in 1983;
- The quality of intra-state air service has declined significantly over the past several years *but* most communities emphasize the need to improve service to large, out-of-State cities;
- Demand for air service depends most directly on non-farm income and employment, rather than on population in general;
- The quality and extent of air service has a major influence on demand; and
- Recent service reductions result from airline industry difficulties rather than events in Iowa.

Based on these findings this study concludes that:

- The future outlook for improved air service in the State is encouraging, with opportunities at almost every airport;
- There is a family of specific actions the State and local communities can take to help improve air service; and

- State government and local communities should share responsibility for all phases of implementation to make an air service program effective.

In general, Iowa already has a base of adequate air service (with a few significant exceptions). Therefore, a targeted -- and coordinated -- series of actions by the State and local communities should be effective as well as cost-effective.

Several common-sense principles have been used in developing the options described here. Most important is the need to encourage financial cost-effectiveness. In general, costs should be shared between the State government and individual communities both because this will help encourage cost-effective programs and because improved air service benefits the State as well as individual communities. In addition, since one goal is to develop long-term stability rather than to provide an open public purse, the State's share of costs should decline over time. Subsidies can encourage efficient management if they incorporate incentives to share costs -- and cost savings.

Finally, spending should be targeted at identifiable improvements or for specific communities. For example, loan guarantees are questionable because of their often tenuous link to specific improvements (in addition to a large financial exposure for the State). Further, prior to implementation, goals should be set and each program monitored with regular reports to the Legislature and to the responsible State agencies and local communities.

RECOMMENDED ACTIONS

This study examined a wide array of options to improve air service in Iowa. Based on a comprehensive survey of actions underway in other states, an analysis of Iowa's current air service shortfalls, and a quantitative and qualitative review of a broad range of specific options, we have prepared a recommended plan of action for the State. The Summary Table below presents the estimated costs to the State of this plan over the next three years.

Even with a twenty percent contingency factor, because the new programs can be phased in over time, the costs for the State of Iowa should not exceed \$3.6 million over the next three years. Local matching shares could raise more than \$800,000 over three years, that amount being derived from those communities that implemented new routes or route subsidies. The allocation of funds across communities depends in large part on the which routes are considered for possible subsidies. In any case, each of the eleven communities that had commercial air service as of 1988 would be eligible. These include: Burlington, Cedar Rapids, Clinton, Des Moines, Dubuque, Fort Dodge, Mason City, Ottumwa, Sioux City, Spencer, and Waterloo.

**SUMMARY COST SCHEDULE:
PROPOSED AIR SERVICE DEVELOPMENT PLAN**

PROGRAM	YEAR 1	YEAR 2	YEAR 3	TOTAL
1. State Commercial Airport Planning Office				
- Office/Operations	\$120,000	\$160,000	\$160,000	\$440,000
- State Strategic Planning		50,000		50,000
2. Matching Grants for Local Airport Promotion	220,000	220,000	220,000	660,000
3. Matching Grants for New Routes				
-Proposals	45,000	15,000	15,000	75,000
-Subsidies	100,000	185,000	250,000	535,000
4. Intra-State Routes	200,000	370,000	300,000	870,000
5. International Air Cargo Feasibility Study	100,000	100,000		200,000
SUBTOTAL	\$785,000	\$1,100,000	\$945,000	\$2,830,000
20% CONTINGENCY	157,000	220,000	189,000	566,000
TOTAL COSTS	\$942,000	\$1,320,000	\$1,134,000	\$3,396,000

This package is based on estimated program costs and, in the case of proposed air service options, the likelihood of success. While costs have been estimated for each program category, costs in future years will depend in large part on the success of the air service programs recommended. This does not suggest, however, that the State risks paying more for the program, but rather that successes or failures will lead to subsequent decisions regarding program continuation.

Summaries of each recommendation are provided below, listed in order of priority. In addition, Section III of the full report includes a complete discussion and analysis of these options as well as some options not recommended for implementation.

Recommendation No. 1: Establish State Commercial Aviation Planning Office

Awareness and support at the State level for local actions to improve air service will be critical to the ultimate success of any aviation initiatives. In addition, activities undertaken by each community to pursue air service -- including data collection, market analysis, and promotional efforts -- could duplicate efforts underway at other airports, increasing State-wide costs.

The State currently does not commit resources to building commercial aviation. Therefore, the Legislature should establish a small, State-level office to:

- Provide technical assistance,
- Work with communities as they request improved service from airlines,
- Coordinate actions across Iowa's commercial airports,
- Administer and monitor State commercial aviation funding initiatives, and
- Prepare strategic plans for the State (on a 5-year schedule) and work with communities for local strategic plans.

The first-year costs are estimated at \$118,000 with costs in later years reaching \$176,000 (we also recommend an additional \$50,000 every two years for strategic planning).

Recommendation No. 2: Matching Grants for Local Airport Promotion

One of the most cost-effective means of building traffic is to increase public awareness of the service that already exists. Therefore, the State should provide matching grants to help local communities to plan and implement public awareness programs, with the specific program to be determined and carried out by the local community. The estimated State costs of \$200,000 a year assumes each community with commercial service will elect to take advantage of the funding. Grants would be awarded based on a review of proposals submitted to the State for those communities electing to participate. A

minimum of \$10,000 and a maximum of \$30,000 would be available to each airport with a required local match of 20 percent of program costs. Average State and local funds for each community would total \$24,000 per year.

Recommendation No. 3: Matching Grants to Provide Financial Incentives for New Inter-State Routes

Because better service leads to increased demand for service, we recommend that the State make available matching grants for temporary route subsidies as a means to add new carrier or route service. This program would best serve the larger Iowa communities that are seeking an additional connection or market. The State share of this program would decline over time from 80 percent to 50 percent over three years (for each route individually) in order to encourage the locality to recognize the costs of a route that is not successful.

We propose three routes initially, with the expected State share per route to be at least \$25,000 with and a maximum of \$100,000. Based on our proposed phase-in of these routes, the maximum State contribution would start at \$80,000 and increase to \$195,000 by the third year. The phase-in approach would reduce financial risk to the State by limiting exposure at any given time. The three routes we recommend consideration of include: Dubuque to St. Louis, Sioux City to Kansas City, and Waterloo to Kansas City.

In addition to the direct airlines subsidies, this program would require an allocation for the preparation of each airline marketing proposal (with State/local shares at 60/40 percent). Project program costs to the State would initially be higher than in subsequent years to accommodate the three proposed routes. In addition, it is expected that the program will remain in place and continue to be available as new prospective markets are identified and as local communities generate their share of costs.

Recommendation No. 4: Matching Grants to Establish Intra-State Routes

As suggested above, many Iowa communities already have intra-State service. Therefore, the State should establish a program that targets intra-State service where none currently exists and where the community feels the service is needed. The most cost-effective way to add new intra-State service would be to pursue service initially by helping operators of small passenger aircraft (6 to 8 seats) to initiate service on those routes. This program would be best suited to smaller airports or airports with definite intra-State service shortcomings. Although our team has identified some potential routes, the program would initially include 3 or 4 communities on a voluntary participation basis. The connections that meet these criteria include Burlington, Clinton, Dubuque, and Sioux City to and from Des Moines.

As with route subsidies, the State share would be fixed at a maximum of \$100,000 per route and no less than \$25,000 per route. To encourage efficiency and to help defray costs, each participating community would be required to contribute a matching share (which would increase over time). The service would be reviewed on an annual basis and a new contract negotiated based on actual costs and traffic. This would allow close

monitoring and, in the event of a successful (profitable) route initiation, would avoid unnecessary State and community service subsidies.

Recommendation 5: Study International Air Cargo Feasibility

Serious air and ground congestion at major hub airports such as Chicago's O'Hare creates incentives to "overfly" these problem areas. This trend has now spread to international air cargo service with Huntsville, Alabama, recently receiving non-stop cargo flights from Europe as a way to bypass the Atlanta hub. Iowa's relatively uncongested road network and excellent Interstate access to industrial sections of the Midwest may provide a similar opportunity to locate an international air cargo center in the State.

While other states are likely to recognize and pursue the same opportunity, the economic development potential is so significant that a full-scale feasibility study should be undertaken as soon as practical. Any such effort should be State-wide in nature to ensure that the several potentially attractive locations in the State do not waste an opportunity by competing among themselves. This study would include three phases, each dependent on a successful completion of the prior one: overall concept feasibility, city identification, and full-scale analysis. The first two aspects could be analyzed for about \$100,000, with an additional \$100,000 needed to complete the analysis and to develop a detailed marketing plan for the proposed city.

I. RECENT TRENDS IN IOWA AIR SERVICE

INTRODUCTION

The importance of high-quality airline service cannot be overstated in today's global economy. As the effects of airline deregulation were felt, many states with large rural populations experienced a dramatic decline in airline service. Jet service was replaced with small commuter planes and in some cases commercial air service ceased altogether.

The ensuing changes to the airline industry caused by deregulation drastically altered Iowa's air service. Many Iowa cities went from having direct jet service to major U.S. cities to merely becoming feeders on carrier hub and spoke networks. Additionally, dedicated intra-state routes were eliminated, unless they were by-products of flights to airline hubs.

Given the vital importance of air service, the state legislative formed the Iowa Airlink Transportation Commission to examine options to improve air service within Iowa and to points outside the state.

This report contains four chapters. The balance of this chapter summaries findings regarding the quality of Iowa's current air service. The next chapter reviews the influences of recent national trends within the airline industry, the changing roles of federal, state, and local government, and actions by other states to promote commercial aviation. Chapter three describes the policy options analyzed as part of this study and presents a series of specific actions that the state and local governments can undertake to improve air service as well as the costs of those options. Several Appendices provide background information.

The study examined the full range of factors that contribute to local air service and the demand for air travel. Our team has visited with community leaders, airport officials, travel agents, and business leaders throughout the state and with airline representatives. We visited every airport with scheduled passenger service as well as several that do not have commercial air service.

Appendix 6 lists the local officials and other individuals interviewed as part of this study. Their help, sincerity interest, and enthusiasm have been invaluable and provide a reason for optimism about the future of local air service in Iowa.

The mandate of the Airlink Commission has been to study commercial, scheduled air service with an emphasis on passenger traffic. Air cargo option were reviewed as well and one promising option has been identified. General aviation and charter services also play important economic roles, but these were not the focus of this study.

PRESENT IOWA SERVICE LEVELS

An important first step is to evaluate current level of air service both within Iowa and to and from points outside the state. This section summaries findings presented in more detail in previous reports.¹

Currently, three Iowa cities (Des Moines, Cedar Rapids, and Sioux City) have jet service as well as service by prop planes. Omaha, Nebraska and Moline (Quad Cities) also serve Iowa communities with jet and prop service. Seven cities have scheduled commuter service but no jets (Burlington, Dubuque, Fort Dodge, Mason City, Ottumwa, Spencer, and Waterloo).

Intra-State Service

The extent of air service between cities within the state of Iowa has declined since 1987. Figures 1 and 2 show the number of weekly non-stop commercial flights among Iowa cities for July 1987 and July 1990. In addition to a decline in the total number of flights from 313 to 208, there has been a clear shift from a network with service centered on Des Moines and Cedar Rapids to one with no real focus. In 1987, for example, Des Moines had non-stop service to six other Iowa cities and accounted for nearly 40 percent of intra-state flights (122). Now Des Moines connects with three cities and has only 12 percent of intra-state flights (24)

With a few exceptions, since the commercial failure of Iowa Air in 1989, most intra-Iowa air service results as a by-product of a airline service to points outside Iowa. For example, American Airlines flies between Waterloo and Dubuque as part of its connection to Chicago. While combining trips from more than one city helps improve a carriers' ability to make money, it can lead to a sporadic schedule and costly fares on in-state flights. Further, because cities are linked in pairs rather than as part of a network, it limits the ability of most Iowans to fly to more than one or two other Iowa cities.

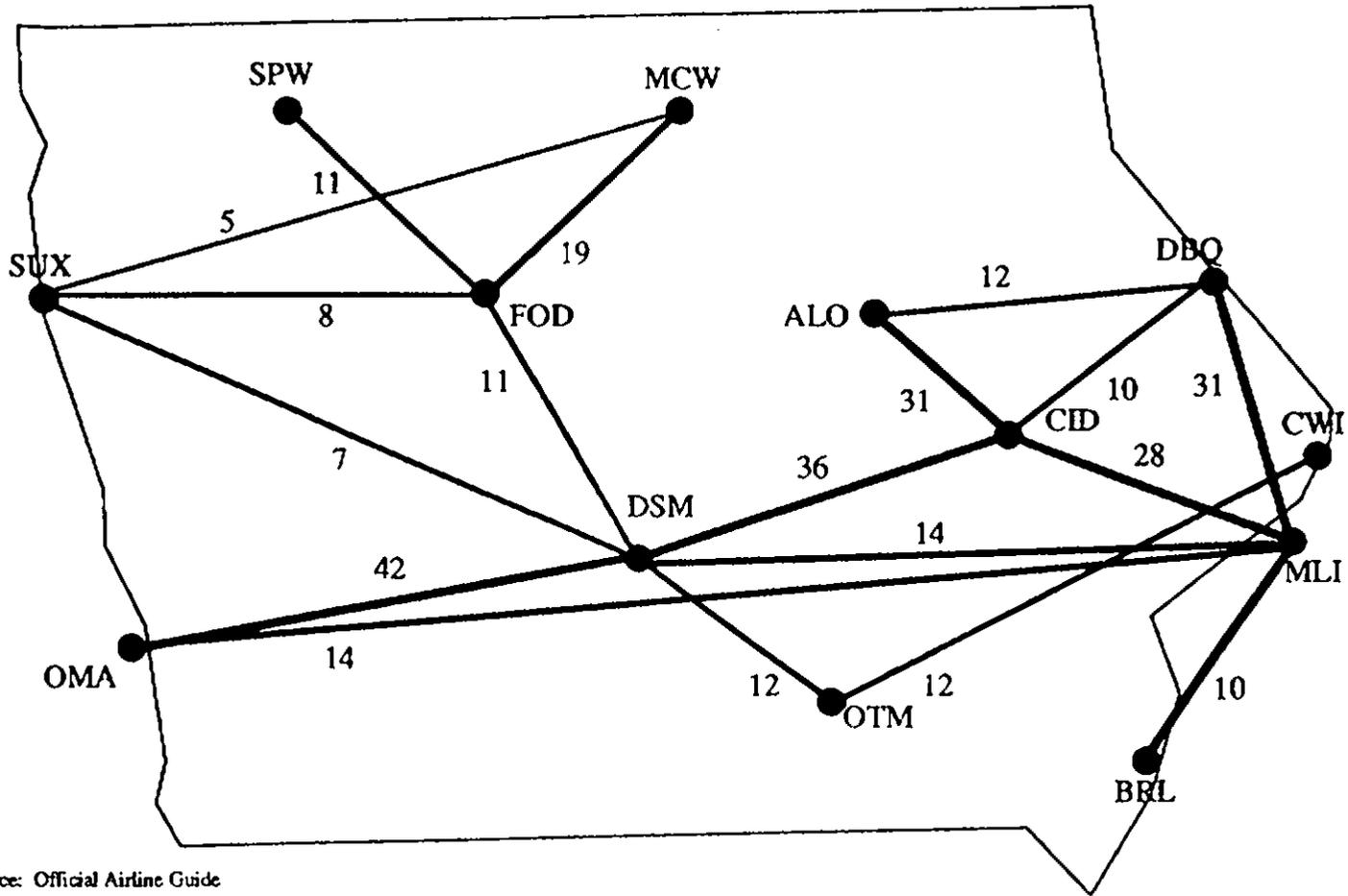
For communities with only commuter service, the Northern Iowa cities are well connected. Even these connections, however, are by-products of airline routes to Minneapolis and Chicago and, therefore, subject to abrupt shifts in service as airlines continually refine and change their route structures. For example, Northwest Airlink recently began non-stop service between Mason City and Waterloo, but does not offer a non-stop return flight to Mason City (Nor does any other carrier -- a clear case of you can get there, but not get back).

¹*Iowa Air Service Analysis Interim Report*, (July 13, 1990) and *Iowa Air Service Study Detailed Analysis, Phase I*, (September 14, 1990), prepared for the Iowa Airlink Commission.

Figure 1.

INTRA-IOWA AIR SERVICE

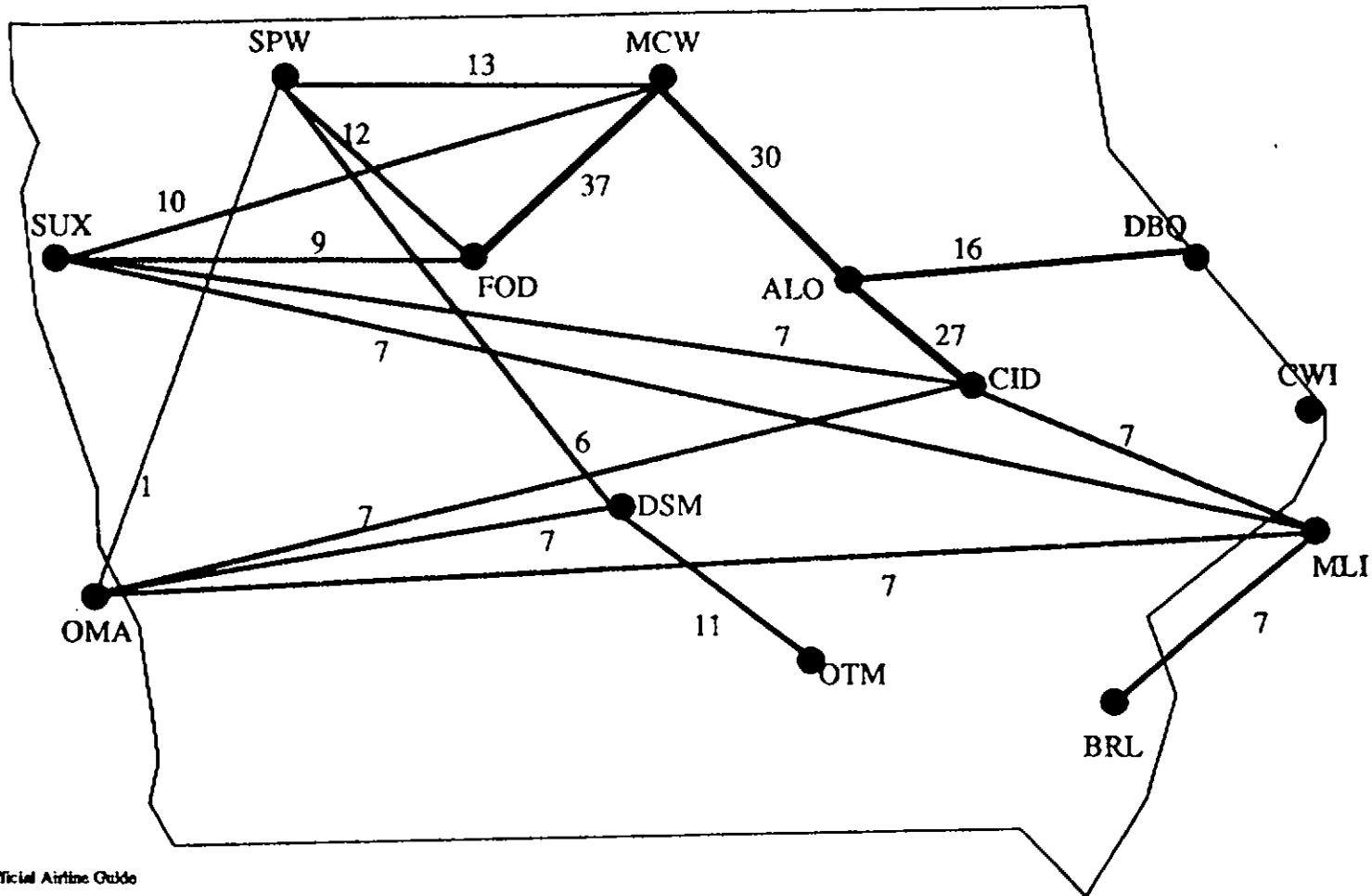
Weekly One-Way Non-Stop Frequencies
July 1987



Source: Official Airline Guide

Figure 2.

INTRA-IOWA AIR SERVICE Weekly One-Way Non-Stop Frequencies July 1990



Source: Official Airline Guide

Service Beyond Iowa

Service to points outside the state was evaluated in many ways, but is summarized here in terms of number of flights, access to airline hubs and the special problems of the commuter markets.

Service to and from Iowa has remained stable over the last three years with a net loss of only three flights, or less than two percent (Table 1). However, this small decline is deceptive, as half a dozen jet flights have been replaced with commuter flights over that time (Figures 3 and 4). A result is a loss of nearly 300,000 seats per year. Such a reduction also means that discounted and promotional fares become more scarce -- raising the cost of air travel to Iowans. American west's recent decision to withdraw service to Sioux City will further raise air travel costs.

Given a national aviation system that depends on the hub and spoke systems, access to Iowa is reasonable, with state-wide service to airline hubs in Chicago (American and United), Minneapolis (Northwestern), and St. Louis (TWA).² Additionally, the three jet airports have non-stop or direct service to Denver, Phoenix, and Kansas City. Des Moines also enjoys non-stop service to Dallas, Milwaukee, and Chicago Midway.

While flying to Iowa is not difficult, scheduling of service can certainly be improved, especially in commuter markets. It is virtually impossible for travellers East of the Mississippi River to arrive in Iowa for early morning meetings because few flights arrive before 9:30 and passengers usually must make early connections through Chicago, Minneapolis, and St. Louis (Table 2). This problem is exacerbated because for many airlines, the last flight of the day leaves in late afternoon, making one-day business trips to smaller communities difficult to arrange.

Cities served only by commuter airports, however, face some special problems. For example, one complaint of Iowa travellers departing from commuter markets has been the difficulty in purchasing discounted fares for family leisure travel. This occurs, in part, because 19 to 35 seat aircraft generally do not have more than 4 to 7 seats available at discounted fares. While this problem is not likely to change in the near future, the introduction in 1993 of commuter jets that seat 45 to 75 passengers will help alleviate this problem and give leisure travellers an alternative to driving to larger cities.

Additionally, Iowans may avoid airports that only have commuter service because of the perception that commuter aircraft are less reliable than jet aircraft. In reality, however, the older props have been largely phased out of Iowa service. Turbo-fan commuter aircraft achieve reliability rates of 98 percent and higher. Carriers such as Great Lakes, Northwest Airlink, and TWExpress fly virtually all turbo-fan pressurized aircraft. These aircraft -- Beech 1900s, Jetstream 31s and Saab 340s -- can be seen at every Iowa commercial airport.

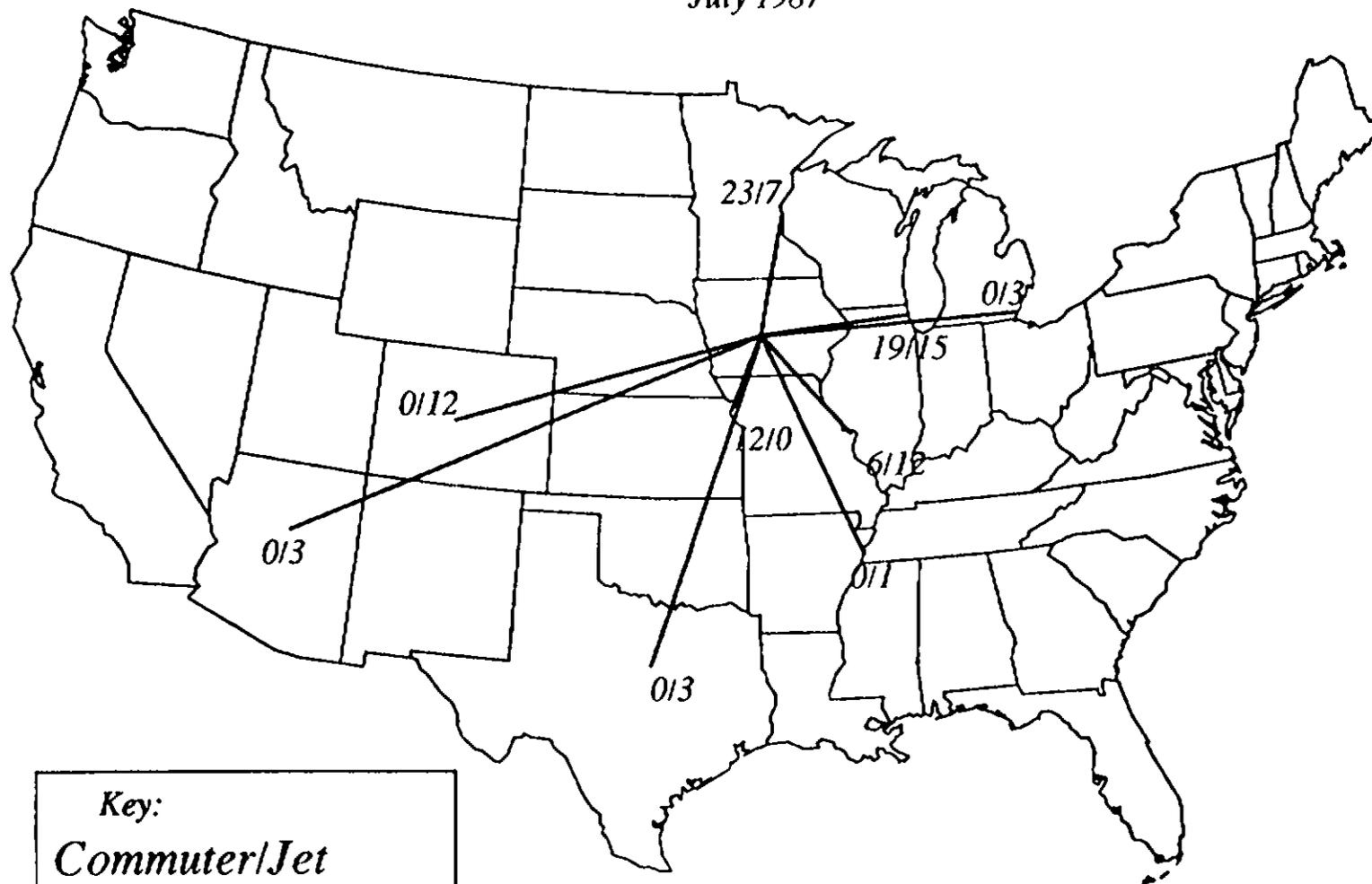
² There are much more than thirty flights a day to Chicago and Minneapolis and more than twenty to St. Louis.

TABLE 1.
IOWA AIR SERVICE TO HUB CITIES

Destination	No. of Commuter Flights Per Day	No. of Jet Flights Per Day	Absolute Change Commuter/Jet
Chicago 1987	19	15	+1/-1
Chicago 1990	20	14	
Denver 1987		12	/-6
Denver 1990		6	
Detroit 1987		3	/-3
Detroit 1990		0	
Dallas 1987		3	/+1
Dallas 1990		4	
Cincinnati 1987	0		+1/
Cincinnati 1990	1		
Memphis 1987		1	/-1
Memphis 1990		0	
Milwaukee 1987	0		+2/
Milwaukee 1990	2		
Minneapolis 1987	23	7	+1/+1
Minneapolis 1990	24	8	
Kansas City 1987	12		-2/
Kansas City 1990	10		
Phoenix 1987		3	/
Phoenix 1990		3	
St. Louis 1987	6	12	3/0
St. Louis 1990	9	12	
Total 1987	60	56	+6/-9
Total 1990	66	47	

Source: Apogee Research based on *Official Airline Guide*, July 1987 and July 1990.

Figure 3.
 Number of Daily Non-Stop Flights from Iowa to Airline Hubs
 July 1987



Key:
Commuter/Jet
 Total: 60 Commuter/56 Jet

Figure 4.
Number of Daily Non-Stop Flights from Iowa to Airline Hubs
July 1990

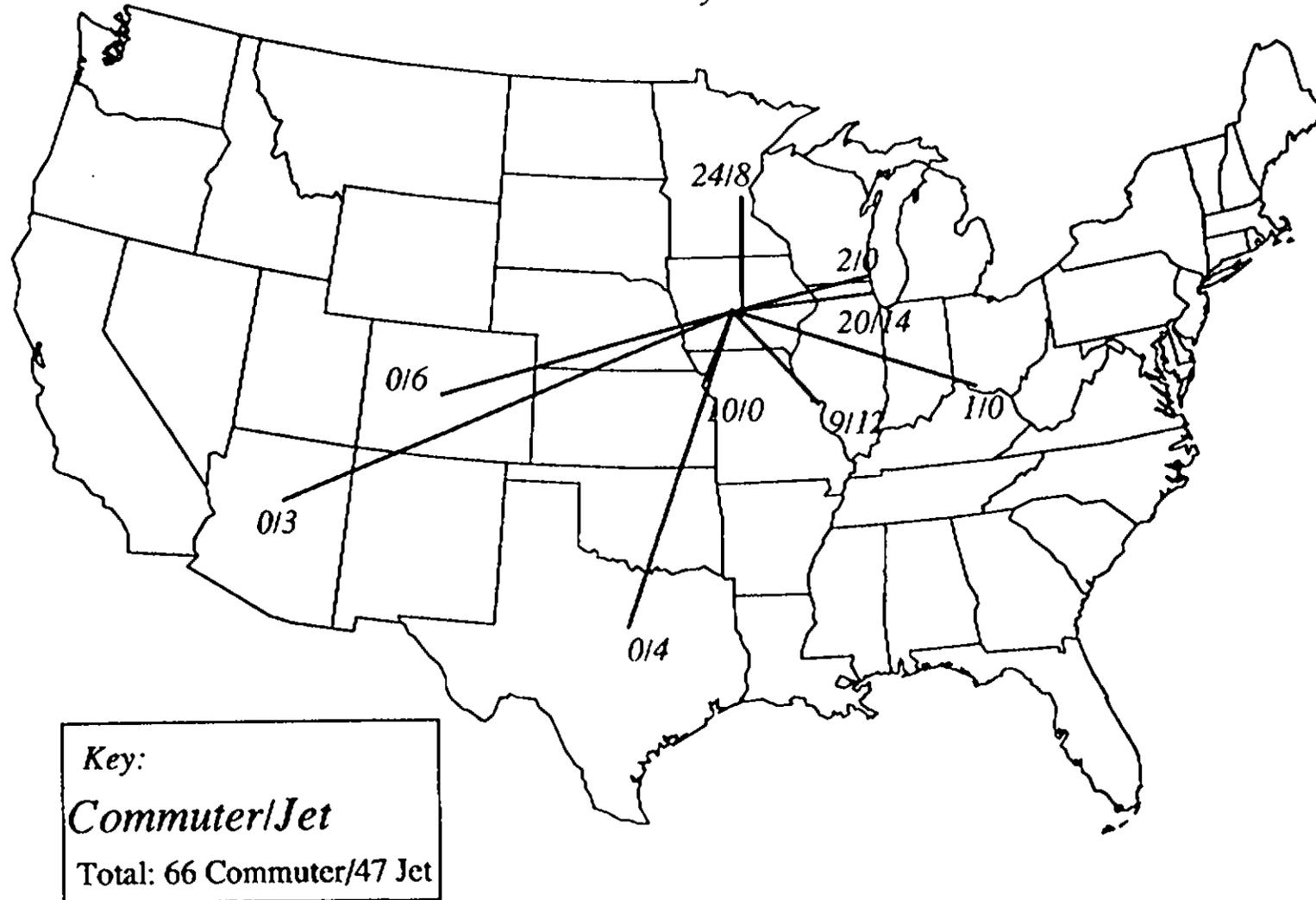


TABLE 2.
MORNING ARRIVAL TIMES TO IOWA CITIES FROM MAJOR AIRLINE HUBS
(Travel from East)

CITY	AIRLINE	ARRIVING FROM	ARRIVAL TIME
Burlington	American Eagle	Chicago	10:37
	TWExpress	St. Louis	11:18
	Great Lakes	Chicago	9:30
Cedar Rapids	Air Midwest	Kansas City	9:53
	American Eagle	Chicago	9:55
	Northwest	Minneapolis	8:54
	TWA	St. Louis	10:08
	United Express	Chicago	9:02
Des Moines	Air Midwest	Kansas City	9:42
	American	Chicago	10:26
	Great Lakes	Minneapolis	8:30
	Midway	Chicago	10:05
	Midwest Express	Milwaukee	9:15
	Northwest	Minneapolis	10:34
	TWA	St. Louis	10:43
	United	Chicago	9:36
Dubuque	American Eagle	Chicago	10:24
	Northwest Airlink	Minneapolis	9:10
Fort Dodge	Great Lakes	Chicago	12:10
	Northwest Airlink	Minneapolis	10:50
Mason City	Great Lakes	Chicago	10:05
	Northwest Airlink	Minneapolis	10:10
Ottumwa	Great Lakes	Des Moines	9:00
Sioux City	Northwest Airlink	Minneapolis	10:55
	TWExpress	St. Louis	10:58
Spencer	Great Lakes	Chicago	12:35
Waterloo	American Eagle	Chicago	10:37
	Great Lakes	Chicago	9:40
	Northwest Airlink	Minneapolis	9:35
	TWExpress	St. Louis	10:29

Source: Apogee Research based on *Official Airline Guide* (December 1990).

These different combinations of service highlight the need for city-specific solutions to the air travel problem. As outlined above, significant variations exist in service levels across different Iowa cities. Some cities are experiencing service growth while others have seen service levels remain constant or decline slightly. Additionally, differences between types of service (commuter vs. jet) suggests that different approaches need to be taken for each market.

DEMAND FOR AIR SERVICE IN IOWA

Iowa's demand for air-service is driven by numerous variables. As part of this analysis we developed a series of demand equations designed to establish the relationships between passengers and a variety of economic variables. Traditionally, aviation analysts rely on changes in total population as a key indicator for changes in aviation demand. Our findings for the state as a whole suggest this assumption is largely incorrect for Iowa. Rather, non-farm economic measures were found to have the strongest relationships with demand for air travel (See Table 3).

This finding is important for two reasons: first, it says that stagnant or even declining population that has been typical of many rural areas is not the driving force in demand for air service. Iowa, for example, has shown growth in non-farm employment and non-farm income even while overall population has declined. Second, it provides useful statistical evidence to help counter the common usage by many airline analysts of population change as a proxy for growth in air travel.

The second significant finding was that service variables (i.e. number of seats or operations) were significant in explaining changes in demand at several airports. This suggests that an increase in service could yield increased demand. It also provides evidence that the sharp fall-off in demand for air travel in Iowa in the years following economic deregulation may have resulted largely from poorer service provided by airlines rather than problems inherent to Iowa.¹

A third finding is that with the important exception of Waterloo, service changes at nearby cities do not appear to have been a significant factor in determining local demand for air travel. For Waterloo, however, service improvements at Cedar Rapids have meant declining demand from Waterloo. (The cities are 70 miles apart.) Even in this case, local economic and service variables are important.

Examination of relative measures of service, such as enplanements relative to population and load factor ratios (fraction of seats filled), as well as comparisons of Iowa cities to other nearby cities provides a useful framework for demand for air service in Iowa. These reviews also confirm the demand analysis finding that improved service by itself may help to increase demand (See Figures 5 and 6).

¹See Appendix 2 for additional detail on the findings for individual cities.

TABLE 3.
KEY INFLUENCES ON PASSENGER DEMAND BY AIRPORT
 (** = Positive Correlation, * = Negative Correlation)

FACTOR	ALO	BRL	CID	CWI	DBQ	DES	FOD	MCW	OTM	SPW	SUX
ECONOMIC VARIABLES											
Total Employment		-									+
Non-farm Employment						+	+				
Non-farm Business Income	-		+					+		+	
Non-farm Business Income per Employee									+		
SERVICE VARIABLES											
Operations		+				+					
Seats					+			+			
Service at Alternate Airport	-										

Other Factors Evaluated: Farm Personal Income, Farm Business Income, Total Personal Income per Capita, Nonfarm Personal Income, and Population.

Note: Population was found to be negatively correlated with demand in all cities experiencing passenger demand growth, indicating that despite a slight population decline, air travel demand has continued to grow.

Figure 5.
Enplanements Per Capita for Airports with Jet Service
Measured by Service Area

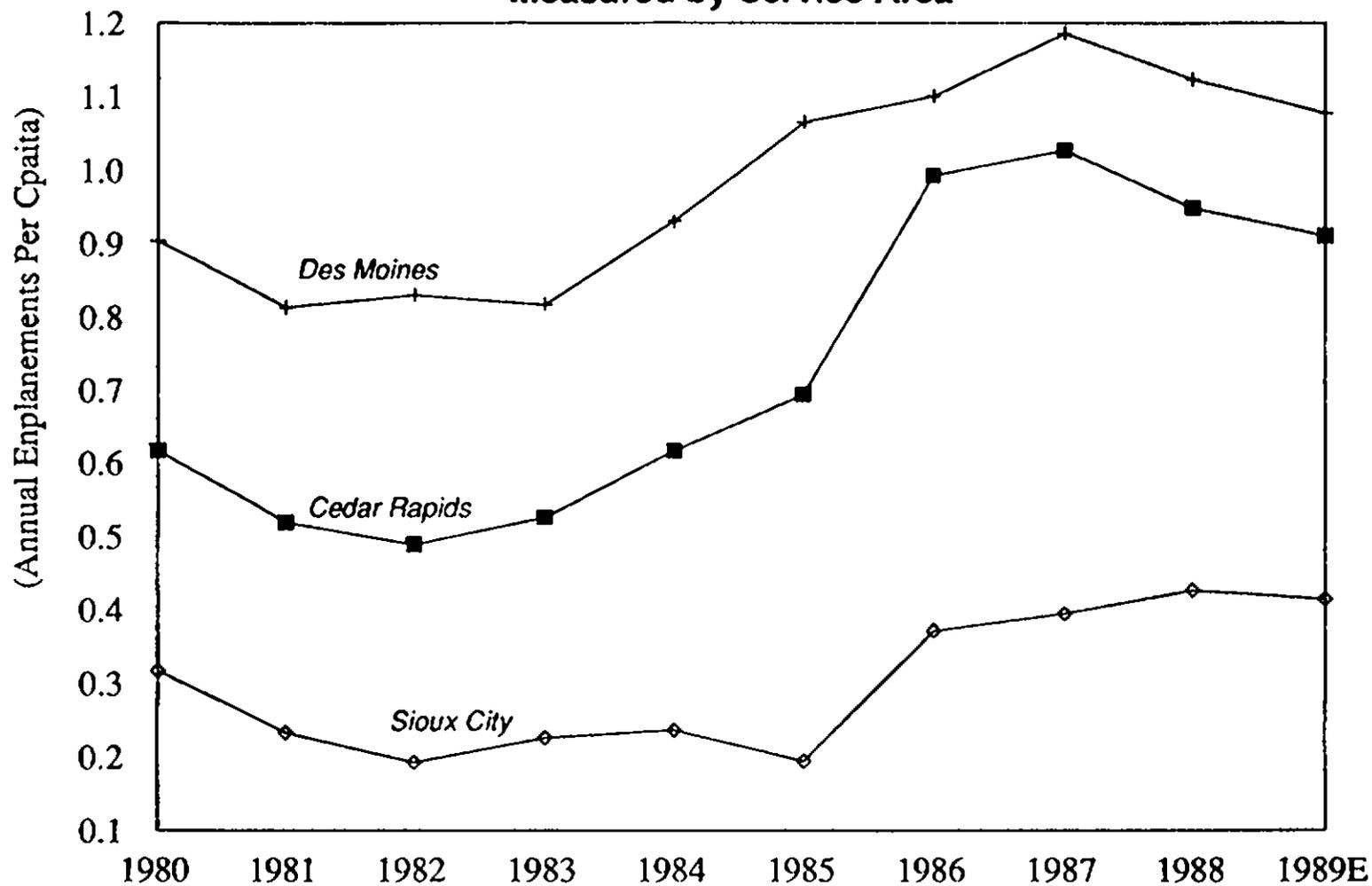
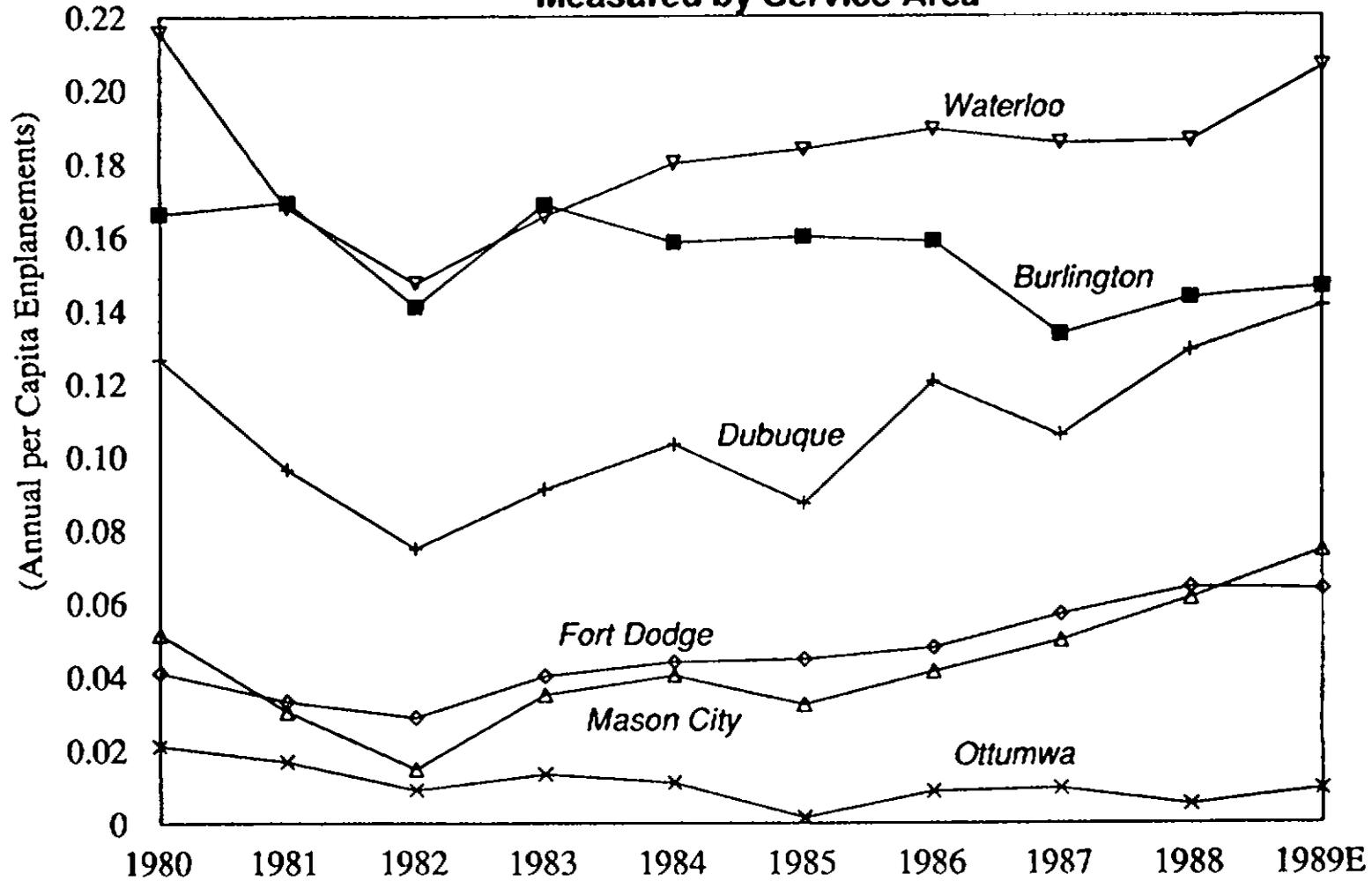


Figure 6.
Enplanements Per Capita for Airports with Commuter Service
Measured by Service Area



PEER AIRPORT COMPARISON

A "peer airport" comparison was developed to identify how air service at Iowa airports compares with those located in cities with similar characteristics. Airport selections were made based on population, types of air service offered, and geography. The findings vary widely from city to city and by type of commercial service offered (jet or commuter), but point to several common conclusions:

- Iowa service compares relatively well, with 4 of 6 commuter cities and 2 of 3 jet cities above the weighted average level of service for peer airports;
- The geographic location of Iowa and its airports has an impact on the type and frequency of service it receives; and
- Slot restrictions at Chicago's O'Hare have a negative impact on air service in Iowa.

The analysis of the level of service offered by each of the peer airports included a review of enplanements per capita and direct comparisons of the number and type of flights offered from each city, as well as the number and frequency of service direct to hubs.

Per capita enplanement comparisons are presented in Figures 7 and 8.² The findings suggest that Iowa fares relatively well, with 4 of 6 commuter cities and 2 of 3 jet cities above the weighted average.

Population alone, however, does not determine level of service.³ Instead, service is based on a number of factors. One important determinant is the city location relative to other major hubs.

As shown in Tables 4 and 5, the quality of Iowa's airline service to hubs appears to be primarily a function of geographic location rather than economic or other factors. Additionally, slot constraints at O'Hare limits additional flights from Iowa to Chicago.

Iowa's close proximity to Minneapolis has allowed several Iowa communities to enjoy higher levels of service to Minneapolis, than similar communities in Illinois receive. Mason City has eight daily nonstops to Minneapolis-St. Paul International (MSP) -- more than any other city shown. Likewise, Ft. Dodge has MSP service.

²Population figures for this comparison were based on the primary county which each airport serves.

³This conclusion is further confirmed by the economic analysis for the Air Service Study.

Figure 7.
Per Capita Enplanements for Jet Airports 1988
Measured by Primary County Service Area

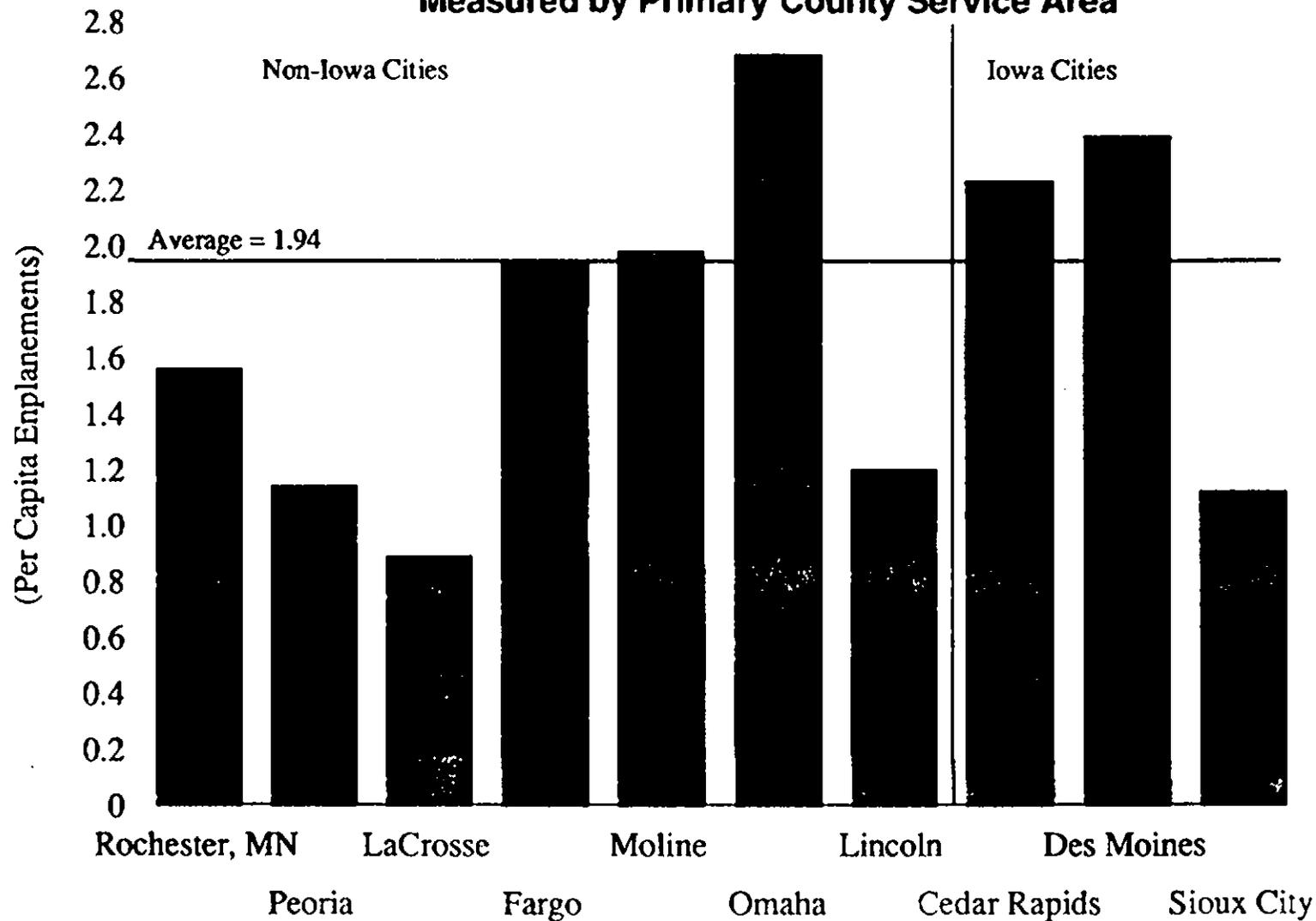


Figure 8
Per Capita Enplanements for Commuter Airports 1988
Measured by Primary County Service Area

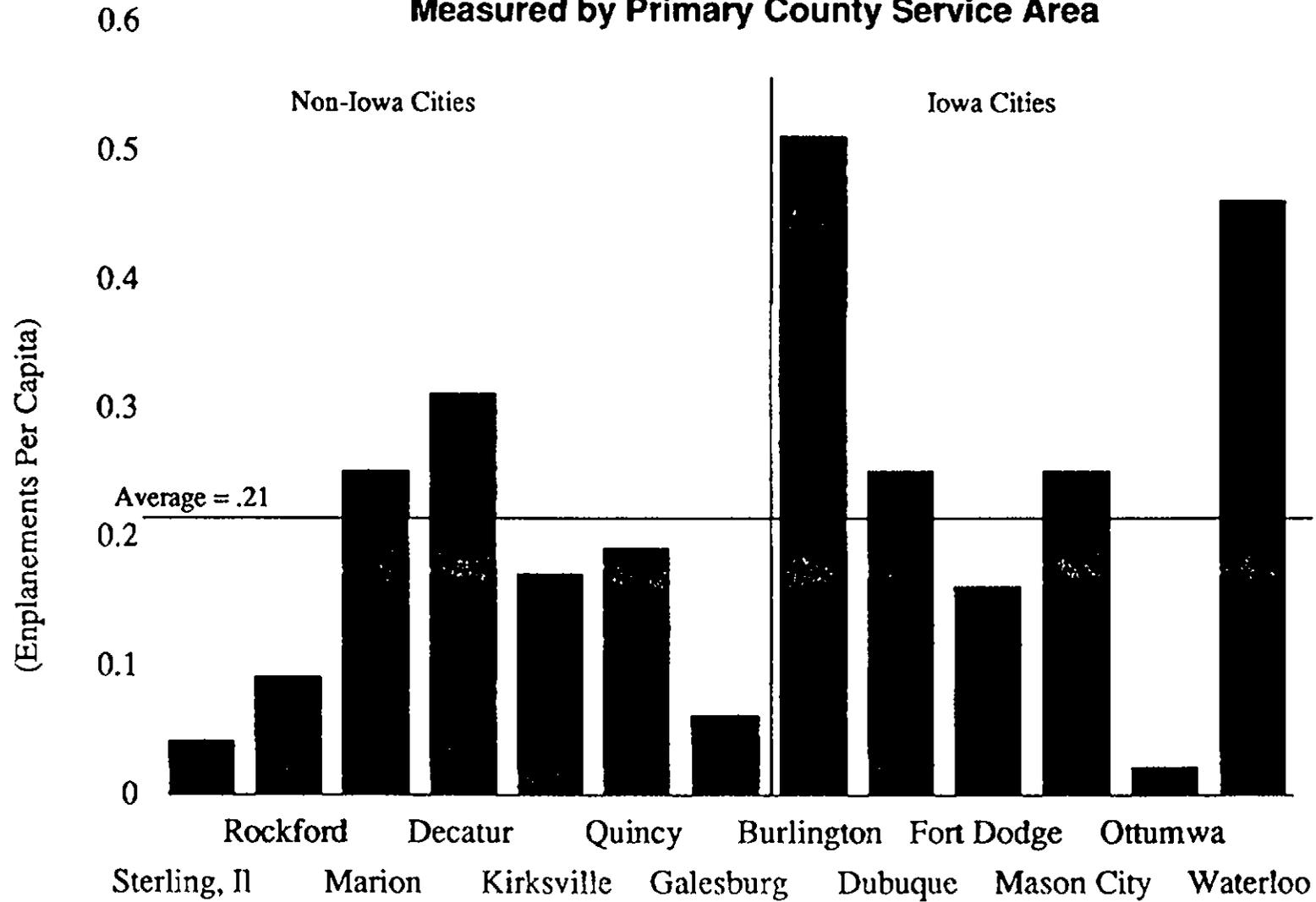


TABLE 4.
JET CITY SCHEDULE COMPARISON

City	1989 Enplanements	Daily Jet Nonstops to Hubs	Daily Commuter Nonstops to Hubs	Hubs Served Nonstop	Number of Airlines Offering Non-stops to Hubs
Fargo	195,104	5	1	MSP	1
La Crosse	90,861	2	18	MSP, ORD, MKE	4
Moline	319,801	6	27	DEN, PHX, MSP, ORD, STL	6
Omaha	1,088,964	56	11	ATL, ORD, MDW, DEN, DFW, IAH, MEM, MCI, EWR, DCA, LAS, MSP, STL, SLC, PHX	9
Peoria	214,610	4	32	ORD, MDW, IND, STL, DEN	6
Rochester, MN	166,157	9	0	MSP,ORD	2
Cedar Rapids	366,861	11	22	ORD, STL, MSP, DEN	4
Des Moines	745,136	28	11	ORD, MDW, STL, DEN,PHX, MSP, DFW, MKE	8
Sioux City	107,217	1	6	MSP, STL	2

TABLE 5.
COMMUTER CITY SCHEDULE COMPARISON

City	1989 Enplanements	Daily Number of Commuter Nonstops to Hubs	Hub Cities Served	Number of Airlines
Decatur	41,433	12	ORD, IND, STL	3
Galesburg	2,746	NO SERVICE		
Kirksville	4,041	NO SERVICE		
Marion	15,070	5	STL	1
Quincy	16,455	4	STL, ORD	3
Rockford	33,000	24	ORD, MKE, DTW, MSP, MDW	5
Sterling	1,722	2	ORD	1
Burlington	22,446	9	STL, ORD	3
Clinton	500	0		1
Dubuque	31,365	8	MSP, ORD	2
Ft. Dodge	6,815	0	MSP, ORD	2
Mason City	14,303	8	MSP, ORD	2
Ottumwa	1,263	0	MSP	1
Spencer	3,850	0	MSP, ORD	1
Waterloo	63,748	10	MSP, ORD, STL	4

However, while proximity to MSP has proved beneficial, distance to other hubs has proved detrimental. Major airline hubs are located either near Chicago or further east (e.g., Milwaukee, Indianapolis, and Detroit). This has limited Iowa's access because of the longer stage lengths which raise airline operating costs and are not compatible with commuter service. Rockford, Illinois, for example, had about one half the enplanements of Waterloo in 1989, but service to more hubs. This can be attributed to its close proximity to Chicago and Milwaukee and the more easterly location making commuter flights to Detroit practical.

Iowa has also benefitted from service provided by Great Lakes Aviation, which provides service from communities such as Spencer, Mason City, and Ft. Dodge to Chicago or Minneapolis. This service is a tremendous benefit to these communities because they might not otherwise have service to Chicago. Great Lakes also offers an alternative service to Chicago from cities such as Burlington and Waterloo, thereby enhancing the competitive environment.

While Cedar Rapids and Des Moines retain almost all of their local passengers, Sioux City must compete with Sioux Falls and Omaha, and faces the logistical problems associated with its distance from hubs such as Chicago and St. Louis.⁴

Slot restrictions at O'Hare do harm Iowa cities, American would likely offer more service to Cedar Rapids and Des Moines from Chicago, if it had more available slots.⁵

Future improvements in commuter and small jet aircraft will expand Iowa cities access to hubs as new planes offering jet-performance and amenities at lower operating costs expand Iowa's access to new hubs.

⁴Further development of Kansas City as a USAir hub should have a positive impact on Sioux City.

⁵The proposed transfer of 40 TWA slots to American should benefit Iowa jet airports.

II. BACKGROUND ON TRENDS IN AVIATION INDUSTRY AND GOVERNMENT

NATIONAL TRENDS IN THE AIRLINE INDUSTRY

Many of the changes in air service in Iowa result from influences at the national level.⁶ The replacement of jet service by commuter flights occurred because of the competitive nature of the airline industry since the beginning of deregulation in 1978. Prior to 1978, the Civil Aeronautics Board (CAB) mandated service levels to individual communities and limited the ability of airlines to add or subtract service. As airlines adjusted to the new operating environment in the early 1980s, they repositioned their aircraft to compete for on larger more profitable markets. This resulted in sharp service declines for many Iowa cities, as well as for many other small communities nationwide. Concurrently, demand in Iowa reached its lowest point as commuter aircraft replaced jet service in many cities. While recent demand continues to increase in strength in Iowa, the airline industry faces new pressures which may inhibit service improvements to many Iowa markets.

Industry Environment

As the 1980s progressed, airlines began to solidify their markets through a number of different means which have altered dramatically how the airline industry operates. No longer do government regulators control routes and fares, instead market forces determine service levels, fares, and equipment types. Some of the tools that modern airlines have developed to attract and retain business include:

- Hub and spoke systems;
- Computer reservations systems;
- Frequent-flier programs;
- Large aircraft fleet orders; and
- Code share agreements with other carriers.

Hubbing

By developing hubs, airlines are able to offer passengers from most cities connections to most other cities. The drawbacks are fewer non-stop flights, except for the largest urban areas, and possible constraints due to limited capacity of some airports (O'Hare, for example) to handle aircraft. Since deregulation, airline hubs have proliferated, in effect allowing airlines to substitute their own form of market control for government regulation.

⁶For a review of many of these changes, see *Airport and Airways*, prepared by Apogee Research for the National Council on Public Works Improvement, (May 1986).

Hubbing offers greater choice to passengers (except in cities with fortress hubs) while airlines benefit from better resource allocation, increased labor productivity, and near-monopolies on many routes from a particular city. For example, the only airline that provides nonstop service to St. Louis from Iowa, is TWA and its commuter affiliate TWExpress. As long as St. Louis remains TWA's primary hub, it will likely be the only carrier to provide this service with high frequency. Table 6 shows the primary carriers' enplanement share during 1988 for five hubs that can be reached directly from Iowa.⁷

TABLE 6.
MARKET DOMINANCE AT AIRLINE HUBS WITH DIRECT SERVICE (1988)

CITY	AIRLINE	SHARE OF ENPLANEMENTS
Denver	United	44.8%
Minneapolis/St. Paul	Northwest	77.9%
Chicago O'Hare	United American	51.2% 29.2%
St. Louis	TWA	82.2%
Phoenix	America West	44.3%

As the chart shows the dominant carrier at single airline hub airports (Minneapolis and St. Louis) has more than 75 percent of all enplanements and at airports where two carriers hub the dominant airline has well over 40 percent of the market. In general, higher fares tend to be associated with higher levels of market dominance.⁸

Computer Reservations Systems

Computer reservation systems (CRS) can have an important indirect influence on a traveler's choice of airline. Each operator of a CRS contracts with travel agents who use the system as part of their sales efforts. As in the rest of the country, most Iowa travel agents use either Sabre (owned and operated by American Airlines) or Apollo (United Airlines).⁹ These reservation systems have been a critical marketing tool for airlines and in the early

⁷*Perspectives on Airline Hubbing in the U.S.*, FAA Forecast Branch, May 1989.

⁸Reference to GAO. *Airline Completion - Higher Fares and Reduced Competition at Concentrated Airports*. (July 1990)

⁹TWA and Northwest jointly own a system known as Worldspan, which is also found in many Iowa travel agencies.

1980s some airlines incorporated biases in favor of their flights. While the Federal government prohibits CRS bias, controversy remains over whether or not these problems have been eliminated. Additionally, travel agents may be inclined to favor the airline which provides its computer reservation system.

Frequent Flier Programs

The advent of frequent flier programs has fostered brand loyalty in the airline industry. In return for flying the same airline on numerous trips, passengers can receive free travel and service upgrades. These programs enjoy wide-spread participation and have proliferated throughout the industry with many fliers being influenced in their choice of airline by the generosity of its frequent-flier program or by the one in which they have already amassed the most miles.

While frequent flier programs alone have probably not kept a carrier from expanding to Iowa potential new carriers face the additional problem of overcoming already ingrained customer loyalties. Airlines may also offer increased miles to customers in return for flying certain routes. During much of 1990 Northwest offered bonus miles on flights to Minneapolis for Iowa residents.

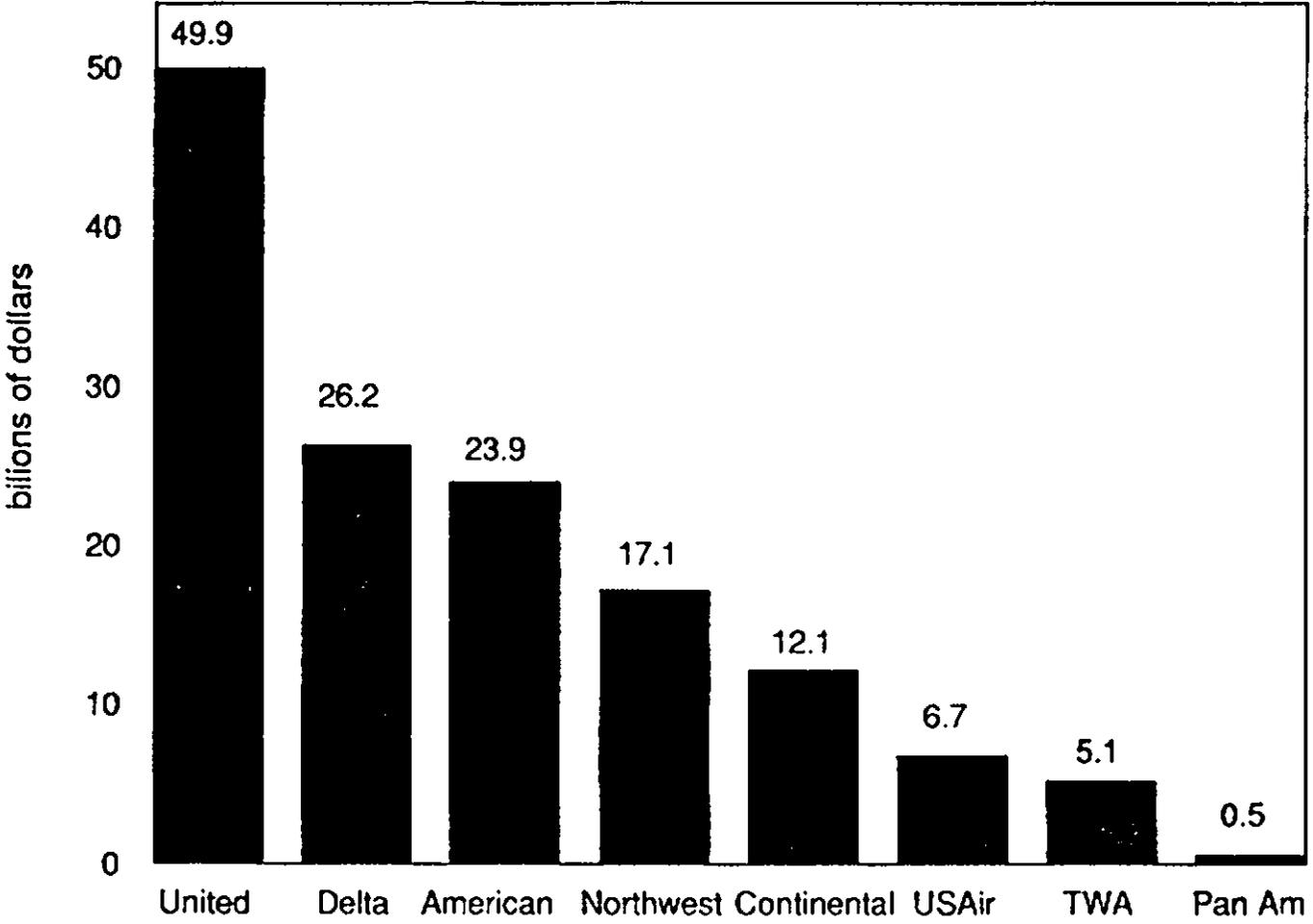
Aircraft Fleets

Several airlines have embarked upon massive fleet refurbishment and expansion to support their planned growth in the 1990s (Figure 9). This growth will provide both replacements for older aircraft and aircraft for expansion. Additionally, many airlines have announced service upgrades which are designed to improve the quality of service throughout a passenger's trip. These improvements include better meal service, more efficient baggage handling, pre-positioning of spare parts and aircraft to avoid delays and cancellations. Just as low-density states such as Iowa suffered in the early days of deregulation as aircraft were diverted to higher density routes, as the industry moves toward over-capacity Iowa should see better equipment than in the mid-1980s.

Code Sharing with Regional Airlines

Most Iowa cities receive service from commuter airlines that code-share with larger carriers. For example, TWExpress flights are operated by Air Midwest, and Northwest Airlink flights are run by Express One Airlines (or Mesaba from Des Moines). This system allows major airlines to provide on-line service to smaller communities by contracting with a smaller airline. The passenger receives the benefits of flying the major carrier, including baggage checked to the final destination, pre-assigned seating, frequent-flier miles, and single airline ticketing. Additionally, these on-line connections rank higher on CRS displays than inter-line agreements between two non-affiliated carriers.

Figure 9.
CURRENT AIRCRAFT ORDERS BY CARRIER



Source: Los Angeles Times/Airline Economics

Code-sharing has also allowed a significant upgrading of regional airlines' fleets. Northwest AirlinK, TWExpress and others now all fly pressurized turbo-prop aircraft such as the Saab 340, Jetstream 31, and Beech 1900. These aircraft offer many of the amenities of larger passenger aircraft, especially in areas of reliability and safety. Future aircraft for regional airlines include plans for 45 to 75 seat aircraft almost identical in design to larger jets.

Advances by code-sharing carriers has caused independent airlines (G.P. Express and Great Lakes Aviation for example) to upgrade their fleets as well. This should be viewed as beneficial to all Iowa air travellers as these independent carriers must remain competitive by offering greater reliability and more comfortable aircraft.

A significant downside to the decision of many regional airlines to become code-share partners is the limitation on their ability to enter new markets or to fly routes that do not link to their partner's hub. This presents difficulty to states, including Iowa, which seek to improve their intra-state air links and raises the costs to improve service.

Other national issues have affected or could affect Iowa's air service. These include slot restrictions at certain airports and the consolidation of the industry that is being hastened by higher fuel prices.

Slots

Chicago is the largest single air market for Iowa passengers both in terms of a final destination (Table 7) and as a transfer point. Unfortunately, growth is limited because of slot restrictions at O'Hare¹⁰. These federally imposed restrictions limit the ability of airlines to add flights to/from Chicago. Many in Congress and elsewhere believe that slot restrictions are anti-competitive as they limit access for new carriers, and "impede competition throughout the northeastern and midwestern United States..."¹¹ Areas with lower levels of traffic tend to be hurt most. Under pressure from Congress the FAA and DOT have begun to examine specific issues because airlines regarding changes to current slot rules. Also, legislation was introduced but not acted on in the 101st Congress seeking to eliminate slot restrictions.

¹⁰Slots, designed to ease congestion and increase safety, give an airline the right to operate at a specific time but no other. These exist as mandatory controls at four U.S. airports.

¹¹General Accounting Office cited in a letter to *The Washington Post* by Senator John Danforth and Robert Kasten.

TABLE 7.
TOP 10 IOWA DESTINATIONS DURING 1989

Airport	Approximate Number of Passengers
Chicago (O'Hare)	197,740
Phoenix	128,810
Minneapolis/St. Paul	98,700
Denver	80,150
Dallas-Ft. Worth	66,590
St. Louis	58,350
Washington (National)	57,390
Las Vegas	51,060
Los Angeles	47,260
New York (La Guardia)	39,640

Source: Apogee Research based on U.S. DOT 10 percent Coupon Sample.
These ten airports account for 38 percent of all inter-state air travel from Iowa.

Alternative access to Chicago is provided from Des Moines by Midway Airlines, and its commuter partner provided service to Dubuque prior to its bankruptcy in 1990. Great Lakes Airlines also provides direct and non-stop service to O' Hare from several Iowa cities.¹²

Should slot rules change, whether through legislation or administrative action, the outcomes for Iowa are unclear. One possible scenario includes more service, but somewhat reduced quality as the increased number of operations at and around O' Hare will add to delays particularly when poor weather limits capacity.

Industry Consolidation and Economic Recession

Deregulation of the airline industry has led to industry consolidation. In the early 1980s there were almost twice as many air carriers as today. Carriers that used to serve Iowa such as Ozark, Republic, and Frontier have been absorbed by larger carriers (TWA, Northwest, and Continental). This consolidation has generally led to higher fares from many cities, especially those dominated by one carrier (St. Louis (TWA) and Minneapolis

¹² It provides direct from Spencer, Ft. Dodge, and Mason City, as well as non-stop service from Waterloo and Burlington.

(Northwest)). This consolidation trend affected Iowa significantly as jet service was withdrawn from many communities and many of the merged airlines had a national rather than a regional perspective

Unfortunately, a new wave of consolidation may occur because of high fuel prices caused by the Persian Gulf Crisis and the prospects for an economic recession. Nationally, several airlines in addition to Continental may declare bankruptcy or downsize significantly, including TWA and Midway. TWA has already announced service reductions and cutbacks and may have difficulty sustaining continued losses. In addition, TWA has one of the oldest, most inefficient fleets in the industry, which results in significantly higher fuel and maintenance bills. Should TWA cease operations it is likely that another carrier would take over many of TWA's assets at its main St. Louis hub. For the short-term, however, this disruption would probably hurt Iowa's air service. Cities such as Burlington, where hub service is restricted to Chicago and St. Louis, would suffer the most. This would also likely lead to higher fares as further industry consolidation reduced competition.

Overall, the airline industry faces a difficult period as costs -- particularly fuel -- are out of line with revenues. Northwest, for example, spent an additional \$338 million on fuel alone during the third quarter and has eliminated one flight between Des Moines and Minneapolis (Figure 10). Domestic traffic growth has been flat and is projected to continue that way, especially given the present economic downturn. The industry is projected to lose close to \$1 billion in the fourth quarter of 1990.

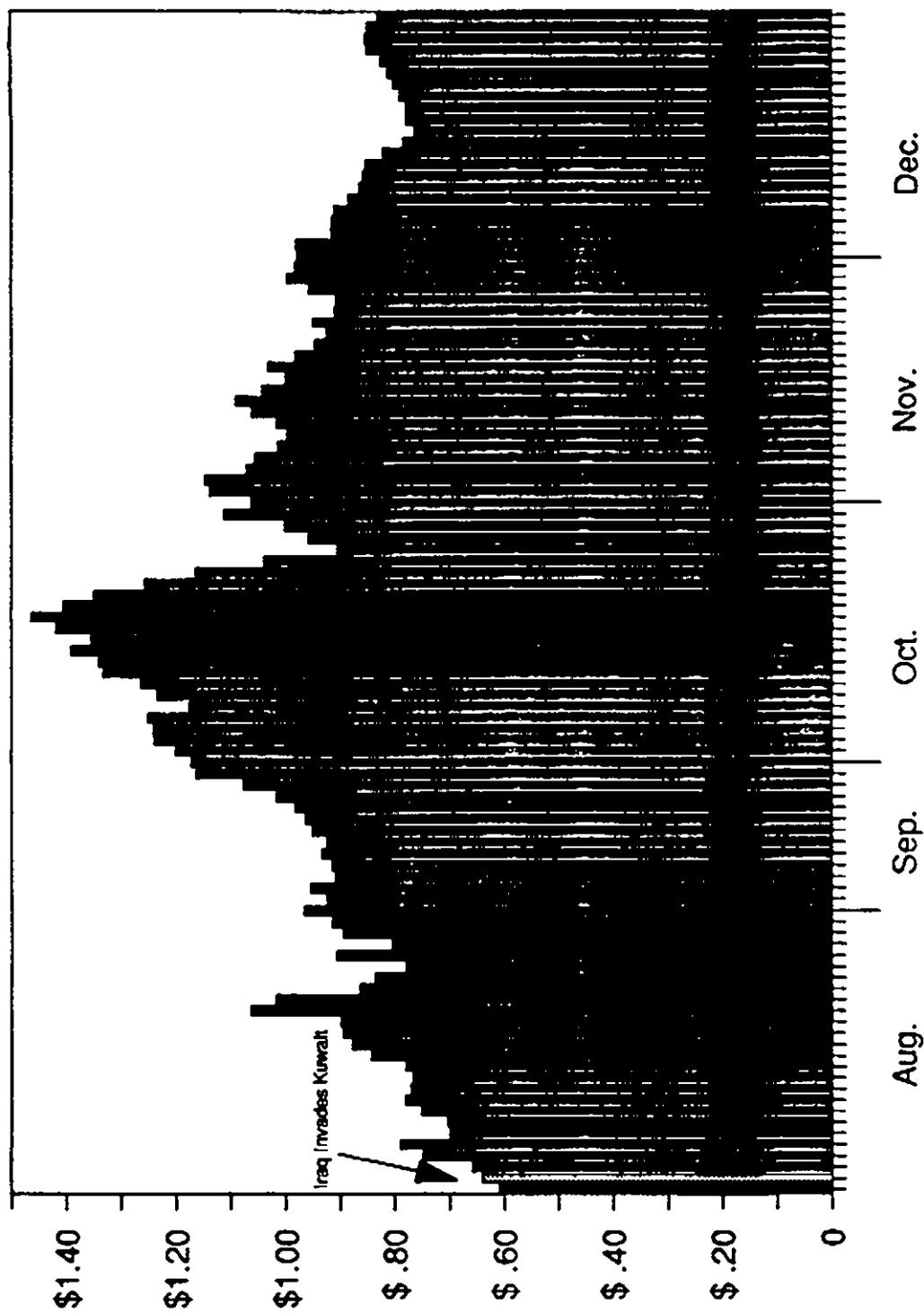
One encouraging sign for Iowa is the recent decision by Air Midwest to provide service to Kansas City as a code-share partner with USAir. USAir presently has about fifty flights a day to/from Kansas City, and the decision to acquire a feeder partner should be viewed as an indication that USAir is committed to developing its Kansas City operation further. This should eventually lead Air Midwest to provide service to additional Iowa cities.¹³ Kansas City was among the cities cited most frequently as needing better service in our travel agent survey.¹⁴

Although the nation's airline industry is going through a difficult period, Iowa's demand for air service is likely to remain stable or continue to grow as the state's economy diversifies further. Iowa's recent success in attracting financial services and manufacturing companies will continue to generate more air travel as these industries have a higher demand for air service than agriculture. Ideally, by seeking to increase economic activity state-wide, Iowa will ensure that demand for air service also disperses to commercial airports throughout the state.

¹³Currently the only Iowa cities served by Air Midwest are Cedar Rapids and Des Moines.

¹⁴See *Iowa Air Service Study Detailed Analysis: Phase I*, September 14, 1990. p. 17.

Figure 10.
Daily Jet Fuel Price Per Gallon



The difficulties of the U.S. economy as a whole have not been felt as strongly in Iowa. To date, the economic downturn facing the nation appears to be delayed in its arrival in Iowa, as Congressman Jim Leach recently, "reported that many people in his state say the economy couldn't be better."¹⁵ Additionally, as shown earlier Iowa's demand for air service is also growing. Unfortunately, the economic problems facing airlines have led smaller carriers to cancel plans for expanded service and delayed expansion programs by larger carriers. Independent regional carriers such as Great Lakes and G.P. Express have begun service in some new markets, however.

CHANGING FEDERAL, STATE, AND LOCAL ROLES

Federal Government

The federal government's role in the airline industry has changed dramatically since economic deregulation, and the subsequent dissolving of the CAB. The government's primary role is still to guarantee the safety of the aviation system. This includes providing air traffic control, managing airspace, inspecting airlines and licensing pilots. The FAA also provides money to upgrade airports, including new terminals, runways, and navigational aids and the Essential Air Service program (EAS)¹⁶. No longer can airports be assured that monies for airport improvements will be automatically available. While federal capital grants for airports have grown they have not kept pace with financial demands and federal budget pressures have focused cuts in programs targeted at rural areas such as the EAS program.

Congress recently passed legislation allowing airports to collect Passenger Facility Charges (PFCs). These PFCs would allow airports to gain additional revenue by charging passenger who use the airport up to three dollars. Airports that imposed PFCs (expected to be the largest airports) would be required to reduce their federal airport entitlements by up to fifty percent, thus making more funds available for smaller airports.

State Government

Prior to deregulation most states did little more than provide capital improvement monies to airports. As deregulation has progressed, however, more state and local communities have begun to provide incentives to airlines to improve service.

Large cities have and will always have high-quality air service. Even many mid-size cities like Raleigh-Durham, Nashville, and Dayton have been able to attract airline hubs to their airports. Smaller communities have also had to take steps to maintain service levels;

¹⁵*The Washington Post*, December 3, 1990, Page A1.

¹⁶The EAS program guarantees air service to smaller communities and is discussed in more detail later in this report.

many communities, however, lack adequate resources (personnel, budget, expertise) to market their local airports properly. This is where state involvement has proven to be effective. States, by providing the financial resources and expertise needed to design programs, can encourage economic development by helping local airports attract passengers and develop service. Communities, while committing smaller amounts of resources, then execute the plans and also benefit from the increased economic activity that results.

States can also serve to discourage individual communities from emphasizing intra-state competition which could communities. In particular, a state can suggest areas where two communities might join together to attract new airline service. By emphasizing overall improvements, the state can use improved air service as another advantage that it can showcase when recruiting new companies to locate in Iowa or encouraging the expansion of present companies.

The state does not necessarily have to provide direct cash transfers to communities or airlines to improve service. Rather, positive results can be achieved by just collecting data, providing expertise, or giving tax relief to communities and airlines. Recently the Kentucky legislature placed a cap on Delta Airlines' fuel tax, in an effort to promote the development of Delta's Cincinnati hub (located in Kentucky). Michigan provides outside consulting services to local communities in reviewing their marketing efforts.

Local Government

Local communities need to demonstrate their commitment to improving air service. Many communities own the local airports, which gives them the flexibility to reduce landing, rental, and other fees, so as to lower airline operating costs in a particular community. By seeking the assistance of local business groups such as the Chamber of Commerce, the city can also find other ways to entice customers and airlines to use the airport.

AIR SERVICE PROGRAMS IN OTHER STATES

As airline deregulation drastically changed air service patterns, many states began to realize that more than just money was necessary to ensure passenger usage or continued good air service. In the late 1980s, therefore, a number of states began to take an active role in marketing and promoting their airports -- both to the communities they serve and to airlines. This action has been most extensive in terms of small to medium-sized communities.

Our team has surveyed the other 49 states to determine the status of air service programs and received responses from nearly all. While fifteen states have undertaken some kind of in-depth air service study, only seven states, including Iowa, have yet to undertake comprehensive looks at their air service (Table 8). Michigan and South Dakota have recently completed studies, Nebraska and Oklahoma have studies underway, New York completed a study in the early 1980s, and North Dakota completed a review in 1987.

TABLE 8.
SUMMARY OF STATE AIR-SERVICE PROGRAMS

TOPIC	S D	M N	M I	O K	N Y	W Y	V T	U T	C A	N E	V A	N D	IA	A Z	O R
Economic Analysis	X	X	X	X			X			X			X	X	X
Demand Forecasts	X	X	X	X			X					X	X		
Fare Monitoring		X	X		X			X							
Route Analysis	X	X	X	X	X		X			X		X	X	X	X
Airport Facilities			X				X		X						
Grants	X		X		X	X					X	X	X		
EAS Study	X		X							X		X	X		
On-Going	X		X	X	X				X	X			X		

Michigan and South Dakota are currently implementing their programs. Each state has had different objectives in doing their studies and thus have developed programs that are quite differ dramatically from one another. North Dakota and Nebraska plan to implement some new programs in 1991.

Michigan

Michigan's geographic location (north of most major air corridors) and loss of federal EAS funds during the 1980s, caused the state to begin a multi-step process designed to increase traffic as well as improve service to/from smaller communities. The first program, formed after several studies and the creation of an Air Service Task Force, was the Air Service Marketing Program. Under the program, airports (excluding Detroit and Grand Rapids), receive state funds to market and promote local airports. The state pays ninety percent and the communities pay the remainder. The amount of money received by each airport depends on total passengers, but no airport can receive more then \$50,000 during any year.

Criteria were developed to ensure that airports did not promote in another airport's service area and that they keep detailed records on how money was spent. Table 9 shows the change in total passengers realized at some of Michigan's airports.

TABLE 9.
MICHIGAN AIRPORT PASSENGERS

AIRPORT LOCATION	1988 PASSENGERS	1989 PASSENGERS	PERCENT CHANGE
Alpena	8,697	9,596	10.0
Benton Harbor	6,548	6,204	(0.5)
Flint	261,612	305,709	16.8
Iron Mountain	10,232	18,187	77.0
Lansing	440,301	501,809	14.0
Mainistee	3,854	5,926	54.0
Muskegon	74,058	87,029	17.5
Traverse City	160,572	185,116	15.3

Source: Michigan DOT Air Service Marketing Program Preliminary Report

Michigan spent \$650,000 during the first year of the program and expects to spend \$635,000 during year two. A comprehensive report on the program is due in late-1990, however, preliminary findings "indicate that marketing can be an extremely effective method to promote use of a community's local airport."¹⁷

The second program implemented by Michigan is Air Access Michigan (Air Service Incentive Program). Under this effort, the state contracts with an air carrier to provide service (either a new route or improved service on an existing one) and to guarantee air carrier profitability on the selected route. Routes are approved only after a study has been completed on the long-term profitability of the routes without guarantees.

Costs, including the initial study, are split between the state and the local community. Contracts with the air carrier are for three years -- with the state paying 80 percent in year one, 70 percent in year two, and 50 percent in year three.

Thus far, only Traverse City has used the program. Northwest has agreed to provide at least one daily round trip DC-9 flight to Detroit. This represents the first jet service for Traverse City. In its first year of operation the route lost \$58,000 of which the state paid \$46,000. A non-profit group of Traverse City businesses paid the remainder.¹⁸ The state

¹⁷Michigan DOT Air Service Marketing Program Preliminary Report, 1990.

¹⁸State of Michigan.

has been working to develop a route linking the Upper Peninsula with a city in Southern Michigan, but political opposition to route subsidies for more than \$100,000 in the first year has delayed final approval of the new route.

There is also the possibility that the subsidizing service will harm other carriers in the community. The service, however, should not merely redistribute passengers; instead, it should increase air service demand for the community. While this appears to be the case in Traverse City, the existing regional carrier (Mesaba) complains that its traffic volume is down.

South Dakota

South Dakota, with a small population and great distance between cities, became frustrated at having to allow state employees extra time for travel or have them fly to Minneapolis to change planes in order to conduct state business. Additionally, difficult intra-state travel has acted to stifle economic development. In response, the legislature created the South Dakota Airline Authority in 1989 which examined three options to improve intra-state service;

- Contract with existing airlines for service;
- Acquire aircraft and contract with an existing airline; or
- Provide an Essential Air Service (EAS) subsidy to an existing carrier.¹⁹

The state chose to contract with an existing carrier and selected GP Express, after receiving several bids. Service began in October 1990 on six routes connecting seven cities and hubbing in Pierre. Each city receives two weekday roundtrips to/from Pierre, with connections available to other cities through Pierre.

The first-year cost is estimated at nearly \$2.7 million. Projections include \$1.5 million from passenger revenue, with the state and communities making up the remaining \$1.2 million. South Dakota pays \$700,000 and the communities provide the rest through public funds. Community payments vary based on airport revenues, population, projected annual passengers, and flight departures. South Dakota estimates that the routes will generate approximately 30,000 passengers annually, although passenger demand in the first two months has not met expectations. One city, Watertown, refused to participate in the program because of high costs and low passenger projections.

¹⁹*Commuter Air International*, (September 1990) p.25.

North Dakota

As a result of a state Aviation Plan completed in 1987, North Dakota, in conjunction with the University of North Dakota's Aeronautics Training Program, and China Airlines (Taiwan) plans an airline to begin service within North Dakota in 1991. The airline will provide training for Taiwanese pilots who complete their ground work at the University of North Dakota. Phase One envisions connections between Bismarck and the largest commercial centers, Fargo and Grand Forks. Other routes connecting smaller North Dakota cities are also being planned. The airline's goals include:

- Provide training for foreign pilots who need flying time to qualify for larger aircraft;
- Connect North Dakota's commercial centers with the State Capital; and
- Provide access to alternative major airline service.

The first goal, to provide training for foreign airline pilots, is a new program in conjunction with China Airlines. The airline will provide five thirty-seat aircraft, which will be leased to any potential operator. The pilots, trained at the University of North Dakota, will gain flying time as co-captain of the aircraft until they are qualified to return to Taiwan for training on larger aircraft.

The second goal, connecting the state's largest cities, shows limited promise. Five routes are projected to have demand in excess of 3,500 annual intrastate O & D passengers. The largest route is projected to produce approximately 10,500 annual passengers.²⁰ Of the routes, four have driving distances in excess of 200 miles and may prove a viable alternative to driving.

The final goal of providing access to alternative major airline service is designed to increase the air-travel options for passengers from smaller communities by offering them access to larger cities with better service.²¹ Many travellers going west would prefer not to fly east to Minneapolis, in order to go west. The new airline would alleviate this problem by allowing passengers to fly to Bismarck and connect with flights to Denver or Salt Lake City. Such a route would also provide direct access to the state capital.

The dilemma caused by a new intra-state airline is that if too many passengers redirect their travel patterns, larger cities could gain increased service while smaller communities would risk losing their direct access to a major hub. While the State Aviation Plan appears to acknowledge this dilemma it could still prove harmful in the future.

²⁰*North Dakota State Aviation System Plan, 1987.*

²¹Several smaller communities are served only by Northwest Airlink or Big Sky Aviation.

The carrier eventually envisions agreements with other carriers relating to traffic feed. Phase Two of the program calls for links outside the state and to Canada.

North Dakota's planned program, while visionary in its thinking, is still not in operation and has yet to resolve key issues including final route plans, financing, and ownership.

Other State Programs

While Iowa, Michigan, North and South Dakota are on the leading edge of state involvement in improving air service, other states have become more active. This is particularly true since Nebraska recently began a state-wide study similar to Iowa's, focussing on connecting smaller communities in Western Nebraska with cities in the more populous eastern part of the state. The results of this study are expected to be known in late-1990 or early 1991. Oklahoma has also undertaken a State Air Service Study; however, their study focussed on service to Tulsa and Oklahoma City. Wyoming has appropriated \$250,000 for marketing and promotional activities in a program similar to Michigan's. Other states, including Virginia and New York, provide state dollars for airport promotion and market research. In addition, more and more large- and medium-sized airports have implemented their own market development efforts.

III. AIR SERVICE OPTIONS

Air service improvement options were grouped in three categories. Administrative Actions build a long-term State and local support system to help develop and expand air service. Air Passenger service options cover a range of direct and indirect efforts to improve the use of current air service or to add new service. International Air Cargo represents a special opportunity for a new service with strong economic development implications. This chapter describes each option in terms of goals, participants and their roles, costs, and possible outcomes. The three categories are:

In developing these options several principles were considered:

- Because air service provides gains for local communities as well as the state as a whole, a state-local financial partnership makes sense;
- The most cost-effective market development actions occur when efforts are targeted at specific improvements; and
- Any service subsidies must include concrete incentives to encourage cost-effective, long-term service, including a specific time limit, subsidies that decrease over time, and the ability to work with the existing private sector.

ADMINISTRATIVE ACTIONS

The State and local communities have numerous options which can be implemented to provide necessary support for promoting airports both within the state, and to air carriers and others outside of the state. These include,

- **Short-Term Planning:** improve coordination among local officials and others in promoting airports as well as identifying immediate priorities.
- **Long-Term Planning** to develop a solid core of support for the airport. Programs to do this can be implemented at both the state and local levels.
- **Promotional Activities** require airports to reach out to the community and build support for the airport.

Unlike route and carrier subsidies which are designed to have an immediate impact, these options are designed to a long-term support behind Iowa's commercial airports, establishing infrastructure at both the state and local levels to support and promote airport development.

Short-Term Planning

At the state level, elected officials as well as agencies charged with economic development need to be involved in promoting Iowa airports. The state should also

encourage economic activity to be spread throughout Iowa, and not centered solely at larger airports. Many airports, including Waterloo and Ottumwa, have ample amounts of land that could be developed for industries that benefit from proximity near air service.

Local communities should be active in their airport planning. Residents need to be informed about the local airport and the services offered. Educating local travel agents and the general public may help dispel common misperceptions about flying, especially in commuter markets. Encouraging airlines to demonstrate their new equipment and promote their service is very useful. Great Lakes Aviation, for example, recently showed its new Beech 1900 at the Clinton Airport, and over one hundred people showed up to view it.²²

Local officials need to be involved as well. Requiring that all local government travel originate at the airport, and encouraging local businesses to take similar steps, can help develop a core base of local travellers.

The costs of short-term planning are minimal, but can lay the groundwork for developing a solid base of support. Planning, however, does require time and effort to be successful in attracting new passengers.

Long-Term Planning

The present economic difficulties found by the airline industry will end and new opportunities for service will arise. Iowa needs to place itself in a competitive position with other states for new or improved service. At both the state and local levels, actions can be taken to ensure that Iowa can compete successfully for new service.

At the state level a program designed to generate support for commercial aviation would assist the state's commercial airports. This idea would entail creation of a senior administrative position serving as the state's liaison to airports, airlines, and others concerned with commercial aviation in Iowa. The administrator would collect data and coordinate the allocation of marketing funds, capital improvement grants, and other funding for Iowa's commercial airports.

Other responsibilities would include garnering state support for new service proposals as well as helping foster aviation compatible development at airport sites. The person would also serve as the coordinator for any future state commercial aviation funding initiatives.

Additionally, the administrator could help identify and support local actions for route adjustments, and schedule changes, and propose routes on which Iowa cities could collaborate.

²²Great Lakes does not presently serve Clinton.

The State's Universities can also help by creating programs designed to educate students about aviation and aerospace. Possible topics might include airport and aviation management, aerospace training, and related aviation topics.

At the local level, communities need to have planning to encourage long-term development and growth of local airports. In the past, some communities with under-utilized airports have created local or regional airport authorities. These authorities bring together civic and business leaders and help unite communities around the airport. By including participants from nearby areas, regional support can be achieved. Sioux City established an airport authority in the mid-1980s for example, and has seen a substantial increase in service and other ancillary benefits associated with good air service. The authority has served as a focus for market development activities as well.

Burlington and surrounding communities in Iowa and Illinois are presently reviewing plans to form a regional airport authority. This would be very beneficial for the Burlington airport, as there is presently no full-time airport operator and financial resources are limited to funds from Burlington alone. The creation of such a position would allow effective marketing to both the community and airlines. As has been shown elsewhere in Iowa, this can lead to increased use of the airport and eventually new service. The legal and administrative costs involved in creating an authority are minimal.

Other communities with full-time operators need to focus on long-term goals as well. These goals may include qualifying for Federal Airport Improvement Grants or ways to attract new development or tenants to the airport. Aside from passenger service, airports can seek to improve cargo operations as well as attract aviation-intense industries to the airport.

Long-term planning should not be a function of just airport operators; rather community involvement and input is needed to ensure that airport growth and improvement is coordinated with local growth. Local airports should not be an appendage to communities, but integrated parts of their economic development plan.

Planning should also be targeted to the different types of travellers -- both business and leisure.

Promotions

Any program designed to improve service will not be successful without proper promotion. It is vital that residents be aware of local airport service. There are many ways to promote airports, including holding community events at the airport such as Chamber of Commerce meetings, or planning meetings. Airports can also hold air shows, open houses, display local artwork, and support other similar events designed to raise local awareness of the airport. These inexpensive events can go far towards building community support and appreciation of the airport.

Other events could include an airport golf outing, sponsoring local athletic teams, and aiding other groups all with the goal of promoting local aviation and the airport.

Other actions local airports can take to promote the airport include speaking with local civic groups about the airport and its services. Ottumwa's airport plans to promote its expected service to Chicago with a series of speaking engagements designed to explain the challenges and opportunities of connecting through O' Hare.

Starting a local airport newsletter to highlight activities at the airport is one approach that several airports have used, including Milwaukee's Mitchell Field, which regularly publishes the *Mitchell Memo*. Other ideas include publishing a city flight schedule similar to those done in the Seattle, Oakland, Lansing, and other communities.

State involvement in promoting local airports should focus on providing expertise and other professional services to airports as they are necessary. Getting people comfortable with the local airport and informed about the service is a vital step toward getting people to change their travel patterns.

Programs like these do not cost a great deal and can be very effective at promoting the airport to the community. Dubuque's "Fly Dubuque" campaign has successfully increased airport usage for relatively small amounts of money.

AIR PASSENGER SERVICE

The Air Passenger Service options are designed to improve passenger service indirectly through active promotion of current service and through direct market approaches to individual airlines. Other programs include subsidies to encourage specific service by new carriers or new routes by existing carrier, and finally, loan guarantees or interest buy-downs to provide indirect service by potential carriers. While considerably more costly, these latter programs would give the state more influence in determining which communities receive new air services and what type of service. A summary table shows:

- **Market Development Grants** involve both research and marketing campaigns in order to increase airport demand.
- **Carrier Subsidies** attempt to attract new carriers to communities that would not ordinarily receive service.
- **Route Subsidies** attempt to attract new or special service to communities which have growing demand for air service.
- **Loan Guarantees/Interest Buy-downs**, designed to ease aircraft purchases by smaller carriers in return for air service.

Market Development Grants

This relatively inexpensive approach has two components; research considered as a logical step prior to implementing a potentially costly subsidy program, and marketing campaigns to maximize use of current service.

Research

Analysis behind the specifics of demand is necessary so that the state and local communities can properly plan marketing campaigns. Much of the research groundwork for each Iowa airport has already been developed through this study. In addition, the Iowa Air Service Database provides extensive airport-specific historical data. An active research program should include on-going analysis of fares, schedules and demand. These analyses can use a range of data collection methods including passenger surveys, parking lot counts, and computer reservation systems. The goal is to identify weaknesses in a particular community's service as well as unrecognized strengths in its underlying demand and then to develop an action plan to correct these problems.

Fare Analysis. By the regular examination of fares from other nearby airports an operator can usually prevent large fare distortions by contacting the airlines and asking them to make adjustments. Additionally, by publicizing the fares the flying public can see that it does not always cost less to fly from larger airports. The airport operators in Waterloo

and Dubuque both aggressively monitor fares to ensure that passengers flying are not disadvantaged by flying from a smaller market and then communicate these results through the newspapers and local cable television.

Schedule Analysis. Airlines generally have anywhere from five to fifteen periods of heavy traffic a day (called banks), at their hub airports. Many cities with limited flights connect with only four or five of these banks. There are other busy periods when a city may want to connect. For example, if the Northwest Airlink flight that departs Dubuque at 8:40 pm left at 6:45 pm instead, travellers would be able to connect with 32 Northwest flights -- including twice the number of connections provided by the 8:40 pm departure.²³ While this is a small-scale, low-cost change, it can greatly improve the value of existing service.²⁴ Similar schedule changes were found at almost every Iowa airport.

Other Surveys. By conducting surveys of businesses, travel agents, parking lots, and passengers airport operators can garner a host of data including qualitative information that does not appear in statistics. Sioux City, for example has an innovative method of surveying departing passengers through the use of Sweepstakes coupons which ask questions such as destination, airline, address, trips per year, and others. In return for completing the survey passengers are eligible to win cash and airline tickets.

Marketing²⁵

Research will educate an airport operator about the local market. Once the market is defined and understood a marketing campaign can be devised. In larger communities, this may involve TV, radio, and newspaper ads. Waterloo recently concluded an eight-week ad campaign, involving radio, TV, and newspaper ads. This contributed to passenger growth of 4 percent during October in Waterloo.

Other communities may wish to target specific groups of travellers by providing incentives to use the airport. This is done in Springfield, Illinois, and Toledo, Ohio, where airport frequent flier clubs offer private work areas with telephones, faxes, and conference facilities. Additionally, members enjoy free newspapers and coffee and are eligible for different awards given throughout the year.

²³Based on analysis of *Northwest Airlines Timetable*. Other factors including equipment, airport capacity, and potential market affect airline scheduling decisions and would need to be considered in any schedule analysis.

²⁴As part of this work for the Air Link Commission, a state-wide survey of travel agents was completed to identify key air service characteristics for business and leisure travellers. See Iowa Air Service Study Detailed Analysis, Phase I, (Sept. 14, 1990).

²⁵Appendix 5 contains examples of air marketing materials used by a variety of small and medium-sized communities nationwide.

Springfield, Illinois implemented an aggressive program aimed at raising passenger levels. It included an airport frequent flier club, advertising, the formation of a marketing committee, and numerous community activities. The annual promotional budget is \$25,000. The airport has actually experienced an increase in traffic since jet service was withdrawn in 1985, and 1990 traffic is also projected to rise over 1989 traffic levels.²⁶

Smaller communities (especially those located near larger cities) may wish to focus on local businesses and promote their service to businesses, as very often people are not aware of the local airport's convenience.

While most airline advertising is designed for national or regional audiences, airlines, especially smaller regional carriers are willing to cooperate with local communities. Joint programs, while more difficult to begin, can greatly enhance an airport's ability to increase passengers, as was shown last February with the "two-for-one" tickets in Cedar Rapids. While this temporally shifted leisure travel from nearby airports, increased state-wide enplanements. Travel agencies can also play a strong role in promoting local airports, as they are the point of contact for more than half of all travellers. Several airports also have incentive programs for travel agents who write large numbers of tickets at the local airport. Incentives can include cash, trips, and other prizes.

Any marketing campaign should revolve around an easily identifiable theme. For example, "Fly From Nearby," "Bringing Your World Closer," and "It's Plane Easier," are some of the themes developed recently in Michigan. Dubuque has been very successful with its "Fly Dubuque" campaign and has distributed different collateral items like tee-shirts, hats, coffee mugs, and bumper stickers as reminders for local residents.

In addition to funding assistance, state involvement should include expertise for local airports and communities which may not have the resources or skills to implement such programs. The state also needs to develop guidelines for implementation of the programs to ensure that local communities do not engage in predatory practices against other nearby communities.

Improvements to air service may come only if the community markets itself to airlines. Any approach to the airline should involve a two-step process. The first step includes a comprehensive study of the local air-service market. Presumably much of the detail necessary for this study will have been collected as part of the market research phase. This detailed report should examine many different facets of the community, including air service demand data, economic data, employment data, and other socioeconomic data that suggest a rising demand for air service.

The second step is to identify which routes or destinations could most likely support by new service. Information from local travel agents and large employers can assist in making these determinations. At this point preparing a presentation for the targeted airline should begin. The report should include a detailed analysis of a route potential traffic and

²⁶Source: Springfield Airport Authority.

revenue. Additionally, the report should compare the local community with other communities of similar size and their air service levels. Any marketing plan should also suggest other cities which can be paired with the local community to help bolster passenger traffic, especially during service start-up. The plan should also included detailed data on potential airline revenue and yields.

While difficult to measure, the outcome of any marketing program, should lead to a measurable increase in passengers. This assumes a well-executed, sustained, marketing campaign is undertaken. While the length of time for any campaign, depends on many variables, a campaign must last a reasonable period to allow for short-term factors like seasonal service changes, economic conditions, and the inherent difficulty of getting people to change ingrained travel patterns. Most state air service efforts are multi-year programs allowing for renewable grants to sustain local marketing campaigns.

Carrier Subsidies

A carrier subsidy is an attempt to attract a carrier to a city that would not otherwise receive service. The largest carrier subsidy program in the United States is the Essential Air Service (EAS) program run by the Federal government. Designed in part to mitigate the effects of airline deregulation on smaller cities, the EAS program currently provides subsidy money for service to more than seventy-five communities throughout the U.S. As recently as 1989, two Iowa airports, Clinton and Ottumwa, received subsidized air service. Due to changes in eligibility requirements Clinton no longer qualifies for the federal program and does not have commercial air service.²⁷ Ottumwa's annual subsidy exceeds \$238,000 per year or almost \$100 per passenger in 1989.²⁸ The current subsidized is between Ottumwa and Des Moines with service provided by Great Lakes Aviation. A new filing for a route between Ottumwa and Chicago with an intermediate stop is currently pending before the U.S. Department of Transportation.

Presently, the only state-funded carrier subsidy program is in South Dakota. The annual cost for the statewide network is estimated at \$2.7 million. Passenger levels are forecast at 30,000 per year. The expected state and local subsidy of \$1.2 million amounts to \$40 per passenger if projections are met. Much of the local funding is being raised through airport revenues and other fees. The remaining \$1.5 million is expected to be generated through passenger fares ranging between \$50 and \$75 each way.

Iowa's excellent highway network that links many of the State's largest communities with Des Moines, limits the need for many intra-state air links.²⁹ Communities like

²⁷The eligibility change increased the minimum distance between a community and an alternative airport before EAS subsidies are allowed.

²⁸Source: U.S. Department of Transportation

²⁹Cities like Ft. Dodge, Cedar Rapids, Mason City, and Waterloo are either too close to Des Moines, or have good highway access to Des Moines, to warrant anything more than

Burlington, Clinton, Sioux City, and Dubuque, however, are not directly linked to major highways leading to Des Moines, and air service to the capitol city may be feasible from these communities. There are several ways to develop this service.

- Use of existing EAS money to Iowa for route subsidization.
- Creation of a state-wide charter network by local Fixed Based Operators (FBOs).
- Use of existing airlines to run a full intra-state service.

As noted earlier, the present EAS route in Iowa connects Ottumwa and Des Moines. However, under the EAS program Ottumwa is eligible for one-stop service to Chicago. Burlington, Iowa presently has non-stop service to Chicago provided by American Eagle and Great Lakes Airlines. If the EAS route filed by Great Lakes for Ottumwa were adjusted to provide Ottumwa-Burlington-Chicago service, an additional link to Des Moines could be added inexpensively. If any need for additional subsidy remained perhaps it could be paid for by the state, Ottumwa, Burlington, and Des Moines.

Subsidized Intra-State Service

Smaller communities, particularly those no longer eligible for Federal EAS money, may require some form of State assistance to resume passenger service. Clinton, for example, could be linked to Des Moines through a special State-subsidized service. Similar to South Dakota's system, this would be based on contracted service. Even with economies of scale, fares for larger aircraft may be prohibitively expensive. By operating low-cost service the airline may reduce fares and boost load factors. For service initiation, however, there may be carriers able to offer better equipment for a relatively low subsidy level, depending on their aircraft utilization and scheduling.

Nonetheless, while subsidized service would provide a way for small communities to have air links to other cities, several obstacles would have to be overcome for the program to succeed. These problems include defining demand, scheduling, and cost.

Demand. The level of demand for air service on a small-aircraft route is critical. An aircraft with a 6-passenger capacity, for example, may have a break-even point at between 2 and 3 passengers. A long sustained period with no demand (such as may occur due to the seasonal nature of demand) would subject a small carrier to considerable financial risk. This problem can discourage operators from entering a new market. However, a subsidy program can provide adequate incentive to initiate service. Once service is initiated, the relative success of the program can be periodically evaluated to determine the need for continued subsidy, or, in the case of failed service, program termination.

limited demand for flights to Des Moines.

Scheduling. As the Apogee travel agent survey showed, frequency and reliability are critical to Iowa business travellers. Therefore, the air service must operate on a relatively frequent basis (initially with at least two round trips per business day) to attract the ridership necessary to support the service and, ultimately, to eliminate the subsidy altogether.

Costs. Perhaps one of the greater risks associated with small airline/aircraft service is that its financial success is tied to each passenger since each one represents a larger percentage of revenue than for larger aircraft.

Route Subsidies

A route subsidy is designed to improve service by adding a route or improving frequency on an existing route. Individual communities with growing traffic demand may find it advantageous to try and induce a new carrier to provide new service to a hub airport (e.g. Dubuque and St. Louis) or convince an existing carrier to upgrade service with larger planes or greater frequency (e.g. Waterloo).

Efforts of other communities to achieve better service on individual routes are generally found in resort areas with heavy seasonal demand (Western ski resorts, for example). The resorts sign agreements with airlines giving them preferential marketing rights for rooms at the resorts. In return, airlines provide seasonal service to the communities. Some communities, with larger year-round populations, have been able to gain improved year round service (e.g., Jackson Hole, Wyoming).

The Air Access Michigan program has also led to a route-subsidy agreement between the state of Michigan, Traverse City, and Northwest Airlines. The three-year agreement calls for Northwest to provide at least one daily non-stop jet flight between Traverse City and Detroit. The contract guarantees Northwest's profitability on the route for three years. The first year loss was \$58,000. Traverse City views the service as crucial to helping expand its tourist business given its location on Lake Michigan.

Besides cost, another issue with route subsidies is the potential harm that can occur to airlines that already serve the community. For example, the introduction of subsidized jet service by one carrier may cause financial harm to other carriers by diverting traffic. This could lead to a reduction in frequency and in number of carriers serving an individual community.

In Iowa, there may be several instances where route subsidies should be studied further. The ideal situation is one where the community guarantees the airline a particular level of traffic (or revenues) and then does not require any payment because traffic exceeds expectations. Both Dubuque and Waterloo have sufficient populations and enplanement growth to warrant improved frequencies, new carriers, or service upgrades (to jets). Both cities as well as other communities considering route subsidies should proceed cautiously, however, for several reasons,

- Lack of a diverse market,
- Harm to existing carriers in a market,
- Individual decisions of airlines, and
- Political constraints.

As noted earlier, route subsidies appear to work best in resort areas. These communities have both leisure travellers and businesses that demand air service, are able to generate consistent demand, and have local business that can absorb any costs directly through high revenues in their own business. Markets that are primarily business oriented are subject to seasonal changes in travel patterns, as well as the potential for large declines in travel if the economic base is not well diversified and major local firms cut back their travel budgets.

Additionally, local Chambers of Commerce and tourist boards in resort areas are more likely to have significant resources to spend on advertising and other promotions. In Traverse City, a non-profit group from the tourist bureau and Chamber of Commerce guarantees Traverse City's portion of any shortfalls. Efforts to use public monies without significant private support have failed in cities like Pocatello, Idaho. Most Iowa cities are primarily business markets which may make it more difficult to garner support to guarantee revenue shortfalls.³⁰

If service changes harm an existing airline's boardings, that carrier may leave the community unless they are guaranteed revenue as well. This would likely place the community at a greater disadvantage. Problems may also arise if the service is not unique and other carriers feel discriminated against.

Airlines may not be persuaded to enter a new market or improve service if it will harm their operations in other nearby communities. The clearest example of this may be Waterloo, where airlines have been reluctant to expand because of possible harm to their parallel operations in the larger Cedar Rapids market. It is incumbent that communities seeking to improve air service show their markets have increased, not just that new service will keep people from going to another airport.

Route subsidies for individual communities can create political difficulties because they can be perceived as favoring one region of the State over another part. Additionally, since the possibility exists that a subsidy may span several years the community could find itself in a difficult financial position if state funds are cut before the route becomes profitable.

³⁰The introduction of riverboat gaming in Dubuque and Clinton, may eventually lead to increased demand for leisure travel to these cities.

If a community does go forward with a route subsidy, there are ways other than direct cash transfers to lower airline costs. These may include landing fee reductions, fuel discounts, providing local staff support, discounts on overnight lodging, or any other incentive that can make serving a market more profitable by simply reducing costs.

At the State level, similar waivers in taxes and fees may help encourage airlines to serve Iowa airports. A reduction in fees that is too generous, however, can lead to significantly lower revenues which could affect airport capital improvement, marketing programs, and ultimately the viability of any new service.³¹

There are instances where the state may wish to consider route subsidies as a means to providing better intra-state service. For example, Midwest Express flies two daily weekday roundtrips between Des Moines and Milwaukee. If the state and another community, such as Dubuque, can persuade Midwest Express to fly Des Moines-Dubuque-Milwaukee then two purposes can be achieved; 1) A reliable intra-state link between Dubuque and Des Moines is created, and 2) Dubuque gains an additional air carrier and access to another airline hub. Any subsidy would offset the additional costs involved in stopping as well as help to keep a reasonable fare between Dubuque and Des Moines or starting a completely new route. Of course, current travellers between Des Moines and Milwaukee would have reduced service with a one-stop rather than a non-stop -- perhaps this loss could be offset by lower fares.

Other examples may include seeking to redirect one-stop service to cities in Iowa. For example, a flight from St. Louis to Sioux City currently stops in Moline, Il. If TWA could be persuaded to stop in Des Moines, and then continue on to Sioux City, another intra-state link would be developed and TWA would gain additional revenues. By seeking to work with existing carriers, the State can create links between major Iowa cities, as well as improve service to out-of-state hubs.

Clearly, there is no guarantee that an airline would make these route adjustments. The cost, however, of inducing such route changes may be significantly less costly than intra-state service and would connect Iowa cities to each other and to points beyond as well as provide service on a carrier with existing system linkages.

Loan Guarantees/Interest Buy-downs

One means of attracting improved air service is to lower airline costs for a particular route. One area in which the State could assist air carriers is through loan guarantees and interest buy-downs. The State, in return for assisting the carriers, would require participating carriers to serve designated Iowa markets.

The savings to a small air carrier could be sufficient to permit profitable service on less-heavily-travelled routes. The potential cost to the State, however, would be greater than

³¹Landing fee concessions are not as important to large carriers as might be expected since they compromise only a small percentage of total costs.

just the actual cash outlays, administrative and aircraft costs. Both loan guarantees and interest buy-downs would require the State to develop cumbersome regulatory mechanisms to select appropriate carriers and monitor their compliance with developed guidelines as well as expose the State to considerable financial risk should a guarantee come due.

For example, an aircraft loan guarantee program was implemented by the Federal Aviation Administration to encourage new entrants during the 1970s. Several of the carriers defaulted on loan payments and, even though the government was able to sell off many of the aircraft, the resulting loss still approached \$50 million.

If a program were implemented the resulting costs to the State could be significant, even if the aircraft is resold (See Table 10).

TABLE 10.
AIRCRAFT PURCHASE COSTS

Aircraft Type	New	Used	Aircraft Type
19 - Seat Turbo Prop (Pressurized)	\$2.6-\$4.0 million	\$1.5-2.5 million	Metro III Beech 1900 Jetstream 31
19 - Seat Turbo Prop (Unpressurized)	\$1.9-\$2.6 million	\$750,000-\$1.5 million	Twin Otter D-228
13 to 14 Seat (Unpressurized)	NA	< \$1 million	Beech 99
9 - Seat (Pressurized)	\$3 million	\$1-\$2 million	King Air
6 - Seat Aircraft (Unpressurized)	\$600,000 if available	\$100,000-200,000	Cessna 310

Notes: All prices are approximate and the actual aircraft cost will depend on many factors including, aircraft age, equipment, avionics, as well as present market conditions.

The other alternative to a loan guarantee is to "buy-down" the interest rate on a new aircraft loan for an airline. An airline buying a new aircraft costing \$3.2 million could realize yearly cost savings of over \$40,000 if the state were to buy-down the interest rate by 2 percentage points.

Unfortunately, many of the administrative and regulatory costs found in loan guarantee programs are also associated with interest buy-downs. Further, experience in aviation as well as other transport programs has shown that targeted subsidies (route-specific or carrier-specific) are much more cost-effective ways to provide new service and involve significantly less risk.

AIR CARGO GATEWAY STRATEGY

Many of the established U.S. cargo gateways -- such as Atlanta, Chicago and New York -- are becoming increasingly congested as traffic growth approaches, and in some cases exceeds, the design capacity of those airports. Regulatory constraints because some of the bilateral air service agreements between the U.S. and Western European countries do not provide for unlimited service on established routes. Even if "open skies" existed, however, the airside and groundside capacity constraints at established cargo gateways preclude any substantial increase in cargo service to those airports. As a consequence, increasing amounts of cargo traffic are being "spilled" from the traditional gateways, and shippers in the interior U.S. are forced to search for alternative carriers. Accordingly, this section discusses how new all-cargo service to a strategically located interior city should be able both to capture the "spilled" traffic and to divert traffic from the larger, more congested gateways because of shorter elapsed shipment times.

Airports within Iowa enjoy a central location (35 percent of U.S. shippers within 350 miles), outstanding air cargo facilities and excellent access to the Interstate highway system. In short, cities like Cedar Rapids, Waterloo, Sioux City, and Des Moines are an ideal location for an intermodal hub at which a trucking network feeds a direct freighter service to Europe and Asia. Because the Benelux region has some of the more advanced intermodal hubs in Europe, this concept focuses on the potential for an Luxembourg-Iowa freighter service in order to capture traffic in the 350-mile catchment area surrounding both airports.

To be successful, an alternative gateway must offer the shortest elapsed travel times for international shipments to and from interior U.S. cities. Elapsed times depend on three factors. First, the airport must have the ability to handle international flight operations reliably and efficiently -- i.e., no airside congestion, sufficient technology to minimize the impact of weather, etc. Second, the airport must possess groundside capacity commensurate with its ability to handle large freighter aircraft. For international shipments rapid customs clearance is as important as adequate cargo terminal capacity. Third, the airport must be well integrated into the U.S. surface transportation system in order to allow immediate connections to and from less-than-truckload (LTL) operators serving interior cities behind the gateway airport.

The key to realizing the potential of well-equipped and well-located alternative gateways is the establishment of a strong alliance between the cargo carrier and local forwarders at the outset. In this way, the operator creates an immediate presence in the market with limited infrastructure investment. A strong carrier/forwarder alliance is a powerful marketing tool that can divert traffic from traditional gateways.

Of course, there are risks involved in an alternative gateway strategy, but they can be mitigated with proper response strategies. The biggest threat to the success of the concept results from other carriers seeking to preserve market share. European carriers currently operating out of Chicago provide a majority of the transatlantic lift from the mid-western U.S. These carriers have competitive cargo products, and also have the advantage of pricing their products on an incremental basis because they operate combination aircraft.

As a result, their tactical response to a new entrant seeking to divert traffic from Chicago is likely to come in the form of price competition. Historically, carriers such as KLM and Lufthansa have been willing to accept depressed yields to preserve their traffic base, but as both passenger and cargo traffic from Chicago continues to grow strongly, the incumbent carriers will not have the excess capacity necessary to support aggressive discounting. Transatlantic cargo traffic through O'Hare is forecast to approach available capacity within the next two years. As a result, significant amounts of cargo traffic will be "spilled", and we believe that an all-cargo carrier serving an alternative gateway in the region would be the principal beneficiary.

Niche intermodal networks have been and will continue to be a source of profit for innovative air cargo carriers. The entrenched philosophies of U.S. integrated carriers demonstrated by their continued unwillingness to offer "customized" air cargo services will force large corporations to seek cargo operators willing to fulfill their international transportation requirements.

Marketing Strategy

Niche cargo operators typically seek partners to participate in start-up services in order to hedge the financial risk. A LUX-Iowa all-cargo route would be most successful if the niche operator initiated the service in cooperation with one or two large forwarders as a means of building traffic quickly. An international forwarder with a trucking network in Europe and the U.S. would be the most attractive partner. Alternatively, the carrier could engage a U.S.-based outbound specialist and a European inbound specialist to provide balanced traffic flows.

The service would seek to offer the shortest door-to-door elapsed times for heavyweight shipments in the mid-western U.S. to Europe market. It is possible to provide 36-hour door-to-door service to cities within 350 miles from LUX and airports within Iowa. This service would be superior to Federal Express and UPS delivery times of 48 hours in the same markets.

Target customers for the service fall into two categories: consolidations and large service builds, it would be possible for the carrier to participate in competitive bids for large corporate accounts. The long-term strategy would focus on developing a mix of 80 percent corporate contracts and 20 percent consolidations.

The local intra-Iowa market consists of several large and small high-technology companies that manufacture computer and aerospace components. These companies have large export volumes and procure a significant amount of their sub-assemblies from European suppliers. More than half of these companies have or will soon implement just-in-time (JIT) inventory management systems. The proliferation of JIT systems has created an enormous demand for air cargo lift, both inbound and outbound.

The catchment area within 350 miles of Iowa -- including eastern Nebraska, Minnesota, southern Illinois, Missouri, Kansas, the Dakotas and western Wisconsin -- is saturated with high-tech and large manufacturing firms which are substantial and growing air cargo customers. The LTL feed/defeed network would be the mechanism for

servicing interior points such as Kansas City, St. Louis, Memphis, Omaha, and Minneapolis. The geographic location of Iowa places it in the center of all manufacturing activity for the entire mid-western region of the U.S.

Scheduling Options

Equipment Type

Two equipment options exist for existing niche carriers to employ in a LUX-Iowa airlift operation. The DC-10-30CF would be the ideal aircraft to use to begin the service. As the traffic base grows, the 747-200C could be introduced to provide additional lift. The DC-10-30CF is assumed to have a maindeck capacity of 22 88X125 pallet positions and five pallets and 10 LD3s in the forward and aft lower lobe holds, respectively. The aircraft has a payload capability of 118,500 pounds and range of approximately 4,300 miles. The 747-200C has a maindeck capacity of 28 88X125 pallets and 30 LD3s in the lower lobe compartment. The payload of the aircraft is 225,000 pounds with a range of approximately 5,000 miles.

Proposed Routings

Year one/DC-10-30CF

Due to range limitations and the existing runways at various airports within Iowa, a DC-10-30CF will probably suffer payload restrictions on a nonstop flight to Luxembourg. In addition, the low initial traffic levels typical of new markets may make "tag-end" service from Toronto more economic than nonstops from Europe. Accordingly, we propose a weekly roundtrip on an LUX-YYZ-IOWA-YYZ-LUX routing, with no traffic rights exercised between Canada and Iowa.

Year two/747-200C

As the service matures and the market is stimulated, the route could support additional capacity. Depending on aircraft availability and market requirements, capacity could be increased by adding DC-10-30CF frequencies or the introduction of a 747-200C. A 747-200C equipment decision would allow planners to operate non-stop or continue the sea/air program in Toronto. Proposed routings include LUX-IOWA-LUX or LUX-YYZ-IOWA-YYZ-LUX, again blind sector between Canada and Iowa.

APPENDIX

- APPENDIX 1: SUMMARY OF DEVELOPMENT OPTIONS FOR INDIVIDUAL CITIES
- APPENDIX 2: SPECIFIC CITY ECONOMIC FINDINGS
- APPENDIX 3: AIRPORT SERVICE REGIONS
- APPENDIX 4: DECEMBER 1990 SCHEDULE FOR IOWA AIRPORTS
- APPENDIX 5: REVIEW OF MARKETING LITERATURE
- APPENDIX 6: AIR CARGO TRAFFIC FORECAST METHODOLOGY
- APPENDIX 7: ACKNOWLEDGEMENTS

APPENDIX 1: SUMMARY OF DEVELOPMENT OPTIONS FOR INDIVIDUAL CITIES

SUMMARY OF DEVELOPMENT OPTIONS FOR INDIVIDUAL CITIES

The Air Service Study was designed to evaluate and make recommendations on a state-wide basis for improving air service, however, as demonstrated above local communities also have a large role to play. As Table 10 shows, all of the communities could benefit from market development grants and increased promotional activity.

Within each category different cities have different needs depending on existing service and the local economy. Cities with jet service, for example, do not need large marketing programs because they already attract upwards of ninety percent of their local population's passengers. The needs and priorities of cities with commuter service, on the other hand, tend to be more diverse for the near-term. As the discussion indicates, many cities have already begun to implement many of these options. Our team has evaluated air service in each Iowa city and provides recommendations.

PRELIMINARY IOWA AIR SERVICE DEVELOPMENT OPTIONS: NEAR-TERM ACTIVITIES

Options	State	Jet Airports			Commuter Airports							
		C I D	D S M	S U X	B R L	D B Q	F O D	M C W	O T M	S P W	C W I	A L O
Market Development Grants	X	X	X	X	X	X	X	X	X	X	X	X
Carrier Subsidies	X								X		X	
Route Subsidies	X					X		X				X
Short Term Planning	X						X					
Long Term Planning	X				X				X		X	
Promotional Activity	X	X	X	X	X	X	X	X	X	X	X	X
Air Cargo	X											

NOTE: Allocation of air service development options is for the near-term and preliminary

BURLINGTON (BRL)

Burlington's air service has grown with the recent acquisition of service by Great Lakes Airlines. The city is presently served by three air carriers and is taking positive steps forward with the planned formation of an airport authority.

One goal of the authority should be to increase public awareness of the service provided in Burlington. Many residents mistakenly drive to Moline in order to fly jets to Chicago, when in fact all flights between Moline and Chicago are commuter flights. By retaining all of its passengers and continuing the growth it enjoyed during the 1980s, Burlington may be able to attract additional service to Chicago (e.g. Midway) or to other hubs (e.g. Kansas City).

Cedar Rapids (CID)

Cedar Rapids is well served by several major carriers and their commuter affiliates. As the airport continues to grow, service improvements might be achieved in collaboration with other Iowa cities. The airport does need to ensure that all airlines serving the airport are attracting passengers in an effort to retain high-quality service to multiple hubs.

Clinton (CWI)

Clinton, which is without commercial air service, would likely benefit from any state programs designed to link Iowa cities together. Additionally, if the community chooses to attempt to attract air service it must carefully determine if service would be successful given the nearby Quad cities airport.

The Clinton airport has been recently received some capital improvements and should continue to attract increasing general aviation traffic. The airport, while focusing on commercial service, should also continue to improve its general aviation facilities.

Des Moines (DSM)

Des Moines is a well-served airport with multiple service to many airline hubs and should consider cooperating with other nearby cities in an attempt to acquire new flights to new hubs or major business centers (e.g. Des Moines-Omaha-Salt Lake or City Cedar Rapids-Des Moines-San Francisco). Resumption of service to Nashville could occur in the near-future as American Airlines has begun to rebuild service from its Nashville hub.

Dubuque (DBQ)

The Dubuque airport's "Fly Dubuque" campaign has been very successful and should be continued. The airport, quite interested in attracting new service, has been attempting to re-capture passengers. As enplanements continue to rise, service should increase as well witness the state of service earlier this year by Northwest's airlink service more than offsetting the loss of commuters service through Midway. The airport should also continue its efforts to reduce passenger leakage to other airports, as this will contribute to better utilization of its service.

Dubuque is also interested in receiving service to another hub. Milwaukee, St. Louis, Chicago (Midway), and Kansas City are all options that Dubuque may wish to consider in determining if route guarantees are a feasible approach. Additionally, any state actions to improve intra-state service would benefit Dubuque.

Fort Dodge (FOD)

Fort Dodge's proximity to Des Moines has made it very difficult for the airport to attract passengers, and the airport has seen a decline in service to Minneapolis. The immediate goal of the airport should be on-going contact with businesses to educate them about the service to Minneapolis and Chicago. Even though flights to both of those cities make at least one stop along the way, it is still much faster to fly from Fort Dodge than drive to Des Moines.

By having a concerted marketing effort, with community and travel agent support and targeted at local businesses, the airport should be able to increase its passenger totals. This would be beneficial for two critical reasons; 1) it could lead to better service (e.g. nonstops to Minneapolis, and 2) if passengers counts go above 10,000 the airport will receive Federal airport monies. It is critical for service levels to stabilize so that any marketing campaigns can be more effective.

Mason City (MCW)

Mason City's air service has seen continual improvement in recent years, both in the number of flights and cities served. The airport, receives more nonstop service to Minneapolis, than any other Iowa airport. It also receives direct service to Chicago. The airport is completing a major terminal redesign and expansion. It has realized steady growth in enplanements and may wish to consider cooperating with other Iowa cities to attract shared service to new hubs like St. Louis or Kansas City.

If new service is desired, caution should be used in ensuring that the market is large enough to support the new service without hurting the excellent service being provided by Northwest and Great Lakes.

Ottumwa (OTM)

Ottumwa's enplanement totals should rise dramatically if service to an out-of-state airline hub is begun. Presently, by offering only commercial service to Des Moines, the airport is hurt by people driving to Des Moines. One projection by Great Lakes estimates 6,000 passengers per year on the Ottumwa-Chicago route.¹ This would represent a significant increase in passengers, at Ottumwa.

Spencer (SPW)

Spencer's air service is provided solely by Great Lakes, which is based in Spencer. This should ensure that Spencer is well served beyond what its population would normally require. As Great Lakes continues to expand it is conceivable that new service options will develop. Additionally, Spencer airport serves the "Lakes Region" of Northwestern Iowa. As this area becomes increasingly popular with vacationers additional passengers are likely to be attracted to Spencer.

Sioux City (SUX)

Sioux City has done an excellent job of improving its air service since the mid-1980s. Unfortunately, it must compete vigorously with airports in Sioux Falls and Omaha to attract both passengers and air carriers. This city has trouble attracting new service because of its distance from hubs like Chicago and St. Louis. This of course makes attracting new passengers difficult. Nevertheless, the city firmly supports the airport and the airport, despite these obstacles, has done a tremendous job of attracting passengers.

Sioux City should benefit from the introduction of larger commuter aircraft which can fly greater distances, yet have lower operating costs than a DC-9. Additionally, USAir's development of Kansas City could prove beneficial as Sioux City should receive commuter links to Kansas City.

Waterloo (ALO)

Waterloo airport has been among the most persistent Iowa airports, in trying to gain new service and better service (jets). The difficulty is that many airlines incorrectly view Waterloo as adequately served by Cedar Rapids. Efforts by the airport to overcome this misperception will be successful, especially if the airport is able to attract new service, and then support it successfully. Additionally, as larger commuter planes are introduced, the airport will lose fewer passengers to other airports. The airport is willing to listen to any reasonable idea to share service and believes it has the community support to guarantee that new service is successful.

¹EAS Route Filing, Docket #42911, Received by DOT May 23, 1990.

APPENDIX 2: SPECIFIC CITY ECONOMIC FINDINGS

SPECIFIC CITY ECONOMIC FINDINGS

Specific findings for each of the eleven Iowa cities is discussed below.

Burlington (BRL)

Service and demand at Burlington airport have decreased by over 40 percent since 1983 despite a 10 percent growth in employment and business income. This trend is unique among Iowa airports, a fact which suggests that some passengers are opting to depart from adjacent airports with non-stop service (e.g., Moline).

Clinton (CWI)

The availability of Essential Air Service (EAS) funding for Clinton has changed the fundamental relationship between demand and the local economy. Therefore, no indicators proved to be well correlated to demand. However, a weak relationship did exist between demand and service. This relationship may have been stronger were it not for the proximity of a competing airport.

Cedar Rapids (CID)

Between 1983 and 1988 Cedar Rapids experienced a 13 percent growth in service area income and a 100 percent growth in passenger demand. Although airline service has also increased by 20 percent, the correlation between service and demand was not significant. Instead, the dominant economic factor related to air service demand is Non-farm Business Income with a demand elasticity well above one, indicating that passenger demand has grown much faster than local non-farm income.

Des Moines (DSM)

The principal statistical influence on demand at Des Moines airport is Non-farm Employment with a demand elasticity of almost two. This indicates that passenger traffic has grown almost twice as fast as local income. The primary service factor correlated to demand is seats available.

Dubuque (DBQ)

The primary influence on demand at Dubuque airport is the number of seats available per day, with a demand elasticity of 0.84. This suggests that for a ten percent increase in available seating per day passenger demand will increase by 8.4 percent per quarter. In other words, based on past changes in activity at DBQ, new service should pay for itself. Furthermore, only a weak

negative correlation was identified between air service at Cedar Rapids and demand at Dubuque, suggesting only minimal competition exists for passengers between the two airports.

Fort Dodge (FOD)

The main economic variable affecting demand at Fort Dodge is Non-farm Business Employment, with a very high demand elasticity. Although this number appears extreme probably reflects the fact that immediately following deregulation service at Fort Dodge was cut by over 70 percent within one year. As the business sector grew by three percent over the next six years service grew by over 700 percent in order to provide the necessary service required.

Mason City (MCW)

The primary influence on demand at Mason City is Non-farm Business Income with a high demand increase in quarterly business income. Following deregulation, Mason City, like Fort Dodge, lost 50 percent of their service within one year. Thus, while the as the business sector grew by 7 percent between 1983 and 1988, air service recovered much more rapidly (by over 120 percent).

A second important variable at Mason City is average daily seats provided (with an additional 1.3 percent passengers for each one percent rise in seats provided).

Ottumwa (OTT)

The Ottumwa service region experienced a real income loss of nine percent per employee with a corresponding 70 percent decline in service demand. This implies a recession-driven drop in air service demand. The primary influence on demand at Ottumwa is Non-farm Business Income per Employee, with a high demand elasticity indicating a rapid change in passenger demand per quarter for as business employee income grows.

Sioux City (SUX)

The primary influence on demand for Sioux City is Total Employment for the region, with traffic growing substantially faster than employment. This extremely high demand elasticity can be explained by the drastic drop off in service following deregulation (50 percent), similar to that of Fort Dodge and Mason City. As the number of employees grew by ten percent over the next six years, airport service increased by over 190 percent.

Spencer (SPN)

The operations of Great Lakes Airlines in Spencer, while adding considerably to the airport's service levels, distort the economic relationships. This makes an accurate reflection of potential demand difficult.

The primary influence on demand for air service in Spencer appears to be Non-farm Business Income, with a significant increase in passenger demand per quarter for each one percent increase in business income per quarter.¹ A second influential variable for Spencer air service demand is seats available with a 0.35 percent passenger increase per quarter for each one percent growth in seats available per day.

Waterloo (ALO)

The economic data confirm that Waterloo and Cedar Rapids compete directly for passenger service. Specifically, the negative correlation of service (measured by seats) at Cedar Rapids (CID) and demand for air service at Waterloo suggests that increases in service at CID result in decreased demand at Waterloo. Non-farm Business Income also displayed a negative correlation. This suggests that despite growth in the Non-farm Business sector, passenger demand declined -- a relationship that may be attributable to the change in population over the period of the analysis or may be highly correlated to the influence that CID has on ALO traffic.

¹An elasticity was calculated, but because of the hubbing operations, cannot be considered an accurate portrayal of potential demand.

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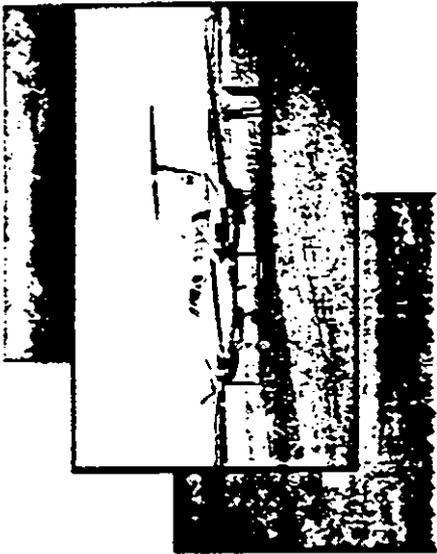
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Air Traffic Control Tower

FAA Air Traffic Control Specialists based at the Dubuque Regional Airport provide service from 6:00 a.m. to 11:00 p.m. daily. Radio frequencies assigned to Dubuque are 119.5 VHF for local control and 121.8 VHF for ground control.

The Automated Terminal Information System (ATIS) is 127.25 VHF. Chicago Center is 133.95 VHF and Fort Dodge Automated Flight Service Station is 122.05 VHF.

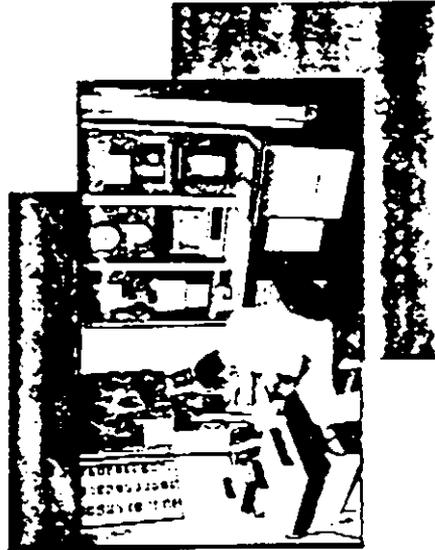


Charter "Air Taxi" Operators

Aircraft and pilots are readily available with 3, 5 and 7 passenger capabilities to serve you. When chartering air service, please ask for and demand that your charter service has an operating agreement with the Dubuque Regional Airport.

National Weather Service

The National Weather Service is located at airport on the second floor of the Crescent Aviation building. The Weather Service provides the Tri-State area with service seven days per week with forecasts, pilot briefings and weather updates. Weather information is available 24 hours per day by calling 582-0174.



Restaurant

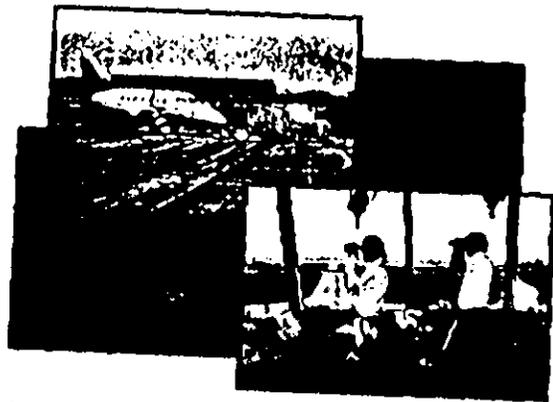
The Dubuque Regional Airport features the new *Sky-View Restaurant*, located in the renovated terminal adjacent to the observation lounge area. The restaurant is open from 6:00 a.m. to 7:00 p.m. daily.

Stop in and enjoy their full menu or a snack. You will find excellent service, a pleasing atmosphere and reasonable prices. For more information, call 588-0807.

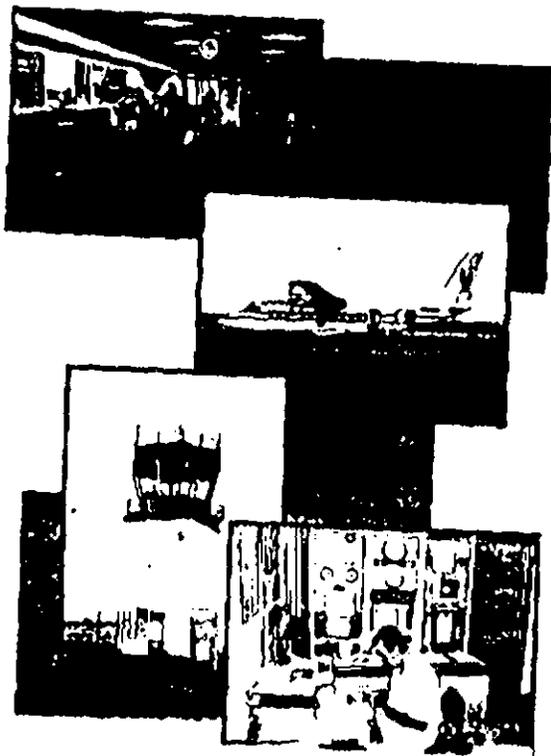


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DUBUQUE REGIONAL AIRPORT



The Dubuque Regional Airport is an important and essential community asset to Dubuque and the Tri-State Area, providing convenience and competitive airfares. In 1988, the Dubuque Regional Airport enplaned 28,690 passengers and in 1989, the total increased to 31,365 passengers. May through October 1990 showed record activity, with over 3,000 passenger enplanements each month. With continued growth in passenger enplanements, the Dubuque Regional Airport will enjoy larger, faster commercial service aircraft and more frequent flights.

The Dubuque Airport Commission welcomes and encourages your continued involvement in the "Fly Dubuque" effort. With heightened awareness and overwhelming support for "Fly Dubuque", the Airport Commission has been able to complete over \$900,000 in terminal renovations and improvements.

You are important to the continued success of the Dubuque Regional Airport. United, we can affect change and demand what is rightfully ours: A first class airport, competitive airfares, frequent flights, modern aircraft and other benefits.

You can make a difference. . .

Fly Dubuque!



Airport Facts

Runway 13/31 is a precision instrument runway equipped with high intensity runway lights. Runway 31 ILS consists of a localizer, glide slope, out marker, middle marker, LOM, MALSR, VOR approach, NBD and is 6,498 feet in length.

Runway 18/36 is a non-precision instrument runway with medium intensity lights and has a VASI, RNAV approach, VOR approach and is 4,902 feet in length.

The Dubuque Regional Airport is capable of landing a Boeing 727 which has a seating capacity of 160 people. Jet service is possible as soon as passenger numbers increase to the point of warranting it. With increased usage, we can make it happen.

Airlines

Dubuque now offers competitive airfares to the Tri-State area with current service provided by American Eagle and Northwest AirlinK. There are over 20 daily flights providing convenient schedules and low airfares connecting Dubuque to nearly any city worldwide.

For a quick glance at airline and charter airfares of frequently visited destinations watch CityChannel 8, the City's government cable television channel.

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Call your travel agent or 800-554-5111 (Great Lakes) or 800-225-2525 (Northwest Airlink)

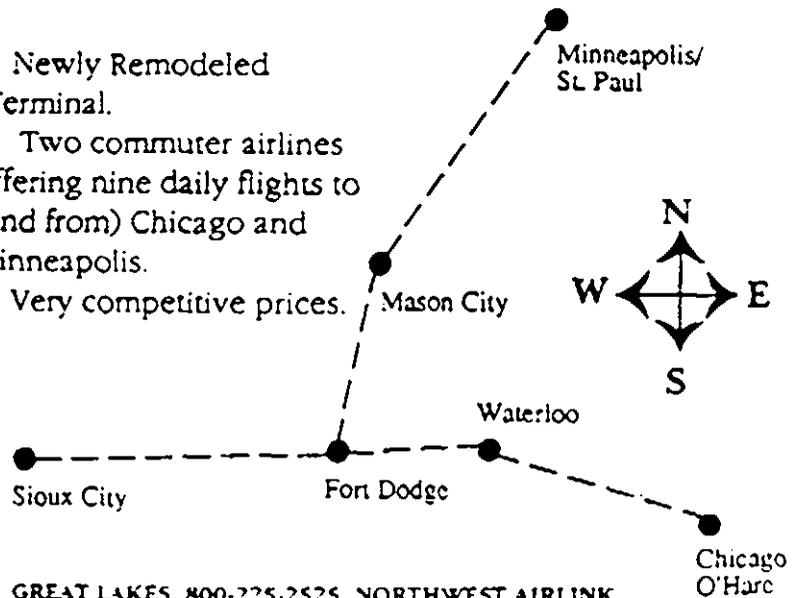
When traveling to or from Fort Dodge think ...

FORT DODGE REGIONAL AIRPORT



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1. Quick Getaways.

Waterloo Municipal is just a few minutes from downtown Waterloo or Cedar Falls. It's a quick and easy drive. By contrast, you can spend a full hour getting to Cedar Rapids - and that's if the weather cooperates.



2. Happy Returns.

When your plane lands at Waterloo Municipal, you're already home. When you return to any other Iowa airport you're facing from a 65 mile to 120 mile return trip. No fun when you're worn out from a day of traveling.



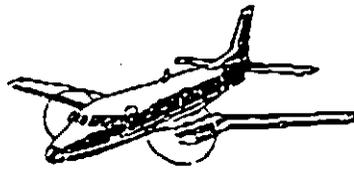
3. Competitive Prices.

The popular notion that it's always much more expensive to fly out of Waterloo Municipal is not based on fact. The fact is that Waterloo Municipal flights are competitively priced.



4. Personal Attention.

At Waterloo Municipal you'll find yourself enjoying good, old fashioned heartland hospitality. It's a neighborly feeling that all airline staff is striving for. At Waterloo each passenger is treated as an honored guest. Now isn't that a nice change from being just one more in a line?



5. Lots of Flights.

Every business day more than 26 flights leave Waterloo Municipal for scores of cities nationwide. Fly non-stop to cities like Chicago, Minneapolis, and St. Louis. Make one stop and connecting flights to other top destinations such as New York, Orlando, Dallas and Washington D.C.

Note to those who dislike connecting flights: You'll spend more time driving to Cedar Rapids than you'll spend waiting for a connecting flight.

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Cleveland	NW/AA/TW	\$158	\$158
Chicago	AA	\$147	\$156
Dallas	NW/TW/AA	\$158	\$158
Denver	TW/NW/AA	\$218	\$218
Detroit	NW/AA/TW	\$158	\$158
Honolulu	TW/NW/AA	\$436	\$464
Houston	AA/TW/NW	\$158	\$158
Las Vegas	AA/TW/NW	\$218	\$218
Los Angeles	TW/NW/AA	\$218	\$218
Miami	NW/AA/TW	\$218	\$218
New Orleans	TW/NW/AA	\$158	\$158
New York	TW/NW/AA	\$158	\$158
Orlando	AA/NW/TW	\$158	\$158
Phoenix	NW/TW/AA	\$158	\$158
Salt Lake City	NW/TW/AA	\$158	\$158
San Diego	NW/TW/AA	\$218	\$218
San Francisco	NW/TW/AA	\$218	\$218
Seattle	NW/AA/TW	\$218	\$218
Tampa	NW/AA/TW	\$158	\$158
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From Sioux Falls Airport _____

TO BE COMPLETED BY TRAVEL AGENCY OR AIRLINE

Date Purchased _____ Date of Travel _____

Ticket Issued By _____

(Travel Agency or Airline)

Airline Ticket Number _____

Validation _____

CONTEST RULES AND REGULATIONS

1. In order to be eligible for the Sweepstake Drawing and award of contest prizes, persons must:

a. Purchase a ticket on a regularly scheduled commercial service airline for travel originating from the Sioux Gateway Airport. Tickets must be purchased and the travel take place on or between the dates of August 1, 1990 and July 31, 1991.

b. Complete and deposit a Sweepstake Entry Coupon in one of the designated Sweepstake Coupon Boxes located in the passenger hold rooms at the Sioux Gateway Airport. Entry Coupons must be obtained at the time of ticket purchase from participating travel agencies or from the airline ticket offices located at the Sioux Gateway Airport. The Sweepstake Entry Coupon must be validated by the travel agency or airline with the airline ticket number listed on the Entry Coupon.

c. Be 18 years of age or older. Parents or legal guardians may submit Sweepstake Entry Coupons for persons under 18 years of age that meet all other contest rules and regulations.

2. Sweepstake Drawings will be held on November 1, 1990 for Entry Coupons deposited from August 1 through October 31, 1990; February 1, 1991 for Entry Coupons deposited from November 1, 1990 through January 31, 1991; May 1, 1991 for Entry Coupons deposited from February 1, 1991 through April 30, 1991; and August 1, 1991 for Entry Coupons deposited from May 1, 1991 through July 31, 1991.

3. Each qualifying Entry Coupon deposited will be eligible for only one contest drawing.

4. Two prizes will be awarded at each drawing. First prize will be a \$1,000 cash award. The second prize will consist of two free airline tickets on one of the airlines serving the Sioux Gateway Airport.

5. The second prize winner for the first drawing will draw to determine which airline tickets will be awarded. The second prize winner for the second drawing will draw from the remaining tickets not awarded at the first drawing. The second prize winner for the third drawing will draw from the remaining tickets not awarded at the first and second drawing. The second prize winner for the fourth and final drawing will receive the remaining two airline tickets.

6. Airline tickets awarded will be restricted to the continental United States and may be subject to additional restrictions and limitations as determined by the airline issuing the tickets.

7. Employees of the Sioux Gateway Airport Authority, participating travel agencies and airlines, and their immediate relatives are ineligible for the Sweepstake Drawing.

8. The Sioux Gateway Airport is the final authority for determination of contest rules and regulations and award of prizes.

FOR FURTHER INFORMATION CONTACT THE SIOUX GATEWAY AIRPORT AUTHORITY, TELEPHONE (712) 275-6165.

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American Airlines		
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Delta Air Lines		
Baggage Service	577-4603	
Flight Information	834-9080	1-800-221-1212
Delta Connection		
Baggage Service	577-4603	
Flight Information	834-9080	1-800-221-1212
Southwest Airlines		
Flight Information	465-3655	
United Airlines		
Baggage Service		1-800-221-6903
Flight Information	891-9497	1-800-241-6522
United Express		
Baggage Service		1-800-221-6903
Flight Information	891-9497	1-800-241-6522
USAir		
Baggage Service	577-4431	
Flight Information	444-7363	1-800-428-4322

FLIGHT SCHEDULE CODE KEYS

Use to decode the abbreviations in your flight selector timetable

AIRLINE ABBREVIATIONS

CODE	AIRLINE	CODE	AIRLINE
7V	Alpha Air	LW	Air Nevada
AA	American Airlines & All 5000 Series flights operated by American Eagle	ML	Midway Airlines
AC	Air Canada	MX	Mexicana de Avacion
AD	Exec Express	NW	Northwest Airlines
AS	Alaska Airlines	PA	Pan Am World Airways
AZ	Alitalia	PI	Piedmont Aviation
BA	British Airways	SK	SAS-Scandinavian Airways
BN	Braniff Inc.	SQ	Singapore Airlines
CO	Continental Airlines	TW	Trans World Airlines
CP	Canadian Airlines, LTD.	UA	United Airlines & Flights 3100-3559 operated by
DL	Delta Air Lines & Flights 5200-5999 operated by Delta Connection	US	USAir
EA	Eastern Air Lines	WN	Southwest Airlines
HG	Harbor Airlines	YV	Mesa Air Shuttle
HP	America West Airlines	YW	Stateswest Airlines
KL	KLM-Royal Dutch Airlines	ZV	Air Midwest
		BG	GP Express Airlines

AIRPORT ABBREVIATIONS

CODE	CITY	CODE	CITY
ATL	Atlanta, GA	ORD	Chicago, IL (O'Hare)
DEN	Denver, CO	PDX	Portland, OR
DFW	Dallas-Ft. Worth, TX	PHX	Phoenix, AZ
FAT	Fresno, CA	RNO	Reno, NV
LAS	Las Vegas, NV	SBA	Santa Barbara, CA
LAX	Los Angeles, CA	SBP	San Luis Obispo, CA
MCI	Kansas City, MO	SEA	Seattle-Tacoma, WA
MDW	Chicago, IL (Midway)	SLC	Salt Lake City, UT
MMH	Mammoth Lakes, CA	STL	St. Louis, MO
MSP	Minneapolis-St. Paul, MN	YYC	Calgary, Alberta

FLIGHT FREQUENCY CODES

1 = MONDAY	4 = THURSDAY	6 = SATURDAY
2 = TUESDAY	5 = FRIDAY	7 = SUNDAY
3 = WEDNESDAY		X = EXCEPT

Every effort is made to keep this timetable current and list the maximum number of flights to as many cities as possible. If you would like additional information and reservations, please call Oakland or your favorite travel agent for complete Oakland service.

GROUND TRANSPORTATION CODE KEYS

TYPE OF SERVICE:

1. CHARTER:

Passengers can rent (charter), for their exclusive use, one or more vehicles for a specified price to a pre-arranged destination. The number of passengers will determine the type of vehicle required.

2. SHARED RIDE (also "Door to Door" service):

Passengers will pay an individual fare and share the vehicle with other passengers. Pick-ups and Drop-Offs will be at pre-designated areas. "Door-to-door" is optional and a fee may be assessed for this extra service; be sure to confirm the specific service and fee when making reservations.

3. ON CALL:

Prior to their departure, passengers can make reservations to be picked up upon arrival at Oakland International Airport.

4. SCHEDULED VANS AND BUSES:

Passengers will be picked up at designated areas at designated times.

5. ON DEMAND:

Passengers who, immediately upon arrival, prefer or "demand" a certain ground transportation company to pick him or her up at Oakland International Airport. This category almost exclusively applies to taxi service.

6. PARA-TRANSIT (FOR DISABLED TRAVELERS):

Transportation services for handicapped travelers, including radio-dispatched vehicles with wheelchair lifts and guerneys. Call individual company for availability of specific services.

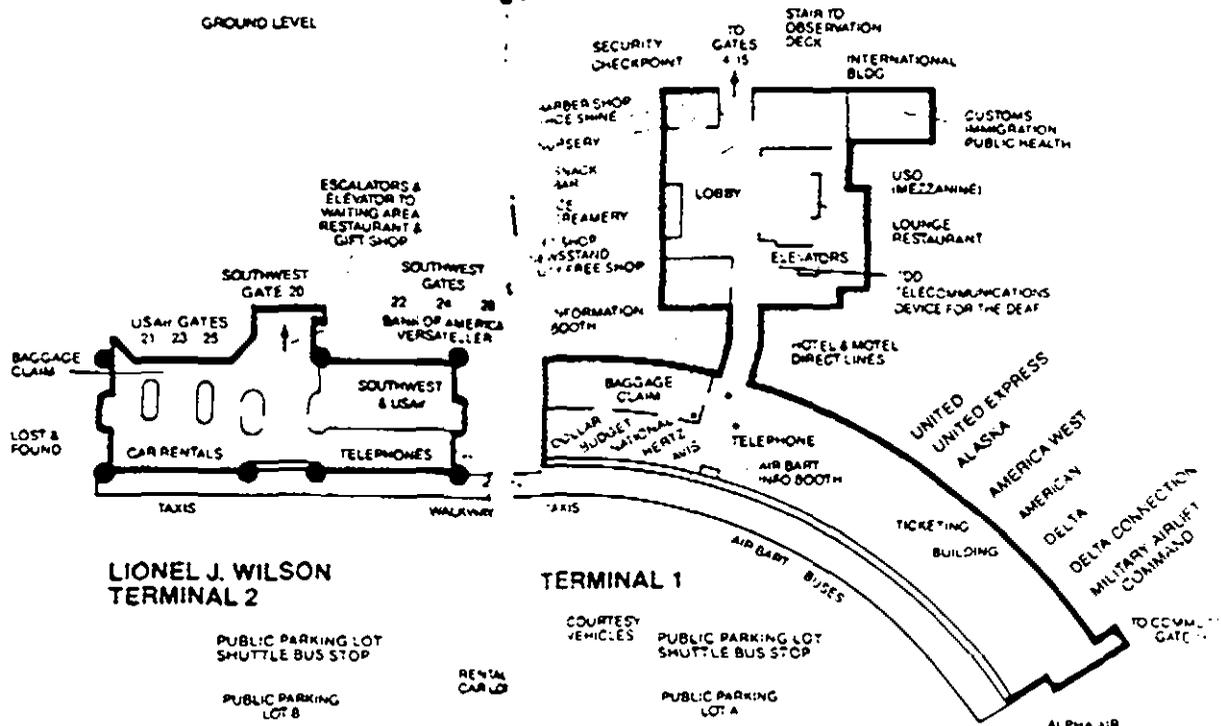
LOCATIONS SERVED:

ALL	Entire Bay Area
BA	BART; Oakland Coliseum; Oakland Airport Station.
CN	CONTRA COSTA NORTH: To Avon, Concord, Clayton, Martinez, Pleasant Hill, Pacheco.
CS	CONTRA COSTA SOUTH: To Lafayette, Moraga, Orinda, W.Creek.
OD	OAKLAND DOWNTOWN: To Downtown Oakland (also see AC Transit, Page 5).
SC	SONOMA COUNTY SOUTH: To Petaluma, Rohnert Park, Santa Rosa.
SD	SAN FRANCISCO DOWNTOWN: To downtown S.F. (also see BART, Page 4 & 5).
SF	SAN FRANCISCO INTERNATIONAL AIRPORT
TR	TRAVIS AFB: 24 Hours Daily, 7 Days a Week
TV	TRI-VALLEY AREA: To Alamo, Blackhawk, Danville, Diablo, Dublin, Livermore, Pleasanton, San Ramon, Sunol.

Transportation Company	Types of Svc						Locations Served:									
	1	2	3	4	5	6	ALL	BA	CN	TV	SD	OD	SF	CS	SC	
569-LIMO 1-800-675-4665	1		3				ALL									
AIR-BART 1-800-545-2700 (415) 832-1464				4		6		BA								
AIRPORTER EXPRESS (415) 484-4044	1		3				ALL								TV	
AMBASSADOR LIMO (415) 681-0800	1		3				ALL									
AM/PM AIRPORTER (415) 547-2155	1						ALL								TV	
BAY AREA BUS SVC (415) 444-4200		1	2	3			6	ALL								
BAYPORTER EXPRESS (415) 467-1800		2	3				ALL									
DIRECT SHUTTLE (415) 674-0474	1						ALL								CN	
GATEWAY LIMO (415) 829-0490	1		2				ALL									
SONOMA CTY ARPT XPRS 1-800-327-2024				4							SC					
TRAVIS SOLANO XPRS (707) 437-4611				4												
TAXIS																
ASSOCIATED CAB (415) 693-4991						5	ALL									
GOODWILL CAB (415) 636-1234	1					5	ALL									
TAXI TAXI (415) 261-4100	1					5	ALL									
YELLOW CAB (415) 444-1234	1					5	ALL									

Car Rental Companies	Local	Toll Free Nationwide
 AVIS	(415) 562-9000	1-800-331-1212
 Budget	(415) 568-4770	1-800-527-0700
 DOLLAR	(415) 638-2750	1-800-421-6666
 Hertz	(415) 568-6777	1-800-654-3131
 National Car Rental	(415) 632-2225	1-800-CAR-RENT

OAKLAND INTERNATIONAL AIRPORT



PARKING INFORMATION AND RATES:

DRIVING DIRECTIONS: From Hwy 880 South, use the Hegenberger Road Exit. Merge left onto Hegenberger and continue straight ahead to the airport; all lanes lead onto the Airport grounds. After crossing Doolittle, use left lanes for Airport Parking Lots, all Rental Car Returns and Terminal Two. Use right lane for Terminal One and Cargo Facilities. For Cargo Facilities, turn right on Alan Shephard Way, go straight at stop sign; offices are on left side and marked. Refer to Terminals Map for airline locations.

THE PARKING LOTS ARE OPEN 24 HOURS DAILY. Free shuttle service is available from the parking lots to passenger terminals every 5 minutes.

HOURLY (SHORT TERM) PARKING LOT:

Per Half Hour \$.75 Per 24 Hours \$15.00

DAILY (LONG TERM) PARKING LOT:

Per Hour \$ 1.00 Per Day \$ 6.00

ECONOMY LOT

Per Day \$ 4.00

PARKING HOTLINE (415) 633-2571

Provides Information and availability for all parking areas.

HANDICAPPED PARKING AND TRANSPORTATION

HANDICAPPED PARKING slots are available for your convenience in both the Hourly and Daily Parking lots. Handicapped Parking Slots in the Hourly Parking lot are available for the same cost as the Daily Parking lot (\$6.00/Day) for a 24-hour period.

Please note: If you park for less than 24 hours in the Hourly (short term) Lot, you will be charged the undiscounted rate of \$.75/Half Hour, up to a maximum of \$6.00.

For general information, call (415)633-2571.

For Handicapped Parking requiring special arrangements, call the Airport Terminal Services Office, (415)577-4091.

TRANSPORTATION FOR DISABLED TRAVELERS can be arranged through Bay Area Bus Service, (415)444-4200. Special vehicles are radio-dispatched and equipped with wheelchair lift and gurney.

From	Leave	Arrive	Flight#	Stops/Via	From	Leave	Arrive	Flight#	Stops/Via
To DENVER, CO					From DENVER				
Daily	8:45a	10:02a	UA658	0	ExSa	8:55a	10:22a	HP491/HP572	PHX
ExSa	7:30a	2:45p	HP121/HP294	PHX	Daily	8:57a	10:32a	UA289	0
ExSa	9:25a	4:52p	HP125/HP296	PHX	Daily	11:28a	5:22p	HP363/UA674	PHX
ExSaSu	9:18a	1:45p	HP124/HP294	PHX	Daily	12:08p	1:45p	UA969	0
Daily	11:20a	2:41p	UA690	0	ExSa	3:25p	9:12p	HP125/HP120	PHX
Daily	11:20a	4:52p	HP498	1	ExSa	5:25p	10:12p	HP359/HP578	PHX
Daily	1:25p	5:25p	HP128/HP391	PHX	Daily	8:39p	7:02p	UA337	0
Daily	2:33p	5:56p	UA310	0	Daily	8:47p	10:09p	UA673	0
ExSa	7:40a	11:00a	UA384	0	Daily	10:25p	2:58a	HP125/HP357	LAS
Daily	11:00a	2:11a	HP211/HP249	LAS					
To DES MOINES, IA					From DES MOINES				
Daily	10:30a	11:59a	AA472/AA1092	DFW	Daily	10:30a	10:32a	UA789/UA289	DFW
Daily	9:55a	1:50p	UA653/UA379	DFW	Daily	10:28a	1:45p	UA659/UA669	DFW
Daily	7:00a	1:00p	HP331/HP250	PHX	Daily	1:55p	7:03p	UA325/UA337	DFW
Daily	11:20a	8:02p	UA690	1	ExSa	1:10p	10:09p	UA1295/UA673	DFW
Daily	1:25p	5:56p	HP128/HP294	PHX	Daily	1:24p	11:34a	AA217/AA367	DFW
Daily	2:33p	9:17p	UA310	1	Daily	9:22p	2:58a	HP251/HP357	LAS
To DETROIT, MI					From DETROIT				
Daily	10:30a	11:51a	AA675/AA198	DFW	Daily	1:05a	10:32a	UA375/UA689	DFW
Daily	8:55a	3:17p	UA653/UA580	DFW	Daily	1:24a	11:45a	AA315/AA1123	DFW
Daily	7:55a	4:50p	UA800/UA154	DFW	Daily	5:12a	12:35p	AA315/AA877	DFW
Daily	7:30a	4:50p	DL1014/DL152	DFW	Daily	8:40a	12:13p	UA225/UA875	DFW
Daily	7:15a	7:10p	UA654/UA445	DFW	Daily	9:10a	1:25p	DL755/DL1228	DFW
Daily	11:20a	9:04p	UA650/UA374	DFW	Daily	10:55a	1:25p	UA323/UA669	DFW
Daily	1:10p	10:20p	UA136/UA420	DFW	Daily	1:15p	3:29p	UA611/UA511	DFW
Daily	2:25p	9:28p	UA310/UA120	DFW	Daily	1:45p	5:15p	AA375/AA1223	DFW
ExSa	11:30p	9:56a	UA506/UA500	DFW	Daily	2:22p	5:40p	UA829/UA609	DFW
					Daily	4:22p	7:30p	UA529/UA337	DFW
					Daily	4:25p	9:25p	DL441/DL691	DFW
					Daily	5:26p	8:55p	AA825/AA197	DFW
					Daily	5:33p	9:19p	UA1295/UA653	DFW
					Daily	7:10p	11:34p	AA1287/AA357	DFW
To DUBLIN, IRELAND					From DUBLIN				
ExSa	1:35a	10:04a	AA1122/AA1014	DFW	ExSa	10:30a	11:34p	DL6145/AA367	DFW
To DURANGO, CO					From DURANGO				
Daily	8:45a	1:00p	UA652/UA178	DFW	Daily	7:20a	10:20a	UA216/UA389	DFW
Daily	9:15a	1:00p	HP124/HP120	PHX	Daily	7:23a	10:33a	HP572	1
Daily	11:20a	4:52p	UA650/UA123	DFW	Daily	9:15a	1:45p	UA227/UA669	DFW
Daily	1:20p	1:30p	UA310/UA120	DFW	Daily	1:20p	5:22p	HP359/HP574	PHX
Daily	5:55p	10:15p	HP498/HP294	PHX	ExSa	5:30p	10:09p	UA220/UA673	DFW
To DUSSELDORF, GERMANY					From DUSSELDORF				
Daily	3:35a	9:00a	AA1122/AA82	DFW	Daily	11:55a	9:55p	AA85/AA797	DFW
To EDMONTON, ALBERTA					From EDMONTON				
Daily	1:55a	1:10p	DL1882/DL1556	SJC	Daily	8:00a	10:00a	DL1555/DL1511	SJC
Daily	1:55p	1:10p	DL1412/DL1701	SJC	Daily	9:45a	1:30p	HP44/HP570	LAS
Daily	1:00p	1:10p	HP42/HP463	LAS	Daily	3:10p	3:25p	DL1735/DL1857	SJC
Daily	4:25p	1:00a	DL1416/DL1186	SJC	Daily	5:20p	9:55p	DL1789/DL1419	SJC
To ELKO, NV					From ELKO				
Daily	8:30a	3:15a	DL1504/DL1556	SJC	Daily	8:25a	12:00p	DL1582/DL1511	SJC
Daily	8:45a	1:55a	DL1882/DL1557	SJC	Daily	12:05p	3:25p	DL1556/DL1857	SJC
Daily	12:55p	9:25p	DL1414/DL1581	SJC	Daily	3:00p	7:00p	DL1585/DL1618	SJC
Daily	4:25p	9:05p	DL1416/DL1583	SJC	ExSa	5:15p	9:55p	DL1583/DL1419	SJC

Schedules may change without notice and may vary during holiday periods. Please confirm with Airline or your Travel Agent.

From	Leave	Arrive	Flight#	Stops/Via	From	Leave	Arrive	Flight#	Stops/Via
To EL PASO, TX					From EL PASO				
Daily	7:00a	11:25a	HP311/HP422	PHX	Daily	5:55a	10:32a	HP800/HP572	PHX
ExSa	8:30a	1:15p	WN330/WN473	PHX	ExSaSu	7:00a	9:10a	WN378	1
ExSa	9:25a	3:05p	WN330/WN456	PHX	Daily	7:10a	12:00p	DL1412/DL1511	PHX
ExSa	11:20a	4:20p	HP496/HP478	PHX	Daily	8:05a	11:40p	WN783/WN482	PHX
Daily	11:52a	5:25p	WN985/WN471	PHX	ExSaSu	9:20a	12:25p	WN742	2
ExSa	12:25p	5:30p	WN495	2	Daily	9:45a	12:45p	HP373/HP577	PHX
Daily	1:05p	3:30p	HP208/HP423	PHX	Daily	9:48a	1:20p	HP573	2
ExSa	2:05p	6:20p	WN794	1	Daily	11:20a	1:50p	WN801	2
ExSa	2:05p	5:40p	HP208/HP421	PHX	Daily	11:40a	3:00p	WN956/WN666	PHX
Daily	2:15p	6:30p	WN804	1	Daily	12:00p	5:22p	HP34/HP574	PHX
Daily	4:25p	10:27p	DL1418	2	Daily	12:25p	4:50p	WN736/WN411	PHX
ExSa	5:10p	9:20p	WN457	1	ExSa	1:40p	4:40p	WN811	2
ExSa	5:30p	10:40p	WN328/WN791	PHX	ExSa	1:40p	4:50p	WN611/WN306	PHX
Daily	11:00p	5:00a	HP211/HP242	LAS	ExSa	2:20p	6:55p	WN647/WN380	PHX
					ExSaSu	4:05p	6:25p	WN747	2
					Daily	4:57p	3:25p	HP444/HP120	PHX
					Su	5:05p	7:25p	WN641	2
					Daily	5:30p	9:05p	WN415/WN695	PHX
					ExSaSu	5:10p	9:15p	WN543	2
					Sa	6:20p	8:45p	WN828	2
					ExSa	7:24p	10:12p	HP34/HP578	PHX
					Daily	9:45p	2:58a	HP756/HP357	PHX
To EUGENE, OR					From EUGENE				
ExSa	7:00a	10:25a	AS188/AS104	PHX	ExSa	5:25a	9:15a	AS205/AS156	PHX
Daily	8:55a	11:50a	JA1900/JA1147	PHX	Daily	8:45a	12:10p	UA254/UA1100	PHX
Daily	11:00a	4:25p	JA1180/JA1205	PHX	Daily	11:00a	10:20p	AS228/AS158	PHX
Daily	1:15p	4:45p	AS173/AS228	PHX	Daily	1:15p	1:55p	UA278/UA154	PHX
Daily	6:05p	9:45p	AS145/AS208	PHX	ExSa	2:30p	1:00p	AS228/AS154	PHX
ExSa	5:50p	10:50p	JA1200/JA1248	PHX					
To EVANSVILLE, IN					From EVANSVILLE				
Daily	8:20a	1:25p	AA216/AA407	DFW	Daily	8:40a	1:40p	AA1122/AA1111	DFW
Daily	9:05a	1:49p	AA1122/AA400	DFW	Daily	9:45a	1:30p	AA400/AA1111	DFW
Daily	10:25p	9:45p	AA800/AA407	DFW	Daily	10:25p	1:30p	AA400/AA1111	DFW
ExSa	11:30p	9:40a	UA506/AA407	DFW	Daily	4:00p	1:55p	AA400/AA1111	DFW
To FAIRBANKS, AK					From FAIRBANKS				
Daily	9:45a	1:25p	AS167/AS30	SEA	Daily	8:30a	1:30p	AS106/AS172	SEA
Daily	1:24p	10:10p	JA1408/JA1508	SEA	Daily	11:40a	9:00p	AS82/AS154	SEA
ExSa	9:45p	9:20p	AS173/AS105	SEA	Daily	11:45p	8:55a	AS334/AS158	SEA
Daily	9:50p	1:54a	AS173/AS105	SEA					
To FARGO, ND					From FARGO				
Daily	8:45a	1:10p	UA656/UA670	DFW	Daily	7:15a	10:12p	JA1164/UA289	DFW
Daily	9:20p	3:40p	UA310/UA674	DFW	Daily	9:00p	1:00p	UA289/UA337	DFW
To FARMINGTON, NM					From FARMINGTON				
Daily	8:45a	1:25p	UA656/UA674	DFW	Daily	8:45a	10:12p	UA222/UA329	DFW
Daily	1:00p	4:30p	UA650/UA220	DFW	Daily	10:15a	1:45p	JA2295/UA989	DFW
Daily	2:00p	3:00p	UA310/UA674	DFW	Daily	1:30p	7:00p	JA2295/AA337	DFW
					ExSa	5:45p	10:05p	JA2295/UA670	DFW
To FAYETTEVILLE, AR					From FAYETTEVILLE				
Daily	2:20p	6:00p	AA827/AA369	DFW	Daily	8:45a	1:30p	AA290/AA677	DFW
Daily	5:41p	1:25p	AA1498/AA364	DFW	Daily	4:30p	9:15p	AA364/AA456	DFW
Daily	7:05a	4:20p	DL1074/DL2915	DFW	Daily	4:45p	9:35p	DL276/DL697	DFW
Daily	5:00p	9:10p	AA544/AA369	DFW	Daily	7:25p	1:54p	AA388/AA367	DFW
ExSa	2:15p	11:20p	DL1284/DL1406	DFW					
To FLAGSTAFF, AZ					From FLAGSTAFF				
Daily	8:15a	12:26p	HP124/HP126	PHX	ExSa	8:25a	10:33a	HP124/HP572	PHX
Daily	10:00a	3:42p	HP217/HP107	LAS	ExSa	8:22a	12:49p	HP1032/HP577	PHX
Daily	11:30a	4:08p	HP496/HP1082	PHX	Daily	12:54p	5:20p	HP124/HP574	PHX
ExSa	2:05p	5:42p	HP208/HP1084	PHX	Daily	3:57p	3:50p	HP1077/HP110	PHX
ExSa	5:50p	9:22p	HP492/HP1086	PHX	ExSa	4:23p	8:23p	HP1082/HP578	PHX
					ExSa	6:57p	10:12p	HP1085/HP578	PHX
To FLINT, MI					From FLINT				
Daily	8:20a	4:14p	AA325/AA1101	DFW	Daily	7:10a	11:45a	AA1166/AA1122	DFW
Daily	9:05a	7:22p	AA1122/AA425	DFW	Daily	1:37p	5:15p	AA4288/AA1122	DFW
Daily	12:25p	10:40p	AA800/AA4067	DFW	Daily	5:08p	9:55p	AA1122/AA1122	DFW
To FT. LAUDERDALE, FL					From FT. LAUDERDALE				
Daily	12:30p	10:35p	AA872/AA202	DFW	Daily	8:15a	12:35p	AA443/AA377	DFW
Daily	6:41a	5:15p	AA1498/AA1060	DFW	Daily	9:55a	1:30p	DL127/DL1208	DFW
Daily	10:17a	10:04p	UA554/UA656	DFW	Daily	12:48p	5:40p	UA557/UA309	DFW
Daily	2:15p	12:05a	DL1284/DL1156	DFW	Daily	4:00p	8:25p	DL172/DL105	DFW
					Daily	7:10p	11:34p		

APPENDIX 6: AIR CARGO TRAFFIC FORECAST METHODOLOGY

TRAFFIC FORECAST METHODOLOGY

Below is an outline of the necessary data and modeling requirements that would be used to prove the economic viability of a Europe-Iowa alternative gateway program:

A. Traffic base assumptions

The traffic base assumes that niche operator will have access initially to the entire mid-western air cargo market defined in the catchment area. To eliminate data distortions, the current Chicago, Minneapolis, and St. Louis traffic bases would be used as proxies with the tested assumption that 75% of European traffic from those states passes through the Chicago-ORD gateway. The source of the base year data is the U.S. Department of Commerce Airborne Trade database with adjustments made to reflect survey and regression analysis performed in those markets.

B. Traffic Projections

The recommended base year of the traffic forecast would be year ending July, 1990. In order to reflect the natural growth in the market in absolute terms, the a consensus forecast of growth rates from the Boeing, IATA, and ICAO forecasts would be used to develop the traffic projection by country market. The top ten markets would be chosen to serve as the traffic pool for the forecast. Beyond-Europe markets would not be included in the analysis.

QUALITY OF SERVICE INDEX ANALYSIS AND MARKET SHARE FORECAST

Methodology

In order to determine potential market share and traffic stimulation, a modified version of the CAB Quality of Service Index (QSI) would be developed using the following assumptions:

It is assumed that all current trucking service in the Iowa-Luxembourg beyond markets offers capacity to all major cities in continental Europe using LTL trucking to connect each city with the Luxembourg gateway. The QSI (see formula below) measures the weekly capacity each carrier offers versus the total capacity available in the country market to determine estimated market share. Historical analysis indicates that traffic follows capacity; therefore, if a carrier enters a market with new service, it can expect to receive a share of traffic commensurate with the QSI-adjusted share of capacity offered in that market.

The basic QSI formula is summarized below:

$$\text{QSI-Adjusted Capacity} = \text{Payload Capacity} * \text{Weekly Frequencies} * \text{QSI Factor 1 (Stops)} * \text{QSI Factor 2 (Air/LTL)}$$

Where: QSI Line Haul Factor 1 = 1.0 for nonstop

QSI Line Haul Factor 1 = 0.5 for other than nonstop

QSI LTL Connection Factor 2 = 1.0 for direct air service to destination country

QSI LTL Connection Factor 2 = 0.5 for LTL connection to destination country.

REVENUE FORECAST AND PRO FORMA INCOME STATEMENT

A. First Year Traffic Forecast

The first year traffic forecast is the basis for projecting the estimated average load factor the LUX-IOWA service would achieve on a bi-directional basis. Each country market contributes a certain percentage of traffic to the total on-board load factor. The total traffic for the forecast is calculated by multiplying the base traffic pool times the estimated QSI share times a traffic stimulation factor (used to reflect new service in the market).

B. Yield Assumptions

Yield assumptions underlying the revenue projections were derived from taking the lowest available air-cargo rate in the market and adding the LTL charges in Europe and the United States to develop a door-to-door rate schedule that is competitive with prevailing rates in direct and LTL-connecting market. No discounts from the lowest air cargo rates are assumed because of the shorter elapsed times and superior service the proposed service would offer.

C. Traffic and Revenue Summary

Cargo traffic in the Chicago market is split almost evenly by direction. Due to exchange rates, inbound yields are higher (in terms of U.S. dollars). Therefore the forecast reflects higher revenues in the westbound markets. 70% of the traffic is assumed to be large corporate accounts and the remaining 30% is carried at consolidator rates.

D. Participating Carrier Profitability

A cost structure would be constructed using Federal Express direct operating costs and a European cargo carrier's indirect operating costs as a proxy. As a means of sharing risk with

the partner, concessionary charter rates for the DC-10-30CF are estimated to be \$8,800 per block hour.

E. Expected Forwarder Profitability

In an effort to demonstrate the financial benefit of a forwarder participating as a partner, a pro forma income statement using the Intertrans Corporation cost structure as a proxy, would be created.

APPENDIX 7: ACKNOWLEDGEMENTS

Acknowledgments

Burlington	Ray Toal, Tony Burton
Cedar Rapids	Larry Mullendore
Clinton	Hugh Lamont, Bob Holleran, Don Rinehart, Robert Starbuck
Des Moines	William Hamilton
Dubuque	Bob O' Brien
Ft. Dodge	Matt Cooper, Dave Schuett
Mason City	Jay Allen
Ottumwa	Gary Cummins, Elle Montgomery,
Sioux City	Randall Curtis
Spencer	Doug Voss, Dick Fontaine
Waterloo	Bruce Carter

In addition we spoke with aviation officials from across the country. Special thanks to officials in Michigan, North Dakota, South Dakota, and Utah.

We spoke with airline representatives from Great Lakes, Express One, Mesaba, G.P. Express, and American Eagle

Special thanks to all of the travel agents who responded to our survey, and for Travel and Transport and Triple AAA for helping to coordinate it.

Additional thanks goes to the Iowa Department of Transportation and the State Aeronautics Division.

Special thanks to the Commission Members without whose input this report would have been impossible to complete and the Legislative Council.

We have tried to include everyone who we met with and apologize for any omissions.