

Economic Impacts of Aviation on North Central Texas

JULIE K. P. DUNBAR

The North Central Texas Council of Governments has evaluated economic impacts of the North Central Texas airport system, which includes more than 40 public-use airports. A representative sample of these airports included 23 existing airports and 4 new or proposed airports. Direct, indirect, and induced economic impacts were estimated to determine the total economic impact of the 23 existing airports. The economic impacts of these airports on their surrounding communities were determined, including the numbers of jobs attributable to the airports. Forecasts were then developed of the economic benefits that might be expected from existing and proposed airports by the year 2010.

The North Central Texas Council of Governments (NCTCOG) is the metropolitan planning organization for the Dallas-Fort Worth metropolitan area. The entire North Central Texas region consists of the 16 counties including and surrounding Dallas-Fort Worth, an area of approximately 12,800 mi² with a 1988 population of 4.1 million.

Since the early 1970s, NCTCOG has been responsible for the regional coordination and planning of the North Central Texas airport system, which includes more than 40 public-use airports. In an attempt to promote this airport system, NCTCOG prepared a study of the airports' economic impacts. The study was completed in December 1988.

A representative subset of the North Central Texas airport system was evaluated. The economic impacts of the Dallas-Fort Worth International Airport were determined in a separate effort by the airport as part of a recent update to the airport's master plan. Airports of similar size are frequently the subject of economic impact studies. The main purpose of the effort by NCTCOG was to measure the economic benefits generated by the other airports in the North Central Texas region. There were five main objectives to the study:

1. To quantify the annual economic impact of 23 existing airports in the North Central Texas region,
2. To determine the extent to which the communities surrounding each airport benefit from the airport's activities,
3. To determine the number of jobs attributable to each airport and estimate the number of individuals in the region whose jobs are directly or indirectly dependent on these airports,
4. To estimate the probable economic impacts of four new or proposed airports, and
5. To forecast the economic impact of the total of 27 airports to the year 2010.

Figure 1 shows the location of all of the airports included in the analysis. A wide variety of sizes and capabilities is represented. The airports range from Dallas Love Field, which has a substantial amount of air carrier activity as well as a full range of general aviation (GA) services, to small, privately owned airfields such as Bourland Field or Hicks Airfield. Seven of the 27 airports are privately owned, public-use airports. This variation in size and capability is one of the unique characteristics of the analysis and is indicated by Table 1, which presents the based aircraft and operations associated with each of the airports.

The study took over 1 year to prepare and was monitored by NCTCOG's Air Transportation Technical Advisory Committee (ATTAC). ATTAC's members represent all facets of aviation in the North Central Texas region, including municipal airports, private airports, air carrier airports, airlines, the aviation industry, the U.S. Air Force, and FAA. ATTAC developed the study objectives and reviewed the process and results in accordance with those objectives. This type of committee review structure helped eliminate many of the biases that are often suspected in studies of this nature.

METHODOLOGY

The basic methodology used to estimate the economic impacts of the airports is consistent with that advocated by FAA (1). The methodology is an impact approach, not a transportation benefits approach. In other words, it is not the efficiencies of air travel that are explored, but rather the contributions of these local airports in terms of jobs and dollars in the region's economy.

Three different types of impact were estimated to determine the total economic impact for the 23 existing airports in the Dallas-Fort Worth region:

- Direct impacts,
- Indirect impacts, and
- Induced impacts.

Direct impacts typically occur at the airport and are the provision of some type of aviation service. Indirect impacts most frequently occur at locations in the region that are away from the airport. Air passenger expenditures on entertainment and accommodations are examples of indirect impacts. This category also included the expenditures of large, aviation-related industries that were located on or near an airport but could not be considered completely airport dependent. These impacts were referred to as industrial development impacts and included

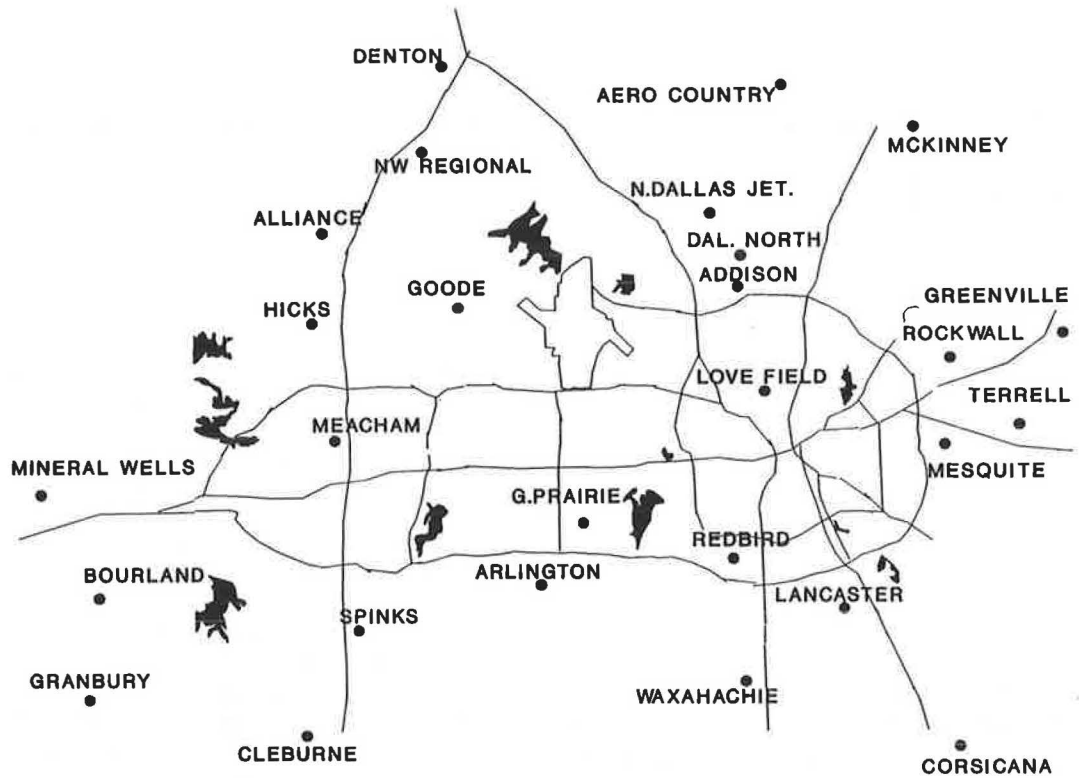


FIGURE 1 Airports included in the NCTCOG economic impact analysis.

TABLE 1 BASED AIRCRAFT AND OPERATIONS FOR NORTH CENTRAL TEXAS AIRPORTS IN 1987 AND 2010

AIRPORT	BASED AIRCRAFT		ANNUAL AIRCRAFT OPERATIONS	
	1987	2010	1987	2010
Addison Municipal	750	966	169,250	241,500
Aero Country	90	146	40,360	65,000
Alliance	n/a	110	n/a	44,000
Arlington Municipal	263	370	266,300	300,000
Bourland Field	83	108	16,500	27,000
Cleburne Municipal	94	142	15,000	28,400
Corsicana Municipal	48	65	22,920	26,000
Dallas North	123	169	61,500	67,600
Denton Municipal	135	247	115,500	140,000
Goode	110	147	25,000	32,000
Granbury Municipal	40	154	16,000	77,000
Grand Prairie Municipal	291	401	204,000	251,000
Greenville Majors	36	56	77,000	90,000
Hicks Airfield	91	130	12,500	20,000
Lancaster Municipal	110	136	55,100	68,000
Love Field	494	622	226,225	301,000
McKinney Municipal	81	300	63,800	135,000
Meacham Field	375	453	310,402	362,400
Mineral Wells	45	59	20,400	23,600
North Dallas Jetport	n/a	50	n/a	12,500
Northwest Regional	425	462	57,600	62,600
Phil Hudson/ Mesquite Municipal	135	213	67,500	106,500
Redbird	185	236	148,000	188,800
Rockwall Municipal	90	153	51,000	76,500
Spinks	n/a	147	n/a	73,500
Terrell Municipal	112	142	52,930	71,000
Waxahachie Midlothian	n/a	130	n/a	65,000
TOTAL	4,206	6,314	2,094,787	2,955,900

Data prepared for NCTCOG by Wilbur Smith Associates.

a few non-aviation-related businesses that leased space at an airport.

Induced impacts represent the multiplier effect of the direct and indirect impacts that results when direct and indirect impacts represent net increases in final demand. For example, assume an aircraft maintenance worker is paid \$300 per week. Approximately \$100 of this salary goes toward his monthly apartment rent. The landlord of the apartment then takes \$50 of the \$100 and hires a lawn care business to maintain the apartment grounds. The lawn care business then uses \$20 of the \$50 to pay a part-time employee, and so on.

In this example, the initial \$300 is considered a direct impact of the airport; the other transactions represent the multiple impacts of the \$300 on other sectors of the economy. In this study, the multiplier impacts were estimated using the Regional Input-Output Modeling System (RIMS-II), calibrated for the 16-county North Central Texas region by the U.S. Department of Commerce (2).

Figure 2 shows the relationship of the direct, indirect, and induced impacts and lists examples of each.

SURVEY AND DATA COLLECTION EFFORT

To produce reliable current-year (1987) impact estimates, an extensive amount of data was collected for the 23 existing airports. The following steps were performed to obtain the desired level of data.

Airport Data Request Form

An Airport Data Request form was mailed to the airport managers of the 23 airports. The form was sent with an intro-

duction to the project to encourage cooperation. It included questions concerning the airport's activity levels, types of services, number of jobs, expenses and revenues, and types of related businesses (both on and off the airport). Questions concerning future development at the airport were also included to assist in the forecast phase of the study. A 100 percent response rate was obtained from these forms.

Airport Visits

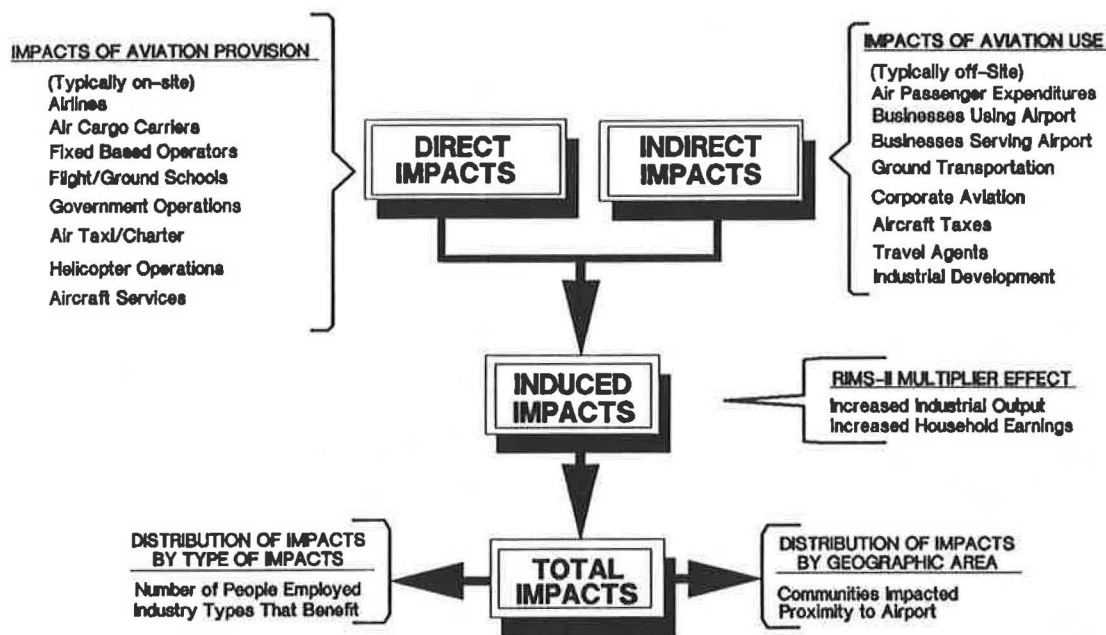
Each airport was visited by a member of the study team to verify the information on the Airport Data Request form and to learn more about the economic viability of each facility.

Participating Firms Survey

A list of firms was developed from the Airport Data Request forms. The firms included either provided some type of aviation service, were a major user of the airport, or both. The study team attempted to conduct personal interviews with representatives of each targeted firm. When personal interviews were not possible, the surveys were mailed and followed up by a telephone call. A 100 percent response rate was obtained at most of the airports.

Field Work—Consistency Check

To ensure consistency in the data collected by the various members of the study team, a checklist was developed listing the key items needed from each airport. These items ranged from tenant lists and fuel sales to the number of itinerant



AIRPORT ECONOMIC IMPACT TYPES

FIGURE 2 Impact relationships (data prepared for NCTCOG by Wilbur Smith Associates).

operations. This checklist helped eliminate any potential bias introduced by having different team members gather the data.

Air Passenger Surveys

Because air passenger expenditures are a key component in the estimation of indirect impacts, air passenger surveys were conducted at three of the airports. Dallas Love Field was the only airport in the study that had air carrier activity; therefore, a survey of the air carrier passengers was performed there. Two representative GA airports, Addison Municipal and Arlington Municipal, were surveyed to estimate GA passenger expenditures. It was not possible to survey the GA passengers at all of the airports, so the information obtained from the surveys at the Addison and Arlington airports was applied to the others.

ESTIMATION OF BASE-YEAR (1987) IMPACTS

To obtain accurate and reasonable estimates of each airport's economic impact, the base-year data base needed to be extensive. One of the primary objectives for the study's results was to promote general aviation to the nonflying public. Because of the skepticism that exists with regard to the benefits of local airports, the base-year estimates needed to be based on reliable data.

The direct, indirect, and induced impacts of each of the 23 existing airports were determined first (see Figure 2). These impacts were then related to the surrounding communities. The jobs associated with each airport were determined as well.

Direct Impacts

For the estimation of direct impacts, the survey data obtained from the participating firms were reviewed, and each firm or activity was identified as either "airport related" or "other." Those that were determined to be airport related were used in the direct impact calculation. The other firms were either on-site airport tenants whose businesses were not related to aviation or the airport, or large aviation industries that could not be entirely attributable to the airport. As explained previously, these firms were included as indirect impacts under a special "industrial development" category.

Once the distinction between aviation related and other firms had been made, the expenditures of the airports and all aviation-related firms were summarized by three categories: payroll, capital, and expenses. The payroll category represented salaries paid to those individuals who work at the airport and live in the 16-county region. The capital category represented capital expenditures to recipients located within the region and often included payroll-type expenditures as well (to employers of construction firms, for example). The expenses category included payments for local utilities or goods and for local taxes. All of these expenditures are of economic benefit to the local 16-county region. Table 2 presents the direct impacts by category for each airport, with a regional total of \$560.9 million for the base year.

Indirect Impacts

The indirect economic impacts of each of the 23 airports were divided into three categories: visitor expenditures, regional

TABLE 2 DIRECT ECONOMIC IMPACTS FOR NORTH CENTRAL TEXAS AIRPORTS IN 1987

AIRPORT	DIRECT IMPACTS			Total
	Payroll	Capital	Expenses	
Addison Municipal	\$12,500,000	\$3,580,000	\$11,570,000	\$27,650,000
Aero Country	\$35,000	\$5,000	\$25,000	\$65,000
Arlington Municipal	\$3,063,000	\$4,299,000	\$1,522,000	\$8,884,000
Bourland Field	\$130,000	\$50,000	\$43,400	\$223,400
Cleburne Municipal	\$580,000	\$478,000	\$175,000	\$1,233,000
Corsicana Municipal	\$206,000	\$41,500	\$156,800	\$404,300
Dallas North	\$235,000	\$445,000	\$365,000	\$1,045,000
Denton Municipal	\$480,800	\$271,400	\$474,400	\$1,226,600
Goode	\$60,000	\$50,000	\$27,000	\$137,000
Granbury Municipal	\$39,000	\$25,000	\$117,000	\$181,000
Grand Prairie Municipal	\$228,000	\$895,000	\$380,000	\$1,503,000
Greenville Majors	\$36,000	\$10,000	\$79,000	\$125,000
Hicks Airfield	\$432,000	\$200,000	\$100,000	\$732,000
Lancaster Municipal	\$271,300	\$281,700	\$202,200	\$755,200
Love Field	\$223,810,000	\$57,770,000	\$186,350,000	\$467,930,000
McKinney Municipal	\$244,600	\$45,000	\$411,000	\$700,600
Meacham Field	\$13,220,000	\$6,170,000	\$8,430,000	\$27,820,000
Mineral Wells	\$1,122,000	\$76,500	\$689,300	\$1,887,800
Northwest Regional	\$1,690,000	\$250,000	\$478,000	\$2,418,000
Phil Hudson/ Mesquite Municipal	\$612,000	\$2,005,000	\$981,000	\$3,598,000
Redbird	\$4,437,000	\$4,041,000	\$2,961,000	\$11,439,000
Rockwall Municipal	\$182,000	\$145,000	\$160,200	\$487,200
Terrell Municipal	\$137,000	\$80,000	\$239,400	\$456,400
TOTAL DIRECT IMPACTS	\$263,750,700	\$81,214,100	\$215,936,700	\$560,901,500

Data prepared for NCTCOG by Wilbur Smith Associates.

expenditures, and industrial development. Visitor expenditures represented money deposited in the local economy by visitors to the region who arrived via a specific airport. Care was taken to ensure that only expenditures by people visiting the region were included. The air passenger survey data were used to estimate the number of visitors, the number of days and nights they spent in the region, and their individual level of expenditure. For those airports where air passenger surveys were not conducted, assumptions were drawn from the surveys at Addison Municipal and Arlington Municipal airports and applied to the other airports. Of the annual number of itinerant operations, 40 percent was assumed to be the number of aircraft at an airport that carry passengers, with an average of 40 percent of the visitors spending the night. The expenditures by overnight visitors were estimated at an average of \$76.10 per night per person, and the daily visitor expenditures were \$21.18 per day per person.

Regional expenditures represented transactions by regional airport users. This category primarily included pilots and mechanics of firms that own aircraft based at a specific airport as well as the local taxes and daily costs of those aircraft. The specific local tax rates of each airport's municipality were used.

The industrial development category represented the regional value-added impact of each firm, as estimated from the surveys. The distinction between aviation-related and other firms was maintained as described earlier. This category was included at the request of the local government representatives on ATTAC. Again, to convince the nonflying public of the impact their local airport might have, ATTAC believed it would be shortsighted not to quantify these impacts. Depending on the

audience, the inclusion of these impacts could either correct the underestimation of an airport's impact or overestimate the airport's impact. For this reason, the industrial development impacts were kept separate from the total indirect impact.

For each airport, care was taken to avoid double counting. For example, if a corporation purchased fuel and aircraft parts from a fixed-based operator (FBO), the transaction was included as a direct impact for the FBO. The corporate expenditures were not counted. Table 3 presents the indirect impacts by category. The regional total for indirect impacts is \$1,135 million, with 68 percent included in the industrial development category.

Induced Impacts

RIMS-II multipliers were applied to the direct and indirect impacts to obtain the induced impacts, otherwise referred to as the "multiplier effect." The multiplier traces the flow of money through the region. The larger the region, generally speaking, the longer the money tends to remain in the region, resulting in a high average multiplier. Because of the size and economic viability of the North Central Texas region, an average multiplier of 2.73 was determined. In other words, for every \$1 spent on aviation, \$1.73 is generated in the rest of the economy. The full set of multipliers provided by RIMS-II for the estimation of total impacts was used. The induced impact represented 62 percent of the overall regional impact for the base year. Table 4 presents the induced impacts for each of the 23 existing airports.

TABLE 3 INDIRECT ECONOMIC IMPACTS FOR NORTH CENTRAL TEXAS AIRPORTS IN 1987

AIRPORT	INDIRECT IMPACTS		Industrial Development		Total
	Visitor Expenditures	Regional Expenditures	Aviation Related	Other	
Addison Municipal	\$11,186,800	\$21,527,200		\$20,313,000	\$53,027,000
Aero Country	\$65,100	\$37,200			\$102,300
Arlington Municipal	\$4,108,100	\$503,300	\$87,989,000	\$125,000	\$92,725,400
Bourland Field	\$225,700	\$85,800			\$311,500
Cleburne Municipal	\$142,300	\$293,500			\$435,800
Corsicana Municipal	\$320,900	\$147,700			\$468,600
Dallas North	\$854,400	\$83,700			\$938,100
Denton Municipal	\$2,622,000	\$263,500			\$2,885,500
Goode	\$102,500	\$59,800			\$162,300
Granbury Municipal	\$259,400	\$43,500			\$302,900
Grand Prairie Municipal	\$2,743,700	\$630,300	\$136,117,000	\$177,000	\$139,668,000
Greenville Majors	\$593,900	\$76,700	\$418,705,000		\$419,375,600
Hicks Airfield	\$21,600	\$31,300			\$52,900
Lancaster Municipal	\$767,500	\$103,700	\$2,082,000		\$2,953,200
Love Field	\$241,247,000	\$50,572,000			\$291,819,000
McKinney Municipal	\$396,800	\$151,900			\$548,700
Meacham Field	\$10,480,700	\$7,150,100			\$17,630,800
Mineral Wells	\$93,100	\$83,700	\$10,209,000		\$10,385,800
Northwest Regional	\$83,300	\$231,100			\$314,400
Phil Hudson/ Mesquite Municipal	\$1,898,900	\$234,600			\$2,133,500
Redbird	\$2,107,500	\$727,300		\$44,502,000	\$47,336,800
Rockwall Municipal	\$333,500	\$104,400			\$437,900
Terrell Municipal	\$754,800	\$143,200		\$50,231,000	\$51,129,000
TOTAL INDIRECT IMPACTS	\$281,409,500	\$83,285,500	\$655,102,000	\$115,348,000	\$1,135,145,000

Data prepared for NCTCOG by Wilbur Smith Associates.

TABLE 4 INDUCED ECONOMIC IMPACTS FOR NORTH CENTRAL TEXAS AIRPORTS IN 1987

AIRPORT	INDUCED IMPACTS
Addison Municipal	\$93,549,000
Aero Country	\$234,700
Arlington Municipal	\$23,390,600
Bourland Field	\$823,100
Cleburne Municipal	\$2,694,200
Corsicana Municipal	\$1,341,100
Dallas North	\$3,332,900
Denton Municipal	\$6,786,900
Goode	\$456,700
Granbury Municipal	\$753,100
Grand Prairie Municipal	\$8,159,000
Greenville Majors	\$1,264,400
Hicks Airfield	\$1,267,100
Lancaster Municipal	\$2,707,600
Love Field	\$1,241,955,000
McKinney Municipal	\$1,919,700
Meacham Field	\$72,360,200
Mineral Wells	\$3,154,400
Northwest Regional	\$4,243,600
Phil Hudson/ Mesquite Municipal	\$9,970,500
Redbird	\$24,005,200
Rockwall Municipal	\$1,525,900
Terrell Municipal	\$2,131,600
TOTAL INDUCED IMPACTS	\$1,508,026,500

Data prepared for NCTCOG by Wilbur Smith Associates.

Surrounding Community Impacts

It was clear that the impacts of the airports could be traced throughout the North Central Texas area. However, to make the study more useful to the local airports, the direct and indirect impacts were disaggregated to the communities near each airport using the survey information on the employees' residential locations and the places arriving passengers go when they leave each airport, as well as the geographic location of the impacted firms. This information was only an approximation of the local community impacts, but it was very useful in relating the overall airport impact to a local jurisdiction. Because so many of the airports in the Dallas-Fort Worth area are relatively close to each other, the impacts of many of the airports spilled over into the surrounding communities. Figure 3 shows an example of this spillover effect for several of the airports at the center of the Dallas-Fort Worth metropolitan area.

Airport Employment Impact

The economic impact or benefit of an airport can also be expressed through the jobs it creates. Sometimes the general public can relate better to an expression of impact in terms of jobs or employment than in terms of millions of dollars. The direct, indirect, and induced jobs were estimated, with the industrial development jobs reported separately. These employment estimates were obtained from the survey infor-

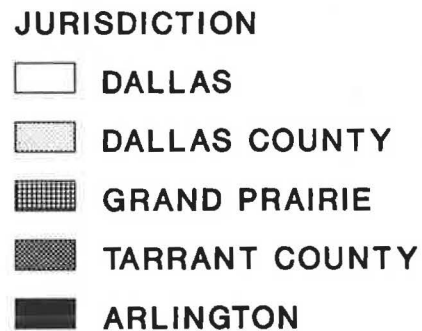
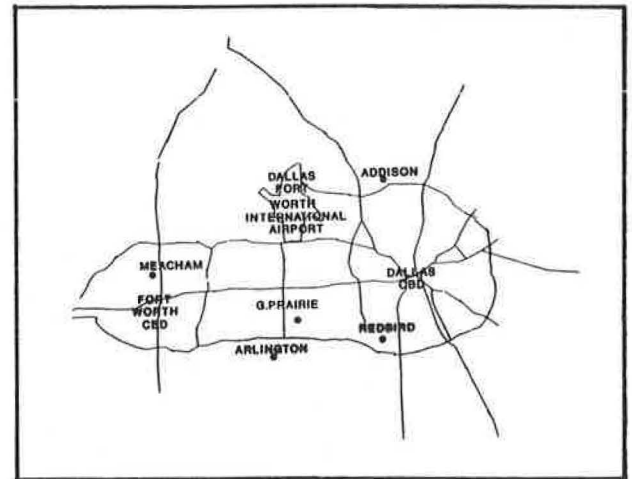
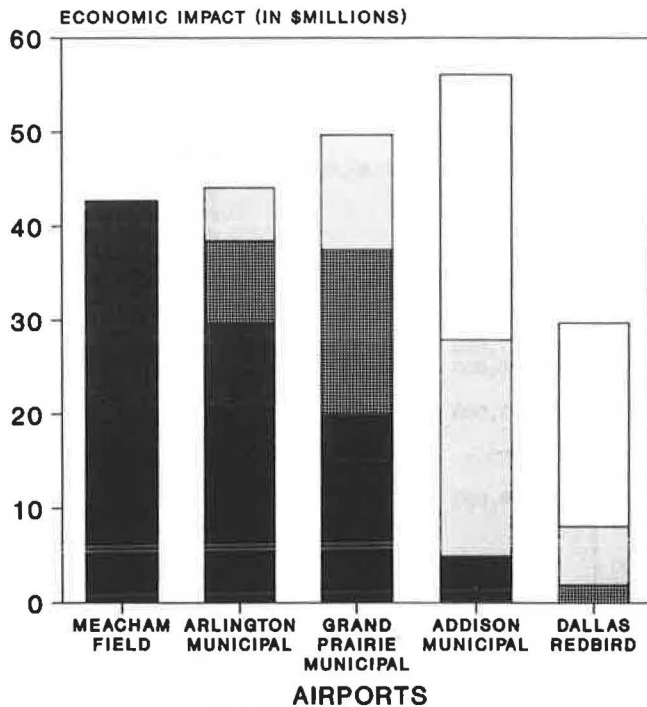


FIGURE 3 Airport impacts on local jurisdictions (data prepared for NCTCOG by Wilbur Smith Associates).

mation using the RIMS-II process. Table 5 presents these employment estimates for each airport.

ESTIMATION OF FORECAST IMPACTS

Another objective of the study was to estimate the level of economic benefit that might be expected from the airports by the year 2010. In general, the more activity an airport had, the greater the economic benefit. Future activity can be indicated by a combination of actual aviation activity in terms of based aircraft and operations or industrial development activity. Industrial development was considered too difficult to forecast, so the future activity relates only to increases in based aircraft and operations. This assumption was conservative but believed necessary to maintain the appropriate level of reliability.

Forecasts of based aircraft, annual operations, and passenger enplanements (for the air carrier facility only) were generated for the region and then allocated to the 27 airports included in the study (see Table 1). The four new airports were assumed to be in place by 2010 and the 23 existing airports were assumed to remain open.

Relationships between aviation activity and economic impact were assumed, as presented in Table 6. The impact forecasts were then developed from these relationships, taking into account the productivity changes that would occur in some categories. Table 7 presents the forecast economic impacts for each airport excluding industrial development impacts.

PRESENTATION AND USE OF STUDY RESULTS

For several years NCTCOG and the southwestern region of FAA have felt a strong need for the information provided by this study. As in many metropolitan areas, many of the local GA airports are fighting a constant battle against encroaching development and neighborhood opposition. Economic impact information can be an important component in efforts to increase the awareness of the nonflying public regarding an airport's benefit on its surroundings.

The study results can be used or interpreted in a variety of ways. Some of these are listed below:

- **Comparisons Between Airports.** The economic impacts of the majority of the GA airports in the North Central Texas area can be directly compared because the impacts were developed using the same methodology. Even if the absolute numbers developed to show the impacts are disputed, the relationship between airports still holds true. This comparability is especially useful in the Dallas-Fort Worth metropolitan area, where several airports often compete for tenants.

- **Identification of Potential Impact.** Another use of these data is by airport owners who are contemplating development. For example, if a runway extension is being considered, the owner can gain insight regarding the magnitude of impact that might be expected by reviewing the economic impacts of airports with similar characteristics. This capability might be useful for local governments that are trying to convince their elected officials of the economic viability of such an improvement.

TABLE 5 AIRPORT-RELATED EMPLOYMENT ESTIMATES FOR NORTH CENTRAL TEXAS AIRPORTS IN 1987

AIRPORT	AVIATION-RELATED JOBS	INDUSTRIAL DEVELOPMENT JOBS	Total Jobs
Addison Municipal	1,676	220	1,896
Aero Country	4		4
Arlington Municipal	447	806	1,253
Bourland Field	15		15
Cleburne Municipal	44		44
Corsicana Municipal	25		25
Dallas North	69		69
Denton Municipal	154		154
Goode	7		7
Granbury Municipal	13		13
Grand Prairie Municipal	180	1,297	1,477
Greenville Majors	29	3,900	3,929
Hicks Airfield	24		24
Lancaster Municipal	55	21	76
Love Field	24,243		24,243
McKinney Municipal	35		35
Mescham Field	1,335		1,335
Mineral Wells	50	91	141
Northwest Regional	64		64
Phil Hudson/ Mesquite Municipal	199		199
Redbird	417	613	1,030
Rockwall Municipal	27		27
Terrell Municipal	45	743	788
TOTAL JOBS	29,157	7,691	36,848

Data prepared for NCTCOG by Wilbur Smith Associates.

TABLE 6 AVIATION ACTIVITY-IMPACT RELATIONSHIP

IMPACT TYPE	ACTIVITY RELATIONSHIP	PRODUCTIVITY CHANGES
Direct Impacts:		
Payroll	Aircraft Operations	X
Capital Expenses	Aircraft Operations	X
Indirect Impacts:		
Visitor Expenses	Itinerant/Visitor Operations	
Resident Expenses	Local Operations	
Corporate Aviation	Based Aircraft	
Induced Impacts	Base Year Ratio	

Data prepared for NCTCOG by Wilbur Smith Associates.

TABLE 7 FORECAST ECONOMIC IMPACTS FOR NORTH CENTRAL TEXAS AIRPORTS IN 1987 AND 2010 (EXCLUDING INDUSTRIAL DEVELOPMENT)

AIRPORT	ANNUAL AVIATION-RELATED ECONOMIC IMPACTS		PERCENT INCREASE
	1987	2010	
Addison Municipal	\$153,913,000	\$181,125,000	17.68%
Aero Country	\$402,000	\$649,000	61.44%
Alliance	n/a	\$27,100,000	n/a
Arlington Municipal	\$36,886,000	\$40,500,000	9.80%
Bourland Field	\$1,358,000	\$2,017,000	48.53%
Cleburne Municipal	\$4,363,000	\$7,599,000	74.17%
Corsicana Municipal	\$2,214,000	\$2,671,000	20.64%
Dallas North	\$5,316,000	\$6,197,000	16.57%
Denton Municipal	\$10,899,000	\$14,700,000	34.87%
Goode	\$756,000	\$991,000	31.08%
Granbury Municipal	\$1,237,000	\$5,591,000	351.98%
Grand Prairie Municipal	\$13,036,000	\$16,315,000	25.15%
Greenville Majors	\$2,060,000	\$2,595,000	25.97%
Hicks Airfield	\$2,052,000	\$3,100,000	51.07%
Lancaster Municipal	\$4,334,000	\$6,291,000	45.15%
Love Field	\$2,001,704,000	\$2,478,620,000	23.83%
McKinney Municipal	\$3,169,000	\$9,450,000	198.20%
Meacham Field	\$117,811,000	\$137,535,000	16.74%
Mineral Wells	\$5,219,000	\$6,004,000	15.04%
North Dallas Jetport	n/a	\$7,700,000	n/a
Northwest Regional	\$6,976,000	\$7,322,000	4.96%
Phil Hudson/ Mesquite Municipal	\$15,702,000	\$19,100,000	21.64%
Redbird	\$38,279,000	\$47,640,000	24.45%
Rockwall Municipal	\$2,451,000	\$4,019,000	63.97%
Spinks	n/a	\$4,797,000	n/a
Terrell Municipal	\$3,486,000	\$5,043,000	44.66%
Waxahachie Midlothian	n/a	\$4,654,000	n/a
TOTAL IMPACT	\$2,433,623,000	\$3,049,325,000	

Data prepared for NCTCOG by Wilbur Smith Associates.

- Enhancement of Airport System Concept. Within the Dallas-Fort Worth metropolitan area, many of the airports are close enough to each other that their impacts overlap. The allocation of economic impact to the communities surrounding each airport helps to quantify this overlap and demonstrate the interrelationship among the airports.

- Independent Data Source. Economic impact estimates

are usually developed by an airport for itself. Although the input data used in this effort were mostly provided by the individual airport operators, the data were reviewed and compared in an attempt to eliminate any reporting bias. The economic impacts reported for each airport were developed in a similar manner by an independent agency, resulting in data less likely to be accused of bias toward specific airports.

To provide the survey results to the many different types of interested organizations, the data were summarized in several ways:

- **Final Report.** The final report contained a complete discussion of the methodology and results, including sections on each airport.

- **Fact Sheet.** A fact sheet was developed for initial distribution to the press. It included a summary of the total regional impacts and an indication of the types of information available.

- **Individual Airport Summary.** A summary of individual airports was prepared to help local government staffs demonstrate an airport's significance to elected officials and organized airport opposition (i.e., neighborhood groups).

- **Visual Aids.** A series of pie charts and graphs was developed for use during presentations to various local governments, chambers of commerce, and group meetings to explain the process and disseminate the impact information.

Information such as this is of no benefit if it is not properly distributed. It is equally important both to discuss the impacts themselves, in terms of jobs and dollars benefiting the local economy, and to explain how the information was obtained. A simplified explanation of the process often increases the likelihood that the information will be accepted as factual.

The timing of the release of the information is also important. When this study was conducted, the airports included in the analysis were primarily free of any controversy surrounding their continued operation. Therefore, the study was not undertaken in response to unusually strong airport opposition or other similar crises. When such information is offered to the public simply as additional knowledge, rather than in response to a challenge or dispute, it is often much more widely accepted. This sort of information should be part of a regular data base for an airport or a system of airports so that, as conflicts arise, the data cannot be accused of being adjusted to meet a specific challenge.

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