



**VALUE OF
AIRPORTS TO
THEIR
COMMUNITIES –
ECONOMIC
BENEFITS OF
AVIATION**

MICHIGAN DEPARTMENT OF TRANSPORTATION

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Value of
ANN ARBOR MUNICIPAL AIRPORT
to the
ANN ARBOR AREA

October, 1992

Bureau of Transportation Planning
Aviation Planning Unit

This report is a summary of the methodology and findings of the Value of Airports to Their Communities - Economic Benefits of Aviation study as it pertains to Ann Arbor Municipal Airport. It represents the findings and/or professional opinions of the staff of the Michigan Department of Transportation, Bureau of Transportation Planning. It is not an official opinion of either the Michigan Transportation or Michigan Aeronautics Commissions. Acceptance of this report by MDOT does not in any way constitute a commitment on the part of the State of Michigan to participate in any development depicted therein, nor does it indicate that the proposed development is environmentally acceptable in accordance with appropriate public laws.

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Additional copies of this report will be made available through the office of the airport manager.

The methodology used in the preparation of this document was financed in part through a planning grant from the Federal Aviation Administration (FAA) under Section 505 of the Airport Improvement Act of 1982. The contents do not necessarily reflect the official views or policy of the FAA. Acceptance of this report by the FAA does not in any way constitute a commitment on the part of the United States to participate in any development depicted therein, nor does it indicate that the proposed development is environmentally acceptable in accordance with appropriate public laws.

INTRODUCTION TO COMMUNITY BENEFITS ASSESSMENTS

Value of Airports to Their Communities - Economic Benefits of Aviation

Though aviation is generally perceived to be an important means of transport for people and goods, few people recognize that it does much more than this. The aviation industry has developed to the point where it is now the basis of local, national and even global economies. Also not always recognized is that the impact of aviation is not restricted to just large air carrier airports. In the U.S. only 25 of over 16,000 airports are "large hubs". There are many small and medium sized commercial service airports and general aviation facilities which serve the commercial passenger needs of many Michigan residents. Most airports throughout the U.S. are very similar to Ann Arbor Municipal Airport in that they provide a wide range of general aviation activity. A great deal of aviation generated economic activity takes place at these facilities.

The Michigan Department of Transportation (MDOT) recognized these facts and set out to document the importance of airports to their communities. With support from the Federal Aviation Administration (FAA), MDOT commissioned the *Value of Airports to Their Communities - Economic Benefits of Aviation* study.

STUDY PURPOSES

The study identifies the benefits, both economic and noneconomic, that a community receives from the presence of an airport. It quantifies the economic impacts of individual airports on their local area economies in terms of economic transactions caused by the airport. These are the jobs, payroll and expenditures due to the provision and use of aviation services at the airport, the businesses that use or serve the airport and the investments made because of the airport. The impacts are assessed in terms of dollars and

jobs which an airport creates for regional economies.

The study also identifies noneconomic ways in which airports benefit the quality of life in a community. Though not quantifiable in dollar terms, these benefits improve the health, safety and welfare of residents, visitors and commercial interests.

METHODOLOGY

The original study, completed in 1989, undertook detailed studies of 32 Michigan airports, comprising a representative cross section of airports in the state. From this study a methodology was developed and validated which allows an explanation of how the residents and business interests of an airport service area benefit from that facility. As the transportation system in Michigan does not always mirror national indicators, special attention was paid to factors needed to assure that the methodology was specific to the state and its communities.

Two characteristics of the methodology bear special explanation. The first of these is the concept of "total benefits". Total benefits are equal to the sum of all economic and noneconomic benefits. This study considers both types to be equally important.

The second characteristic of this methodology is the concept of "conservative realism". In the study, the economic impact calculations included only those impact types that can be quantified and attributed to the airport in a credible manner. The realism evoked by this concept makes, in a sense, the impact values somewhat conservative. In the case of Ann Arbor Municipal Airport a significant number of airport dependent firms failed to indicate their payroll figures. No values were

estimated. Consequently, the payroll figures summarized later in this report are probably lower than might be expected. However, by being "conservative," MDOT knows that the value is "realistic."

ECONOMIC IMPACTS

The method used to gauge the economic impact of an airport is one which evolved in the period from 1979 to 1989. It is now nationally recognized as the standard for conducting economic impact studies of airports. The methodology is consistent with that advocated by FAA and makes use of the Regional Input/Output Modeling System (RIMS-II). RIMS-II was developed by the U.S. Department of Commerce and is the official econometric model of the federal government. As applied in Michigan, the methodology uses impact definitions devised by FAA and explicitly follows FAA suggested procedures.

This study uses an "impact" rather than a "transportation benefits" approach to define economic impacts. Therefore, it does not explore the efficiencies of, or the benefits to be derived from air travel. Rather, it measures the importance of aviation as an industry in terms of the employment it provides and the economic activity it generates as it makes use of locally produced goods and services. The evaluation does not attempt to analyze the economy if the airport suddenly ceased to exist. Such events would be speculative at best.

All impacts are expressed in terms of annual expenditures of money. All inputs are calculated for the latest year for which data are available.

ECONOMIC IMPACT TYPES

The economic impacts include locally purchased goods and services calculated in "value added" terms. The impacts are of three types. The total economic impact of an airport is the sum of the three types.

Direct Economic Impacts occur due to the provision of aviation services at an airport. They comprise the financial expenditures by firms that carry passengers (air carrier, charter and taxi services), firms that serve the air carrier and general aviation function (fixed base operators), governmental agencies which support aviation (FAA, etc.), ground transport firms (taxis, limousines, buses, etc.) and others. Direct impacts represent one aspect of the net increase in regional final demand caused by an airport. In every instance, the impacts include only expenditures whose recipient is located within the airport's service area. Direct impacts typically, though not always, occur at the airport.

Indirect Economic Impacts occur due to the use of aviation services at an airport. Indirect impacts represent one aspect of the net increase in regional final demand caused by an airport. They include the regional expenditures made by air passengers who visit a community, expenditures by residents and the value added impacts of firms having economic activity which depends on the airport.

Induced Economic Impacts occur as expenditures circulate through and then out of an economic region. Induced impacts are often referred to as the "multiplier" effect. This impact is determined using the RIMS-II model with coefficients specific to the appropriate economic area of Michigan.

ANN ARBOR MUNICIPAL AIRPORT

This report is the result of a study conducted from May to August, 1992. It represents a coordinated effort by the City of Ann Arbor through the Eastern Michigan University Department of Interdisciplinary Technology, and the Michigan Department of Transportation's Bureau of Transportation Planning. Appreciation is extended here to the people who worked on this study and the respondents who made it possible.

VALUE OF ANN ARBOR MUNICIPAL AIRPORT TO THE ANN ARBOR AREA

ECONOMIC VALUES

Ann Arbor Municipal Airport (ARB) is estimated to have an impact on its service area of approximately \$32.9 million annually in total economic activity. Of this figure, approximately \$12.1 million is in household earnings. This impact is due principally to the provision and use of general aviation services.

AIRPORT CHARACTERISTICS

Ann Arbor Municipal Airport is operated by the Ann Arbor Airport Authority. It is a public use facility classified as a medium utility airport (U-4) on the Michigan Aviation System Plan. Ann Arbor Municipal Airport currently accommodates approximately 95 percent of all types of general aviation aircraft, including some small jets.

AIRPORT SERVICES

Exhibit 1 Services Offered At Ann Arbor Municipal Airport	
Aerial Photography	Car Rental
Air Ambulance	Corporate Aircraft
Air Taxi/Charter	FAA Control Tower
Aircraft Repair	Flight Instruction
Aircraft Rental	General Aviation
Aircraft Sales	Hangar Rental
Avgas Fuel Sales	Jet Fuel Sales
Avionics	Tie Downs
Banner Towing	Vending

Ann Arbor Municipal Airport offers a wide range of services including those listed in Exhibit 1. All of these services have positive economic significance to the Ann Arbor area. This is due to the creation of employment, generation of taxes and potential attraction/retention of businesses to the area.

AIRPORT FACILITIES

Ann Arbor Municipal Airport is an all

weather facility capable of handling most general aviation aircraft. The facilities present at the airport are listed in Exhibit 2.

Exhibit 2 Facilities At Ann Arbor Municipal Airport		
Runway	6/24	12/30
Length	3,500	2,800
Surface	Paved	Turf
Taxi System	FP	FP
Edge Lights	MIRL	None
REIL	Yes	No
PAPI	Yes	No
Approach	NP	VIS

Notes: FP = Full Parallel; MIRL = Medium Intensity Runway Lights; REIL = Runway End Identifier Lights; PAPI = Precision Approach Path Indicator; NP = Non-precision Approach; VIS = Visual Approach

AIRPORT USE

Ann Arbor Municipal Airport currently experiences substantial general aviation use in the form of private pilots, training flights and corporate operations. This results in the fleet mix of based aircraft shown in Exhibit 3 and

Exhibit 3 1992 Based Aircraft At Ann Arbor Municipal Airport	
Single Engine	173
Multi Engine	30
Jet	1
Total	204

the operational levels delineated in Exhibit 4.

Total aircraft operations at the airport have remained fairly stable in recent years. Operational levels in 1991 increased by 3.0 percent over those of 1987. This trend in general aviation operations is consistent with

trends experienced nationwide. The itinerant/local operations split since 1987 has been approximately 40 percent itinerant operations and 60 percent local operations. This reflects the airport's use as a transportation facility first, but with a significant secondary function as a training facility.

Exhibit 4
Aircraft Operations At
Ann Arbor Municipal Airport

Year	Itinerant	Local	Total
1987	41,725	60,934	102,659
1988	46,309	67,991	114,300
1989	47,302	68,866	116,168
1990	45,980	62,418	108,398
1991	45,896	59,809	105,705

AIRPORT ECONOMIC ROLES

Ann Arbor Municipal Airport is not specifically oriented to serve a certain segment of the local economy. Rather it serves the broad range of needs with an equally broad range of services. Additionally, the location of the facility allows Ann Arbor area residents, visitors and commercial interests a higher level of utility than the next comparable facility, Willow Run Airport in Ypsilanti. The following items comprise the principal economic impact types found at the airport.

RETENTION AND SUPPORT OF PRIVATE BUSINESS

Ann Arbor Municipal Airport is considered valuable to the competitive position of a number of local business organizations. If the facility were not present, it is possible that these firms would choose or be forced to locate elsewhere. These organizations use the charter air and general aviation services made possible by the existence of the airport. Survey responses by area businesses indicated a preference for the use of Ann Arbor Municipal Airport. However, the survey could

not directly attribute any significant new economic development to the facility.

BUSINESS ORIENTED GENERAL AVIATION

A significant portion of general aviation use at Ann Arbor Municipal Airport is business oriented. Several firms in the Ann Arbor area have aircraft at the facility including those listed in Exhibit 5.

Exhibit 5
A Sample of Firms With Aircraft At
Ann Arbor Municipal Airport

Aviation Center
Discount Tire, Inc.
Gary's Banners, Inc.
Midwest Medflight
U. of M. Survival Flight

In addition to firms who own based general aviation aircraft, there are others who depend on the facility for charter, air cargo and other general aviation services made possible by the existence of the airport.

PRIVATE FLYING GENERAL AVIATION

The large number of single engine aircraft registered to individuals at Ann Arbor Municipal Airport shows, that in addition to business use of the airport, the importance of the facility to the individual recreational flyers of the Ann Arbor area.

Additionally, the presence of flight training services underscores the importance of the airport as an aviation training facility.

AIRPORT ECONOMIC IMPACT

The Ann Arbor Municipal Airport aviation related annual economic impact of \$32.9 million is comprised of the impact types listed in Exhibit 6. Exhibit 7 gives a sample of airport tenants and others included in the impact estimates. The total impacts by type are outlined in Exhibit 8. There are some impacts at the airport which are not

Exhibit 6

Annual Aviation Related Impact of Ann Arbor Municipal Airport

Impact Type	Amount
Direct	\$9,305,649
Indirect	\$9,601,914
Induced	\$13,989,437
Total	\$32,897,000

Exhibit 7

Sample Firms Creating Impacts At Ann Arbor Municipal Airport

Direct Impacts	Indirect Impacts
Discount Tire, Inc.	Aeschliman Equip
Techair	First Martin Corp.
Midwest Medflight	Schumaker & Co.
Gary's Banners, Inc.	The Systems Group
Aviation Center	Arbor Spring/Alt Lt

Exhibit 8

Estimated Direct Annual Impacts At Ann Arbor Municipal Airport

Direct Impact Type	Amount
Payroll	\$2,497,792
Capital Expenses	\$882,000
Operating Expenses	\$5,925,857
TOTAL	\$9,305,649

necessarily attributable to aviation. This study, however, assesses only the aviation related impacts.

DIRECT IMPACTS

Direct impacts comprise the value of those activities involved in providing aviation services at the airport. Exhibit 9 gives a breakdown, by type, of the estimated \$9.3 million in direct impacts. Direct payroll comprises payments to those people who work directly at the facility, or are employed by airport tenants. Capital expenditures include improvements to facilities located on the airport as well as to the airport itself. Operating expenses are local expenditures by the airport operator and tenant.

INDIRECT IMPACTS

Indirect impacts are caused by airport use in the form of expenditures by air travelers and by those firms who depend on the airport for some or all of their business.

It is estimated that more than 56,900 visitors to the Ann Arbor area arrive via Ann Arbor Municipal Airport annually. These visitors arrive via general aviation and air taxi (air charter) services. Total visitor expenditures are estimated at \$3.3 million. Based on the proportion of visitors staying overnight (more than one day) it is estimated that the average visitor entering the region through Ann Arbor Municipal Airport, spends \$57 per trip at off airport locations. Resident users of the airport also generate impacts estimated at almost \$5,000.

The aviation related indirect economic impacts attributable to Ann Arbor Municipal Airport are estimated to be approximately \$9.6 million. A breakdown by type is given in Exhibit 10. The visitor expenditures listing is based on a mix of tourist, business and personal travel derived from the results of other surveys throughout Michigan. All visitor expenditures are at the actual cost outlay except retail sales which, since it is a margin industry, is shown at 20 percent of the actual expenditures. Expenditures by airport dependent firms consist only of those costs attributable to airport related activity.

INDUCED IMPACT

Direct impacts of \$9.3 million and indirect impacts of \$9.6 million represent increases in final demand for goods and services in the Ann Arbor area. To these must be added the "multiplier" effect produced by circulation of money through the regional economy. To

