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Prepared by
MICHIGAN AERONAUTICS COMMISSION
DEPARTMENT OF COMMERCE

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T A B L E O F C O N T E N T S

	INTRODUCTION	2
Part I:	THE GROWTH OF AVIATION	3
Part II:	AVIATION AND ECONOMIC DEVELOPMENT	16
Part III:	STATEMENTS FROM COMMUNITY INDUSTRY ON SPECIFIC AIRPORT PROBLEMS	21
Part IV:	THE EFFECT OF COMMUNITY ECONOMIC PATTERNS ON AVIATION DEMAND	29
Part V:	EFFECT OF AN AIRPORT AUTHORITY ON AVIATION DEVELOPMENT . . .	33

T A B L E S

I	Total Number Registered Aircraft in Michigan	8
II	Tower Airports	9
III	Aircraft Operations	10
IV	Total Number of Airline Passengers	11
V	Air Carrier Airports	13
VI	Comparison of Grand Rapids and Flint - Aviation Profile	31
VII	Comparison of Grand Rapids and Flint - Manufacturing Profile	32
VIII	Active Aircraft, January 1, 1963	36
IX	Relation of Aircraft to Population, 1962	36
X	Civil Airports by Length of Runway, January 1, 1963	36
XI	Relation of Airports to Land	37
XII	Number of Aircraft Per Airport, 1963	37
XIII	Number of Based Civil Aircraft Per Public Airport	37

INTRODUCTION

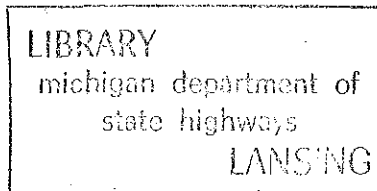
The purpose of this report is to show the relationship of aviation to the economic health and well-being of the community or area. It is just as important to a prospective firm when considering a site that the community have airport facilities, as well as other satisfactory services. *Value!*

Part I of the report, entitled "The Growth of Aviation," illustrates the rise in aviation activity in Michigan and throughout the United States, as a means of illustrating the acceptance of the mode of transportation by industry on a day-to-day basis. Part II, "Aviation and Economic Development," explores the relationship of the airport to other community benefits and indicates the value of an airport to a community.

Part III, "Statements From Community Industry on Specific Airport Problems," details industrial certification of airport needs in a cross section of Michigan communities.

In addition, there are two final parts on specific aviation development and demand patterns. Part IV, "The Effect of Community Economic Patterns on Aviation Demand," measures the effect of the economic makeup of an area on aviation demand, while Part V, "The Effect of an Airport Authority on Aviation Development," shows what another state did to facilitate airport planning in its largest urban area.

This report was not meant to portray ideas that are new or unknown to those either in aviation or in industry. It is, however, intended to portray the picture of aviation in industry at the present time--its problems and its opportunities.



P A R T I

THE GROWTH OF AVIATION

In discussing the importance of aviation growth in the United States, perhaps the greatest factor accounting for this increase in air traffic is its acceptance as a mode of transportation by the general public. This can be proven by the fact that in number of air passengers the airline-railroad ratio is as follows: 1951, 25-75; 1964, 75-25. In other words, in little more than a decade, the travel habits of the public have undergone a complete reversal. Further trends indicate that this ratio will be even more weighted on the side of airlines as the post-war generation gets older and begins to travel more. *Kabac*

A survey conducted jointly by the Tri-County Planning Commission and the Michigan Aeronautics Commission showed that in the Lansing area 38% of the population has been an airline passenger. This finding is within 1% of the result of a nationwide survey conducted for Trans World Airlines by the Gallup organization. Another finding was that 58% of the Tri-County respondents had been passengers in either airline, company, military or private aircraft. Air cargo has been increasing about 25% yearly and with technical improvements which are expected, ton-mile costs will be reduced to ten cents, less than half of the current ton-mile costs. This is expected to bring on even greater increases in the use of air cargo.

The Federal Department of Transportation has forecast that passenger traffic will reach 290 million by 1975. Airlines are expected to have 3,200 aircraft and nearly 170,000 general aviation aircraft are expected

to be in operation. This will bring the greatest demand for airport services, and since air transport forecasts in the past have fallen short of the mark, airports may be even harder pressed than these figures suggest. At major airports the problem can only be visualized when several jumbo jets, each carrying 400 or more passengers, attempt to unload at the same time. There are few, if any, existing terminals in the United States prepared for this kind of traffic.

As important as airline travel is, at a good many airports, it is often second to general aviation in number of passengers carried. For instance, although most of the publicity is about commercial airlines and their passengers, they are a small minority in the United States aircraft inventory. General aviation aircraft in the United States outnumber airline aircraft 107,000-2,000, or a ratio of 54-1. The Federal Aviation Administration forecast in 1975 is that there will be 23 million hours of general aviation activity. Of this total, 760,000 will be in Michigan, based on our 3.29 share of the national figure.

For a 7-day period, July 28 - August 3, 1962, a survey was conducted by the Michigan Aeronautics Commission at the state's then 137 licensed airports. A number of significant statistics came out of that survey and have now been updated. The mileage flown annually in Michigan was over 35 million plane miles compared to a total for the United States of almost 2 billion in 1962. The figures now are Michigan, 63 million plane miles and the United States, 3.3 billion. The 1962 Michigan survey and later resurveys showed that there were 2.4 passengers per itinerant operation in a single engine aircraft and a 3.2 in a multi engine aircraft. This figure was verified by the Federal Aviation Administration

which placed the average number of passengers for a general aviation operation at 3.0, making no distinction on the size of the aircraft. Another significant statistic verified by the Federal Aviation Administration is that in the United States, of the 3.3 billion total miles flown in general aviation, almost half was for business purposes and about 1/3 of the estimated hours flown were, likewise, for business purposes. It should be noted that an itinerant operation is one which leaves one airport and arrives at another, or leaves the flight pattern of an airport.

As a means of placing statistics in prospective perhaps a look at one individual Michigan airport would be in order. An airport which fits this purpose is the Capital City Airport in Lansing. This airport was chosen for an example for two reasons: 1) It is owned and operated by the State of Michigan, and 2) the Lansing area, which the airport serves, is rated as a "balanced" economy by the Federal Aviation Administration and other government bodies. That is, it is balanced between education, government and industry. One significant statistic of importance is that airline passengers are 12% higher in 1967 over 1966. The statistical breakdown for 1967 at Capital City Airport is as follows:

CAPITAL CITY AIRPORT - LANSING

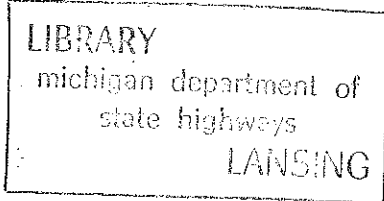
OPERATIONS AND PASSENGERS - 1967

Aircraft Operations

General Aviation, Itinerant	69,595
Air Carrier	18,648

Air Passengers

General Aviation, Itinerant	267,795
Air Carrier	220,370



As can be seen from the foregoing statistics, the general aviation itinerant operations outnumber air carrier operations almost 4 - 1. Of particular interest is that in 1967, general aviation passengers are more than the air carrier passengers at Capital City Airport. At most out-of-state airports, the general aviation passenger rise is faster than that of the air carrier passenger. Only at Detroit Metro have airline passengers always exceeded general aviation itinerant passengers. This is because it is a major hub airport and an air passenger transfer point, and in addition, having a heavy concentration of airline traffic, much general aviation traffic uses other area airports.

The tables within this part of the report portray the growth of aviation within Michigan. The table on page 8 shows that the number of registered aircraft in Michigan has grown from 1,621 in 1945 to 5,039 in 1967, an increase of 210%. However, the pattern of change in the number of licensed airports is entirely different. The end of World War II saw a great surge in flying by returning veterans under the G.I. Bill and a number of schools were opened at sod airports throughout the state. These schools and airports terminated operations as soon as the G.I. Bill Flight Program was discontinued about 1950. In the past ten years the number of licensed airports in the state has stayed at about the same level. However, the individual airports have grown in size as more sophisticated aircraft came into use throughout Michigan.

The table on page 9 shows the total number of operations at the 12 control tower airports in Michigan. The total number of aircraft operations was 1,912,645 in 1968, compared to 903,908 in 1958, an increase of over 100% for the 10-year period.

As shown in the table on page 10, operations at nine non-tower airports have shown an average 28% increase since the 1962 Fact Finder Survey, as measured by mechanical traffic counters in 1968. The table on pages 11 and 12 shows the number of airline passengers at the 21 Michigan airports which offer regularly scheduled commercial airline service. These passengers number 7.3 million, compared to 2.9 million in 1957, an increase of over 140% for the 10-year period. The table on pages 13, 14 and 15 shows the status of airlines serving these 21 airports and the type of equipment currently used and planned for use in the near future.

In comparing the state and national aviation growth patterns, Michigan's experience follows almost exactly that shown in the United States for control tower operations. However, for number of airline passengers, the state growth rate is much lower than the national, because of the lack of adequate airline service at many Michigan airports.

In 1967, the number of operations at all United States control towers was 50 million, compared to 25 million in 1957, an increase of almost 100%. The total number of airline passengers in the United States in 1967 was 287 million, compared to 86 million, the total number in 1957, an increase of 233%.

These are a few of the representative examples of aviation growth in Michigan and the United States during the last decade. In Part II, entitled, "Aviation and Economic Growth," we attempt to answer the question, "What is the value of the general aviation airport to a community?"

TABLE I

TOTAL NUMBER REGISTERED AIRCRAFT
IN MICHIGAN

<u>YEAR</u>	<u>NUMBER</u>
1946	1621
1947	2585
1948	3341
1949	2908
1950	3108
1951	2908
1952	2600
1953	2359
1954	2493
1955	2564
1956	2656
1957	2833
1958	2968
1959	2998
1960	3136
1961	3164
1962	3232
1963	3500
1964	3569
1965	3943
1966	4229
1967	4649
1968	5039

SOURCE: Michigan Aeronautics Commission Records

TABLE II
TOWER AIRPORTS

Total Number of Operations for the Calendar Year Ending December 31, 1968
and Percentage Increases Over the Calendar Year Ending December 31, 1967

<u>AIRPORT</u>	<u>LOCATION</u>	<u>1967</u>	<u>1968</u>	<u>% Increase</u>
W. K. Kellogg Regional Airfield	Battle Creek	80,641	95,432	18
Detroit City Airport	Detroit	233,189	264,507	14
Detroit Metropolitan Wayne County	Detroit	291,129	296,960	2
Detroit Willow Run	Detroit	149,255	185,794	24
Bishop Airport	Flint	164,487	175,676	7
Tri-City Airport	Freeland	92,049	98,893	7
Kent County Airport	Grand Rapids	126,723	139,532	10
Reynolds Municipal Airport	Jackson	60,060	70,009	17
Kalamazoo Municipal Airport	Kalamazoo	104,421	126,603	21
Capital City Airport	Lansing	158,815	179,403	13
Muskegon County Airport	Muskegon	98,577	105,160	7
Oakland-Pontiac Airport	Pontiac	<u>200,760</u>	<u>215,945</u>	8
	TOTAL	1,760,106	1,953,914	11

SOURCE: FAA, MONTHLY SUMMARY, AIRPORT OPERATIONS, 1967-1968

PREPARED BY: Engineering Division, Michigan Aeronautics Commission

TABLE III

AIRCRAFT OPERATIONS

<u>Airport</u>	<u>City</u>	<u>Counters 1968</u>
Ann Arbor Municipal	Ann Arbor	115,055
James Clements	Bay City	25,063
Escanaba Municipal	Escanaba	17,957
Livingston County	Howell	19,115
Roscommon County	Houghton Lake	10,156
Mackinac Island	Mackinac Island	10,426
Schoolcraft County	Manistique	6,180
Marquette County	Marquette	52,742
Sault Ste. Marie	Sault Ste. Marie	<u>19,312</u>
	TOTAL	276,006

There is an overall increase of 28% from the 1962 Fact Finder Survey to the 1968 Traffic Counter figures. This percentage increase is an average of the Fact Finder projection methodology developed by the Commission and that developed by Dr. Dorian Feldman of Michigan State University.

SOURCE: Aircraft Traffic Counters

PREPARED BY: Engineering Division, Michigan Aeronautics Commission,
October, 1968.

TABLE IV

TOTAL NUMBER OF AIRLINE PASSENGERS

<u>Airport</u>	<u>City</u>	<u>1962</u>	<u>1968</u>	<u>% Increase 1962-1968</u>
Phelps-Collins Airport	Alpena	4,050	11,413	182
W. K. Kellogg Regional Airfield	Battle Creek	28,320	70,503	149
Ross Field	Benton Harbor	14,444	42,504	194
Detroit Metro	Detroit	2,886,134*	6,823,960*	136
Escanaba Municipal	Escanaba	9,602	22,833	138
Bishop Airport	Flint	45,180	158,954	252
Tri-City	Freeland	96,310	268,805	179
Kent County Airport	Grand Rapids	200,636	424,255	111
Houghton County Memorial Airport	Hancock	11,434	28,133	146
Ford Airport	Iron Mountain	10,840	26,382	143
Gogebic County Airport	Ironwood	4,964	13,859	182
Reynolds Municipal Airport	Jackson	5,158	14,616	183
Kalamazoo Municipal Airport	Kalamazoo	50,286	129,367	157
Capital City Airport	Lansing	90,746	254,541	180
Manistee County-Blacker	Manistee	4,268	8,499	99
Marquette County Airport	Negaunee	19,190	43,704	128
Menominee County Airport	Menominee	6,530	16,988	160
Muskegon County Airport	Muskegon	54,382	133,048	145
Emmet County Airport	Pellston	16,222	33,972	109
Sault Ste. Marie Municipal	Sault Ste. Marie	13,108	21,931	67
Traverse City Municipal	Traverse City	<u>26,224</u>	<u>69,286</u>	<u>164</u>
	TOTAL	3,598,028	8,617,553	139

(Cont'd)

*The 1962 Detroit total includes passenger figures from Willow Run, Metro and City Airports. The 1968 Detroit total includes passenger figures from Metro and City Airports, as the commercial airlines left Willow Run Airport in 1966.

SOURCE: Michigan Aeronautics Commission, Airline Records, 1962 and 1968.

Prepared by: Engineering Division
MICHIGAN AERONAUTICS COMMISSION
March, 1969

TABLE V

STATE OF MICHIGAN

AIR CARRIER AIRPORTS

TYPE OF AIRCRAFT

<u>Airport Name</u>	<u>Airport Location</u>	<u>Airlines Serving</u>	<u>Currently Used</u>	<u>Planned Use</u>	<u>Total Passengers Calendar Year Ending 12-31-68</u>
Phelps-Collins	Alpena	North Central	DC 9-30	DC 9-30	11,413
Kellogg Reg. Airfield	Battle Creek	North Central	DC 9-30	DC 9-30	70,503
Ross Field	Benton Harbor	North Central	CV-580	CV-580	42,504
Escanaba Mun.	Escanaba	North Central	CV-580	DC 9-30	22,833
Bishop Airport	Flint	North Central United	DC 9-30	DC 9-30	158,954
Tri-City	Freeland	North Central United	DC 9-30 737	DC 9-30 737	268,805
Kent County	Grand Rapids	Allegheny North Central United	Nord 262 DC 9-30	DC 9-30	424,255
Houghton County Memorial Airport	Hancock	North Central	CV-580	DC 9-30	28,133
Ford Airport	Iron Mountain	North Central	CV-580	DC 9-30	26,382
Gogebic County Airport	Ironwood	North Central	CV-580	CV-580	13,859

(Cont'd)

TABLE V (Cont'd)

STATE OF MICHIGAN

AIR CARRIER AIRPORTS

TYPE OF AIRCRAFT

<u>Airport Name</u>	<u>Airport Location</u>	<u>Airline Serving</u>	<u>Currently Used</u>	<u>Planned Use</u>	<u>Total Passengers Calendar Year Ending 12-31-68</u>
Reynolds Munic.	Jackson	North Central	CV-580	CV-580	14,616
Kalamazoo Munic. Airport	Kalamazoo	North Central Allegheny	CV-580	CV-580	129,367
Capital City Airport	Lansing	North Central United	DC 9-30 737	DC 9-30 737	254,541
-71- Manistee County- Blacker Airport	Manistee	North Central	CV-580	CV-580	8,499
Marquette County Airport	Marquette	North Central	CV-580	DC 9-30	43,704
Menominee County Airport	Menominee	North Central	CV-580	CV-580	16,988
Muskegon County Airport	Muskegon	North Central United	DC 9-30 737	DC 9-30 737	133,048
Emmet County Airport	Pellston	North Central	DC 9-30	DC 9-30	33,972
Sault Ste. Marie Municipal Airport	Sault Ste. Marie	North Central	CV-580	DC 9-30	21,931
Traverse City Municipal	Traverse City	North Central	DC 9-30	DC 9-30	69,286

(Cont'd)

TABLE V (Cont'd)

STATE OF MICHIGAN

AIR CARRIER AIRPORTS

<u>Airport Name</u>	<u>Airport Location</u>	<u>Airlines Serving</u>	<u>Currently Used</u>	<u>Planned Use</u>	<u>Total Passengers Calendar Year Ending 12-31-68</u>
Detroit	Detroit	American Airlines, Inc.	707, 720, 727 727 Stretch BAC 1-11	747	6,823,960
		Aero Navis De Mexico	DC-8	747	
		Air Lift International	DC-7B, L-108 Herc. Canadair CL 44	747	
		Allegheny Airlines, Inc.	CV-580	747	
		BOAC	VC-10	747	
		Delta Air Lines, Inc.	CV-880, DC 9-14 DC 9-30, DC 8-51, 611	747	
		Eastern Air Lines, Inc.	DC 8-51, 727, CV 440	747	
		Mohawk Airlines, Inc.	F-227, BAC-111	747	
		North Central Airlines, Inc.	CV-580, DC-9	747	
		Northwest Orient Airlines, Inc.	B-320, 727, L-188 707	747	
		Pan American	B-707	747	
		Trans World Airlines, Inc.	707, 727, DC-9, CV-880	747	
		United Air Lines, Inc.	DC-8, 720, 727, 737, Caravelle	747	
				TOTAL	8,617,553

SOURCE: Michigan Aeronautics Commission, Airport Records and Airline Statistics, 1968

P A R T I I

AVIATION AND ECONOMIC DEVELOPMENT

There are a number of factors which are vital to the economic health of any community or area. These factors include satisfactory services, utilities, highways and reasonable taxes. The availability of adequate airport facilities is another factor of ever-increasing importance. These airport facilities are needed to serve general aviation users, not airline passengers who use larger airports some distance away. The general aviation users, primarily businessmen, demand that an adequate airport be within easy access of their place of business. Throughout the United States general aviation makes more than double the flights made by commercial air carriers. The reason for the greater use of private aircraft can be summed up in one word--convenience. Newsweek Magazine illustrates this factor of convenience: "As one west coast plane maker tells prospects, 'The difference between flying commercially and using a company plane is the difference between riding a bus and driving your own car. Besides, you never miss a plane when you own your own.' "

As recently as 1964, Newsweek reported that a Cessna Aircraft Company survey showed that only 3.6% of the companies that could afford--and profit from--business flying, own a plane. By now this percentage has probably doubled, but the potential is still great. Another magazine, U.S. News and World Report, recently summed up the main reason for the large increase in the use of private aircraft by businessmen: "The main advantage is the time-saving ability of a business aircraft. Top management, salesmen, engineers, purchasing agents, trouble shooters, all can be set down in the right place

at the right time. In addition, planes can carry light cargo, such as emergency spare parts or machinery, or they can rush deliveries to a customer."

This time-saving ability assumes that an adequate general aviation airport is available. Spurred by the rise in business aviation, many communities around the country are feverishly building new airports to aid in both attracting new industry and keeping established firms. Although the business community understands the value of airports and what they mean to economic growth in the community, often the citizenry is hesitant about voting new tax measures to finance airport development or improvement, primarily because they do not see the direct benefit of an airport which will act as an economic generator for new industry, creating more jobs and a greater tax base.

Since this is a common problem to all, the Commission, through the letter shown on the following three pages, attempts to fortify local groups in overcoming opposition.

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AERONAUTICS COMMISSION
CAPITAL CITY AIRPORT
LANSING, MICHIGAN 48906

February, 1968

Subject: VALUE OF GENERAL
AVIATION AIRPORTS

It has been asked of our agency many times in the past - - - "just why should we build an airport?" or, - - - "what good would an airport do to our community?" I think the following information will answer these questions, as well as cite some of the many advantages and value of a general aviation airport to the smaller communities in Michigan.

An airport means a different mode of access into your community. It is an important utility, just as your streets, water, sewer and power utilities are. Regardless of size, an airport will connect your community to another transportation network located throughout our State and across the nation. Your airport is but one link in a continuous chain.

Although many of your citizens do not fly an aircraft themselves, their employment may depend upon this convenient, expedient and safe mode of transportation. It is a fact that the airplane is becoming a modern business tool, one which industry is using more and more in recent years. The following statistics and information will show the increased importance and usage of general aviation in the decentralization of today's industry.

1. Decentralization of Industry

- (a) In 1945, only 1 of 10 new factories were located outside of metropolitan areas;
- (b) In 1960, 9 of 10 new factories were located outside of metropolitan areas.

2. A 1965 national survey of the 500 top U.S. firms found that -

- (a) 80% would not locate new plants where there is no airport,
- and (b) 57% need an airport to handle heavy twin-engine aircraft. Many of today's corporations are purchasing business jet and turbo prop aircraft.

3. Growth of General Aviation

- (a) Registered aircraft in U.S. (business and private)
 - 1950 - 30,000 aircraft in U.S.
 - 1960 - 76,000 aircraft in U.S.
 - 1965 - 93,000 aircraft in U.S.
 - 1967 - 110,000+ aircraft in U.S. (2,300 air carrier)
- (b) Percent general aviation itinerant operations versus total operations:
 - 1956 - 34%
 - 1960 - 48%
 - 1965 - 60%

4. 1962 Michigan Aviation Fact Finder Survey showed the following:

- (a) 46% of all traffic activity was conducted from communities of less than 6,000 population.
- (b) Cash expenditure in the community for every 1,000 general aviation itinerant operations - \$13,275.

5. A survey conducted by the Minneapolis-St. Paul Metropolitan Airports Commission determined that for every \$1,000 invested in their airport system, local industry gains \$2 million in additional business.

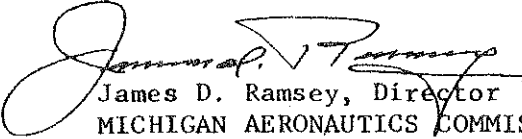
Many communities in outstate Michigan are inviting new industry to locate in their area so they can broaden their tax base. In our opinion, this is the most important consideration a community could give in deciding whether they should develop and adequate general aviation airport. It is the long-range benefit you should be planning for. Other considerations are things such as emergency protection, a means of obtaining additional transient business, flight instruction, educational programs for schools, entertainment, recreation, etc.

Air travel is also one of the most safest modes of transportation. Based on a 10-year average from 1954 to 1963, FAA statistics reveal that air travel has far less fatalities per 100 million passenger-miles than auto travel, as can be seen by the following:

- (a) Air carrier is 5.4 times safer than auto travel
- (b) General aviation is 3.6 times safer than auto travel
- (c) Combined air travel is 4.3 times safer than auto travel.

With today's rapid changes in transportation, your airport is the best long-range utility your community could develop. The dollars which flow into your community as a result of a good airport become the dollars of every resident. It will pay taxes to provide future streets and sewers, protection and playgrounds. That is why a good airport may be the best investment your community could every make.

Very truly yours,


James D. Ramsey, Director
MICHIGAN AERONAUTICS COMMISSION

mw/NDW

P A R T I I I

STATEMENTS FROM COMMUNITY INDUSTRY ON SPECIFIC AIRPORT PROBLEMS

In the course of airport planning work it becomes necessary to determine the justification of various projects throughout the state by requesting that industry within a community detail a specific need for the establishment of an airport or for an airport improvement project.

As an example of these specific instances of industrial certification of airport needs, we have compiled a list of only a few of the industries within several Michigan cities requesting airport work. Two of the locations which have airports which were improved largely by industrial justification are Port Huron and Fremont. At the St. Clair County Airport in Port Huron a need existed for a 6,600' runway to accommodate larger aircraft. Following are a few of the companies who submitted statements of justification:

PORT HURON

1. Diamond Crystal Salt Company now owns a Cessna 310 which they base at St. Clair County Airport. They have inquired at Executive Jet, for information on leasing a Lear Jet. They now make the following trips per year and would make the same in a Lear Jet: Long Island, Bahamas, 10 times; Lafayette, Louisiana, 10 times; New York City, 20 times; Akron, Ohio, 25 times; Boston, Mass., 10 times; and other locations in the United States, 50 times. A customer of Diamond Crystal Salt Co., Sifto Salt, a Division of Dominion Tar and Chemical of Montreal, Canada, now comes into Pontiac or Detroit with their De Haviland 125 approximately one-half dozen times a year.

2. American Tape Division of Armour Co. of Chicago now has an Aero Commander flying 600 operations a year throughout the United States and Canada, from its Port Huron plant. The parent company owns jet aircraft and visits its subsidiary in Port Huron 25 times a year landing at Pontiac and driving to the plant in a rented car. The American Tape Co. is interested in acquiring jet aircraft if the St. Clair County Airport runway is extended.

The Antrim County Airport at Bellaire serves one of the most active resort areas in the state. Following is a portion of the justification used to illustrate the economic benefit of paving the runway 5000' x 100' and lighting it:

BELLAIRE

1. Shanty Creek Lodge, Inc., a year around resort facility and situated approximately three miles from the airport, has been granted a loan by the Area Redevelopment Administration in the amount of \$890,500. The ultimate investment in this resort development is anticipated to be \$5,000,000. Of the currently subscribed membership of 1,000 which was sold at \$500 each, approximately 100 own and operate their own aircraft.

2. The Antrim County Airport will serve these private and corporate aircraft as well as others bringing resorters to this resort facility. Anticipated aircraft types using this airport are Convairs, Lockheed Lodestars, Gruman Mallard, DC-3, Super Beech, all within aircraft groups II and III. Michigan Aviation Fact Finder Survey reveals that 45% of the present itinerant traffic is multi-engine; also on the basis of Fact Finder, the increased traffic normally generated by paved runways and the above factors, it is estimated that itinerant traffic will be 5,000 annual operations.

At the Fremont Municipal Airport a need existed for a 5,100' runway to accommodate jet traffic. Following are a few company statements exhibiting the need for this runway extension:

FREMONT

1. Gerber Products Company, a national baby foods concern - Many airplanes, namely Lockheed Lodestars, DC-3's, and Fairchild F-27's are now forced to land at Muskegon one hour away and 40 miles by road. These aircraft are owned by suppliers of Gerber Products Company, and furnish them cans, glass jars, and other packaging. In addition, this is the research and administrative center for other plants in California and New Jersey. Their sales personnel frequently travel to Chicago and other distribution centers since their baby foods are universally used.

2. Owens-Illinois - The Fremont Airport will not accommodate their Gruman Gulfstream aircraft. They will not land these aircraft at any airport facility with less than 4,000' of hard surface runway. They find approaches to the Fremont Airport completely satisfactory but, in addition to the runway length problem, the runway is too narrow at the ends to give their Gulfstreams adequate safe turning room.

The justification for placing the West Branch Community Airport on the National Airport Plan was partly as follows:

BUSINESS FIRMS VISITING IN THE WEST BRANCH AREA

<u>NAME</u>	<u>AIRCRAFT</u>	<u>(Operations/Year)</u> <u>FREQUENCY</u>
Case Master (Port Huron)	Stinson	300
Taylor Garage Doors (Flint)	Cessna 235	200
Brevik Company	Charter	50
Marine Electric	Charter	100
Central Paving	Charter	150
Muskegon Oil Co. (Muskegon)	Charter	70
Sempco	Bonanza	30
Star Cutters (Detroit)	(DC-3) (Queen Airs) (King Airs)	100
Rose City Mfg. (Rose City)	Twin Beech	200
Bernard Card & Sons (Rose City)	Cessna 172	150
V Mfg. (suppliers & customers)	Miscellaneous	200
Holland Hitch Company (Holland)	Bonanza	80
Strand Steel (Texas)	Miscellaneous	<u>40</u>

Total Operations Per Year 1670

There are a few locations for which we have had difficulty receiving federal aid, even though the economic justification is just as detailed. To justify placing Cheboygan on the 1969 FAAP, a portion of the industrial statements are as follows:

CHEBOYGAN

1. Detroit Tap and Tool - Supplier to the automobile and defense industries, employs 160 people with an annual payroll of \$900,000. The company averages 25 flights a year throughout the midwest for freight. As an example of the inconvenience to the company, they were forced to make 22 auto trips to Pellston during the first quarter of 1967 to pick up either passengers or freight. The company would use third level carriers or charter if these two services were available at Cheboygan. Suppliers who arrive by air include: Methods and Equipment Co., Flint - 6 operations with a Cessna 205, single engine; Ex-Cello Corporation of Detroit - 6 operations with a Lockheed 18-56; Alloy Steel Corporation of Detroit - presently 12 operations with a Twin Beech, would double their operations if an airport were available at Cheboygan; Latrobe Steel Co. of Detroit presently makes 3 airline trips a year, would account for 12 operations a year if an airport were available at Cheboygan as company would charter a plane. In addition, the company ships products by air express to: Wetzel Tool Co. of Waterbury, Conn. 200 times a year and Engineering Sales Co. of Dallas, Texas 100 times a year.

2. Plymouth Industries, Inc. - Manufacturer of custom-made cabinets for stereos, phonographs and radios on a contract basis for the major manufacturers, employs 150 to 200 people with an annual payroll of \$600,000 and has other plants at Cadillac and Warren. The company uses North Central Airlines at Pellston at least once a month, but would rather use a third level carrier at Cheboygan if available. Customers who visit the company include: Sylvania, Voice of Music, Arvin Industries, Wurlitzer, Motorola and Zenith, who generate 50 annual operations with private aircraft. Company feels the lack of an airport is the major deterrent to their expansion plans at Cheboygan. The company feels that lack of direct rail and truck service places them at a competitive disadvantage and necessitates the need for establishing an airport at Cheboygan. In addition, they feel that commercial airline schedules are so poor as to be worthless. The company would charter aircraft and account for over 80 additional operations if an airport was available.

In the recent past, three companies did not locate in Cheboygan because of the lack of a local airport. These were:

1. Merrallat Corporation of Adrian would have employed 30-100 employees and an airport would have been used for executives two times per week.
2. Lear Siegler would have employed 200-1000 employees and an airport would have been used for executives and small package shipping daily. Cheboygan was first choice among twelve Michigan cities, but was eliminated in favor of a city with an airport.
3. A garment manufacturer of Chicago would have employed 50-200 employees and an airport would have been used for executives two times weekly.

Otsego-Plainwell also requested an airport establishment and submitted the following justification:

OTSEGO-PLAINWELL

1. Carlson Construction Co. - Employs 65 people with a payroll of \$246,000. The company builds primarily school and industrial buildings throughout southwestern Michigan. The company is planning a branch office in Phoenix, Arizona, as well as expanding construction from its main office in Otsego to cover the entire state of Michigan, northern Indiana and northern Ohio. The company growth is dependent on airport growth because of vast distances involved. The company now bases its Twin Comanche at Kalamazoo. Its daily use includes trips to all parts of the Northeastern United States and as far west as St. Louis, Mo. Architectural consultants fly to Kalamazoo and drive to company offices in Otsego. Rust Engineering of Pittsburgh, Pa. has Gulfstream and DC-3's and three other unidentified twin engine aircraft. They would land at Otsego if the runway was paved.

The company is planning a \$100,000 investment in a charter service from Otsego-Plainwell Airport, providing improvements are made to the airport. They will purchase more than one aircraft and have three pilots now available to fly them. This charter service will be made available on a nationwide destination basis.

2. Michigan Cottage Cheese Co. (parent company Walco American Corp.) - Manufactures dairy products for midwest distribution. The company employs 50 in the Otsego plant and 45 in the Reed City plant. The Otsego plant has an annual payroll of \$70,000. The parent company has a Cessna 310 and flies in 8 times per year. Their Chicago branch has an Apache Twin and flies to Otsego, but lands at Kalamazoo. The president, Mr. Lester Hengesch, makes 18 trips to Reed City per year and would charter a twin engine aircraft if Plainwell improvements were made. One of the company's distributors from Columbus, Ohio, flies his Apache twin to the airport 100 times per year.

The following are examples of firm statements about airport needs in

Chesaning:

CHESANING

1. Peet Packing Co. - Manufactures and distributes various meat products. The Chesaning plant employs 275 people with an annual payroll of \$1,800,000. They have processing plants at Bay City employing 200 and Grand Rapids employing 100. The sales force maintains offices in Alpena, Cadillac, Gaylord, Grand Rapids, Kalamazoo, Jackson, Ypsilanti, Lansing and Flint, with a total employment of 108 people. They own a Piper P-23 twin Aztec which they base at Tri-City Airport in Freeland, 33 miles away. The company stated they could operate more conveniently at Chesaning if improvements are made to the airport. At the present time the company aircraft averages 400 trips annually. These trips are mainly to the various sales and processing plants throughout the state, but a good portion of these trips are to out-state suppliers and emergency pickup of replacement parts for machiners.

2. Central Telephone Co. - Operates 17 community exchange services throughout the state and employs 18 people locally and 34 in the state-wide network. The annual payroll is \$210,800. The company aircraft, a Piper Cherokee 6, operates 100 times annually. It is used to provide constant service during emergency situations, as well as routine inspection trips to the various offices. The President, Victor Shapely, stated they would purchase a twin engine aircraft if airport improvements were made. They have numerous occasions when they chartered twin engine aircraft to fly parts and personnel to one of the 17 exchange services in its network for emergency repairs. The Central System has 5,000 subscribers, with 2,500 in the Chesaning area. The company suppliers make frequent visits, landing mainly at Flint Bishop or Saginaw Tri-City. Superior Cable, Hickory, North Carolina, has a Cessna 310, Twin Beech and Lear Jet. They would use the twins at Chesaning providing improvements would be made. Other suppliers, Stromberg-Carlson, Rochester, N.Y. and Whitney Blake, Hartford, Connecticut, would make more frequent visits if airport improvements were made at Chesaning. At present, these suppliers make 75 trips per year.

As with all public projects, the citizens have a right and a responsibility to review the facilities which their tax money supports. On pages 27 and 28 are three newspaper articles which reflect typical public reaction to airport development in the state. The first, from Sault Ste. Marie, discusses the dedication of the expansion and improvement of the Luce County Airport. The second is a letter about Bishop Airport in Flint and criticizes the community for not completing airport expansion as fast as the writer feels they should have acted.

The third letter is a highly critical one about improvements on the Pontiac Airport in which the writer takes both state and local government to task for spending money on an airport while other projects are given less priority.

These 3 letters represent a cross-section of articles on aviation which appear daily in the Michigan press. Most of the letters reflect an appreciation by the writer for the benefits of an airport to the economic development of his area. There are, however, a few citizens who are not convinced that an airport is of anything but limited value to a community. It is important that all comments are reviewed and, if possible, answered by fact so that airport development may have the broadest possible community support.

As She Sees It . . . 9/13/68

With Maggie Fountaine

NEWBERRY — Luce County Airport takes a step up to a new level. It is not a hungry, empty stomach for a pie in the sky, but a definite, concrete, ongoing step toward future development that could make the county financially sound and more of its people financially able to support themselves.

This weekend Luce County dedicates its airport. The airport isn't new, but its expansion and improvements are very new . . . all accomplished within one year. Although many residents still look at Luce County Airport as a toy partly paid for by the taxpayers as an amusement for the few, certain facts are proving that it is becoming a real asset for the many.

Luce County Airport, since its development, is bringing more employment to the area. A new industry, Newberry Wood Products Co., has moved to Newberry chiefly because there is an airport here, according to one of the owners. He commutes regularly from the Detroit area in his own plane. This company will have its own dedication ceremonies in the near future and is steadily growing to full-scale operation.

Jess Bircher, manager of Superior Sales, Inc., said the airport has been very good for the company. Because of the airport, Bircher said, the company has been able to set up regular business in Oregon which will be done on a regular schedule. The company's business associates in the southern states and on the west coast have been flying to the U.P. for some time. Now with the Unicom system, the gas pumps and the paved runway," Bircher said, "they are right here. I used to have to pick them up by car at the boat or at Marquette."

As a business can grow, so can the employment of an area. More planes — and many of the business planes are executive type — and the planes — are flying to get gas from Luce County.

James Mills of Newberry State Bank said the airport must be classified as a distinct asset to the area. "It is interesting, how-

ever" he said, "that the greatest potential it offers will be in the future developments that could come to the area as a result of its existence. I think all of the people responsible for its development, are to be congratulated." Lower state bank officials regularly fly into Luce County Airport.

It's not only the business angle that intrigues. It is the drawing of many more casual visitors, particularly the sportsmen. This summer many private family planes landed at the airport and pilot and passengers found easy access to resorts and lodges. It still may seem like a new way of life to many, but it is a life that has arrived and is expected to grow and grow.

Expansion of Luce County Airport began in earnest about a year and a half ago when crews began work on the new landing strip 3,500 feet long and 75 feet wide. Today the airport also boasts a taxiway 50 feet by 700 feet and an apron 380 feet by 75 feet. There is also a car parking area.

An old farm home on the property serves as the airport manager's residence and office. The manager, Vernor "Gyp" Hale, offers telephone service, Unicom service, gas pump service, courtesy car and a friendly kitchen with a coffee pot.

Hale said the property was purchased from the state in May, 1965. Matching money from the federal government, the state and the county made the expansion project possible.

Hale also points out that the Unicom was not purchased with county money. Six checks put together paid for the instrument. The checks were signed by the Newberry State Bank, Superior Sales, Inc., Newberry Wood Products Co., WNBH Radio, Ray Knaut and William Zagelmeier.

The Conservation Department, which has had two planes based at the airport for some time, now has a third. It is estimated that the department will probably use between 11,000 and 15,000 gallons a year.

Pilots who look at their manuals, which give information about airports all over the coun-

try, at present will not see much about the Luce County strip. That's because all of the improvements were made since the last publication. The next edition should explain that Luce County Airport is a good place to stop. By word of mouth, this information already is getting around. A year ago only a few planes landed at the airport, and only in good weather. During August this year, 93 planes carrying 93 pilots and 163 passengers landed here. Charter planes which used to land elsewhere in the vicinity to unload their passengers have discovered Luce County Airport.

And when these sportsmen and businessmen and families land their planes here they are staying here. They use the county's accommodations for food and lodging.

Also this summer the Luce County Flying Club was formed. Its membership includes two licensed private pilots and about eight student pilots. The club was formed to promote aviation, to permit sharing the expense of owning a plane (it now owns a 1943 Cessna 140 with a tricycle gear), and to give members a chance to get together "to talk flying".

So it seems right that Luce County this weekend should celebrate and dedicate its airport. Pilots all over the state have been invited to "fly in" to Luce County Sunday morning. A pancake breakfast will be served by the Flying Club from 7:30 to 10 a.m. Local cars will carry visitors on a free color trip to the Tahquamenon Falls. The American Legion will serve a chicken barbecue dinner at the airport at noon.

At 2 p.m. the airport dedication ceremonies will begin. Speakers will be James Popp of the Federal Aviation Administration at Lansing who was inspector for the Luce County work, and Bill Hamlin, construction engineer with the Michigan Aeronautics Commission, who helped work on the plan.

The day's program also includes entertainment by local young singers and musicians, U. S. Air Force participation with a displayed missile from Kitcheloc AFB, and various exhibits.

So up, up and away in your flying machine Sunday and land happily for a great day at Luce County Airport!

CLIPPING BUREAU
EAST LANSING, MICH.
TELEPHONE EDgewood 1-4610
257 Michigan Avenue

MICHIGAN
Flint, The Journal
(D)

SEP 17 68
*Flint Airport Called
Behind the Times 4*

IT IS FRIGHTENING to see that because of one man in this city the airport is going to suffer again. Bishop Airport is about 20 years behind in its development. Now is the right time to catch up and build into the future 30 years.

The terminal building is behind the times and does not meet the passenger load of today. I have just returned to Flint after being stationed with the Air Force in several different parts of the country. I left in the fall of 1965. The terminal was just completing its last enlargement. Now it is already too small to even handle one United Airlines jetliner.

In Virginia, there are two cities next to each other and their total population is about one-half that of Flint, yet they have an airport three times as large as Bishop. Newport News and Hampton, Va., do not have the industry of Flint, Hampton, Va., do not have the industry of Flint, or the ideal location. Spokane, Wash., a city which is about the same size as Flint, has one of the most beautiful and most functional terminal buildings I have ever seen.

The question seems to be: How did the airport get into such a mess? It looks as if the past leaders of our community have just pushed the airport to the back of a dusty closet of improvement projects.

If the airport growth continues to be stunted, Flint will have passed up a very good opportunity to add more industry to its tax roll and many hundreds of people to its employment roll.

If City Manager Kay keeps on insisting that the city should wait until federal funds become available, the airport will be in the dark ages and other cities, such as Pontiac, will have replaced Flint as an important center of aviation. As it stands now, the area would benefit more if Genesee and Lapeer counties and cities in them would form an air authority and build a new airport between Flint and Lapeer.

A good location would be in Davison Township south of the new M 21 freeway. The freeway would give fast and easy access to both Flint and Lapeer. It is time to stop sitting around and get busy and build an airport where the aviation industry can have a future.

Brian K. Willemot
1906 Mackin Rd.

MICHIGAN PRESS
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MICHIGAN
Royal Oak, The Daily Tribune
(D)

SEP 12 68
Airport Waste 45

I notice the \$400,000 of my (our) money being taken from the Oakland County general fund to construct 51 new hangar-units at Pontiac Airport to be rented at approximately \$72 per month. This would take at least 10 years just to break even.

What about the great majority of we taxpayers who do not own planes — what about us and our poor roads (how many chuck holes ruin a front end?) and our school systems and other county institutions that need extra funding so desperately? Why must money (our's) be spent constantly, it seems, like the expansion of the "not wanted" Orion Township airport be poured down some greased runway? If there is such a great future need and will expand our economy in some way why can't private financing be found? This is the great puzzle. Will someone please give the people a straight and square answer instead of this cloud-nine side-slip.

Straight and Level

P A R T IV

THE EFFECT OF COMMUNITY ECONOMIC PATTERNS ON AVIATION DEMAND

Often the aviation demand in an area is determined by the make-up of the economic and industrial base of that particular area. Areas with high diversity of economic base tend to have much different aviation demands than those whose economy depends on only one type of industry. The extreme examples of this difference in aviation demand are Grand Rapids, Kent County, and Flint, Genesee County. Both counties have a population within 10% of each other. However, the tables on pages 31 and 32 show the differences in their aircraft activities and economic base.

As the table shows, Kent County has more than double the number of air carrier operations and almost three times the number of air carrier passengers as does Genesee County. At the same time, Kent County has 35% of their itinerant operations devoted to air carrier while Genesee has only 20%.

On the other hand, Genesee County has more registered aircraft and a slightly larger number of itinerant general aviation operations.

The reasons for this discrepancy are shown in the second table. Kent County has almost three times as many manufacturing establishments as has Genesee County, even though the latter has more employees than the former. This means that the manufacturing establishments in Kent County are smaller, and, thus, afford more travel opportunities to their personnel than do a few large firms.

The purpose of this short comparison is to show the different aviation pictures in two areas of the same size in Michigan. The planning process requires that all socio-economic factors in an area be considered in airport

planning. Although the example used is probably the extreme, other communities, large and small, parallel this discrepancy in aviation demand to a lessening degree.

In part, we will see the effect of an airport authority in coordinating aviation activities in a major metropolitan area and the problems involved in another area which does not enjoy this coordinated planning function.

TABLE VI

COMPARISON OF GRAND RAPIDS AND FLINT
(Kent County and Genesee County)

AVIATION PROFILE

<u>COUNTY</u>	<u>COUNTY POPULATION 1965</u>	<u>ITIN. GEN. AVIATION OPERATIONS</u>	<u>AIR CARRIER OPERATIONS</u>	<u>TOTAL CIVIL ITINERANT OPERATIONS</u>	<u>% GENERAL AVIATION</u>	<u>% AIR CARRIER</u>	<u>AIR CARRIER PASSENGERS</u>	<u>REGISTERED AIRCRAFT</u>
Kent	385,159	56,852	30,987	87,839	65%	35%	357,615	119
Genesee	418,609	62,799	14,326	77,125	80%	20%	121,893	186

SOURCES: Federal Aviation Administration, Air Traffic Activity, Calendar Year, 1967
Michigan Aeronautics Commission, Registration Records, Fiscal Year, 1967-1968
Michigan Aeronautics Commission, Airline Activity Records, Calendar Year, 1967

TABLE VII

COMPARISON OF GRAND RAPIDS AND FLINT
(Kent County and Genesee County)

MANUFACTURING PROFILE, 1963

<u>COUNTY</u>	<u>TOTAL ESTABLISHMENTS</u>	<u>TOTAL EMPLOYEES</u>	<u>PAYROLL (Annual)</u>
Kent	880	50,090	\$316,000,000
Genesee	284	66,918	553,000,000

SOURCE: U.S. Department of Commerce, City and County Data Book, 1967

P A R T V

EFFECT OF AN AIRPORT AUTHORITY ON AVIATION DEVELOPMENT

As a means of measuring the effect on airport development in an area, a comparison was made of the aviation situation in two major metropolitan areas.

The first, the 5-county area which comprises the Minneapolis-St. Paul standard metropolitan statistical area, is under the direction of an airport authority. The second, the 6-county Detroit area, has no central agency planning airport development. Minneapolis-St. Paul was chosen for comparison because it most resembles Detroit in the following respects:

1. Both are in the midwestern region of the United States.
2. Both contain more than one county as part of their standard metropolitan statistical area.
3. Both are in states which have strong forms of county government.
4. Both are the only major metropolitan areas within their state.
5. Both are the chief industrial area of states with large agricultural activities.
6. Both attract the majority of commercial aviation activity within their state.

The legal basis for forming an airport authority was established by the Michigan Legislature, Act 206, 1957; amended by Act 26, 1958, which reads as follows:

"An act to authorize 2 or more counties, cities, townships, and incorporated villages, or any combination thereof, to incorporate an airport authority for the planning, promoting, acquiring, constructing, improving, enlarging, extending, owning, maintaining and operating the landing, navigational

and building facilities necessary thereto of 1 or more community airports; to provide for changes in the membership therein; to authorize such counties, cities, townships and incorporated villages to levy taxes for such purpose; to provide for the operation and maintenance and issuing notes therefor; and to authorize condemnation proceedings."

Minnesota's law on airport authority differs significantly from that of Michigan in 2 ways:

1. The Minnesota Act covers only the Minneapolis-St. Paul area, while the Michigan Act is state wide and permits a .3 mill tax.
2. Taxes are levied on all taxable property in the State of Minnesota, while in Michigan only taxable property in the area of the airport authority can be taxed.

The result of the advantage the Minneapolis-St. Paul metropolitan area has over the Detroit area because of its airport authority can be seen in the tables on pages 36 and 37 which compare aviation in Minnesota by aviation statistics of the two areas. This comparison will be made in both the states of Michigan and Minnesota and the Southeastern Michigan Metropolitan Area (SEMMA) and the 6-county Minnesota Airport Authority area. It is made for 1962 and 1963, the last comparison years.

There are 21 airports in the State of Michigan which provide scheduled airline service. In Minnesota airline airports number an even dozen. During the calendar year ending December 31, 1967, the total passengers in each state were as follows:

Michigan 7,300,000

Minnesota 4,700,000

The airports in SEMMA accounted for over 80% of the enplaned passenger traffic at all airline airports in Michigan. The airline airports in the Minnesota Airport Authority area accounted for 90% of the enplaned passenger traffic at all airline airports in Minnesota. Because most of the

airline passenger traffic occurs in the major metropolitan areas of each state, there is a definite need to provide facilities for general aviation aircraft in these areas.

Projections of airline traffic on a state basis were made by the Federal Aviation Administration. These projections were based on conditions which affected airline traffic in 1960 which will change in the future---faster flights, lower fares, higher incomes, etc. In spite of their obvious conservatism, these projections foretell an even greater shortage of airspace and facilities if adequate planning is not implemented very soon.

Projections of Airline Traffic in 1975

<u>Area</u>	<u>Number of Passengers In and Out</u>
United States	516,000,000
Michigan	17,000,000
Minnesota	9,100,000

SOURCE: FAA, National Airport Plan, 1964
FAA, Airline Passengers Data, 1960

These projections are based on the assumption that the percentage of airline traffic in the United States, enjoyed by each state, will not change significantly. This has been the practice over the post war period and there is no reason to expect a change in this trend.

NUMBER OF AIRCRAFT

A comparison of the registered aircraft inventory shows the following:

TABLE VIII

Active Aircraft, January 1, 1963

	<u>Total</u>	<u>Multi-Engine</u>		<u>Single-Engine</u>	
Michigan	3,270	374	11.4%	2,896	88.6%
Minnesota	2,277	149	6.5%	2,128	93.5%
United States	83,918	9,142	10.9%	74,776	89.1%

Source: Federal Aviation Agency, FAA Statistical Handbook, 1963, Page 42

Examining this numerical comparison closer, the following relationships are found:

TABLE IX

Relation of Aircraft to Population, 1962

<u>Area</u>	<u>Population (10,000)</u>	<u>Based Aircraft</u>	<u>Aircraft Per 10,000 Population</u>
Michigan	803.1	3,270	4.07
Minnesota	349.2	2,297	6.58
SEMMA	418.7	1,474	3.52
Minnesota Airport Authority Area	152.5	1,086	7.12
United States	18,373.6	83,918	4.56

Sources: Federal Aviation Agency, FAA Statistical Handbook, 1963, Page 42
Dept. of Commerce, Bureau of the Census, U.S. Census of
Population, Report No. 272, September 20, 1963

Comparing the number and types of airports in Michigan and Minnesota, the following information can be seen:

TABLE X

Civil Airports by Length of Runway
January 1, 1963

<u>State</u>	<u>Total</u>	<u>0-2,999</u>	<u>3,000- 3,499</u>	<u>3,500 4,199</u>	<u>4,200- 4,999</u>	<u>5,000 5,899</u>	<u>5,900- 6,999</u>	<u>7,000 & over</u>
Michigan	226	135	34	24	4	18	2	9
Minnesota	246	170	19	22	2	7	4	22

Source: Federal Aviation Agency, FAA Statistical Handbook, 1963, Page 8

TABLE XI

Relation of Airports to Land

Area	Sq. Miles	Airports	Area Airport Per Sq. Miles
Michigan	57,019	225	252.5
Minnesota	80,009	246	325.2

A further breakdown of the general aviation activity shows the following:

TABLE XII

Number of Aircraft per Airport, 1963

Area	Active Civil Aircraft	Number of Airports	Aircraft per Airport
Counties			
Macomb	192	5	38.4
Monroe	65	7	9.3
Oakland	434	7	62.0
St. Clair	63	4	15.8
Washtenaw	127	5	25.4
Wayne	<u>593</u>	<u>7</u>	<u>84.7</u>
SEMMA	1,474	35	42.1
Minnesota Air- port Authority Area	1,086	10	108.6
Michigan	3,270	226	14.5
Minnesota	2,277	246	9.3
United States	83,918	8,062	10.4

Sources: Michigan Dept. of Aeronautics, Registration Records;
Federal Aviation Agency FAA Statistical Handbook of
Aviation, 1963.

TABLE XIII

Number of Based Civil Aircraft per Public Airport

Area	Number of Public Airports	Number of Based Aircraft Public Airports	Based Aircraft per Public Airport
Counties			
Macomb	0	0	0
Monroe	1	21	21
Oakland	2	195	98
St. Clair	1	32	32
Washtenaw	1	57	57
Wayne	<u>3</u>	<u>396</u>	<u>132</u>
SEMMA	8	701	87
Minnesota Airport Authority Area	6	811	135

Sources: Minneapolis-St. Paul Metropolitan Airports Commission, Registration
Records; Michigan Dept. of Aeronautics, Registration Records.

The preceding tables reveal the following facts about general aviation activities in Michigan compared to those in Minnesota.

1. Minnesota and its Metropolitan Authority Area have more aircraft per 10,000 population than the national average. Michigan and SEMMA have less aircraft per 10,000 population than the national average (Table IX)
2. Minnesota has more airports per 10,000 population than the national average. Michigan has less airports per 10,000 population than the national average. (Table IX)
3. Michigan has more aircraft per airport than the national average while Minnesota has less. (Table XII)
4. In public airports, SEMMA has less based aircraft per airport than the Minnesota Metropolitan Authority. (Table XIII)
5. The percentages of based aircraft at public airports in the two metropolitan areas are as follows:

SEMMA	52.5
Minnesota Airport Authority Area	74.6

Thus, it is apparent that in the Detroit Metropolitan Area, only one-half of the registered aircraft is based at public airports.

SUPPLEMENT TO "AVIATION AND ECONOMIC DEVELOPMENT"

LIBRARY
 michigan department of
 state highways
 LANSING

TOTAL POUNDS OF AIRLINE CARGO
 (ENPLANED)

<u>Airport</u>	<u>City</u>	<u>1962</u>	<u>1968</u>	<u>% Increase</u>
Phelps-Collins Airport	Alpena	43,070	151,559	252
W. K. Kellogg Regional Airfield	Battle Creek	129,976	351,351	170
Ross Field	Benton Harbor	267,383	534,973	100
Detroit Metro	Detroit	71,901,200*	181,186,100*	152
Escanaba Municipal	Escanaba	40,225	95,369	137
Bishop Airport	Flint	763,607	1,747,820	128
Tri-City	Freeland	808,005	2,076,044	157
Kent County Airport	Grand Rapids	2,010,535	7,337,715	265
Houghton County Memorial	Hancock	19,358	164,390	749
Ford Airport	Iron Mountain	51,742	246,903	377
Gogebic County Airport	Ironwood	4,946	48,271	876
Reynolds Municipal Airport	Jackson	173,903	299,418	72
Kalamazoo Municipal Airport	Kalamazoo	732,682	3,968,936	442
Capital City Airport	Lansing	564,739	1,714,456	204
Manistee County-Blacker	Manistee	43,818	67,004	53
Marquette County Airport	Negaunee	27,429	88,888	224
Menominee County Airport	Menominee	48,948	257,214	425
Muskegon County Airport	Muskegon	797,465	2,460,517	209
Emmet County Airport	Pellston	90,746	155,591	71
Sault Ste. Marie Municipal	Sault Ste. Marie	22,677	112,886	398
Traverse City Municipal	Traverse City	<u>90,356</u>	<u>396,762</u>	<u>339</u>
	TOTAL	78,632,809	203,462,167	159

*The 1962 Detroit total includes cargo figures from Willow Run, Metro and City Airports.
The 1968 Detroit total includes cargo figures from Metro and City Airports, as the
commercial airlines left Willow Run Airport in 1966.

SOURCE: Michigan Aeronautics Commission, Airline Records, 1962 and 1968

Prepared by: Engineering Division
MICHIGAN AERONAUTICS COMMISSION
March, 1969