REPORT ON A STUDY

OF

MICHIGAN'S AVIATION DEVELOPMENT PROGRAM

Michigan Aeronautics Commission
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Based on the judgment of the Michigan Aeronautics Commission and in consideration of the expression of significant interest of the legislative and executive level of state government, concerning the development of an adequate air transportation system, the Commission initiated a study of the situation surrounding the development of such a system.

Aviation Growth

The growth and projected growth of all of the factors in aviation make it apparent that a system development is a pressing need. In discussing the importance of aviation growth in the United States, perhaps the greatest factor accounting for this increase is the acceptance of air travel as a mode of transportation by the general public. For example, consider the airline-railroad passenger ratio:

	Airline		Railroad
1951	25%	to	75%
1964	75%	to	25%

Thus, in little more than a decade, the travel habits of the public have undergone a complete reversal.

As important as airline travel is at a good many airports, it is often second to general aviation in number of passengers carried. General aviation aircraft in the United States outnumbers airline aircraft 166,598 to 2,452 -- or a ratio of 68:1. The tables in this report portray the growth of aviation within Michigan.

Of particular interest is that the number of registered aircraft in Michigan has grown from 1,621 in 1946 to 5,504 in 1970 -- an increase of 239%. As Table I and Graph I show, projections based on one forecast indicate that Michigan may have over 10,000 registered aircraft by 1980.

Other significant statistics show the following:

1. The increase in control tower operations was 78% over the last 5-year period in Michigan. (Table II and Graph II).

2. The estimated aircraft operations at non-tower airports, which were measured by mechanical traffic counters, show correspondingly large increases. (Table III).

3. The total number of airline passengers in Michigan has increased 163% during the past 8 years. (Table IV and Graph III).

4. The total number of pounds of airline cargo has also shown large increases throughout the State. (Table V).

5. The number of active airmen in Michigan will more than double in the next decade. (Table VI).

6. The percentage of hours flown by "purpose of flight" is different in the United States as against the State of Michigan. (Tables VII and VIII).

7. The amount of Federal aid spent on airports in Michigan is approximately $80 million between 1948 and 1968. (Table IX).

8. Both the number and dollar value of general aviation aircraft deliveries have steadily increased in the 1960's. (Table X).

The foregoing statistics make it apparent that airport development in Michigan should be given the highest priority in order to meet the ever increasing demands by the public for travel by both commercial and general aviation.

The Study

In undertaking the study of this situation, the following assumptions were made:

1. Every community in Michigan should have reasonable access to the airport system through an airport appropriate to the needs of the system. This was detailed in the basic principle for the State Airport Plan:

> Minimum facilities -- every community, or combination of two or more communities of 1,000 or more population, should be eligible to receive State aid for the development of at least a turfed airport having a minimum of one runway 2,500 feet in length, 20:1 clear approach and service facilities.
>
> Communities of less than 1,000 population, exhibiting special aeronautical needs may be considered.
>
> > Objective -- Proposed minimum facilities may be located adjacent to the populated area or not more than 15 minutes ground time from the airport to any location in that populated area.

2. The development of an equitable system is vital to the future economic growth of the State. An airport system is adequate only to the degree that airports contained therein provide service to all parts of the State. An individual airport is a vital economic factor to the community in the same way that utilities, fire and police protection, and other community services, are valuable to industry.

In an effort to answer the need, the Commission is preparing the State Airport Plan.

The airport needs, in Michigan, are to be identified in three time increments:

a. Short Range, 0 - 5 years
b. Medium Range, 5 - 10 years
c. Long Range, 10 - 20 years

A methodology for forecasting general aviation growth was developed, but lack of socio-economic forecast data on an official state basis prohibited at this time a longer term study than 0 - 5 years. The plan, therefore, deals only with the short range, and the medium and long range sections are now under development and will be added to the plan when completed.

Significant progress has been made to date, resulting in the initial draft of the short range State Airport Plan. The final draft is now in the preparation stage and will be issued in the very near future. Our present review concerns itself primarily with the manner of presentation and the format, and it is not anticipated that any substantial changes will be made to that section which actually outlines the needs.

Now that history and growth patterns of aviation, in the State, have been evaluated, it is obvious that aviation is one of our fastest growing transportation modes. This fast growth has resulted in multi-level demands for airports and airport improvement throughout the State.

Aviation Needs

It must be emphasized that these needs are created by the demand for airport facilities and whether needs are met by improvements depends, to a large degree, on the local communities as well as the State and Federal governments. The Interim State Airport Plan will contain a section delineating the specific forecasted needs of the system for the short-range period. The State Airport Plan indicates expansion or improvements are desirable at 137 locations and 73 new airports are necessary to complete the airport system.

The aviation segment of transportation is wholly dependent upon an airport system, just as the value of any telephone is wholly dependent upon the telephone system; that is, one unit by itself has no value. It is the number of units making up the system which provides the value of the system.

It should be recognized that the recommendations contained in this State Airport Plan do not take into consideration financial ability to accomplish the work, necessary interest and action on the part of the local government or the time element involved in accomplishing the work. Since these elements must be considered, an analysis was made in an effort to determine which projects might reasonably be expected to be initiated within the next five years (1971 - 1975).

The total estimated cost of the ideal development is $229 million. On this basis,

it is estimated that if sufficient Federal, State and Local funding were available, the following program level could be attained:

1971	$ 51,342,000
1972	65,871,000
1973	51,850,000
1974	24,559,000
1975	36,143,000
	$229,765,000

Funding for such a program would require the following:

	Federal Funds	State and Local Funds
1971	$23,747,000	$27,595,000
1972	31,004,000	34,867,000
1973	14,745,000	37,055,000
1974	6,951,000	17,608,000
1975	12,269,000	23,874,000

It should be clearly understood that these programs represent an ideal development program; one that could not be accomplished without appropriate local initiative. It is anticipated that such local initiative will not be forthcoming in certain areas and, therefore, the program levels will not be attainable.

In an effort to determine the availability of such funds, an analysis was made of the three sources -- Federal, State, Local.

Federal Funds

Congress recently passed Public Law 91-258, 1970 which provides $250,000,000 annually to be distributed among the nation's air carrier airports and $30,000,000 annually to be distributed among all other publicly-owned general aviation airports.

The annual distribution to be made as follows:

Air Carrier - $250,000,000
1/3 to states on an area population formula
1/3 to air carrier airports based on ratio of airline passenger enplanement to national passenger enplanement
1/3 to be distributed by the Secretary of Transportation at his discretion

General Aviation - $30,000,000
75% to be distributed to states on an area population formula
25% to be distributed by Secretary of Transportation at his discretion

Considering the apportionment formula, airline passenger enplanements and anticipating reasonable participation in the discretionary monies, it is estimated that Michigan's share will be as follows:

	1971	1972	1973	1974	1975
Air Carrier	$5,036,500	$4,282,800	$4,282,800	$4,282,800	$4,282,800
General Aviation	773,471	569,576	569,576	569,576	569,576
Discretionary	2,650,500	2,470,200	2,470,200	2,470,200	2,470,200
Total	$8,460,471	$7,322,576	$7,322,576	$7,322,576	$7,322,576

In addition, the Economic Development Administration and the Upper Great Lakes Regional Commission have indicated a willingness to provide airport development funds in those areas under their jurisdiction (roughly all of Michigan north of Town Line 16).

We have estimated that the following funds may be available from these sources:

	1971	1972	1973	1974	1975
EDA and UGLRC	$2,780,000	$661,000	$661,000	$661,000	$661,000

Combining these sources results in the following estimated availability of Federal funds:

1971	1972	1973	1974	1975
$11,230,471	$ 7,983,576	$ 7,983,576	$ 7,983,576	$ 7,983,576

When we apply these funds to programs described heretofore, the following results:

	1971	1972	1973	1974	1975
Estimated Federal Funds	$11,230,471	$7,983,576	$7,983,576	$7,983,576	$7,983,576
State & Local Funds Required	40,111,529	57,887,424	43,816,424	16,575,424	28,159,424
Total	$51,342,000	$65,871,000	$51,800,000	$24,559,000	$36,143,000

State Funds Available

Next, an analysis of potential State funds was made resulting in the following dollars available for airport development:

1971	1972	1973	1974	1975
$3,500,000	$4,000,000	$4,700,000	$5,360,000	$6,300,000

This would result in the following funding requirements:

	1971	1972	1973	1974	1975
Federal	$11,230,471	$7,983,576	$7,983,576	$7,983,576	$7,983,576
State	3,500,000	4,000,000	4,700,000	5,360,000	6,300,000
Local	36,611,529	53,887,424	39,116,424	11,215,424	21,859,424
Total	$51,342,000	$65,871,000	$51,800,000	$24,559,000	$36,143,000

In some instances it is possible to estimate the potential of local funds; however, in most instances such is not possible.

Nevertheless, in making the best judgment possible, it is our considered opinion that this level of local funding could not be achieved unless additional local funding sources are found.

A study was made to determine whether additional funding sources, at the Federal, State and Local levels, could be identified.

Federal

Inasmuch as Congress just enacted major new airport development legislation, it was concluded that additional funds from this source could not reasonably be expected.

State

Currently State funds, made available for aviation development, are derived from the aviation fuel tax and registration fees.

Historically, State funds for airport development have been made available to local governments on a matching basis. Thus, resulting in the potential financing of a project as follows: Federal funds - 50%, State funds - 25%, Local funds - 25%.

In considering various approaches that might develop additional revenues, certain assumptions were made:

a. The direct user should pay a reasonable share of the development costs.

b. There exists a general public benefit in the air transportation system and the general public should financially support the program.

c. The climate for aviation systems in the State must be competitive with other states (i.e., user taxes must not be excessive).

d. The local sponsor must provide a reasonable share of development costs.

e. User tax levies recently imposed by Congress must be considered.

The following tax sources were examined:

Aircraft Registration Fees

a. Current User Taxation -

1. Michigan received 1/2 cent per pound net empty weight for the registration of aircraft. This fee, in lieu of personal property has been altered since 1939, except for removal of a $50.00 ceiling. In the fiscal year ending July, 1970, total registration fee for 5504 aircraft - $49,237.

2. Federal Registration Fees -

Effective July 1, 1970 Congress imposed a minimum annual registration fee of $25.00 plus 2¢ per pound maximum allowable gross weight for piston aircraft 2501 pounds and over, and 3-1/2¢ per pound for turbine powered craft.

b. Pending State Legislation -

H. B. 4430 - 1970 Session passed the House with an increase of registration fees from the current 1/2¢ net empty weight to 1-1/2¢ per pound allowable gross weight. The bill was reported out of Senate Committee with the registration fee changed to 1¢ per pound maximum allowable gross weight and now awaits action on the Senate Floor. The Commission had recommended the 1¢ figure.

The following table shows the projected increase in dollars and percent possible if H. B. 4430 passes, based on total registration fees collected in fiscal 1969-70.

Fiscal 1969-1970	House Version	Senate Version
5333 aircraft registration fees 1/2 cent empty weight - $49,237	proposed 1-1/2 cent maximum gross weight $236,000 (384% increase)	proposed 1 cent maximum gross weight $157,000 (222% increase)

The increase recommended by the Commission represents a 222% increase to aircraft owners in our State.

This, coupled with new Federal taxation on owners and users, is a major increase in the cost of aircraft ownership and operation and a further increase in this area does not appear reasonable.

Landing Fees

In our study we have examined landing fees as a source of revenue for the State and the local sponsor.

a. Current Landing Fees

1. Airlines -
Landing fees are levied against commercial carriers by the owners of airline airports, usually on a landing weight basis or schedule basis.

2. General Aviation -
At times, airport owners have attempted to levy a landing fee on other aircraft, but the cost of collecting such fees on an equitable basis and the adverse reaction of users has caused their practice to be largely discontinued.

3. The air carrier landing fee is the local government's principle source of developing airport operating revenues. For example, $46,066.00, or 38.3% of revenues generated at Capital City Airport are derived from landing fees.

b. Our findings indicate that:

1. It would be feasible to administer and collect a State landing fee on scheduled aircraft.

2. It would be neither administratively or economically feasible to collect a State landing fee on non-scheduled aircraft.

3. Since the landing fee on scheduled carriers is the principle source of local operating revenue, strenuous opposition to a State-imposed landing fee may be expected from local government.

4. To develop significant new revenues, the level of a State-imposed landing fee would greatly exceed the average fee currently levied.

5. Addition of a State fee would place Michigan airports in a non-competitive position with neighboring states.

6. Excessive landing fees are a strong deterrent to increased frequency of schedules.

On the basis of this study, this source does not appear suitable for additional revenue.

Airline Ticket Tax

A great deal of effort was expended in exploring this possible source. Table XII was developed and utilized in this study.

It may be noted, from this table, that an estimated $173.7 million is generated annually in passenger ticket sales involving approximately 2.4 million enplaning passengers, averaging $73.00 per ticket. A similar table, concerning freight shipments, indicated a gross revenue development of approximately $21.7 million annually.

Thus,

1. A $1.00 ticket tax would produce $2.4 million annually.

2. A 2% ticket tax would generate approximately $3.5 million annually.

3. A 2% freight waybill tax would generate approximately $500,000 annually.

It is obvious that significant revenue increases could be generated by this source. Furthermore, the base would be broad enough so that the tax on any one individual would not be burdensome.

This method of taxation has been attempted in other states-- New Hampshire, Wyoming, New Jersey and others. However, the courts have held that the methods used were in conflict with the Interstate Commerce laws and, therefore, unlawful.

Assistance from the Michigan Attorney General's office was requested in an effort to find a method that would be considered legal. Up to the point of this writing, that office has not been able to come up with an appropriate solution.

Assistance from the Michigan Attorney General's office was requested in an effort to find a method that would be considered legal. Up to the point of this writing, that office has not been able to come up with the appropriate solution.

Therefore, this approach is currently not available to us. However, we feel that the potential of this source far exceeds that of any other user tax source.

Fuel Tax

This area of taxation was examined in great detail. Factors considered important in conducting this study were:

a. Current taxation -

State of Michigan as compared to other states, particularly bordering states. Michigan is one of 16 states that levies a tax on aviation fuel. Michigan's current return from this source exceeds that of any other state. Comparing Michigan's tax rate with adjacent states:

Michigan (1)	1-1/2¢ to 3¢
Ohio	None
Illinois	None
Wisconsin	None
Indiana	None
Pennsylvania (2)	1¢ to 1-1/2¢
Minnesota (3)	1/2¢ to 5¢

(1) Tax amounts to 1-1/2¢ net to the airlines; 3¢ to all other civil users.
(2) 1¢ on jet fuel; 1-1/2¢ on aviation gasoline.
(3) Tax varies depending upon volume purchased in the State.

In 1969-70, Michigan fuel tax developed the following revenues:

Air Carrier	$2,713,000
General Aviation	843,000
Total	$3,556,000

b. Federal and local taxes imposed on aviation fuel -

In July, of this year, Congress imposed a Federal tax of 7¢ per gallon on all civil aviation fuel except that utilized by commercial aviation. At the same time, it eliminated the 2¢ Federal tax on aviation gasoline used by commercial aviation.

Local taxes, in the form of flowage fees, ranging from 3¢ to 5¢ per gallon, are currently imposed on non-scheduled air carrier fuel at a significant number of Michigan airports.

c. Equitability of a fuel tax -

The current State tax contains certain inequities:

1. Provides for a refund to interstate carriers, but not to other users.

2. Fuel usage is not a completely accurate measure of system usage or benefits derived, i.e.;

	% of passengers enplaned	% of landings	% of fuel tax revenue contributed
Airline "A"	17.5	38.8	5.7
Airline "B"	24.0	12.9	35.9
Airline "C"	15.2	10.7	8.3

d. Ability of industry to absorb tax -

The aviation industry, as a whole, has been severely hurt by the current economic recession. Both State and National press sources have recently reported that the scheduled airlines are in their deepest financial trouble since the late 1950's. The airline industry is faced with both a rate increase and a reduction in schedules.

Total airline profits show large reductions in 1969 and a number of companies have reported deficits for the first half of 1970. According to the press, there are two main reasons for this financial trouble: (1) The industry is striving to serve new routes on a large scale; (2) The expense of the new airline equipment is, at least at present, running far ahead of flight revenues.

In 1969 the Civil Aeronautics Board granted the airlines $300 million in fare increases. Today, the airlines are again requesting fare increases of 4% to 10% on domestic flights. In addition, the airlines have already announced schedule reductions.

Passenger traffic is rising in the United States, as a whole, but the critically important "load factor" -- percentage of seats occupied -- is dropping. Passenger traffic, in Michigan, has also been affected in that the growth has not been as great in 1969 or 1970 as it has been in the 5 or 6 years preceding.

General aviation has also been affected by a downturn of economic conditions. Table XIII shows operations for 6 months ending June 30, 1970 as compared with the 6 month period ending June 30, 1969. Note that over one-half the airports, with control towers, in Michigan, showed decreases in number of operations in that period. Most of this decrease in number of operations

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results from a drop-off in general aviation activity. The decrease is in both itinerant operations which are made up primarily of business trips and local operations which reflect instructional activity.

Consideration of these various factors leads us to certain basic observations and conclusions. Michigan's immediate neighbors - Ohio, Illinois, Wisconsin and Indiana - have no state tax on aviation fuel. Pennsylvania and Minnesota - the other two states in the immediate area - have a tax rate less than that imposed by Michigan. Considering the Federal tax of $.07 per gallon and local flowage fees, taxation of non-commercial aviation fuel is reaching the saturation point.

It is, therefore, concluded that in view of the competitive position that Michigan must maintain, with respect to its neighboring states, and considering the present tax level on aviation fuel, it is not reasonable to attempt to secure significant increases in revenues from this source.

In consideration of the inequities mentioned in the existing fuel tax system, a study was made to determine whether or not the tax system could be modified and a better distribution of user contributions accomplished.

Proposed Fuel Tax Schedule

Numerous methods were explored and the following procedure appeared worthy of further consideration:

1. Increase the basic tax on aviation fuel to $.04 per gallon.

2. Eliminate the present 1-1/2¢ refund to scheduled interstate carriers.

3. Establish a sliding scale tax based on volume purchase, as follows:

0 - 100,000 gallons	4¢
100,001 - 1,000,000 gallons	3-1/2¢
1,000,001 - 35,000,000 gallons	1-1/2¢
35,000,001 - 60,000,000 gallons	1¢
60,000,001 - over	1/2¢

Table XIV presents an analysis of the above schedule based on the total aviation fuel purchased in the State in the 1969-70 period and, also, a projection on the estimated effects of such a schedule on projected 1975 aviation fuel. A study of the chart reveals the following:

1. The maximum increase to any of the scheduled carriers serving the State would be $20,500 annually. (Column 4)

2. Based on the 1969-70 fuel purchases, one carrier's tax liability would be reduced by $98,000 -- another by $770. (Column 4)

3. Based on 1969-70 purchases, tax revenues to the State would be increased by approximately $407,000. (Column 4)

4. Projecting fuel purchases to 1975, based on the air carrier average growth factor over the past five years of 183% and 115% for general aviation, the maximum added cost to any carrier would still be $20,500. (Column 8) However, four of the major carriers would show reductions in fuel tax if paid under the proposed rate as compared to the existing rate. (Column 8) This would result in an approximate $1.2 million reduction in state revenues in 1975, based on the proposed tax schedule. (Column 8)

5. A projection, based on 100% increase of fuel purchases for the air carrier section and 115% increase in general aviation, which probably is a more realistic projection, was also made. (Column 9) Four carriers would show a reduction in payments and the net revenue to the State would be approximately $185,000 less. (Column 12).

Of particular significance, we believe, is the fact that Michigan's fuel tax rate appreciatively exceeds that of its neighboring states and that there will be an increased tendency on the part of the air carriers to purchase fuel elsewhere if the present tax rate is continued. We feel this is particularly applicable to those purchasing large volumes of fuel in the State. It is our belief, therefore, that by providing a lower tax rate at the high volumes will establish a better climate for fuel purchases in the State and increased volume might be expected. This factor may result in greater net revenues to the State than if the present tax rate were continued.

We believe the proposed fuel tax schedule would tend to more equitably distribute the costs of developing the air transportation system in the State among the air carriers and, also, would tend to make the payments made by the air carrier section and the general aviation section more equitable percentage-wise compared to the estimated cost requirements of developing the system. (Our estimate of development cost or the split of development costs between air carrier and general aviation systems first would be 67% vs. 33%, while the present tax result in airline contribution is 76% and general aviation 24% of revenue. Using the projection based on a 100% increase in fuel purchased over the next five years and adding to this an anticipated registration fee paid by general aviation, the tax revenue split would be 65% air carrier and 35% general aviation.)

General Fund Monies

One of our assumptions, stated earlier, is that the air transportation system provides a general public benefit and should receive an appropriate amount of financial support from the general public.

Certainly any company engaged in a profit-making business and every gainfully employed individual receives a benefit from a well-developed transportation system. The degree of success of every business and the economic future of every individual is directly related to the economic climate of the area in which the business and individuals are located. Without adequate transportation facilities, the economic climate would, indeed, be adverse.

Since the majority of all scheduled intercity passenger traffic today is carried by air and that freight movement by air is growing at a tremendous rate, air transportation must be considered essential to any total transportation system.

Therefore, until such time as the aviation tax base has been expanded to the point that it can support the development of the system, general fund support at the State level is not only appropriate, but desirable if the State is to maintain its competitive position with other states.

Today there are a great many demands made of the State's general fund. However, since appropriations from this fund for airport development purposes should be considered in the light of capital investment, as opposed to operational expenditure, the use of General Fund monies should be considered if the State desires to expedite the development of its airport system.

It is difficult to determine the level of support that would be justified. However, we feel that it would not be unreasonable for the General Fund to provide support at the level of 20% to 25%.

On the basis of the expected availability of $4 million, annually, from user tax sources, this would require approximately $1 million from the General Fund.

Local Funds

Local airport development funds are generated, primarily, from:

1. general tax revenues
2. government bonds
3. revenue bonds
4. airport operating revenues

In most areas of the State, millage limitations have been reached with all revenues committed.

Bonding limits have been reached in many areas.

The ability to sell revenue bonds is dependent upon potential airport revenues and a great majority of our airports do not have sufficient revenue potential to support this type of financing.

Airport operating revenues depend largely on large volumes of air traffic which precludes many of our cities from counting on this source for significant revenues.

One course of action seems to offer promise; that is, expand the support base for the individual airports and provide the operating unit with a modest taxing authority. We are convinced that since an airport generally serves an area much larger than the area

encompassed by the owning entity, it will be necessary in the very near future to expand the support base. The trend will be toward county or multi-county or multi-local unit ownership and operation of airports.

It seems highly desirable that the State, by appropriate legislative action, should encourage this consolidation and provide a proper means of funding.

This might be accomplished by amending the existing State Airport Authority Act to permit the formation of airport authorities as follows:

1. One or more counties may, by action of the Board of Commissioners, form an airport authority.

2. Two or more local units of government may, by action of their governmental bodies, form an airport authority.

3. The county or local units forming the authority may levy up to 3/4 mill on real property without regard to present millage limitations for purposes of operating and developing an appropriate airport system.

This approach would provide the necessary public support for the public benefit generated by the system and because of the broad tax base and low millage, would not result in an undue burden to the taxpayer.

An analysis made, using the tax base of those local units of government proposing airport development in fiscal 1972, revealed that approximately $12 million of local funds could be made available for this program year.

Assuming this to be a typical program year and using it as a basis for future projections, the total amount of local funds over the next five years would amount to $60 million.

Reassessment of Funding Capabilities

Assuming the State and Local funding sources would be modified, as discussed, the following reassessment resulted:

	1971	1972	1973	1974	1975
Federal	$11,200,000	$ 8,000,000	$ 8,000,000	$ 8,000,000	$ 8,000,000
State	5,000,000	5,500,000	6,200,000	6,800,000	7,800,000
Local	12,000,000	12,000,000	12,000,000	12,000,000	12,000,000
Total	$28,200,000	$25,500,000	$26,200,000	$26,800,000	$27,800,000

It is recognized that the five-year total does not equal that shown on Page 4.

The above assessment was based on cash payments and considered only the tax base as a source of local funds.

When airport income and revenue bonding sources are considered, unquestionably the program could be carried out to its maximum potential.

STATE'S FINANCIAL ASSISTANCE PROGRAM FOR AIRPORT DEVELOPMENT

Presently the State Matching Program authorizes the Commission to make allocations to local units of government on a dollar for dollar matching basis. Our experience indicates that there are certain deficiencies in this method. The program does not differentiate between communities, either to their ability to develop local funds through a tax base or their ability to generate revenues through airport operations. Currently the more affluent communities and the more active airports tend to develop more rapidly than less affluent or less active areas. Their deficiencies do not lead to a balanced system; nevertheless, the development of a balanced system is considered highly essential.

Therefore, studies were undertaken to determine if a change in the formula might provide better utilization of State funds and tend to develop a more capable airport system.

In developing these studies, it was assumed that certain communities would require less than dollar for dollar matching from the State, while others would require a greater percentage of State dollars. In order to provide a system that would identify those communities theoretically able to develop more tax revenues and to identify the potential individual tax burden on each taxpayer in a specific community in relation to the development costs of an airport, the State Equalized Valuation of each local airport owner seemed to offer the best possibility.

We reviewed each community having an airport development need. First, we obtained the State's equalized valuation of the local unit of government, then divided that valuation by $1,000 units of the SEV. This gave us a factor which could be used to compare one community with another. The following examples illustrate this procedure:

City	Estimated Airport Development Cost	SEV	Cost to SEV Ratio
Alma	$ 372,900.	37,301,875 ÷ 1,000 = 37,301 units	372,900 ÷ 37,301 = 9.9
Au Gres	170,000.	2,000,586 ÷ 1,000 = 2,001 units	170,000 ÷ 2,001 = 84.9
Cadillac	962,900.	31,256,842 ÷ 1,000 = 31,256 units	962,900 ÷ 31,256 = 30.8
Detroit City	1,066,550.	5,188,215,960 ÷ 1,000 = 5,188,215 units	1,066,550 ÷ 5,188,215=.2

The above examples illustrate there is a wide variation in the burden on local taxpayers, occasioned by necessary airport development.

The airport system was then divided into two categories consisting of the primary and secondary elements -- the primary consisting, principally, of the airline and reliever airports and the secondary consisting of all other publicly-owned airports.

The following procedure was then applied to the primary system:

A graph was plotted, using the SEV factors developed for each airport starting with:

0 to 2-1/2 factor = 50%
5 = 55%
10 = 60%
20 = 65%
40 = 70%
50 & over = 75%

The maximum percentage allowable for State participation could then be computed for each airport in the primary system.

Since available State funds might not reasonably be expected to fully finance some of the more extensive projects, the constraint of $1 million was established as the maximum of State funds at any one location.

Up to this point, the procedure addressed itself to the theoretical ability of local units of government to raise tax monies to support airport development. Then, to take into consideration the revenue development capabilities of individual airports, an additional graph was developed, based on the number of enplaned airline passengers. Exclusive of Detroit Metropolitan Wayne County Airport, where traffic far exceeds that of any other airline airport in Michigan, the average passenger enplanement was approximately 50,000 passengers annually. This figure was used as the base figure and a graph was developed as follows:

Number of Enplaned Airline Passengers	Percent Factor
10,000	+80%
15,000	+70%
20,000	+60%
25,000	+50%
30,000	+40%
35,000	+30%
40,000	+20%
45,000	+10%
50,000	-----
100,000	-10%
200,000	-20%
400,000	-30%
500,000	-40%
750,000	-50%
1,000,000	-60%
1,500,000	-70%
2,000,000	-80%

The individual airline airports were then plotted on this graph and the resultant percentage figure was applied to the percentage figure developed under the SEV chart. These two factors then indicated the maximum State participation in any project. For example, Pellston had a SEV factor of 6.44, which on the graph allowed 56% State participation. In addition, Pellston had approximately 16,000 enplaned airline passengers, allowing an additional 70% of the 56%, which allows Pellston a maximum of 90% of State money toward the State and Local costs of $603,600, or $543,200. This method attempts to recognize not only ability to pay, but, also, ability to develop revenues and adjusts State assistance accordingly. State participation would range from a low of .10% to a maximum of 90%, not to exceed $1,000,000 annually at any one location.

For the secondary system, a somewhat different approach was taken. Recognizing that Federal funding available to the secondary-type airport was approximately only 1/8 that made available for the primary system, it was felt that a base for State participation should be set at 50%, with the maximum being established at 90%, or $1,000,000 - whichever was the lesser.

A graph was plotted using the SEV factor of 1 equaling 50%, graduating to 50 and over, equaling 90%.

No successful method was developed that would tend to indicate the ability of such airports to generate revenue. Therefore, in this category no consideration was given this factor. Under this procedure, it would be possible for the State to vary its percentage of contribution between 50% and 90%, depending upon tax burden placed on each individual community.

Priority for Reveiw of Airport Projects

The present system of priorities is based, primarily, on the availability of local matching funds. Since procedures discussed in this report could alter that situation, we examined priorities in an effort to assure the development of a balanced airport system. Our studies suggest the following:

Primary (Air Carrier and Reliever Airports):

1. Reliever airports
2. Regional airports
3. Airports requiring runway extension
4. Airports requiring development for increased capacity for aircraft and persons

Secondary (General Aviation Airports):

1. Communities having no publicly-owned airport
2. Communities requiring runway extension to enhance the economic development of the area
3. Communities requiring airport development for increased capacity for aircraft operations and persons
4. New replacement airports

Development Priority

1. Master planning
2. Land
3. New airport
    I. Paved airports
        a. Runway, taxiway, apron and lighting
        b. Terminal building and service facilities
        c. Landing aids
    II. Sod airports
        a. Runway, aircraft parking area
        b. Terminal shelter and service facilities
4. Runways, taxiways, or aprons (new or extensions)
5. Terminal buildings, parking, entrance road
6. Lighting systems
7. Fire and crash building
8. Landing aids
9. Hangar area development
10. Field maintenance equipment buildings

It appears that such a procedure would provide for a more equitable distribution of State funds and would assure a more rapid development of a balanced system of airports.

SUMMARY OF CONCLUSIONS

1. Based on our examination of various present user tax sources, we conclude that with the exception of a direct passenger and freight tax, or a ticket or waybill tax, this source does not provide a sufficient base upon which additional tax increases may be reasonably levied and, unless this base can be expanded, it cannot reasonably be expected to provide significant additional revenue.

2. If revenue from present user tax rates continues to grow at a 15 - 20% annual rate and if these revenues are supplemented by the General Fund, or local airport authorities are authorized to apply a modest millage levy, sufficient State and Local revenues will be available to complete the plan within 10 years.

3. Since Federal funds for matching purposes in the next 10 years equals all the Federal dollars received in Michigan for airport development in the last 20 years, more matching State and Local dollars will be needed.

4. Present availability of state and local funds will be sufficient to utilize available Federal funds. However, balanced system development would not be assured.

5. If a legal means can be found to assess a tax to the airline passenger and freight, the development of the airport system can be substantially expedited.

6. Consideration should be given to modifying the existing fuel tax structure to:
   a. Provide a more equitable distribution of the tax burden among the air carriers.
   b. More nearly equalize the tax payments between air carriers and general aviation with respect to system needs.
   c. Establish a better climate for volume purchases of fuel in the future.
   d. Assure a more stable tax return if aviation fuel purchases should taper off.

RECOMMENDATIONS

1. Legislation be sought that would:

   a. Modify the fuel tax structure as indicated in this report.

   b. Permit the Aeronautics Commission to participate with local units up to 90% of local costs or $1 million, whichever is the lesser.

   c. Amend existing airport authority laws to permit formation of authorities by single counties or two or more political subdivisions and provide a 3/4 mill taxing authorization by action of local entities forming an authority.

   d. Provide for General Fund support to the State Aeronautics Fund in the amount of $1 million annually until local units have had sufficient time to form airport authorities.

2. A major study be undertaken to determine ways and means that the State taxing structure be expanded to include air passengers and freight.

APPENDIX

TABLE I

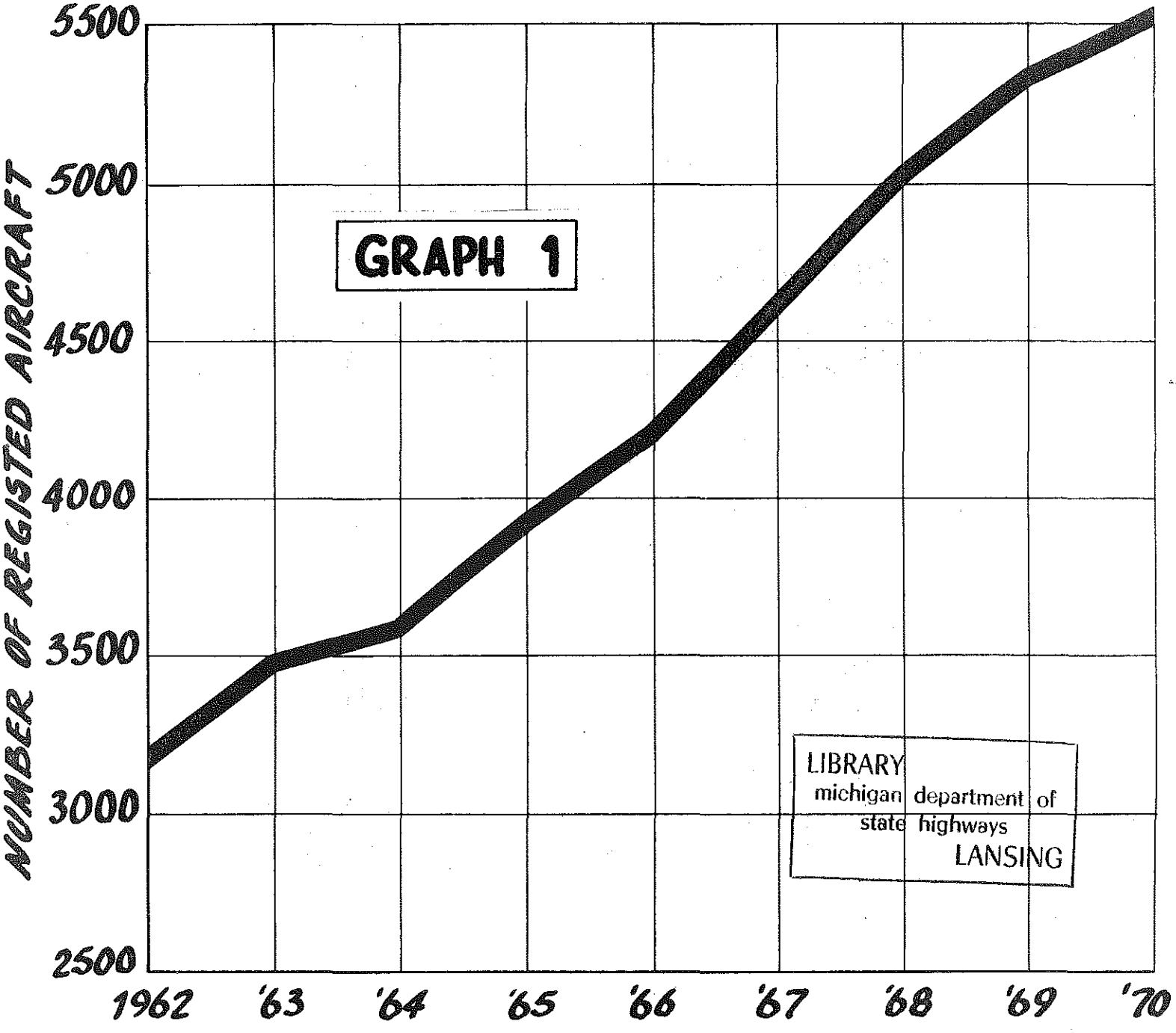
REGISTERED AIRCRAFT

	Michigan	Michigan % of United States	United States
1953	2,359	3.86	61,040
1957	2,833	4.27	66,520
1963	3,500	4.11	85,088
1965	3,943	4.13	95,442
1967	4,649	3.80	122,200
1980	*10,000	*4.03	*260,000

*Forecast

SOURCE: R. D. Speas, The Magnitude and Economic Impact of General Aviation; Michigan Aeronautics Commission, Aircraft Registration Records.

STATE OF MICHIGAN
REGISTERED AIRCRAFT



SOURCE: Registration Records
Michigan Aeronautics Commission

Prepared By The Engineering Division
MICHIGAN AERONAUTICS COMMISSION
DEPARTMENT OF COMMERCE

TABLE II

TOWER AIRPORTS

Total Number of Operations for the Calendar Year Ending December 31, 1969 and Percentage Increases Over the Calendar Year Ending December 31, 1964

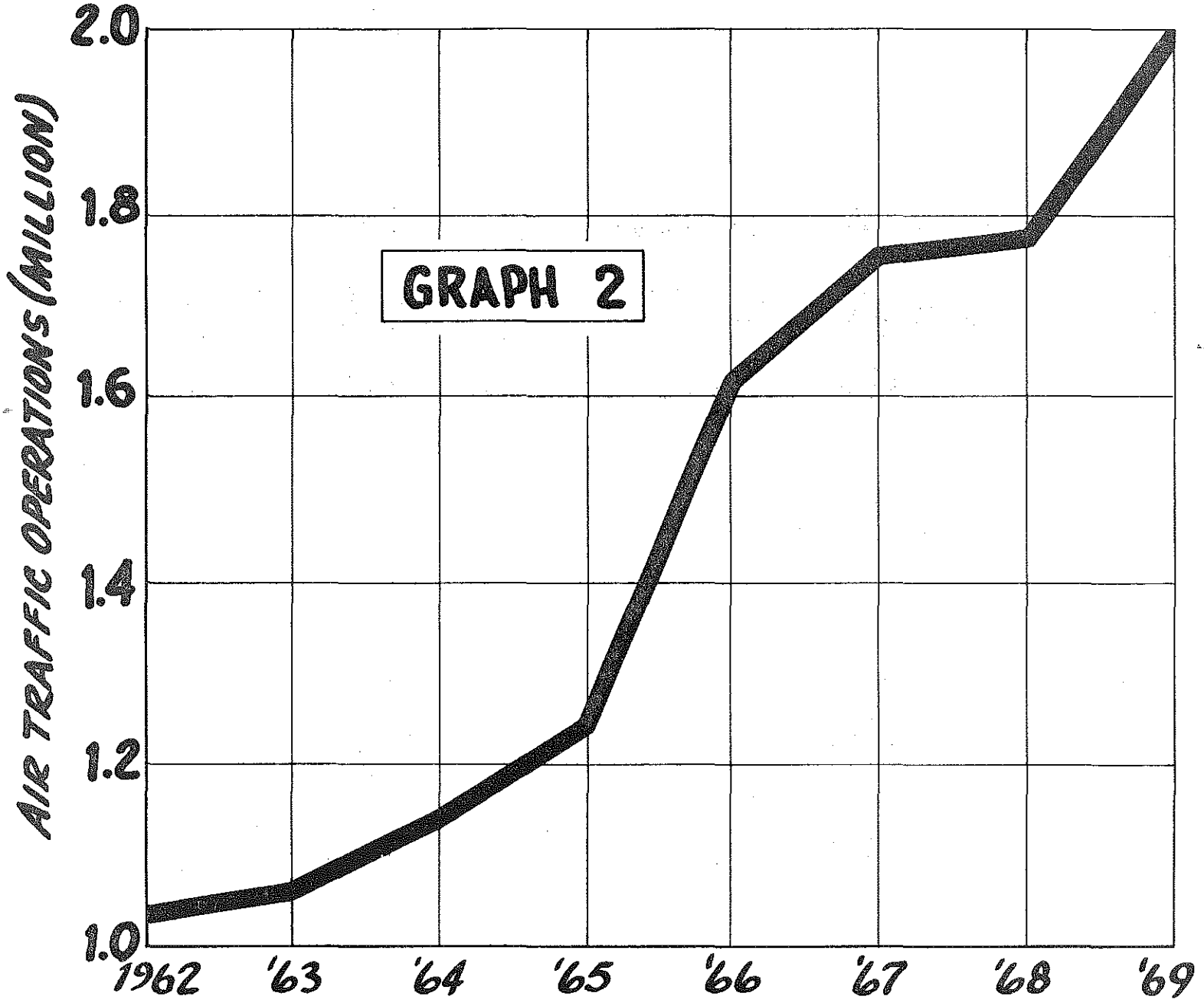
AIRPORT	LOCATION	1964	1969	% Increase
W. K. Kellogg Regional Airfield	Battle Creek	47,738	98,122	106
Detroit City Airport	Detroit	195,479	254,925	30
Detroit Metropolitan Wayne County	Detroit	191,869	301,837	57
Detroit Willow Run	Detroit	127,683	194,429	52
Bishop Airport	Flint	80,855	197,409	144
Tri-City Airport	Freeland	*	103,237	
Kent County Airport	Grand Rapids	96,734	152,439	58
Reynolds Municipal Airport	Jackson	42,678	71,700	68
Kalamazoo Municipal Airport	Kalamazoo	55,626	138,477	149
Capital City Airport	Lansing	119,867	173,859	45
Muskegon County Airport	Muskegon	61,205	98,417	61
Oakland-Pontiac Airport	Pontiac	115,127	237,582	106
		1,134,861	2,022,433	78

*The Control Tower at Tri-City Airport was Commissioned by the Federal Aviation Administration in 1966.

SOURCE: FAA, MONTHLY SUMMARY, AIRPORT TOWER OPERATIONS, 1964-1969

PREPARED BY: Engineering Division, Michigan Aeronautics Commission

STATE OF MICHIGAN
TOTAL AIR TRAFFIC OPERATIONS
12 CONTROL TOWER AIRPORTS



SOURCE: Air Traffic Activity Statistics
Federal Aviation Administration

Prepared By The Engineering Division
MICHIGAN AERONAUTICS COMMISSION
DEPARTMENT OF COMMERCE

TABLE III

ESTIMATED AIRCRAFT OPERATION

	CITY	AIRPORT	MONTHS COUNTED	NUMBER OF MONTHS	YEAR	ESTIMATED YEARLY OPERATIONS		
						Local	Itinerant	TOTAL
1.	Allegan	Padgham Field	July-Sept.	3	1967	7,212	4,122	12,000
2. (a)	Ann Arbor	Municipal	April-Dec.	9	1967	75,487	39,909	115,397
(b)			Jan.-June	6	1968	76,128	40,247	116,375
3.	Bay City	James Clements	April-May	2	1968	13,842	7,318	21,161
4.	Bellaire	Antrim County			1969			
5.	Benton Harbor	Ross Field	April-June	3	1967	51,537	27,247	78,780
6.	Birmingham	Berz	April-June	3	1967	60,567	32,021	92,590
7.	Cadillac	Municipal	July-Aug.	2	1969	10,680	5,646	16,326
8.	Charlevoix	Charlevoix	August	1	1969	10,890	5,757	16,647
9. (a)	Escanaba	Municipal	May-June	2	1968	11,734	7,204	17,938
(b)			May-July	3	1969	15,202	8,037	23,239
10.	Fraser	McKinley	April-June	3	1967	20,467	10,820	31,287
11.	Gaylord	Otsego County	Aug.-Oct.	3	1967	6,552	3,464	10,016
12.	Houghton-Hancock	Houghton County Memorial	May-Oct.	6	1969	10,020	5,297	15,318
13.	Houghton Lake	Roscommon County	Feb.-Oct.	9	1968	11,975	7,735	19,710
14.	Howell	Livingston County	Feb.-July	6	1968	13,066	6,907	19,973
15.	Iron Mountain	Ford	May-July	3	1969	11,656	6,162	17,818

(Cont'd)

SOURCE: Traffic Counters
Michigan Aeronautics Commission

Prepared By The Engineering Division
MICHIGAN AERONAUTICS COMMISSION
DEPARTMENT OF COMMERCE

CITY		AIRPORT	MONTHS COUNTED	NUMBER OF MONTHS	YEAR	ESTIMATED YEARLY OPERATIONS		
						Local	Itinerant	TOTAL
16.	Irorwood	Gogebic County	May-Sept.	5	1969	10,649	5,628	16,276
17. (a)	Mackinac Island	Mackinac Island	June-Sept.	4	1967		11,947	11,947
(b)			June-Aug.	3	1968		10,426	10,426
(c)			July-Sept.	3	1969		16,820	16,820
18. (a)	Manistee	Manistee County Blacker	Aug.-Oct.	3	1968	10,510	5,556	16,066
(b)			July-Aug.	2	1969	11,689	6,180	17,869
19. (a)	Manistique	Schoolcraft County	March-Oct.	8	1968	3,737	1,976	5,713
(b)			July-Oct.	4	1969	4,974	2,629	7,604
20. (a)	Marquette	Marquette County	August	1	1968	24,392	12,896	37,288
(b)			September	1	1969	25,522	12,962	37,487
21.	Menominee	Menominee County	June-Oct.	5	1969	18,259	9,653	27,912
22.	Midland	Jack Barstow	August	1	1969	15,813	8,360	24,173
23.	Monroe	Custer			1969			
24.	Mount Pleasant	Municipal	July-Aug.	2	1967	17,589	9,299	26,888
25.	Newberry	Luce County	July-Oct.	4	1969		3,178	3,178
26.	Ontonagon	Ontonagon County	May-Oct.	6	1969	1,647	870	2,517
27.	Plymouth	Mettetal	July-Sept.	3	1967	112,891	59,683	172,575
28. (a)	St. Ignace	Mackinac County	June-Oct.	5	1967	5,378	2,843	8,222
(b)			August	1	1969	9,959	5,265	15,224
29.	Salem	Salem	August	1	1969	8,837	4,672	13,509
30. (a)	Sault Ste. Marie	Municipal	April-Nov.	8	1967	7,781	4,181	12,089
(b)			May-July	3	1968	12,488	6,600	19,088
31.	Sturgis	Kirsch Municipal	July-Aug.	2	1969	20,375	10,772	31,147
32.	Traverse City	Municipal	Aug.-Oct.	3	1968	33,044	17,469	50,513

TABLE IV

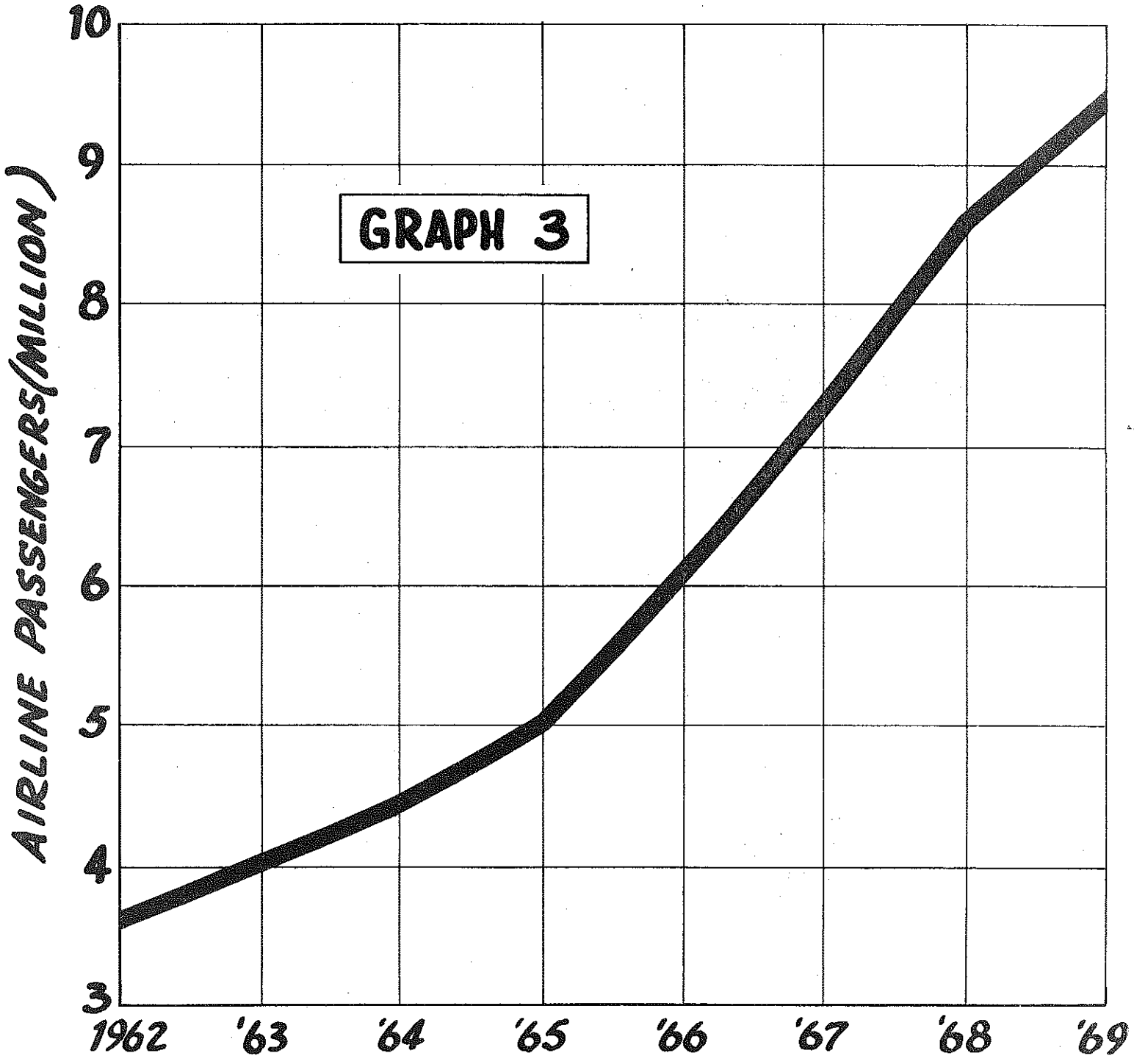
TOTAL NUMBER OF AIRLINE PASSENGERS

Airport	City	1962	1969	% Increase 1962-1969
Phelps-Collins Airport	Alpena	4,050	11,918	194%
W. K. Kellogg Regional Airfield	Battle Creek	28,320	70,852	150%
Ross Field	Benton Harbor	14,444	43,212	199%
Detroit Metro	Detroit	2,886,134*	7,563,598*	162%
Escanaba Municipal	Escanaba	9,602	23,935	149%
Bishop Airport	Flint	45,180	178,319	295%
Tri-City	Freeland	96,310	312,366	224%
Kent County Airport	Grand Rapids	200,636	444,732	122%
Houghton County Memorial Airport	Hancock	11,434	35,521	211%
Ford Airport	Iron Mountain	10,840	22,875	111%
Gogebic County Airport	Ironwood	4,964	14,393	190%
Reynolds Municipal Airport	Jackson	5,158	11,414	121%
Kalamazoo Municipal Airport	Kalamazoo	50,286	124,734	148%
Capital City Airport	Lansing	90,746	263,590	190%
Manistee County-Blacker	Manistee	4,268	8,252	93%
Marquette County Airport	Negaunee	19,190	43,939	129%
Menominee County Airport	Menominee	6,530	17,171	163%
Muskegon County Airport	Muskegon	54,382	127,722	135%
Emmet County Airport	Pellston	16,222	32,304	99%
Sault Ste. Marie Municipal	Sault Ste. Marie	13,108	20,459	56%
Traverse City Municipal	Traverse City	26,224	69,901	167%
	TOTAL	3,598,028	9,441,207	163%

*The 1962 Detroit total includes passenger figures from Willow Run, Metro and City Airports. The 1969 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 1969.

STATE OF MICHIGAN
AIRLINE PASSENGERS



SOURCE: Airline Records
Michigan Aeronautics Commission

Prepared By The Engineering Division
MICHIGAN AERONAUTICS COMMISSION
DEPARTMENT OF COMMERCE

TABLE V

TOTAL POUNDS OF AIRLINE CARGO
(Enplaned)

Airport	City	1962	1969	% Change 1962-1969
Phelps-Collins Airport	Alpena	43,070	134,150	+ 211
W. K. Kellogg Regional Airfield	Battle Creek	129,976	412,363	+ 217
Ross Field	Benton Harbor	267,383	452,747	+ 69
Detroit Metro	Detroit	71,901,200*	174,466,423*	+ 143
Escanaba Municipal	Escanaba	40,225	94,183	+ 134
Bishop Airport	Flint	763,607	1,935,907	+ 154
Tri-City	Freeland	808,005	1,778,312	+ 120
Kent County Airport	Grand Rapids	2,010,535	5,379,207	+ 168
Houghton County Memorial	Hancock	19,358	219,057	+1032
Ford Airport	Iron Mountain	51,742	258,453	+ 400
Gogebic County Airport	Ironwood	4,946	65,081	+1216
Reynolds Municipal Airport	Jackson	173,903	137,582	- 21
Kalamazoo Municipal Airport	Kalamazoo	732,682	2,310,885	+ 215
Capital City Airport	Lansing	564,739	2,039,787	+ 261
Manistee County-Blacker	Manistee	43,818	79,628	+ 82
Marquette County Airport	Negaunee	27,429	92,655	+ 238
Menominee County Airport	Menominee	48,948	265,328	+ 442
Muskegon County Airport	Muskegon	797,465	2,358,827	+ 196
Emmet County Airport	Pellston	90,746	116,243	+ 28
Sault Ste. Marie Municipal	Sault Ste. Marie	22,677	71,788	+ 217
Traverse City Municipal	Traverse City	90,356	468,863	+ 419
		78,632,809	193,137,469	+146%

*The 1962 Detroit total includes cargo figures from Willow Run, Metro and City Airports. The 1969 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 1969.

TABLE VI

ACTIVE AIRMEN

	United States	Michigan	Michigan % of United States
1957	309,212	--	--
1960	348,062	4,648	1.33
1963	378,700	5,916	1.56
1965	479,770	8,379	1.74
1967	617,098	10,393	1.68
1980	*1,415,000	*22,000	*1.58

*Forecast

SOURCE: R. D. Speas, The Magnitude and Economic Impact of General Aviation; Michigan Aeronautics Commission, Airmen Registration Records.

TABLE VII

% HOURS FLOWN BY PURPOSE - UNITED STATES

	Business	Commercial	Instructional	Personal	Other	Total
1953	42.52	19.33	14.63	21.64	1.88	100
1957	44.46	18.40	17.04	19.28	.82	100
1963	37.99	20.99	16.00	24.00	1.02	100
1965	35.00	20.00	19.99	24.02	.99	100
1967	34.70	17.80	24.20	22.37	.93	100
1980*	31.89	20.81	23.45	22.92	.91	100

*Forecast

SOURCE: R. D. Speas, The Magnitude and Economic Impact of General Aviation.

TABLE VIII

% HOURS FLOWN - MICHIGAN

	Business	Commercial	Instructional	Personal	Other	Total
1962	35.19	6.12	15.83	39.44	3.42	100
1964	37.84	8.24	13.98	38.35	1.59	100

SOURCE: Michigan Aeronautics Commission, FACT FINDER SURVEYS, 1962 and 1964

TABLE IX

FEDERAL AID TO AIRPORTS BETWEEN 1948 - 1968

	Total	Federal	Sponsor	Number of Airports
United States	$2,163,815,000	$1,073,655,000	$1,090,159,000	2,251
Michigan	$ 79,792,000	$ 34,211,000	$ 38,761,000	71

SOURCE: FAA Statistical Handbook, 1968, Page 16, Table 2.11

TABLE X

GENERAL AVIATION DELIVERIES THROUGH THE 1960's

	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	Total or Average
INDUSTRY TOTALS (as reported by Utility Airplane Council for member companies)											
Number Planes	7,588	6,811	6,723	7,603	9,371	11,967	15,747	13,577	13,698	12,457	105,542
Average Billing	$19,900	$18,249	$20,645	$20,176	$21,225	$26,631	$25,922	$26,488	$30,770	$46,918	$ 27,069
Billings (millions)	$151.2	$124.3	$136.8	$153.4	$198.9	$318.7	$408.2	$359.6	$421.5	$584.4	$2,857.0

In 1960, 966 of the aircraft built were twin engine as compared with 2,419 built in 1969. This increase in the number of twin engine aircraft is a good indicator of the increase in business usage, since most twin engine airplanes are owned and used solely for business purposes.

TABLE XII
ANALYSIS OF AIRLINE TICKET PURCHASES IN MICHIGAN, 1968

City	DOMESTIC Number of Pass. Miles in Sample	DOMESTIC Yield Per Pass. Mile	DOMESTIC Yield	DOMESTIC Annual (Yield x 10)	INTERNATIONAL Number of Pass. Miles in Sample	INTERNATIONAL Yield Per Pass. Miles	INTERNATIONAL Yield	INTERNATIONAL Annual (Yield x 10)	TOTAL Total Annual Yield	TOTAL Tickets in Sample	TOTAL Annual Tickets (Sample x 10)	TOTAL Annual Yield Per Ticket
Alpena	344,261	.0561	$ 19,313	$ 193,130	32,819	.0495	$ 1,625	$ 16,250	$ 209,380	411	4,110	$ 50.94
Battle Creek	2,633,818	.0561	147,757	1,477,570	198,165	.0495	9,809	98,090	1,575,660	2,451	24,510	64.29
Benton Harbor	1,782,225	.0561	99,982	999,820	172,602	.0495	8,543	85,430	1,085,265	1,539	15,390	70.52
Detroit	214,412,861	.0561	12,028,555	120,285,550	38,727,790	.0495	191,702	1,917,020	139,455,814	180,017	1,800,170	77.47
Escanaba	633,224	.0561	35,523	355,230	22,866	.0495	1,131	11,310	366,557	740	7,400	49.53
Flint	6,757,656	.0561	379,104	3,791,040	483,462	.0495	23,931	239,310	4,030,358	5,871	58,710	68.65
Grand Rapids	14,287,709	.0561	801,540	8,015,400	1,234,666	.0495	61,115	611,150	7,626,564	14,090	140,900	54.13
Houghton	779,889	.0561	44,873	448,730	42,676	.0495	2,112	21,120	469,862	958	9,580	49.05
Iron Mountain	667,973	.0561	37,473	374,730	35,072	.0495	1,736	17,360	392,093	893	8,930	43.91
Ironwood	466,254	.0561	26,156	261,560	23,528	.0495	1,164	11,640	273,215	500	5,000	54.64
Jackson	461,640	.0561	25,898	258,980	18,052	.0495	893	8,930	267,915	536	5,360	49.98
Kalamazoo	4,555,576	.0561	255,567	2,555,670	478,971	.0495	23,709	237,090	2,792,768	4,538	45,380	61.84
Lansing	9,196,793	.0561	515,940	5,159,400	681,417	.0495	33,730	337,300	5,496,702	8,655	86,650	63.44
Manistee	249,889	.0561	14,018	140,180	27,320	.0495	1,352	13,520	153,711	296	2,960	51.93
Menominee	489,464	.0561	27,458	274,580	35,821	.0495	1,773	17,730	292,230	599	5,990	48.80
Marquette	1,250,287	.0561	70,141	701,410	35,754	.0495	1,769	17,690	719,109	1,512	15,120	47.56
Pellston	795,826	.0561	44,645	446,450	55,428	.0495	2,743	27,430	473,894	951	9,510	49.84
Saginaw	11,041,377	.0561	619,421	6,194,210	919,042	.0495	45,492	454,920	6,649,138	9,412	94,120	70.65
Sault Ste. Marie	803,238	.0561	45,061	450,610	12,345	.0495	611	6,110	456,727	802	8,020	56.95
Traverse City	1,605,700	.0561	90,079	900,790	84,097	.0495	4,162	41,620	942,425	1,994	19,940	47.26
TOTALS	273,235,660		$15,328,504	$153,285,040	43,322,993		$2,144,425	21,444,280	$173,729,495	236,775	2,367,750	*$ 73.32
												**$ 60.38

*This is the average for the State, including Detroit which accounts for 80% of Michigan's airline business and because this is a weighted average, this boosts the average and distorts it.

**This is the average of all airline airports in Michigan minus Detroit.

SOURCE: These figures were derived from Air Carrier Financial Statistics and Summary of Traffic Generation compiled by the Civil Aeronautics Board, 1968.

TABLE XIII

CONTROL TOWER OPERATIONS

Location	Operations 6 Months Ending June 30, 1969	Operations 6 Months Ending June 30, 1970	Percent Change
Battle Creek	48,195	40,300	-16.38
Detroit (City)	118,416	112,721	-4.80
Detroit (Metro)	144,260	148,870	+3.19
Detroit (Willow Run)	89,187	96,067	+7.71
Flint	93,473	96,063	+2.77
Freeland	52,594	44,350	-15.67
Grand Rapids	71,900	70,365	-2.13
Jackson	34,534	31,631	-8.40
Kalamazoo	63,096	70,670	+12.00
Lansing	89,511	80,432	-10.14
Muskegon	49,030	45,501	-7.19
Pontiac	116,406	119,369	+2.54
TOTAL	970,602	956,339	-1.46

SOURCE: FAA Control Tower Counts, 1969 and 1970

TABLE XIV
ANALYSIS OF FUEL TAX REVENUE

AIRLINE	(1) TOTAL GALLONS 1969-1970	(2) PRESENT TAX	(3) PROPOSED TAX	(4) DIFFERENCE (3)-(2)	(5) * TOTAL GALLONS 1975	(6) PROJECTED TAX-1975 PRESENT RATE	(7) PROJECTED TAX-1975 PROPOSED RATE	(8) DIFFERENCE (7)-(6)	(9) **TOTAL GALLONS 1975	(10) PROJECTED TAX-1975 PRESENT RATE	(11) PROJECTED TAX-1975 PROJECTED RATE	(12) DIFFERENCE (11)-(10)
		$	$	$		$	$	$		$	$	$
A	19,308	290	790	+ 500	55,000	825	2,200	+ 1,375	38,616	580	1,545	+ 965
B	84,955	1,274	3,374	+ 2,100	240,000	3,600	8,900	+ 5,300	169,910	2,548	6,448	+ 3,900
C	1,387,779	20,820	41,320	+ 20,500	3,927,000	58,900	79,400	+ 20,500	2,775,558	41,634	62,134	+ 20,500
D	58,825,451	882,382	784,382	- 98,000	166,476,000	2,497,100	1,328,000	-1,169,100	117,650,902	1,764,764	1,083,755	-681,009
E	1,373,871	20,600	41,100	+ 20,500	3,888,000	58,300	78,800	+ 20,500	2,747,742	41,633	62,133	+ 20,500
F	36,744	551	1,451	+ 900	103,000	1,545	3,600	+ 2,055	73,488	1,102	2,940	+ 1,838
G	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-
H	21,146,472	317,197	337,697	+ 20,500	59,845,000	897,000	793,000	- 164,000	42,292,944	634,394	618,429	- 16,000
I	7,846,499	117,697	138,197	+ 20,500	22,206,000	333,000	353,500	+ 20,500	15,692,998	235,400	255,900	+ 20,500
J	2,576,357	38,645	59,145	+ 20,500	7,291,000	109,000	129,500	+ 20,500	5,152,714	76,500	97,000	+ 20,500
K	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-
L	3,193,762	47,906	68,406	+ 20,500	9,038,000	136,000	156,500	+ 20,500	6,387,534	95,800	116,300	+ 20,500
M	10,392,131	155,802	176,302	+ 20,500	29,410,000	441,000	461,500	+ 20,500	20,784,262	311,800	332,300	+ 20,500
N	995,826	14,937	35,437	+ 20,500	2,818,000	42,000	62,500	+ 20,500	1,991,652	29,900	50,400	+ 20,500
O	20,121,295	301,819	322,319	+ 20,500	57,043,000	856,000	765,000	- 91,000	40,242,590	603,600	598,600	- 5,000
P	4,870,572	73,059	93,559	+ 20,500	13,784,000	207,000	227,500	+ 20,500	9,741,144	146,117	166,617	+ 20,500
Q	122,583	1,839	4,800	+ 3,000	347,000	5,200	12,600	+ 7,400	245,166	3,677	9,081	+ 5,404
R	6,064,610	90,969	111,469	+ 20,500	17,163,000	257,000	277,500	+ 20,500	12,129,220	181,900	202,400	+ 20,500
S	39,254,117	588,812	588,042	- 770	111,089,000	1,666,000	1,051,000	- 615,000	78,508,234	1,177,624	888,024	-289,600
T	2,622,936	39,344	59,844	+ 20,500	7,423,000	111,000	131,500	+ 20,500	5,245,872	78,700	99,200	+ 20,500
TOTAL AIRLINES	180,885,228	2,713,943	2,867,634	+153,730	512,146,000	7,680,470	5,922,500	-1,817,970	361,770,456	5,427,673	4,653,206	-774,502
GENERAL AVIATION	27,420,858	843,519	1,096,834	+253,215	*58,954,000	1,768,646	2,358,160	+589,514	58,954,000	1,768,646	2,358,160	+589,514
GRAND TOTAL	208,306,086	3,557,462	3,964,468	+406,945	571,100,000	9,449,116	8,280,660	-1,228,456	420,724,456	7,196,319	7,011,366	-184,988

PROPOSED TAX SCHEDULE

.040 to	100,000	$ 4,000
.035 to	1,000,000	$ 31,500
.015 to	35,000,000	$510,000
.010 to	60,000,000	$250,000
.005 over	60,000,000	

* A growth factor of 183% was used to project 1975 gallons of airline fuel purchased. This factor (183%) was the average growth of fuel purchases by the airlines from 1965-1970 in Michigan.

**A growth factor of 100% was used to project 1975 gallons of airline fuel purchased. This factor was slightly more than half of the average growth of fuel purchases by the airlines from 1965-1970 in Michigan.

* In both cases, a growth factor of 115% was used to project 1975 gallons of general aviation fuel purchased. This factor (115%) was the growth of fuel purchased in Michigan by general aviation from 1965-1970.