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MICHIGAN AERONAUTICS COMMISSION

GENERAL AVIATION ACTIVITY IN THE STATE OF MICHIGAN

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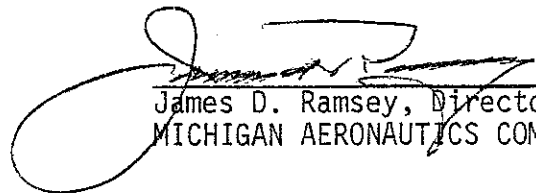
James D. Ramsey, Director

FOREWORD

This brochure, outlining the structure of the Michigan Aeronautics Commission, our State Airport Systems Plan, our total funding concept, our priority rating system for airport development projects, a brief history of the development of general aviation in Michigan and biographies of our key staff members, has been prepared for the purpose of informing the Department of Transportation of the State of Michigan's capabilities in carrying out the State Demonstration project proposed by the newly amended ADAP legislation.

This brochure does not cover all of the activities carried out by the Michigan Aeronautics Commission or its staff. We have mentioned only the data which we believe would be helpful in the evaluation of Michigan's capability in successfully carrying out the Demonstration Program for General Aviation.

This brochure should be considered as an attachment to our formal application to be selected as one of the four states to serve in this Demonstration Program.


James D. Ramsey, Director
MICHIGAN AERONAUTICS COMMISSION

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CHAPTER I

Michigan Aeronautics Commission Organization History

The 1929 Michigan Legislature, acting on a new Aviation Committee of the House of Representatives, accepted that committee's recommendation for the creation of a Board of Aeronautics. Ensuing legislation provided for a seven member Board, five to be appointed to four year terms by the Governor, with legislative approval, with the State Highway Commissioner and the Commissioner of State Police serving in an ex officio capacity.

In 1945, the Legislature enacted Public Act No. 327 and incorporated into the Bill a provision elevating the governing body to Department status. Codification of existing air laws was accomplished and membership of the Aeronautics Commission was increased to eight by the addition of the Director of the Department of Natural Resources as the third ex officio member.

This Bill also provided that the appointed Commissioners serve staggered four year terms, continuing in office until their successors were appointed. The Commission, together with the Director of Aeronautics and all employees, constituted the Michigan Department of Aeronautics.

The Executive Organization Act of 1965 established the Commerce Department as the twelfth of the nineteen principal departments on December 12, 1965. Under a Type I transfer the Department of Aeronautics became a part of the Department of Commerce and operated under its supervision and direction. The Department of Aeronautics identity changed to the Michigan Aeronautics Commission with James D. Ramsey remaining as Director. The Commission continued to exercise its prescribed statutory powers, duties, engineering functions, rule making, licensing and regulation. Budgeting, procurement and related management functions were performed under the direction and supervision of the Commerce Department.

In 1973, by Executive Reorganization Order No. 1973-1, the Governor, pursuant to Article V, Section 2 of the Constitution of the State of Michigan, established within the Department of State Highways and under the jurisdiction of the Michigan State Highway Commission the responsibilities and administration of the activities of all transportation agencies within State Government.

The statutory authority, powers, duties, functions and responsibilities of the Department of Aeronautics and the Michigan Aeronautics Commission created by Section 26 of Act No. 327 of the Public Acts of 1945, being Section 259.26 of the Compiled Laws of 1948, were transferred by a Type II transfer from the Department of Commerce to the Department of State Highways.

On March 3, 1973, by Executive Reorganization No. 1973-1A, the Governor modified his previous executive order to restore some of the statutory powers of the Michigan Aeronautics Commission.

The Michigan Aeronautics Commission is involved in all facets of the aviation industry. In particular, they allot state money for participation in capital improvements at publicly owned airports. Also, they total fund the projects which provides the total amount of money required for the project and then as the project is approved

by the FAA and a grant is issued and expenditures for the project are made, the FAA and the local sponsor pay the State for their share of the project and these payments are put back in the State General Fund.

As part of the Department of State Highways and Transportation, the Michigan Aeronautics Commission remains intact with Mr. James D. Ramsey as the Director. However, we are also known as the Bureau of Aeronautics which is one of the six Bureaus in our principal Department of State Highways and Transportation.

By virtue of the fact that we are now part of the principal Department mentioned above, we have access to the Bureau of Finance of that Department who help us in the accounting and financial control of our airport projects. In addition, we have the opportunity to take advantage of their computer system. Also, we have the right and opportunity to use the auditors and legal counsel of the Department for the control of our airport projects.

In 1970, the Department, operating under a Planning Grant from the Federal Aviation Administration and a contract with the Stanford Research Institute, started the development of a Michigan State Airport System Plan. This system plan was completed and adopted by the Michigan Aeronautics Commission and the Department in 1974.

The Michigan Aeronautics Commission commissioners are appointed by the Governor, with the exception of the Chairman of the Michigan State Highway Commission, the Director of the Michigan Department of State Police, and the Director of the Department of Natural Resources. These commissioners who are not appointed to the Michigan Aeronautics Commission by the Governor are members of the Aeronautics Commission by virtue of their office. Five of the commissioners are appointed by the Governor for a term of four years.

At the present time, the Aeronautics Commission is composed of the following personnel:

Ronald C. Heinlein, Chairman
Lynn D. Allen, O.D., Vice-Chairman
Peter H. Burgher
Mario Fontana
Britton L. Gordon

*Peter B. Fletcher, Chairman of Michigan State Highway Commission
*Colonel George L. Haverson, Director Michigan Department of State Police
*Warren W. Shapton, Chief-Lands and Water, Michigan Department of Natural Resources. Mr. Shapton was designated by the Director of the Department of Natural Resources to be his official representative on the Michigan Aeronautics Commission.

James D. Ramsey is the Director of the Michigan Aeronautics Commission and he is Deputy Director of the Bureau of Aeronautics.

John P. Woodford is the Director of the parent Department, Michigan Department of State Highways and Transportation.

*Ex Officio Members

All of the Aeronautics Commissioners appointed by the Governor and the Director of the Michigan Aeronautics Commission are pilots.

Most of the design and supervision of airport improvement projects are performed by consulting engineering firms. The Michigan Aeronautics Commission serves as agent for all the sponsors in the State.

In addition to the federal aid projects, Michigan also has a State-Local program for capital improvement projects at airports, particularly the small general aviation airports.

The Commission also has a loan program whereby the sponsor can borrow up to \$25,000 for an airport improvement project at an interest rate somewhat lower than he could obtain from a bank or other financial institution.

Historically, the State has allotted approximately \$1.6 million dollars yearly for the State's share of capital improvements at both air carrier and general aviation airports.

CHAPTER II

Biography of the Senior Staff Members of the Michigan Aeronautics Commission

Director James D. Ramsey

Mr. Ramsey is Director of the Michigan Aeronautics Commission and a Deputy Director of the Michigan Department of State Highways and Transportation. He has been a licensed pilot since 1938 and he holds commercial instructor, instrument, single and multi-engine ratings and he has logged over 14,000 hours flying time.

Mr. Ramsey is a graduate of the University of Nebraska and his entire business and administrative career has been aviation oriented. His career includes being Director of the Michigan Aeronautics Commission from 1957 until the present time. Prior to 1957, Mr. Ramsey was director of the Nebraska Department of Aeronautics from 1947 to 1956.

During World War II, he was a pilot with the United States Air Force from 1944 to 1946. Previous to his entry into the Air Force, Mr. Ramsey was a chief pilot and an assistant airport manager from 1942 to 1944.

While he was Director of the Nebraska Department of Aeronautics, he was responsible for initiating and promoting the first non-federal air navigational aid systems starting in 1953.

During the Korean War, he was a member of the Aviation Task Force "C" and he served his country in this capacity.

As Director of the Michigan Aeronautics Commission from 1957, Mr. Ramsey has excellently demonstrated his administrative ability and leadership in all phases of aviation. Under his direction, aviation in Michigan has had a tremendous growth and many improvements have occurred in the aviation industry.

As Director, he has been and still is associated with local and national aviation associations and aviation activities. He is a member and a past President of the National Association of State Aviation Officials. He is a past Vice President and Director of the Municipal Division of the American Road Builders Association. Also, he is a past member of the Civil Aeronautics Administration Aviation Advisory Committee.

Mr. Ramsey is recognized as a leader, both locally and nationally, in aviation, both air carrier and general aviation airport development. Because of this recognition, he is regularly called upon to testify before Congress committees on aviation oriented matters.

Deputy Director Ward J. Mayrand

Mr. Mayrand has been a licensed pilot since 1946 and a rated glider pilot since 1962 with more than 4,000 hours of flying time with commercial, single and multi-engine instrument ratings. He also is an instrument and glider instructor.

During World War II, he served as crew chief on cargo aircraft, C46 and C47, with the United States Air Force.

Mr. Mayrand was graduated from Radio Production Studios located in Phoenix, Arizona. He has worked in radio and television and he is an accomplished speaker and excels in public relations and dissemination of public information, particularly in aviation oriented subjects.

He has worked as an aircraft salesman for both Aero Commander and Cessna aircraft companies.

Mr. Mayrand first joined the Michigan Aeronautics Commission in 1960 as Aviation Information Supervisor. In this capacity, he did a fine job in getting the aviation information out to the general public. Along with these duties he became interested in aviation legislation and served as liaison between the Michigan Aeronautics Commission and the State Legislature and other State agencies.

In 1967, Mr. Mayrand left the Aeronautics Commission to become Executive Assistant to the Director of the Michigan Department of Commerce.

However, Mr. Mayrand's love for flying and the development of more and better airports could not keep him away from aviation; therefore, he rejoined the Michigan Aeronautics Commission in 1969 as Deputy Director of the Michigan Aeronautics Commission.

He has served as Deputy Director until the present time. He is well liked throughout the aviation industry and he has contributed tremendously to the airport development program in Michigan. He is Director Ramsey's trusted Deputy and he takes over the Director's duties when Mr. Ramsey is absent from his office.

* * * * *

Within the Michigan Aeronautics Commission there are three principal divisions besides the Executive Division, which includes the Director, Deputy Director and their secretarial staff and General Services Sections. The other divisions are the Engineering Division, Aviation Services Division and the Operations Division.

Engineering Division

This Engineering Division consists of three sections and the division is under the direction of the Chief Engineer, Darrell S. Downey.

Mr. Downey is a graduate Civil Engineer from the University of Detroit in 1950. While he was attending the University of Detroit, he was a member of Tau Beta Pi, the highest honorary fraternity for engineers, and a member of Chi Epsilon honorary civil engineering fraternity, and he graduated with honors (cum laude).

He started work with the Michigan Aeronautics Commission while still a student at the University, as an engineering draftsman. After graduation, Mr. Downey joined the Michigan Aeronautics Commission as a full time employee in 1950 as an airport engineer in charge of airport zoning and hazard control of obstructions to air navigation.

He worked his way through all phases of the functions of the Engineering Division, design of airport development projects, and project engineering control of construction projects.

In 1967, Mr. Downey was promoted to Chief of the Construction Section, and in 1975, he was promoted to Deputy Chief Engineer. In January, 1976, he was promoted to Chief Engineer where he is now serving. During World War II, he served as a navigator in the United States Air Force.

Mr. Downey has been a registered engineer for twenty years and he has served in every capacity of the engineering division in the development of airport improvement projects. He is a dedicated employee in his work and the development of the Michigan State airport system of airports required to serve the needs of the people of the State of Michigan and the nation.

Under Mr. Downey's direction, there are three sections which make up the Engineering Division.

DESIGN SECTION

This section reviews all plans for airport development projects and also does some design of airport projects. Mr. William S. Steensma heads up this section, along with the project programming and review section. Mr. Steensma has worked for the Michigan Aeronautics Commission for thirty years, primarily in the design phase of the engineering division. He is extremely capable and he knows all the engineering phases of designing an airport improvement project. Mr. Steensma has served the Commission well in his capacity of design engineer. Also, he served in the U. S. Army during World War II and later served in the Army Reserves and is retired from the Corps of Engineers.

CONSTRUCTION SECTION

Mr. William E. Gehman is the Chief Construction Engineer and heads up the Construction Section of the engineering division.

Mr. Gehman received a Bachelor of Science degree from Western Michigan University in 1965. Also, he has attended and successfully completed courses sponsored by the FAA covering the following subjects: The national aviation system, airport engineering, planning and programming, aircraft sound description system, and airport design and construction. Also, he successfully completed the Executive Development Program in September 1975, which was sponsored by the State Civil Service Commission.

Mr. Gehman is a registered professional engineer and he has a commercial pilots license, multi-engine and instrument rated. He has logged over 2,000 hours in piloting aircraft.

Mr. Gehman has ten years experience in design, construction and planning airport development projects and related facilities. He has worked for two consulting engineering firms. In 1973, he started working with the FAA at their District Office in Lansing, as their Detroit Metropolitan Airport Engineer. In this position, he was responsible for airport development projects in southeast Michigan, including Detroit Metropolitan Airport, as the FAA airport engineer representative on all facets of airport engineering, including programming, construction and the planning grant program.

Mr. Gehman joined the Michigan Aeronautics Commission in 1974 where he worked as assistant Chief of the Project Programming Section, specializing in our master planning program.

In 1975, Mr. Gehman was promoted to be Chief of the Construction Section, where he is now serving as Chief Construction Engineer and coordinates all the activities of the Construction Section.

PROGRAMMING AND PROJECT CONTROL SECTION

This section coordinates the programming of projects, controls the finances of the project, prepares the budget, and controls and analyzes the project from beginning to final closure.

Mr. Robert J. Thomas is Chief of this section. He is a former U. S. Navy Captain, retiring in July, 1973 after 20 years as a naval aviator. He has considerable management experience. Mr. Thomas has a Bachelor of Science degree in Management. Recently, he has been an active participant in the latest management sciences field, Federal-State grant delivery programs, administrative analysis techniques and consultant master planning studies.

He originated a concept and developed the initiating documents for the electronic data processing of both financial and operating information that included all statewide public transportation systems.

He is the holder of a commercial pilot, instrument rating, single and multi-engine. He has flown nearly every category of aircraft from glider to jet fighters and he has had command of a naval air station encompassing 10,000 acres, two satellite airports, and over 1,000 personnel. At the present time, Mr. Thomas is engaged in a cooperative effort with the FAA Airports District Office in the development of a proposed five year program.

ENGINEERING EMPLOYEES

The Engineering Division is staffed with 28 positions; engineers, draftsmen and secretaries. Six of the engineers are registered professional engineers. It is the largest division in the Michigan Aeronautics Commission and the employees are well grounded in the fundamentals of airport design and construction.

Operations Division

The Operations Division is made up of three sections; namely, the Air Safety Section, the Electronics Facilities Section, and the Air Transport Section.

The Division Chief is John W. Frielink. Mr. Frielink served in World War II as a combat pilot on four engine aircraft from 1942 to 1945. He also served in the Michigan National Guard from 1949 to 1967 with pilot and command responsibilities. From 1967 to 1968, he served in the United States Army Reserves and he retired in 1968 with the rank of Lt. Colonel. During Mr. Frielink's service with the Air Force, he received many decorations, including the Distinguished Flying Cross.

Mr. Frielink joined the Michigan Aeronautics Commission in 1949, serving two years as Assistant Airport Manager of the Capital City Airport, which the State owned at that time. From 1951 to 1961, he served the Commission as Aviation Safety Inspector. He was Chief of the Aviation Safety Section from 1960 to 1967. He has been Chief of the Operations Division from 1967 to the present.

He has been a FAA licensed pilot since 1944 and he is current with the following ratings: Commercial pilot, single and multi-engine land, instrument, and rotorcraft-helicopter. Also, he is a flight instructor in single and multi-engine aircraft, helicopter, and instrument airplane and helicopter.

AIR SAFETY SECTION

Under Mr. Frielink's direction, the Air Safety Section operates for the purpose of inspecting airports and flight schools, oversees the registration of aircraft and pilots, formulates and enforces the rules and regulations of the Michigan Aeronautics Commission. The Chief of this Section is Elmer W. "Bill" Graves.

Mr. Graves has been with the Commission for 14 years as an Aeronautics Supervisor and an Aviation Specialist. In his capacity as Chief of this Air Safety Section, he supervises inspection of aeronautical facilities, collects and disseminates aeronautical data, supervises the preparation and publication of the state aeronautical chart and rules and regulations of the Commission and investigates violations of Michigan aviation laws and citizen complaints. Another of his duties is to draft proposed legislation, prepare amendments to statutes, and formulates changes to the rules and regulations of the Commission.

Mr. Graves is a pilot and has the following FAA certificates:

- ATP 10,800 hours 16 years - DC-3 Martin 202-404
- Flight Instructor 18 years - Airplanes - Instrument
- Ground Inspector 18 years - Basic Advanced Instrument
- A & P 22 years - Inspection Authorization
- Designated Pilot Examiner 10 years - Private, Commercial, Instrument
- Accident Prevention Counselor 8 years

In addition, Mr. Graves has been a corporate and charter pilot, operator of a fixed-base operation, including instruction, charter and maintenance. Also, he has been a consultant for establishing maintenance technical schools. He is a graduate from Western Michigan University with a B.S. Degree in Management, legal major. In addition, he has an Associate Degree in Philosophy. He has successfully completed State Civil Service management development course and the Civil Service instructor program.

Mr. Graves has been active in civic affairs by serving on the Governor's Interagency Pesticide Advisory Committee and the Michigan Department of Education, Aviation Referent Committee.

ELECTRONIC FACILITIES SECTION

Also, under Mr. Frielink's direction, the Electronic Facilities Section explores, conducts studies, installs and maintains all of the state owned navigational aids and promotes instrument capabilities for airports where instrumentation can be justified.

Also, this section installs and maintains all the radio equipment in the State's fleet of seven aircraft, 4 twin engines and three single engine aircraft. This section is also doing research in the microwave type of instrument landing system. They have installed an interim standard microwave system at the Antrim County Airport, at Bellaire, and the system has been approved by FAA as an interim landing system.

The Chief of this section is Martin F. Schultz. Mr. Schultz has been employed by the Michigan Aeronautics Commission since 1947. He graduated from the aircraft mechanic course at Spartan School of Aeronautics in Tulsa, Oklahoma in 1946. From 1947 to 1949, he was employed as an aircraft mechanic. Starting in 1950, he provided aircraft and airborne electronic service for the State's fleet of aircraft and served in this capacity until 1960.

Starting in 1960 and continuing to the present, Mr. Schultz has been Chief of this Electronic Facilities Section. He is responsible for maintenance of avionics in all State aircraft and the installation and maintenance of State owned aeronautical navigation aids, and development of Michigan's IFR and VFR, enroute and terminal, navigation and communication system.

Also, he has been active in precision microwave system evaluation and development and he represents NASA0 on RTCA S6125 MLS implementation committee.

Mr. Schultz is a private pilot with single and multi-engine and instrument ratings. He is an aircraft and power plant mechanic. In addition, he has been certified for VHF omnirange maintenance, aircraft radio repairman with limited instrument certificate. He has a Federal Communications Commission first class radio telephone license and he will soon have his DME certificate.

AIR TRANSPORT SECTION

Another section under the Chief of the Operations Division is the Air Transport Section. This section's basic purpose is to maintain the State's aircraft fleet and transport personnel from the Michigan Aeronautics Commission and other state agencies in order for them to perform their duties.

The Chief of this Section is Dean Crane who is also Chief pilot and serves as the Governor's pilot, among his other duties. He is a commercial pilot and has all the required ratings, including instrument and flight instructor, in single and multi-engine aircraft.

Aviation Services Division

This Division is responsible for many aviation oriented services, including the statewide runway marking program for public use airports, federal surplus for publicly owned airports, aviation advisory service, and threshold marking.

The Chief of this Division is Ned T. Patterson. He has been a licensed airplane and engine mechanic since 1940. Mr. Patterson has served 36 years in the aviation industry, including 5 years in military service during World War II and 31 years with the Michigan Aeronautics Commission.

As a part of the statewide Runway Marking Program, Mr. Patterson developed a universal runway striping machine, now being sold nationally. He developed our statewide marking program whereby he periodically marks the pavements at all public use airports in the State, except Detroit Metropolitan Airport. He developed striated paint markings, which was approved by the Federal Aviation Administration in 1973 and it is now being utilized as a national and international standard. This type of painting eliminates to a great degree differential frost heaving between the black runway and the white paint and the yellow on the black taxiways.

The Federal Surplus for Publicly Owned Airports Program was initiated and developed in 1965. Eighty-nine airports have participated in this program. The value of the surplus property obtained to date for airports in Michigan is estimated at \$6,417,987.00.

Mr. Patterson is also in charge of a program to standardize all leases, field rules and regulations and he advises airport management in areas of airport operations. In addition, he is involved in a program to mark all publicly owned, private, public use sod airports, determine the length and width of usable runway, establish clear zone and mark with 24" plastic cones. These plastic cones were developed by the Michigan Aeronautics Commission and they are now being considered by the Federal Aviation Administration for use in other states.

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There are sixty-eight employees of the Michigan Aeronautics Commission and, as one can determine, we have some very talented personnel in our Commission.

CHAPTER III

History of General Aviation Development in Michigan

When the Michigan Aeronautics Commission, formerly Board of Aeronautics, was created in 1929, there were a few general aviation airports in the State, mostly turf fields. In the early part of the 1930's, the development of general aviation airports started slowly. During the late thirties and early 1940's, general aviation airport development started moving at a faster pace. The State even developed several emergency turf fields located in the Upper Peninsula and the upper part of the Lower Peninsula. Most of these State owned emergency fields have now been phased out or, in some cases, have been developed by local political subdivisions into publicly owned general aviation airports.

In the late 1940's and early 1950's, general aviation airports in Michigan, with the financial aid of the Civil Aeronautics Administration and the State, really started to blossom out throughout the State. At the present time, there are 207 publicly owned land airports in the State; 186 of these airports are general aviation airports. The majority of these general aviation airports have at least one paved runway.

The leaders of the political subdivisions in Michigan have recognized the value of owning a general aviation airport for transportation and economic values. Many industries, some are satellites of larger corporations located in the big cities of Michigan, have located in the smaller communities with adequate airports.

Many of our general aviation airports are capable of handling executive jet operations which accelerates the development of industries throughout the State.

The Michigan Aeronautics Commission is very proud of the development of all the airports in Michigan, particularly the general aviation airports. We believe it is important to the State and local communities to develop general aviation airports, both from a transportation point of view and the economic necessity whereby industries wishing to locate and build a business require an adequate airport to serve their needs.

We believe Michigan is a leader in developing general aviation airports. At almost all of the general aviation airports, an administration building has been included in the development of the project. As agent for the sponsor, we have assisted the sponsors to build many of these types of airports, both with Federal aid and strictly State-Local financing. The Commission, in discharging our responsibilities, promulgates rules and regulations, establishes minimum standards consistent with the State's Aeronautical Code, and enforces aeronautical laws enacted for the purpose of protecting the health, welfare and safety of the general public.

Many cities in outstate Michigan are inviting new industry to locate in their areas so their tax base can be broadened. This is an important consideration for a community trying to decide whether or not to develop an adequate general aviation airport. The dollars which flow into a community as a result of a good airport help to provide other civic or community projects.

Although some people might disagree, the Michigan Aeronautics Commission is of the opinion that general aviation is the fastest growing segment of aviation, and even in the cities having airline service, general aviation still produces a substantial number of air passengers.

Therefore, in Michigan, we are definitely promoting better and more general aviation airports.

Our history in general aviation development for the last several years is as follows:

<u>Fiscal Year 1972</u>	<u>Allocated State Funds</u>	<u>Expended</u>
	<u>Federal-State-Local Projects</u>	
8 Locations	\$ 718,409.00	\$ 664,000.00
	<u>State-Local Projects</u>	
15 Locations	\$ 117,250.00	\$ 70,116.00

<u>Fiscal Year 1973</u>	<u>Allocated State Funds</u>	<u>Expended</u>
	<u>Federal-State-Local Projects</u>	
17 Locations	\$ 744,132.00	\$ 217,754.00
	<u>State-Local Projects</u>	
14 Locations	\$ 114,565.00	\$ 88,380.00

Some of the 17 locations are still waiting federal funds.

<u>Fiscal Year 1974</u>	<u>Allocated State Funds</u>	<u>Expended</u>
	<u>Federal-State-Local Projects</u>	
8 Locations	\$ 361,000.00	\$ 52,892.00
	<u>State-Local Projects</u>	
2 Locations	\$ 35,000.00	\$ 10,000.00

Some of the 8 locations are still waiting federal funds.

<u>Fiscal Year 1975</u>	<u>Allocated State Funds</u>	<u>Expended</u>
	<u>Federal-State-Local Projects</u>	
8 Locations	\$ 361,000.00	\$ 52,000.00
	<u>State-Local Projects</u>	
9 Locations	\$ 107,600.00	\$ -0-

Many of these 8 locations are still waiting federal funds.

<u>Fiscal Year 1976</u>	<u>Allocated State Funds</u>	<u>Expended</u>
	<u>Federal-State-Local Projects</u>	
10 Locations	\$ 960,563.00	\$ -0-
	<u>State-Local Projects</u>	
Unknown at this time	\$ 150,000.00	-0-

On this latest Act for 1976, we have received no federal grants since the new ADAP amended bill was only recently passed.

Summary: At the present time, over the past five fiscal years, the total State funds allotted for federal-state-local projects at general aviation airports amounts to \$3,669,527.00 and a total of State funds of \$1,156,033.00 has been expended. The difference between the allotted State funds and the expended State funds is due in large to the lack of federal legislation for financing aid to airports. Now that we do have federal legislation, hopefully we will begin to receive federal grants for general and air carrier airports.

We have a total of 31 viable general aviation development projects which we believe should receive federal funding. In addition, we are recommending that our Commission approve State participation in 11 more general aviation airports in fiscal 1977.

The State has adopted the total funding concept of financing airport projects whereby the project is total funded by the State, but only a part of this cost is eligible for State participation. As the total bills for the project come due, we pay the bills and then the State is reimbursed for the federal share and the local share and these funds go back into the State General Fund.

CHAPTER IV

State Airport System Plan

The preparation of the State Airport System plan was financed through an Airport System Planning Grant from the Federal Department of Transportation's Federal Aviation Administration and the State of Michigan under the Planning Grant Program, as provided in the Airport and Airways Development Act of 1970. Stanford Research Institute was a prime contractor on this system plan and they are responsible for the facts and accuracy of the data contained in the document. Also, employees of the Michigan Aeronautics Commission spent many hours working with the Stanford Research Institute and on their own in preparing the Michigan State Airport System Plan.

This State Airport System Plan was adopted by the Michigan Aeronautics Commission in 1974. The airport system plan describes the forecast of population and economic growth for Michigan and it provides the basis for this study's projections of future aeronautics demands. The study of population and economic forecasts were prepared for three planning periods: Short Range 1973-1977, Intermediate Range 1978-1982, and Long Range 1983-1992. These periods of aeronautical needs can be moved up if circumstances warrant a change.

The study developed and applied an economic impact model to forecast population and economic growth. First, both the State of Michigan and the rest of the United States were divided into a set of zones. Outside Michigan, the zones correspond to travel zones and patterns. Inside Michigan, two different sizes of zones were used. However, the 13 State Planning Regions were used to describe the level and structure of the economy. The State Planning Regions were used because they provide a more reliable basis for detailed description analysis of the various industrial sectors contributing to the Michigan economy.

During the more detailed master planning process for the individual airports, the generalized estimates were refined to take into account the individual peculiarities of an airport, such as: percent of instructional activities, type and size of based aircraft, etc. Individual circumstances could change the total number of operations per based aircraft and have a definite influence on the ratio of local and itinerant operations.

In some areas of Michigan, existing general aviation airports are sufficient in number, but not in development, to accommodate forecasted 1990 general aviation activity levels. However, in many of the major urban areas of the State, for example Detroit, Flint and Grand Rapids, activity is expected to exceed the capacity of existing airports. In these major urban areas, both existing and new airports are included in the plan to provide sufficient aviation capacity.

The Michigan Aeronautics Commission utilizes our State Airport System Plan in our programming processes. We have found it to be a very useful tool to develop a system of airports to meet the transportation needs of the people of Michigan.

The system plan can be changed as conditions change and we have worked out a procedure for making changes at any time, but primarily, the system plan is reviewed on a yearly basis and major changes are made at that time if sufficient justification is furnished to substantiate a change.

CHAPTER V

The Michigan Aeronautics Commission's Priority Rating System for Determining the State Program for Capital Airport Improvement Projects for Each Fiscal Year

The Michigan Aeronautics Commission's rating system was adopted to establish priorities for airport improvement work items for those airport sponsors requesting State funds for their projects.

The airports are rated individually and not against other airports. Due to the shortage of State funds available for airport projects and because the State almost always receives more requests for projects than State funds are available, this priority rating was adopted by the Michigan Aeronautics Commission in November of 1975.

In order for an airport project involving a major item of work, for example runway extension or new runway, to be programable, the work must conform to the State Airport System Plan or sufficient justification is required to be furnished by the sponsor to change the State Airport System Plan. This same procedure and justification would be required for the National Airport System Plan in order for the Federal Aviation Administration to program the sponsor's request for a major item of work.

The Michigan Aeronautics Commission's rating system has been developed to measure:

1. The master plan as it relates to the total airport development.
2. The existing facility as it relates to the proposed master plan.
3. Planned improvements proposed to increase the utility of the airport.
4. Requested improvements as they relate to a total annual program for allocating State funds.

The rating system is a numerical value assigned to each item of work required to serve 100% of the aircraft population 100% of the time. All items of development not meeting this demand have been reduced in value for that portion of the aircraft population being served.

Some may disagree with the rating points assigned. However, if disagreement occurs, whatever numerical value is selected, then that value must be used in the same manner to rate all four categories first mentioned.

The principal concept in this rating method is that you are not rating one type of airport against another type, but rather you are rating the development for its capability of serving the population of aircraft proposed by your master plan. When the master plan is changed or revised, the numerical value of the plan must change accordingly. From time to time, it may be necessary to add additional items of development to be measured and establish and/or revise the rating points.

The rating system is designed to measure development in three (3) categories: fundamental, capacity and efficiency. The categories are defined as follows:

Fundamental items of the plan are those items necessary to serve the public and the aircraft under safe and satisfactory conditions for the period proposed.

Capacity items of the plan are those items of development that would increase the capacity of the airport. For example, a second parallel runway, bypass taxiway, etc.

Efficiency items of the plan are those items that are desirable to have, but do not necessarily change the fundamental requirements or increase the capacity of the airport.

When the system is used in rating a program, fundamental items should be given top priority and have full rating. Capacity items should be a lesser rating of 75% and efficiency items reduced to 50%.

Sufficiency rating is that percentage of the master plan that has been completed.

Items of Proposed Work to be Rated

In order to determine the total adjusted work priority rating number, it is necessary to apply the following procedure:

1. Select the assigned number for the type of work.
2. Determine the estimated cost of this type of work.
3. Use the following formula for each work priority rating:

Cost of the work item divided by 1,000, then multiply this figure by the assigned points to arrive at the priority work rating for the type of proposed work.

4. The total adjusted work priority factor for all of the proposed work is obtained by adding all of the individual work priority ratings, obtained by the above formula in item #3, and then divide this total by the figure which is obtained by determining the total cost of all of the proposed work divided by 1,000.
5. The final priority rating total for all of the proposed work requested for the airport is determined by adding the sufficiency factor, the work priority factor, and the add or deduct points.

Project Priority Determination Procedures

- I. Develop Individual Airport Sufficiency Rating
(Attachment - Sample I)
- II. Rate as to Residual Development Required (Sufficiency Factor)
(Determined by subtracting the percentage of completion as indicated on a Sufficiency Chart from 100 which would equal rating points)
(circled on Sample I)
- III. Rate as to Priority of Work - Sample II

Priority Rating Schedule

- a. Deductible Rate as to Property Interests
 - b. Deductible Rate as to Availability of Local Funds
 - c. Deductible Rate as to Compliance with Condition in Previous Grants
 - d. Deductible Rate as to Date of Last Grant
- IV. Summary of Priority Rating - Sample III
(Project on the 1977 Program)

- V. The samples of the system included in this brochure are for the Livingston County Airport which is now completing a Master Plan Study which was financed by a planning grant from the FAA, the State and the local sponsor, Livingston County.

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Summary of Program/Priority Rating
Projects on Program

<u>AIRPORT</u>	<u>(*)</u>	<u>SUFFICIENCY FACTOR</u>	<u>WORK PRIORITY FACTOR</u>	<u>ADD OR DEDUCT POINTS</u>	<u>PRIORITY RATING TOTAL</u>
Howell	26.9	73.1	92.2	-0-	165.3

*Sufficiency rating (existing facility)

RATING FACTORS FOR RUNWAYS *

TABLE I

	<u>Runway Widths</u>					
	200	150	125	100	75	50
1000	1.33	1.00	.833	.66	.50	.33
2000	2.66	2.00	1.66	1.33	1.00	.66
3000	4.00	3.00	2.50	2.00	1.50	1.00
4000	5.33	4.00	3.33	2.66	2.00	1.33
5000	6.66	5.00	4.16	3.33	2.50	1.66
6000	8.00	6.00	5.00	4.00	3.00	2.00
7000	9.33	7.00	5.83	4.66	3.50	2.33
8000	10.66	8.00	6.66	5.33	4.00	2.66
9000	12.00	9.00	7.50	6.00	4.50	3.00
10000	13.33	10.00	8.33	6.66	5.00	3.33
11000	14.66	11.00	9.16	7.33	5.50	3.66
12000	16.00	12.00	10.00	8.00	6.00	4.00
13000	17.33	13.00	10.83	8.66	6.50	4.33
14000	18.66	14.00	11.66	9.33	7.00	4.66

*Turf strips are given 3/4 of the points that a 50' wide paved runway of the same length would be given.

RATING FACTORS FOR TAXIWAYS

TABLE II

	<u>Taxiway Widths in Feet</u>							
	100	75	60	50	40	30	25	20
1000	1.33	1.00	.80	.66	.53	.40	.33	.26
2000	2.66	2.00	1.60	1.33	1.03	.80	.66	.53
3000	4.00	3.00	2.40	2.00	1.60	1.20	1.00	.80
4000	5.33	4.00	3.20	2.66	2.13	1.60	1.33	1.06
5000	6.66	5.00	4.00	3.33	2.66	2.00	1.66	1.33
6000	8.00	6.00	4.80	4.00	3.20	2.40	2.00	1.60
7000	9.33	7.00	5.60	4.66	3.73	2.80	2.33	1.86
8000	10.66	8.00	6.40	5.33	4.26	3.20	2.66	2.13
9000	12.00	9.00	7.20	6.00	4.80	3.60	3.00	2.40
10000	13.33	10.00	8.00	6.66	5.33	4.00	3.33	2.66
11000	14.66	11.00	8.80	7.33	5.86	4.40	3.66	2.93
12000	16.00	12.00	9.60	8.00	6.40	4.80	4.00	3.20
13000	17.33	13.00	10.40	8.66	6.93	5.20	4.33	3.46
14000	18.66	14.00	11.20	9.33	7.46	5.60	4.66	3.73

Taxiway Length in Feet

RATING FACTORS FOR APRON SIZES

TABLE III

		<u>Per Hundred Feet or Square Yard Area</u>										
		50	100	200	300	400	500	600	700	800	900	1000
Dimensions in Hundreds of Feet	100	.05	.10	.20	.30	.40	.50	.60	.70	.80	.90	1.00
	Sq. Yd.	555	1,111	2,222	3,333	4,444	5,555	6,666	7,777	8,888	9,999	11,111
	200	.10	.20	.40	.60	.80	1.00	1.20	1.40	1.60	1.80	2.00
	Sq. Yd.	1,111	2,222	4,444	6,666	8,888	11,111	13,333	15,555	17,777	19,999	22,222
	300	.15	.30	.60	.90	1.20	1.50	1.80	2.10	2.40	2.70	3.00
	Sq. Yd.	1,666	3,333	6,666	9,999	13,333	16,666	19,999	23,333	26,666	29,999	33,333
	400	.20	.40	.80	1.20	1.60	2.00	2.40	2.80	3.20	3.60	4.00
	Sq. Yd.	2,222	4,444	8,888	13,333	16,666	22,222	26,666	30,000	36,666	39,999	44,444
	500	.25	.50	1.00	1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00
	Sq. Yd.	2,777	5,555	11,111	16,666	22,222	27,777	33,333	38,888	44,444	49,999	55,555
	600	.30	.60	1.20	1.80	2.40	3.00	3.60	4.20	4.80	5.40	6.00
	Sq. Yd.	3,333	6,666	13,333	19,999	26,666	33,333	39,999	46,666	53,333	59,999	66,666
	700	.35	.70	1.40	2.10	2.80	3.50	4.20	4.90	5.60	6.30	7.00
	Sq. Yd.	3,888	7,777	15,555	23,333	31,111	38,888	46,666	54,444	62,222	69,999	77,777
	800	.40	.80	1.60	2.40	3.20	4.00	4.80	5.60	6.40	7.20	8.00
	Sq. Yd.	4,444	8,888	16,666	26,666	36,666	44,444	53,333	62,222	71,111	79,999	88,888
	900	.45	.90	1.80	2.70	3.60	4.50	5.40	6.30	7.20	8.10	9.00
	Sq. Yd.	4,999	9,999	19,999	29,999	39,999	49,999	59,999	69,999	79,999	89,999	99,999
	1000	.50	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00
	Sq. Yd.	5,555	11,111	22,222	33,333	44,444	55,555	66,666	77,777	88,888	99,999	111,111

PRIORITY RATING ITEMS

	<u>POINTS</u>
I. SYSTEM REQUIREMENTS	100
A. New Airport	
B. Replacement Airport	
C. Land	
D. Clear Zones	
II. SAFETY ITEMS	95
A. APPROACH PROTECTION	
1. Hazard Removal	
2. Noise Abatement	
B. RUNWAY PROJECTS	
1. Extension)	
2. Widening)	90
3. Relocating)	
4. Strengthening)	
5. Safety Overruns)	
6. Overlay)	85
7. Seal Coat)	
C. APPROACH FACILITIES	80
1. Runway Lighting	
2. Approach Lighting	
3. Electronic Landing Aids	
4. Marking	
D. CRASH AND RESCUE	75
1. Crash Equipment	
2. Support Equipment	
3. Housing for Equipment	
E. SECURITY	70
1. Fencing	
III. OPERATIONAL ITEMS	65
A. Taxiways (Access)	
B. Aprons (Minimum)	
C. Aircraft Parking Areas (Minimum)	
D. Terminal Buildings (Minimum)	
E. Access Roads (Minimum)	
F. Service Roads (Minimum)	
G. Auto Parking Areas (Minimum)	
H. Overlay on Aprons and Taxiways	

PRIORITY RATING ITEMS

PAGE 2

	<u>POINTS</u>
IV. EFFICIENCY/CAPACITY ITEMS	60
A. Parallel Taxiways	
B. Secondary Runways	
C. Itinerant Aircraft Tie-Down Areas	
D. Terminal Expansion	
E. Expansion of Aircraft Parking Area	
F. Expansion of Taxiway System	
G. Expansion of Auto Parking)	50
H. Additional Service Roads)	

DEDUCT POINTS

	<u>POINTS</u>
I. PROPERTY INTEREST SCHEDULE	
A. None Required)	
B. Property Purchased)	0
C. Property Under Option)	
D. Property Appraised and Funds Available	10
E. Property Appraised - Funds Not Identified	20
F. No Action Taken on Required Property	50
II. AVAILABILITY OF LOCAL FUNDS SCHEDULE	
A. Deposited with State)	
B. Cash on Hand (Local))	
C. Approved Bond Issue)	0
D. Budgeted Amount During Project Period)	
E. Proposed as Budget Item)	50
F. Bond Issue Proposed)	0
G. Statement that Funds will be Available	
III. COMPLIANCE SCHEDULE	
A. No Special Conditions not Complied with or None in Existence	0
B. Action Underway to Correct Conditions by Project Date	25
C. Statement that Conditions will be Met	25
D. Master Plan Not Completed	35
E. No Evidence of Action to Clear Conditions	100
IV. GRANT SCHEDULE	
A. No Grants During Prior Five Years	0
B. Grant Four Years Prior	0
C. Grant Three Years Prior	0
D. Grant Second Year Prior	5
E. Grant in First Year Prior	10

PRIORITY RATING ITEMS
PAGE 3

	<u>NEED POINTS</u>	<u>POINTS</u>
I. VERY URGENTLY NEEDED NOW		25
II. NEEDED SOON		10
III. CAN BE DELAYED		0

SUMMARY OF AIRPORT PROGRAM/PRIORITY RATING

NAME OF AIRPORT HOWELL

DATE RATED 8/13/76

ITEMS	Master Plan SYSTEM RATING (a)	EXISTING FACILITY RATING (b)	PROGRAM RATING		REMARKS
			PROPOSED PROGRAM (c)	WORK PRIORITY POINTS (d)	
(A) FUNDAMENTAL ITEMS	48.46	13.08	13.99	92.2	\$2,787,430
% 1 Sufficiency Rating	88.2	23.8	34.6		
2 Increase in Facility			145.2		
3 Sufficiency Factor			64.4		
4 Work Priority Point					
(B) CAPACITY ITEMS	2.99	0.48	0	-	
% 1 Sufficiency Rating	5.4	0.9	0		
2 Increase in Facility			0		
3 Sufficiency Factor			4.2		
4 Work Priority Point					
(C) EFFICIENCY ITEMS	3.49	1.21	0	-	
% 1 Sufficiency Rating	6.4	2.2	0		
2 Increase in Facility			0		
3 Sufficiency Factor			4.2		
4 Work Priority Point					
(D) TOTAL FOR ALL ITEMS	54.94	14.77	18.99		\$2,787,430
% 1 Sufficiency Rating	100	26.9	34.6		
2 Increase in Facility			128.6		
3 Sufficiency Factor			73.1		
4 Work Priority Point				92.2	

73.1 + 92.2 = Priority Rating Total 165.3

SAMPLE

ITEM Cost \$.(000) Assigned Number \$(000) x AN

FUNDAMENTAL

LAND	1,100	100	110,000.0
RUNWAY	6,196.45	90	99,580.5
TAXIWAY	122.45	90	11,020.5
APRON	113.00	90	10,170.0
LIGHTING	50.00	80	4,000.0
LANDING AIDS			
MARKING	3.05	80	244.0
BUILDING	70.00	65	4,550.0
ENTRANCE ROAD	78.54	65	5,105.1
PARKING LOT	23.94	65	1,556.1
STORM DRAINAGE	120.00	90	10,800.0
	<u>2787.43</u>	<u>92.2</u>	<u>257,026.2</u>

CAPACITY

- LAND
- RUNWAY
- TAXIWAY
- APRON

SAMPLE

EFFICIENCY

- APRON
- TIE-DOWN
- TAXIWAY
- BUILDING EXPANSION
- ADDITIONAL ROAD
- BOUNDARY FENCE

MDG AIRPORT RATING SYSTEM

AIR CARRIER _____
 RELIEVER _____
 GENERAL AVIATION X

HOWELL AIRPORT
 NAME

(SYSTEM: 48.46)
 RATING (FACILITY: 13.03)
 (PROGRAM: 18.99)
 (WORK PRIORITY: 93.2)

DATE OF THIS RATING 7.22.76
 Page 1 of _____

GROUND AND LANDING AID FACILITIES	RATING FACTOR OR UNIT FACTOR	MASTER PLAN RATING * DATE OF PLAN (NEW) '76	EXISTING FACILITY RATING * DATE OF LAST "AS BUILT" ALP	RATING OF PROPOSED IMPROVEMENT * COMMISSION PROGRAM YEAR '78	WORK PRIORITY	
					ASSIGNED NUMBER	RATING
Land:		6.81	1.60	5.07	100	
Airfield <u>160</u> (ac.) <u>AWR (633)</u>	Rating 1.00 per 100 Ac.	6.23	1.6			
Approaches <u>(ac.)</u> <u>(507)</u>		0.58	-	5.07		
Hazard Removal					95	
Runways:		6.95	1.50	3.20	90	
No. Width Length	Refer Table I	-	1.5			
<u>31-13</u> 75 3000		1.95	-			
<u>(31-13)</u> 75 3900		5.0	-			
<u>(3-21)</u> 150 5000		-	-	3.2		
<u>(3-21)</u> 100 4500						
Taxiways:	Refer Table II	5.83	0.53	1.60	90	
No. Width Length		-	0.53			
<u>40</u> 1000		2.33	-			
<u>40</u> 6345		3.26	-			
<u>40</u> 2110		0.24	-			
<u>40</u> 450		-	-	1.6		
<u>40</u> 3000						
Terminal Apron:	Refer Table III	2.00	0.60	0.90	90	
<u>700 x 1000</u>		-	0.6			
<u>700 x 1000</u>		2.0	-	0.9		
<u>11000 x 75</u>						

SAMPLE

FUNDAMENTAL AIRPORT ITEMS

NAC AIRPORT RATING SYSTEM

AIR CARRIER _____
 RELIEVER _____
 GENERAL AVIATION X

Howell AIRPORT
 NAME _____

(SYSTEM: _____)
 RATING (FACILITY: _____)
 (PROGRAM: _____)
 (WORK PRIORITY: _____)

DATE OF THIS RATING _____
 Page 2 of _____

GROUND AND LANDING AID FACILITIES	RATING FACTOR OR UNIT FACTOR	MASTER PLAN RATING * DATE OF PLAN	EXISTING FACILITY RATING * DATE OF LAST "AS BUILT" ALP	RATING OF PROPOSED IMPROVEMENT * COMMISSION PROGRAM YEAR	WORK PRIORITY	
					ASSIGNED NUMBER	RATING
<u>Lighting:</u>		<u>10.00</u>	<u>3.00</u>	<u>1.00</u>	80	
High Intensity	1.0	1.0				
Medium Intensity	1.0	1.0	1.0	1.0		
Center Line	1.0					
REIL's	1.0	3.0	1.0			
VASI	1.0	3.0				
Beacon	1.0	1.0	1.0			
Wind Cone	1.0*	1.0	1.0			(*In circle--0.50 out of circle) per each unit
Apron	0.01					
<u>Electronic Landing Aids:</u>		<u>4.00</u>				
* <u>ILS</u>	<u>4.0</u>	4.0				
*Outer Marker	1.0					
*Middle Marker	1.0					
ALS	1.0					
*Glide Slope	1.0					
*Localizer	1.0					
VOR-OMNI	1.0					

FUNDAMENTAL AIRPORT ITEMS

SAMPLE

MVC AIRPORT RATING SYSTEM

AIR CARRIER _____
 RELIEVER _____
 GENERAL AVIATION X

HOWELL AIRPORT
 NAME _____

(SYSTEM: _____)
 RATING (FACILITY: _____)
 (PROGRAM: _____)
 (WORK PRIORITY: _____)

DATE OF THIS RATING _____
 Page 3 of _____

GROUND AND LANDING AID FACILITIES	RATING FACTOR REFERENCE OR UNIT FACTOR	MASTER PLAN RATING * DATE OF PLAN	EXISTING FACILITY RATING * DATE OF LAST "AS BUILT" ALP	RATING OF PROPOSED IMPROVEMENT * COMMISSION PROGRAM YEAR	WORK PRIORITY	
					ASSIGNED NUMBER	RATING
<u>Marking:</u>		<u>1.75</u>	<u>0.75</u>	<u>1.25</u>	80	
Precision	1.0	<u>1.0</u>				
Instrument	0.75	<u>0.75</u>	<u>0.75</u>	<u>0.75</u>		
Basic	0.5			<u>0.5</u>		
SAMPLE						
<u>Building:</u>		<u>10.00</u>	<u>5.00</u>	<u>5.00</u>	65	
A.C. - Terminal	5.0					
G.A. - Terminal	5.0	<u>5.0</u>	<u>5.0</u>	<u>5.0</u>		
F/C/R or Maint.	5.0	<u>5.0</u>				
<u>Entrance Road:</u>	1.0	<u>0.67</u>	<u>0.04</u>	<u>0.66</u>	65	
<u>200'</u>	per mile	-	<u>0.04</u>			
<u>3550</u>		<u>0.67</u>	-			
<u>3500 x 24</u>		-	-	<u>0.66</u>		
<u>Parking Lots:</u>	Use Apron Ratings	<u>0.75</u>	<u>0.06</u>	<u>0.51</u>	65	
<u>70 x 600</u>		<u>0.65</u>				
<u>75 x 75 - 600 S.W.</u>		-	<u>0.06</u>			
<u>3,100 S.W.</u>		-	-	<u>0.31</u>		

FUNDAMENTAL AIRPORT ITEMS

MAC AIRPORT RATING SYSTEM

AIR CARRIER _____
 RELIEVER _____
 GENERAL AVIATION

Howell AIRPORT
 NAME

(SYSTEM: 2.79)
 RATING (FACILITY: 0.43)
 (PROGRAM: _____)
 (WORK PRIORITY: _____)

DATE OF THIS RATING _____
 Page 4 of _____

GROUND AND LANDING AID FACILITIES	RATING FACTOR REFERENCE OR UNIT FACTOR	MASTER PLAN RATING * DATE OF PLAN	EXISTING FACILITY RATING * DATE OF LAST "AS BUILT" ALP	RATING OF PROPOSED IMPROVEMENT * COMMISSION PROGRAM YEAR	WORK PRIORITY	
					ASSIGNED NUMBER	RATING
<u>Land:</u>					100	
Airfield	1.0					
Approaches	per acre unit					
<u>Additional Runway:</u>					60	
	Use Table I					
<u>Additional Taxiways:</u>		<u>1.18</u>	<u>0.43</u>		60	
	Use Table II					
<u>30 x 1200</u>		<u>0.48</u>	<u>0.43</u>			
<u>40 x 1333.5</u>		<u>0.7</u>				
<u>Aprons:</u>		<u>1.81</u>	<u>0</u>		60	
Terminal	Use Table III					
Cargo						
Aircraft Parking						
<u>500 x 175 = 9750</u>						
<u>500 x 225 = 11250</u>						
<u>30,000 sq</u>		<u>1.31</u>				

AIRPORT CAPACITY ITEMS

SAMPLE

MAC AIRPORT RATING SYSTEM

AIR CARRIER _____
 RELIEVER _____
 GENERAL AVIATION X

HOWELL AIRPORT
 NAME _____

(SYSTEM: 3.49)
 RATING (FACILITY: 1.21)
 (PROGRAM: _____)
 (WORK PRIORITY: _____)

DATE OF THIS RATING _____
 Page 5 of _____

GROUND AND LANDING AID FACILITIES	RATING FACTOR REFERENCE OR UNIT FACTOR	MASTER PLAN RATING * DATE OF PLAN	EXISTING FACILITY RATING * DATE OF LAST "AS BUILT" ALP	RATING OF PROPOSED IMPROVEMENT * COMMISSION PROGRAM YEAR	WORK PRIORITY-		
					ASSIGNED NUMBER	RATING	
AIRPORT EFFICIENCY ITEMS <u>Aprons:</u> 300 x 200 300 x 200 <u>Tie-Down Areas:</u> <u>Taxiways:</u> Hangars: 5 20 x 1150 10 30 x 3200 40 x 750 To Other Bldg. Areas <u>Buildings:</u> Terminal Expansion Other Bldg. Expan. <u>Additional Roads:</u> Entrance Field Service Perimeter <u>Boundary Fence:</u>	Table III	1.20 0.6 0.6	0.60 0.6		65		
	One-Half of Table III				60		
	Table II	3.29 0.61 1.23 0.4	0.61		60		
	5.0				60		
	5.0						
	1.0 per mile				50		
						70	
						Not required for safety	

SAMPLE

MICHIGAN AERONAUTICS COMMISSION

B M.D.S.H.T. - BUREAU OF AERONAUTICS

