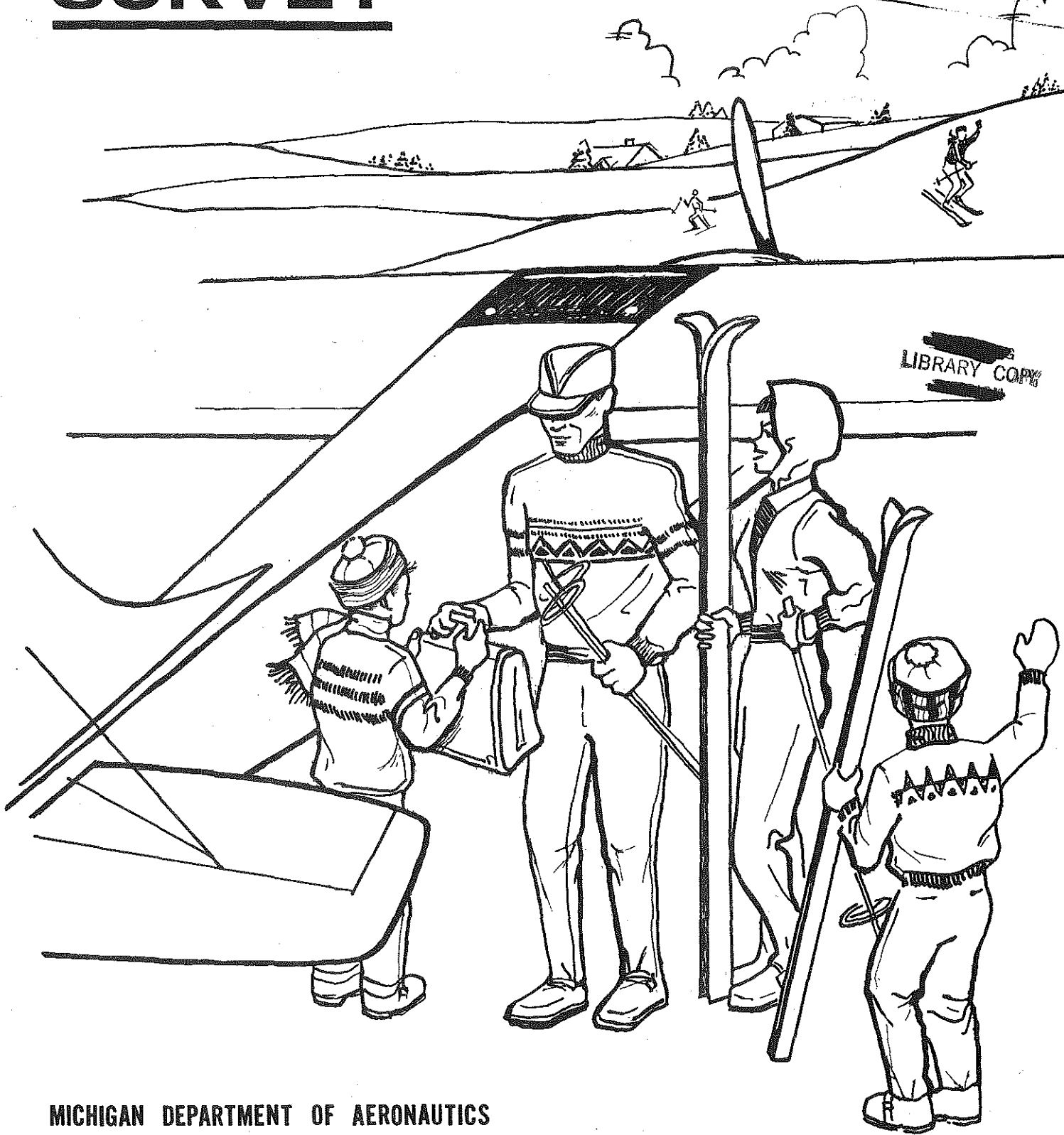


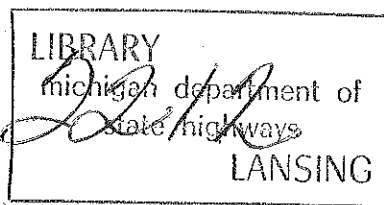
GENERAL AVIATION WINTER TRAFFIC SURVEY

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MICHIGAN DEPARTMENT OF AERONAUTICS



65-4702

GENERAL AVIATION
WINTER TRAFFIC SURVEY

January 29 - 31, 1965

Conducted By:

Planning Section
Engineering Division
Michigan Department of Aeronautics

With the Cooperation of:

Lansing Office
Federal Aviation Agency

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Lansing, Michigan
March, 1965

GLOSSARY

In this report, a number of aeronautical terms are used, without definition. It is suggested that the reader refer to the following glossary of terms.

1. BASED AIRCRAFT. Those housed, tied down, or parked on a continuing basis.
2. COMMERCIAL AVIATION. The scheduled airlines, passenger and freight. (Accounts for 27% of the itinerant operations in the United States.)
3. CONTROL TOWER AIRPORTS. Where FAA traffic controllers govern air traffic within a designated airport control zone. There are eleven control tower airports in the State of Michigan.
4. GENERAL AVIATION. All aircraft other than military and scheduled airlines. Includes private and business-owned aircraft. (Accounts for 60% of the itinerant operations in the United States.)
5. "H" MARKER. A low frequency, non-directional radio beacon, usually of low power, used for locating an airport, and often for instrument approach to an airport.
6. HOME BASE. Where the aircraft is housed, tied down, parked on a continuing basis.
7. ITINERANT OPERATIONS. A flight which originates at one airport and terminates at another airport. It is also a flight which travels over five miles from the local flight pattern.
8. ITINERANT PASSENGER. One whose flight originates at one airport and terminates at another.
9. LOCAL OPERATION. A flight which originates and terminates at the same airport and does not go five miles beyond the flight pattern.
10. OCCUPANTS. Passengers and pilots of general aviation aircraft. Commercial aviation passengers are known as just that - "passengers."
11. OMNI. The popular term for Very High Frequency Omni - directional radio. Each omni ground station provides bearing information to aircraft along an infinite number of courses, e.g., usable bearings in all directions around the station going to or from the station.
12. OPERATION. Either a takeoff or landing constitute one operation.
13. TOWER COUNTS. Official traffic counts maintained by Federal Aviation Agency personnel at control tower airports.
14. TRAFFIC COUNTS. Count of every operation at a particular airport, usually for a specified period (month, year, etc.).

BACKGROUND

To measure the impact of aviation activity in the State of Michigan, a survey was conducted for an entire week, July 28 through August 3, in both 1962 and 1964. In 1962, all 137 licensed airports in the state were surveyed; while in 1964, the survey was limited to ten representative airports and the tower counts from Michigan's eleven control tower airports. The increase in traffic between the 1962 and 1964 surveys was over 11%.

Because of the importance of winter recreation activity to certain areas in the state, a week-end survey was conducted at airports which serve ski areas. This survey was conducted from 3 p.m. Friday, January 29, 1965 to 3 p.m., Sunday, January 31, 1965. Seven of these airports were manned by interviewers - - four staff members of the Michigan Department of Aeronautics and three staff members of the Federal Aviation Agency. In addition, airport managers at six other locations conducted the survey themselves to account for a total of 13 airports. One of these six airports experienced adverse weather conditions throughout the 48-hour survey period and, as a result, had no traffic.

The seven airports manned by personal interviewers were:

1. Antrim County (Bellaire)
2. Boyne Mountain
3. Cadillac Municipal
4. Charlevoix
5. Otsego County (Gaylord)
6. Harbor Springs City
7. Manistee County-Blacker

The six airports surveyed by the airport managers were as follows:

1. Marquette County
2. Ford, (Iron Mountain)
3. Phelps Collins (Alpena)
4. Gogebic County (Ironwood)
5. Emmet County (Pellston)
6. Sault Ste. Marie Municipal

This winter traffic survey was concerned only with general aviation. Airline traffic, which exists at the six manager-surveyed airports and at Manistee, was not surveyed.

The primary reason for the survey was to measure the economic impact of general aviation in the state's winter recreation areas. Therefore, most of the items pertaining to navigational information were omitted from the questionnaire.

Survey Information

The forms used on this survey were as follows:

1. Flight Operations Questionnaire
2. General Aviation Pilot Expenditure Post Card
3. General Aviation Passenger Expenditure Post Card
4. Airport Daily Report

On the Flight Operations Questionnaire, the following information was requested: (1) name of airport; (2) day of week; (3) aircraft number; (4) home base; (5) make and model; (6) time of operation; (7) flight origination or destination; and, (8) number of occupants.

The Pilot and Passenger Expenditure Post Cards asked for information from visitors as to the expenditures on the following items: supplies and services, food and beverages, lodging, other personal expenditures, fuel, oil, services, repairs and parts.

The Airport Daily Report contained information on the following: number of based aircraft at beginning of survey; number of based aircraft at end of survey; and, poor weather and unusual field conditions.

An attempt was made to interview each operation (take-off or landing). The post card questionnaires were given to both general aviation pilots and passengers. At every location, the Airport Daily Report was completed by the airport manager.

Because the survey was conducted in mid-winter, the weather was a significant factor in reducing the amount of traffic at the survey locations.

The results of this survey have not been extrapolated to an annual figure. The traffic figures represent only counts for a 48-hour winter week-end period at airports which serve winter sports areas in Michigan.

On the following pages are the results of the 48-hour Winter Traffic Survey, January 29-31, 1965.

RESULTS OF SURVEY

Traffic and Passenger Count

The traffic and passenger count at the survey airports are found in the following table:

TABLE I
Winter Traffic Survey
January 29 - 31, 1965

City	Airport Name	Number of Operations and Occupants			Itinerant Occupants
		Operations			
		Itinerant	Local	Total	
Bellaire**	Antrim County	14	8	22	25
Boyne Mt.**	Boyne Mountain	13	0	13	33
Cadillac*	Cadillac Municipal	14	80	94	31
Charlevoix*	Charlevoix	7	0	7	21
Gaylord*	Otsego County	23	4	27	68
Harbor Springs**	Harbor Springs City	16	0	16	40
Iron Mountain	Ford	5	51	56	10
Ironwood	Gogebic County	11	18	29	50
Manistee*	Manistee Co.-Blacker	7	0	7	18
Marquette	Marquette County	3	196	199	5
Pellston	Emmet County	18	4	22	37
S. S. Marie	S. S. Marie Municipal	1	0	1	1
***	TOTALS	132	361	493	339

* Michigan Department of Aeronautics representative conducted the survey.

** Federal Aviation Agency representative conducted the survey.

*** Because of adverse weather conditions, there was no traffic at Phelps Collins Airport, Alpena, during the entire 48-hour survey period.

As Table I illustrates, 132 itinerant operations accounted for 339 itinerant occupants, for an average of 2.57 occupants per operation. The Federal Aviation Agency estimates the average number of occupants per itinerant operation at 2.5. In the 1962 survey, the average number of occupants per general aviation itinerant operation was 2.9. The number of occupants per local operation is not computed because these occupants do not add anything extra to the local economy.

In a few of the locations, the amount of traffic was influenced by the availability or unavailability of navigational aids. At Gaylord, an omni station was available, which accounts for a substantial increase in activity. Conversely, at Bellaire, the "H" marker was not working during the entire survey, reducing the number of incoming aircraft.

Expenditures By Visitors

The amount of money spent by occupants of itinerant aircraft, from those who returned post cards, during their stay in the community served by the surveyed airport, is detailed in the following table:

TABLE II
Winter Traffic Survey
January 29 - 31, 1965

Amount Spent By Itinerant Occupants Volume of Business Transacted in Community								
Community	Equip., Services or Contracts	Surface Transp.	Food and Beverage	Lodging	Other Personal Exp.	Aircraft Expenses	Total	Extraordinary Expenses
Bellaire	\$ 7	\$ 50	\$102	\$ 0	\$130	\$ 51	\$ 340	\$ 0
Boyne Mt.	0	4	100	81	245	35	465	0
Cadillac	85	5	30	0	45	0	165	0
Charlevoix	0	15	7	0	100	30	152	0
Gaylord	38	60	150	103	89	61	501	0
Harbor Spr.	112	13	101	68	63	58	415	0
Iron Mt.	0	0	0	0	0	0	0	0
Ironwood	671	164	180	72	50	155	1,292	130,000
Manistee	0	3	15	15	5	0	38	0
Marquette	0	0	0	0	0	0	0	0
Pellston	120	0	1	0	0	0	121	0
S. S. Marie	0	0	0	0	0	0	0	0
	\$1,033	\$314	\$686	\$339	\$727	\$390	\$3,489	\$130,000

The amount of \$130,000 of extraordinary expenditure at Ironwood was not included in the regular expenditure computation to avoid distortion of these figures. However, this expenditure has been included because it illustrates the magnitude of many business transactions consummated by executives who demand air transportation because their time is extremely valuable.

The amount spent, according to the returned pilot and passenger post cards, was almost \$3,500 for a 48-hour period, not including the \$130,000 item at Ironwood. This \$3,500 figure represents only those who responded on the post card questionnaire. In the following table are the number of responses per location.

TABLE III
Winter Traffic Survey
January 29 - 31, 1965

Number of Post Card Responses Per Location			
Location	Total Number Of Occupants	Number of Responses	Responses as a Per Cent Of Total Occupants
Bellaire	25	13	52
Boyne Mt.	33	6	18
Cadillac	31	4	13
Charlevoix	21	10	48
Gaylord	68	27	39
Harbor Springs	40	6	15
Iron Mt.	10	2	20
Ironwood	50	7	14
Manistee	18	3	17
Marquette	5	0	0
Pellston	37	5	14
S. S. Marie	1	0	0
TOTALS	339	83	24

As Table III shows, there was a 24 per cent return of pilot and passenger post cards. This percentage accounted for a total of \$3,500 at the 12 surveyed airports, an average of almost \$300 per location.

Operations by Time of Day

An interesting aspect of this survey is that most of the itinerant operations were clustered around certain hours of the day. The following table portrays this cluster.

TABLE IV
Winter Traffic Survey
January 29 - 31, 1965

Location	Itinerant Operations By Time of Day												TOTAL												
	A.M.						P.M.																		
	1	2	3	4	5	6	7	8	9	10	11	12/	1	2	3	4	5	6	7	8	9	10	11	12/	
Bellaire											4	6	1	1	1		1							14	
Boyne Mt.									1	1	2		2	5		2									13
Cadillac									1	1	2	1		4	1	2	1			1					14
Charlevoix								1		1	3						2								7
Gaylord								1	1	5	2	1	4	5		1	1	2							23
Harbor Spr.									1	2	3	1	3		3	1	1				1				16
Iron Mt.												1		3		1									5
Ironwood						1	1	2		1		1	1		1	2	1								11
Manistee													1	2	1		2	1							7
Marquette								1	2																3
Pellston											1	2	3	9	1		2								18
S. S. Marie															1										1
Totals						1	1	5	6	11	17	13	15	29	9	11	9	3	1	1					132

As illustrated in Table IV, the peak hours of itinerant traffic during the survey showed the following percentages over 10% of total traffic activity: 12 Noon - 12.8%; 2 p.m. - 11.4%; and, 3:00 p.m. - 21.9%.

Out-of-State Based Aircraft

Although this survey was not intended to be an origin and destination study, per se, it is revealing to note the out-of-state home bases of aircraft which were active at the survey locations.

These are the out-of-state bases of aircraft which were active at the following locations:

1. BELLAIRE (1) - Port Lovaca, Texas
2. BOYNE MT. (2) - Toronto, Ontario, Canada; Chicago, Illinois
3. CADILLAC (3) - Mishawka, Indiana; Chicago, Illinois; Toledo, Ohio

4. CHARLEVOIX (1) - Louisville, Kentucky
5. GAYLORD (3) - Dayton, Ohio; Lexington, Kentucky; Chicago, Illinois
6. HARBOR SPRINGS (2) - Chicago, Illinois; Indianapolis, Indiana
7. IRON MT. (2) - Chicago, Illinois; Kenosha, Wisconsin
8. IRONWOOD (5) - Ashland, Wisconsin; Chicago, Illinois; St. Louis, Missouri; Rockford, Illinois; Minneapolis, Minnesota
9. MANISTEE (2) - Chicago, Illinois; Oshkosh, Wisconsin
10. MARQUETTE (1) - Rivers Camp, Manitoba, Canada
11. PELLSTON (4) - Columbus, Ohio; Sidney, Ohio; Toledo, Ohio; Chicago, Illinois
12. S. S. MARIE (1) - Charlotte, North Carolina

These aircraft, whose home base is out-of-state, accounted for 49 itinerant operations or about 37% of the total number of itinerant operations during the 48-hour survey period. The occupants of these aircraft spent \$2,100, or 60 per cent of the total reported expenditure of \$3,500. In addition, the extraordinary expenditure of \$130,000 at Ironwood was spent by a general aviation occupant from out-of-state.

Michigan has always attracted large numbers of out-of-state tourists because of its abundance of scenic beauty and recreation facilities. Adequate transportation facilities are a pre-requisite for tourist movement into the state.

The State's airport network is used considerably by out-of-state residents as evidenced by our 1962 Fact Finder Survey conducted during the summer. At that time, 2,521 (55.6%) out-of-state planes were counted as compared to 2,018 (44.4%) Michigan-based aircraft.

The visitors who came to these ski resort area airports stayed only a short time. Without the convenience of airport facilities, many of those from out-of-state would not have come into Michigan at this time.

This survey revealed only a small sample of the impact of aviation on the economy of Michigan.

Summary

In summary, the following items may be considered the highlights of this report:

1. There were 132 itinerant operations and 339 itinerant occupants during the 48-hour survey period.
2. Of these occupants, 24% returned their expenditure questionnaire and they reported expenditures of approximately \$3,500. In addition, one respondent reported a capital expenditure of \$130,000.

3. Over half of the total itinerant activity occurred during the hours of 12 Noon through 4:00 p.m. In 1962, the summer survey showed 39 per cent of total flight activity during this four-hour period.
4. Aircraft, whose home base is out-of-state, accounted for 37% of the total itinerant operations during the survey. The occupants spent 60% of the total regular expenditures, plus \$130,000 of extraordinary expenditures. In the 1962 survey, 55.6 per cent of the aircraft which flew during the survey were registered out-of-state.

This report is not intended to be an analysis of either winter recreation activities or the total aviation picture in Michigan. Rather, this report should be seen as a picture of aviation activity at a dozen Michigan airports which serve resort areas.