

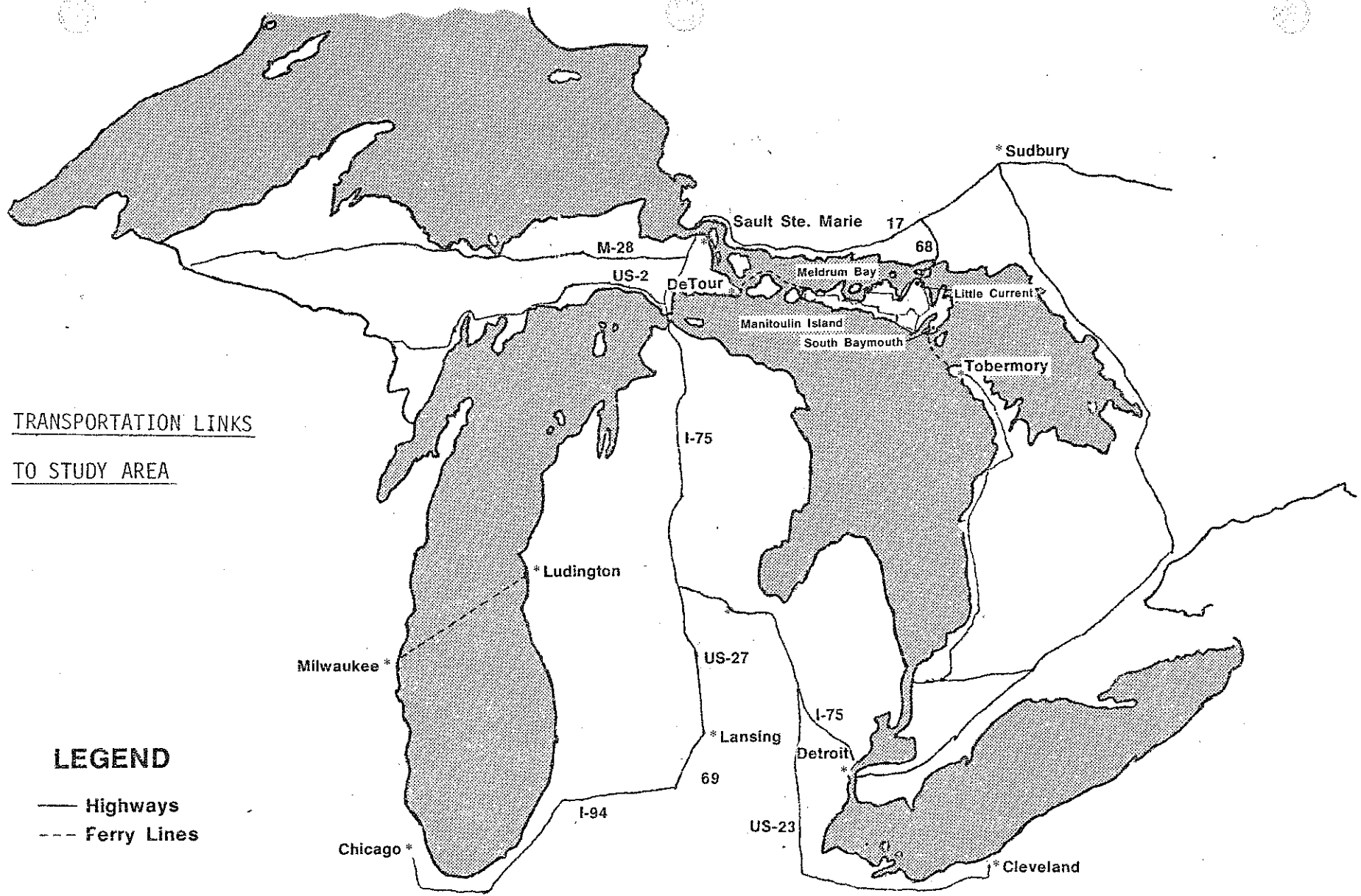
A STUDY OF THE FEASIBILITY
OF A PROPOSED FERRY SERVICE
BETWEEN DETOUR VILLAGE, MICHIGAN
AND MELDRUM BAY, MANITOULIN ISLAND

Prepared by:
The Staff of the Travel Bureau
Michigan Department of Commerce

May 1978

CONTENTS

MAP OF ACCESS ROUTES.....	ii
MAP OF ATTRACTIONS.....	iii
I. INTRODUCTION AND METHODOLOGY.....	1
II. SUMMARY OF FINDINGS AND CONCLUSIONS.....	3
III. DEFINITION OF STUDY AREA.....	5
IV. EASTERN U.P. TRAVEL AND TOURISM ACTIVITY.....	12
V. EASTERN U.P. TOURISM GROWTH TRENDS.....	16
VI. DIMENSIONS OF PROPOSED FERRY SERVICE.....	19
VII. COMPARISON OF PROPOSED FERRY SERVICE TO EXISTING MEANS OF ACCESSING MANITOULIN ISLAND.....	23
VIII. PRIMARY SOURCES OF DEMAND FOR THE PROPOSED FERRY SERVICE.....	29
IX. SHARE OF POTENTIAL MARKET NECESSARY TO BREAK EVEN.....	36
X. APPENDICES.....	42
XI. FOOTNOTES.....	53



TRANSPORTATION LINKS
TO STUDY AREA

LEGEND

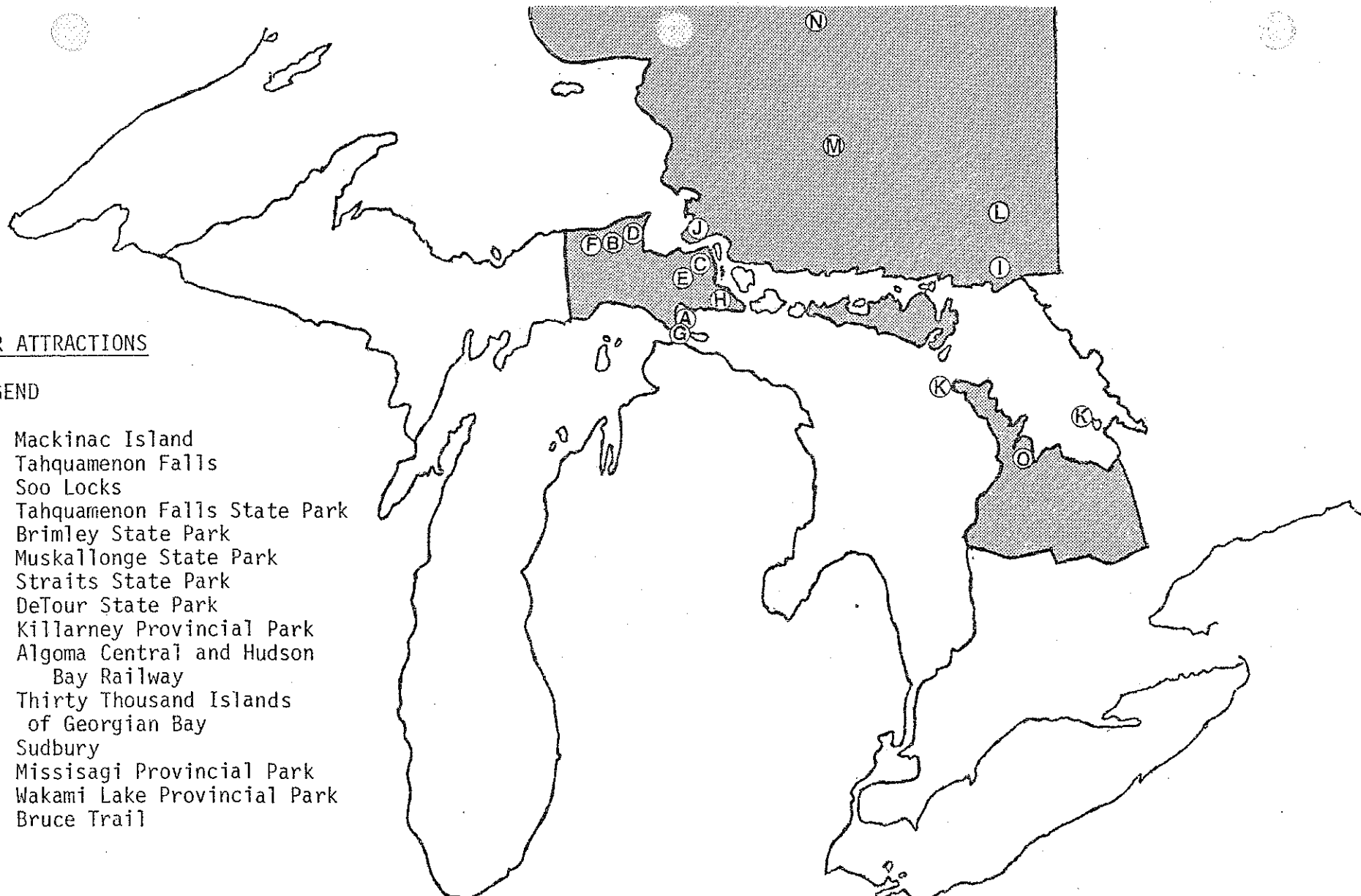
- Highways
- - - Ferry Lines

MAJOR ATTRACTIONS

LEGEND

- A. Mackinac Island
- B. Tahquamenon Falls
- C. Soo Locks
- D. Tahquamenon Falls State Park
- E. Brimley State Park
- F. Muskallonge State Park
- G. Straits State Park
- H. DeTour State Park
- I. Killarney Provincial Park
- J. Algoma Central and Hudson Bay Railway
- K. Thirty Thousand Islands of Georgian Bay
- L. Sudbury
- M. Missisagi Provincial Park
- N. Wakami Lake Provincial Park
- O. Bruce Trail

(shaded areas represent study area)



I. INTRODUCTION AND METHODOLOGY

Purpose of Study

The purpose of this study is to provide an assessment and projection of market demand for the utilization of the proposed auto-passenger ferry service connecting DeTour, Michigan to Manitoulin Island, Ontario Canada. The study was conducted by the staff of the Travel Bureau, Michigan Department of Commerce under a grant from the Upper Great Lakes Regional Commission.

Methodology

Projecting market demand for this type of ferry service is very difficult at best. The proposed service is different in nature from other existing ferry services, making it difficult to draw upon comparable experience to determine market demand.

Recognizing this problem, the analysis focuses upon two key issues:

1. Given a reasonable range of costs for implementing and operating the ferry service, what amount of present tourism activity in the study area would the ferry have to attract to be viable?
2. What specific time and cost savings would the proposed service produce for users and would these be adequate to induce use of the ferry?

The study is somewhat constrained by a lack of appropriate historical data on tourism activity in the Eastern U.P. It has only been since 1975 that the Travel Bureau has had the research and analysis capability to monitor and track travel and tourism activity. In light of this situation, a wide variety of data from various sources was assembled and analyzed to profile the potential nature and magnitude of sources of demand.

In all cases, an effort was made to use the most reasonable data with preference given to a conservative approach of estimating market potential.

II. SUMMARY OF FINDING AND CONCLUSIONS

Study Findings

1. Present visitors to the Eastern U.P. and Manitoulin Island constitute the basic market for the proposed ferry service. For the Eastern U.P. this market consists of those tourists that stay at least one night in the Eastern U.P. area.
2. Seasonal travel patterns and the time required for the ferry to make a round-trip between DeTour and the Island represent constraints to the level of service that can be realistically provided. The ferry should operate on a 106 day season spanning Memorial Day to Labor Day. It would make one round-trip daily throughout the 106 day season.
3. A conservative estimate of the potential market for the proposed service is:

Eastern U.P.	293,037 vehicles
Present Manitoulin Island visitors	<u>37,661 vehicles</u>
TOTAL	330,698 vehicles

4. Analysis of past growth trends in the Eastern U.P. show the following:
overall tourism activity appears to be growing at a rate of around 3.3% per year.
little growth in the number of travelers staying in hotels, motels, cabins, or cottages.
the bulk of the growth of travel activity comes from two sources:
increased overnight camping
some increased day time activity by those passing through the area but not staying overnight.

5. Depending upon operating costs, promotional costs, capital costs and fares for the proposed ferry service between 3.6% to 13.0% of the potential market would have to be attracted for the ferry service to break even.
6. In our opinion the proposed ferry service would cost more to use, take more time to reach the Island, and be less convenient than using other existing highways or the other ferry service.
7. It is not readily apparent that Manitoulin Island, in itself, would attract more than the present number of visitors even if the proposed ferry service was instituted. Furthermore the island may not be able to accommodate more people than it presently does.

Conclusions

In our opinion, the ability of the proposed ferry service to attract the 3.6% to 13.0% of the present market necessary for viable operation is questionable. The proposed ferry service does not appear to offer any advantage over existing means of accessing Manitoulin Island. It would be more expensive, take longer and be less convenient than existing access routes. Because of this, the only reason for using the ferry would be for the experience of taking a ferry.

Given the present accessibility of Manitoulin Island, the ferry service does not offer the advantage of making the Island more accessible. Thus, we must conclude that it is doubtful the proposed ferry service would attract more people to the Island.

III. DEFINITION OF THE STUDY AREA

The study area consists of the Eastern Upper Peninsula counties of Chippewa, Luce, and Mackinac and the Canadian areas of Manitoulin Island, Sudbury County, Algoma County, Bruce County, Grey County, and Dufferin County.

Eastern Upper Peninsula

This region of Michigan is forested and is bordered by three Great Lakes. It is sparsely populated and contains approximately 4,000 square miles.

The major access routes to the Eastern U.P. are Interstate 75 from the south across the Mackinac Bridge, the International Bridge from Canada at Sault Ste. Marie, and U.S. 2 and M-28 from the west. DeTour, the Michigan terminal for the ferry, is a small village of 494 people on the eastern most point of the U.P. on M-134.

The Eastern Upper Peninsula comprises .6% of Michigan's population with a total population of 54,700 in 1976. The area experienced a 12% growth in population between 1970 and 1976 as compared to Michigan's growth rate of 2.5% for the same period.

TABLE A
Population¹

<u>County</u>	<u>1970</u>	<u>1976</u>	<u>%Change</u>
Chippewa	32,412	37,100	14.5
Luce	6,789	7,300	7.5
Mackinac	<u>9,660</u>	<u>10,300</u>	<u>6.7</u>
Total	48,861	54,700	12.0
Michigan	8,879,862	9,104,100	2.5

Unemployment has been and continues to be a serious problem for this region.

TABLE B
UNEMPLOYMENT²

<u>County</u>	<u>1960</u>	<u>1972</u>	<u>1976</u>	<u>1977</u>	<u>1978 projected</u>
	%	%	%	%	%
Chippewa	15.0	13.5	20.7	15.8	13.7
Luce	12.4	13.6	23.1	20.6	19.1
Mackinac	18.9	9.9	10.4	10.8	10.0
Michigan	6.9	7.0	9.4	7.0	5.6

The mix of employment in the Eastern U.P. is somewhat different from the overall state as shown in the following table. With the closing of Kincheloe A.F.B. this mix will, however, change.

TABLE C
SOURCES OF EMPLOYMENT (1,000's of jobs) - 1976³

	U.P.	%	Michigan	%
Manufacturing Industries (durable and non-durable goods)	14.8	16	1056.7	33
Private Non-Manufacturing Industries (retail, services, <u>tourism</u>)	48.4	53	1613.6	49
Government	28.5	31	594.0	18
Total	91.7		3264.3	

Income statistics for the Eastern Upper Peninsula as compared to Michigan as a whole are shown in Table D.

TABLE D

INCOME (\$Million)⁴

<u>Total Personal Income</u>	<u>1970</u>	<u>1975</u>	<u>% Change</u>
Chippewa	97.3	160.7	65.2
Luce	20.3	33.7	67.0
Mackinac	27.3	46.2	69.2
Total	144.9	240.8	66.2
Michigan	37,158	56,490	52.0
<u>Per Capita Income</u>	<u>1970</u>	<u>1975</u>	<u>% Change</u>
Chippewa	2,996	4,446	48.4
Luce	2,982	4,633	55.4
Mackinac	2,825	4,342	53.7
Average	2,965	4,402	48.5
Michigan	4,180	6,169	47.6

Retail sales showed the following for 1967, 1972, and 1976:

TABLE E

RETAIL SALES⁵ (\$1,000)

<u>County</u>	<u>1967</u>	<u>1972</u>	<u>1976</u>	<u>Annual Rate of Growth</u>
Chippewa	\$42,969	\$66,714	\$89,964	8.56%
Luce	7,580	12,495	17,046	9.42%
Mackinac	15,594	23,846	29,847	7.48%
Total	66,143	103,055	136,857	8.41%
Michigan	14,114,000	20,630,308	28,311,000	8.04%

This region is highly dependent on tourism with travel generated employment ranging from 7.69% of total employment for Luce County, 9.01% for

Chippewa County, and 45.93% for Mackinac County.⁶ There are approximately 410 lodging establishments in the Eastern U.P. supplying 5,353 rental units. These lodging establishments include motels, hotels, cabins, and cottages. Approximately 36% of these units are located in Chippewa County, 9% in Luce County, and 55% in Mackinac County.⁷

Major Attractions in the Eastern U.P. include (see map - letter coded):

- A. Mackinac Island - An internationally known resort/historical island and Michigan's most well-known attraction. Between 700,000 - 1,000,000 tourists visit it each year. According to a Travel Bureau study 79% of the residents of Michigan, neighboring states, and Ontario, in Michigan's primary market had heard of the island and 32% had actually visited it.⁸
- B. Tahquamenon Falls - Located on the Tahquamenon River in Luce County, these falls are the most spectacular in the Midwest with a drop of 48 feet. 32% of the residents of Michigan, neighboring states, and Ontario heard of the falls and 16% had visited them.⁹
- C. Soo Locks - These locks link Lake Superior and Lake Huron and are located at Sault Ste. Marie. There are tours of the locks as well as views of the river, bridges, and rapids with numerous private attractions servicing the area. According to the Army Corps of Engineers count, 762,592 people visited the locks during the summer of 1977. 64% of the residents of Michigan, neighboring states, and Ontario heard of the locks, 32% had actually visited them.¹⁰
- D. Tahquamenon Falls State Park - Located near the falls, this

park recorded an attendance of 343,691 during June, July, and August of 1977.¹¹ It has 21,317 acres and 319 camp sites.

- E. Brimley State Park - Located near Sault Ste. Marie, this park has 151 acres and 270 camp sites and has a beach on Whitefish Bay.
- F. Muskallonge Lake State Park - On the Lake Superior shoreline, this park is in a wilderness area. It has 217 acres and 179 sites.
- G. Straits State Park - Overlooking the Mackinac Bridge, this park has 174 acres and 318 camp sites.
- H. DeTour State Park - This is a rustic park with 403 acres and 22 camp sites.

Manitoulin Island

This island is 110 miles long, and from 3 to 50 miles wide. It is reputed to be the largest fresh water island in the world. There are over 100 inland lakes, all of which are located in the central and eastern regions of the island. The indented Great Lakes Shoreline provides extensive land-water contact with excellent protected sailing and cruising waters for small boats. There are ample harbors and anchorages. The fishing is excellent as is the hunting for deer and grouse. There are also golf courses and a ski hill. Besides outdoor sports opportunities, there are other places to visit such as scenic lookouts, historical sites, and museums.

The island is accessible by land and water. Highway 68 comes through the island via Little Current in the north and extends to South Baymouth in the south. There is Canadian ferry service between South Baymouth and Tobermory on the Canadian Bruce Peninsula. This ferry operates from April 29th

until October 30th with two to four round trips daily. The 1977 fare is \$5.00 per adult, \$2.50 per child (under five free) and \$10.00 per automobile. This ferry accepts reservations and has a capacity of 113 automobiles and 600 passengers. It also has a cafeteria and cocktail lounge. In 1976 this ferry carried a total of 76,203 vehicles. Once on the island, most roads are gravel, particularly in the western end.

Manitoulin Island had a 1976 population of 10,900¹² and experienced a 20% growth in population over the previous ten years. There are six Indian reservations on the island, with one fifth of the island's population being of Indian heritage. Retail sales were \$24,758,000 in 1976.¹³ 1976 per capita effective buying income was \$2,980.¹⁴ Industries on the island are lumbering, farming, turkey, sheep, and cattle raising, fur farming, and tourism.

According to a 1968 Canadian survey¹⁵ there were 950 motel, hotel, cabin, and cottage units on the island. This total does not include camp sites. 71.5% of the units were cottages or cabins with most situated in the eastern third of the island. There were only 2.9% of the accommodations in the western end where the proposed ferry would dock. There were four private campgrounds with more under development. The Ontario Ministry of Industry and Tourism's 1976 accommodations directory listed a total of 786 rental units on the island.¹⁶

Other Canadian areas in the overall study area are the Northeastern Ontario counties of Algoma and Sudbury and the Bruce Peninsula counties of Bruce, Grey, and Dufferin. Northeastern Ontario is characterized by rugged scenery and mining and is known for its hunting and fishing. The Bruce Peninsula is rocky, hilly, and partially forested.

Population, growth rate of population, and retail sales for 1976 are shown below.¹⁷

TABLE F

<u>County</u>	<u>Population</u>	<u>Growth over Ten Years</u>	<u>Retail Sales</u>
Algoma	122,900	8%	\$311,122,000
Sudbury	167,800	-4%	395,519,000
Bruce	58,500	34%	119,559
Grey	72,600	-7%	179,601
Dufferin	29,500	73%	55,470

Following is a list of attractions in these regions of Canada. The letter proceeding each is coded on the map (page iii).

- I. Killarney Provincial Park
- J. Algoma Central and Hudson Bay railway - Runs from Sault Ste. Marie to Hearst, 300 miles north.
- K. Thirty Thousand Islands of Georgian Bay - This area is served by Georgian Bay Islands National Recreation Park which encompasses 40 islands.
- L. Sudbury - A mining district, this area produces 80% of the free world's nickel, is 5th in world production of copper, and first in production of platinum. Tours are available.
- M. Missisagi Provincial Park
- N. Wakami Lake Provincial Park
- O. Bruce Trail

IV. EASTERN U.P. TRAVEL AND TOURIST ACTIVITY

Michigan Activity

Total annual travel expenditures in the State of Michigan during 1975 came to approximately \$3.4 billion¹⁸ spent by 43.5 million travelers.¹⁹ Their average length of stay was 3.11 days.²⁰ Their average daily expenditure was \$20.48.²¹ Tourists accounted for about 51.4% of all travelers in the state.²²

Eastern Upper Peninsula Activity

Travel expenditures in 1975 were \$105.4 million in the three eastern U.P. counties (Chippewa, Luce and Mackinac).²³ This represents about 3.1% of the state's total travel expenditures. Total travelers in the Eastern U.P. were 2,990,970²⁴ with an average length of stay of 1.72 days. Tourists account for about 81% of the area's travel activity generating expenditures of \$85 million.²⁵

The proportion of tourists to total travelers is much higher in the Eastern U.P. (80.7 vs. 51.4%) than it is across the state. This would indicate that the relative importance of tourism in the three counties is extremely high in relation to the overall state. This is born out by the fact that of the 83 counties in Michigan, Mackinac ranks first, Luce ranks 17th, and Chippewa ranks 19th in the overall impact of tourism on the county's economy.²⁶

Eastern U.P. Seasonal Travel and Tourism Activity

The breakdown of seasonal travel and tourist activity in the Eastern U.P. is shown in Table G.

TABLE G²⁷

	% of Total Annual Travel Activity	% of Annual Tourism Activity	Tourism Activity as a % of Total Quarterly Travel Activity
January through March	5.7%	3.7%	53.4%
April through June	25.9	24.0	74.9
July through September	55.5	60.6	88.1
October through December	<u>12.9</u>	<u>11.7</u>	<u>72.6</u>
	100.0%	100%	80.7%

Private accommodations sales data show July to September as the busiest quarter of the year with over 65 % of the total yearly sales in FY 74-75 occurring in this quarter.

TABLE H²⁸

<u>Quarter</u>	<u>FY 66-67</u>	<u>FY 74-75</u>
July through September	72.2	65.3
October through December	8.1	8.0
January through March	3.1	4.7
April to June	16.6	22.0

Monthly data on sale for FY 74-75 show that June and September are about equal (See Appendix A).

Total traffic activity at four points along major access routes to the Eastern U.P., US-2 at Brevort, I-75 at the Mackinac Bridge, I-75 at

St. Ignace, and the International Bridge at Sault Ste. Marie also show the greatest activity in the summer months. The July through September quarter consistently exceeds 45% of the annual traffic.

TABLE I²⁹

	<u>1969</u>	<u>1973</u>	<u>1977</u>
January through March	9.35%	11.58%	11.41%
April through June	24.4	24.00	24.71
July through September	48.35	46.00	46.85
October through December	<u>18.26</u>	<u>18.42</u>	<u>18.03</u>
	100.00%	100.00%	100.00%

June traffic is slightly less than September traffic. (See Appendix B)

Overall, seasonal indicators show the peak months for travel activity in the Eastern U.P. are June, July, August, and September with July-September the peak quarter.

Traffic counts tend to show the three day holiday weekends of Memorial Day in May and Labor Day in September contain significant travel activity. Activity before Memorial Day and after Labor Day is significantly less. Traditionally these holidays represent the opening and closing of the tourist season in the Eastern U.P.

TABLE J³⁰

AVERAGE DAILY TRAFFIC COUNTS
AT FIVE STATIONS IN THE EASTERN U.P.

	<u>1976</u>	<u>1977</u>
May 1-24	16,204	17,140
May 25-31 Memorial Day Week	26,499	29,368
Month of:		
June	24,530	24,764
July	38,116	39,390
August	40,120	39,568
September 1-7: Labor Day Week	36,013	38,336
September 8-30	22,247	23,778
October	18,327	18,009

V. EASTERN U.P. TOURISM GROWTH TRENDS

No one comprehensive measure of travel and tourism growth for past years exists for the Eastern U.P. It is therefore necessary to look at a variety of growth trend indicators to assess Eastern U.P. travel and tourism growth trends. These indicators are listed in Table K.

TABLE K

<u>Indicator</u>	<u>Period Considered*</u>	<u>Annual Rate of Growth</u>
Mackinac Bridge Crossings ³¹ (cars & cars with trailers)	1968-1976 (7 yrs.)	3.75%
Lodging Sales (Dollar Volume) ³² (based upon tax receipts)	FY-66/67 - FY 74/75 (8 yrs.)	5.7%
Camper Nights at State Parks ³³	1968-1977 (9 yrs.)	4.19%
Day Users at State Parks ³⁴	1968-1977 (9 yrs.)	6.46%
Restaurant Sales ³⁵ (Dollar Value)	FY-66/67 - FY-74/75 (8 yrs.)	4.05%
M-28 Average Daily Traffic (at Newberry) ³⁶	1969-1976 (7 yrs.)	2.07%
US-2 Average Daily Traffic (at Brevort) ³⁷	1969-1976 (7 yrs.)	2.65%
International Bridge Traffic ³⁸	1969-1977 (7 yrs.)	3.76%
Consumer Price Index ³⁹ (CPI)	1967-1977 (9 yrs.)	6.1%
Average combined growth ⁴⁰ (Mackinaw Bridge, M-28 US-2, International Bridge Traffic)	1969-1976 (7 yrs.)	3.3%

*Period considered varies from indicator to indicator due to data availability. However, they all cover roughly the same period of time.

Because lodging sales and restaurant sales were measured in dollars, it is necessary to take into account the impact of inflation. The CPI averaged 6.1% per year during roughly the same time that lodging and restaurant sales averaged 5.7% and 4.05% respectively. Assuming lodging rates increased slightly less than the CPI, it is apparent that little if any growth has occurred over the past several years in the use of private accommodations (hotel/motels/cabins/cottages). If in fact, the lodging rates increased faster than the CPI, then there has been a reduction in private accommodations activity. For restaurants, it appears that there was a net annual growth of nearly 3% in restaurant activity after adjusting for inflation. To some extent, this increase in restaurant activity is probably due to population growth and a nation wide trend to eat away from home more often.

For the purposes of this study, people staying over night will be considered as falling into the following three categories; private accommodations (hotels/motels/cabins/cottages), state campgrounds, and private campgrounds. Drawing from TIGS, DNR data and a Public Health Department listing of private campgrounds and assuming a private campground annual growth rate one half of the rate for state campgrounds it is possible to estimate the proportion of overnight activity for each category. For those staying overnight in 1967; 74.3% used private accommodations, 12.2% used private campgrounds; and 13.5% used state campgrounds.

A 1969 Michigan Department of State Highways survey of Mackinaw Bridge traffic⁴¹ indicated that approximately 54% of the traffic had a definite Eastern U.P. destination, 46% were just passing through. For the purposes of this study it can be assumed that the 54% constitutes those staying overnight in the study area. When this along with the above

factors are taken into consideration, the following trends emerge:

-overall tourism growth	about 3.3% annually since the late 1960's
-growth in number of people staying overnight	approximately .9% annually since the late 1960's
-growth in pass through tourists (tourists that may stop in the Eastern U.P. but do not stay overnight)	approximately 5.9% annually since the late 1960's

These growth rates are reasonably consistent with the growth in restaurant activity and day use at state parks. Furthermore, because 1) the growth in restaurant sales (after adjustment for inflation) is slightly greater than the increase in overnight activity, 2) campers tend to spend less at restaurants than do those using hotels and motels, and 3) the high rate of day use activity at state parks, this data suggests that it can be reasonably assumed that the pass through traffic is spending some time in the Eastern U.P. before traveling on.

Those camping spend less than those using private lodging and those passing through an area spend less than those staying overnight. Since these are the only types of tourists exhibiting much growth in the Eastern U.P., the annual real growth rate in tourism expenditures (excluding inflation) is less than the 3.3% growth rate in tourism activity. Based upon the above data, an annual growth rate in tourism expenditures (excluding inflation) in the range of 1 to 2% since the late 1960's appears reasonable. Including inflation, the growth rate in tourism expenditures would range from 7.1% to 8.1% per year since the late 1960's.

VI. DIMENSIONS OF PROPOSED FERRY SERVICE

The following assumptions were used in laying out a hypothetical ferry service with dimensions based on what is currently known about the proposed ferry service.

Assumption #1

Season of Operation.

The season of operation for the proposed ferry service is the 106 days between May 25 and September 7. With these dates, Memorial Day and Labor Day will always be included. This also approximates the season of other ferry services on the Great Lakes. (See Appendix C)

Assumption #2

One Round Trip per Day.

Because of the time necessary for loading and unloading at each port, the speed of the vessel, and the length of the trip, a round trip of twelve hours is assumed. The following is a likely schedule:

1. One hour loading at Port A
2. Four hour trip to Port B
 - 50-60 statute miles
 - Ferry travels at 15 statute miles per hour
3. One hour unloading at Port B
4. One hour loading at Port B
5. Four hour return trip to Port A
6. One hour unloading Port A

The port of origin (Port A) could be either DeTour or Meldrum Bay.

Assumption #3

Vessel Capacity.

The vessel capacity assumed will be 200 autos and 1,000 passengers.

Assumption #4

Rate per Vehicle.

The study assumes rates of \$20, \$30 and \$40 per vehicle. This represents a low, medium and high level in view of the rates charged by other Great Lakes ferries (Appendix C). An average of 3 persons per vehicle is assumed.

Assumption #5

Vessel Operating Costs

Approximate operating costs of a vessel with the capacities in Assumption #3 for a 100 mile trip would be as follows:

Crew	\$2,600
Commissary	165
Maintenance	620
Insurance	325
Overhead	250
Fuel and Oil	<u>1,000</u>
Total	\$4,960 ⁴²

Operating costs for other Great Lakes ferries range from \$4,176 to \$9,210 (Appendix D). The reason for the wide disparity is primarily because the cost of fuel varies according to the number of miles traveled much more so than other cost categories. Costs per mile range from \$15 to \$50. (Appendix D)

An average cost per mile for the proposed ferry service would be \$50/mile. Given the range of costs of other ferries, a safe high and low range would be \$40 to \$60 per mile. Therefore, this study uses a range of \$4,400 to \$6,600 in operating costs for a 110 mile round trip between DeTour Village and Meldrum Bay.

Assumption #6

Advertising Costs

A promotion and advertising program is essential to the success of this service. A minimal program would be \$5,000 for the publication and distribution of 75,000 to 100,000 brochures/schedules and \$10,000 for advertising in newspapers, magazines and tourist publications. This is an annual program cost of approximately \$15,000.

Assumption #7

Debt Retirement Costs

Assuming the ferry and any necessary port and facility improvements are not paid for by a grant, the annual cost of debt retirement will have to be added to total operating costs. A \$1.7 million outlay for a vessel and port and docking facility improvement would result in an annual debt retirement cost of approximately \$148,000 at a 6% interest rate over 20 years. The \$1.7 million is simply an illustrative estimate for the purpose of examining the impact of possible capital costs.

Cost Summary

Operating	\$466,400	-	\$699,600
Promotion & Advertising	<u>+15,000</u>		<u>+15,000</u>
Total Annual Operating	\$481,400	-	\$714,600
Debt Retirement	<u>+148,000</u>		<u>+148,000</u>
Total Annual Costs	\$629,400	-	\$862,600

At the lowest possible cost (assuming a grant is available to cover capital costs) the ferry service would cost \$481,400 per year. For this example the top range of costs (including debt retirement or capital costs) would be \$862,600.

It should be noted that these cost figures are simply estimated for the purpose of this study. A more detailed evaluation of operating costs should be made prior to any final decision to institute a ferry service.

VII. COMPARISON OF PROPOSED FERRY SERVICE TO EXISTING
MEANS OF ACCESSING MANITOULIN ISLAND

One of the best ways to determine potential utilization of a proposed transportation service is to examine how it compares with other means of access in terms of cost, travel time and convenience.

For this analysis, Excelsior will be considered the terminal on the island as it is in the approximate center of activity on the island. The Eastern Upper Peninsula terminal will be the interchange of I-75 and State Route 131. All driving costs are based on 13 miles per gallon and 65 cents per gallon of gas.

Southeast terminal -

The first terminal area to be considered is the general area of Detroit, Toledo, and Cleveland. A total of 23.14% of the island's tourists come from Michigan and Ohio. A majority of these tourists would come from this area. These tourists have four possible routes to the island.

1. Detroit to Excelsior via proposed ferry:

	<u>Miles</u>	<u>Hours</u>	<u>Speed</u>
Detroit to Interchange			55 mph to interchange
	363	6.67	
Interchange to DeTour			50 mph to DeTour
DeTour to Meldrum Bay-via ferry	50	5.0	
Meldrum Bay to Excelsior	<u>60</u>	<u>1.7</u>	35 mph
Total	473	13.37	

Further considerations:

If the ferry docks in DeTour overnight and leaves at 8 AM, most users would have to spend the night somewhere along the way. If the ferry docks in Meldrum Bay overnight and does not leave DeTour until 2 PM, this would eliminate the necessity of an overnight stay.

Costs of trip:

423 driving miles .	\$21.15
Ferry fare	20.00 - 40.00
Bridge fare	<u>1.50</u>
Total	42.65 - 62.65
Overnight lodging	<u>25.00</u>
Total with lodging	\$67.65 - 87.65

Thus depending upon the schedule of the ferry, costs range from \$42.65 to 87.65.

2. Detroit to Excelsior via Canadian ferry:

	<u>Miles</u>	<u>Hours</u>	<u>Speed</u>
Detroit to Tobermory	304	6.08	50 mph
Tobermory to South Baymouth-via ferry	33	2.75	
South Baymouth to Excelsior	<u>40</u>	<u>1.14</u>	35 mph
Total	377	9.97	

Further considerations:

No overnight stay necessary due to convenience of ferry schedule.

Cost of trip:

344 driving miles	\$17.00
Ferry fare	16.20
Bridge fare	<u>.25</u>
Total	\$33.45

3. Detroit to Excelsior via Canadian highways

	<u>Miles</u>	<u>Hours</u>	<u>Speed</u>
Detroit to Little Current	544	10.88	50 mph
Little Current to Excelsior	<u>30</u>	<u>.85</u>	35 mph
Total	574	11.73	

Cost of trip:

574 driving miles	\$28.70
Bridge fare	<u>.25</u>
Total	\$28.95

4. Detroit to Excelsior via Sault Ste. Marie

	<u>Miles</u>	<u>Hours</u>	<u>Speed</u>
Detroit to Little Current	521	9.73	55 mph to S.S. Marie
Little Current to Excelsior	<u>30</u>	<u>.85</u>	50 mph to Little Current 35 mph

Cost of trip:

551 driving miles	\$27.50
Bridge fares	<u>3.00</u>
Total	\$30.50

Considering the costs and times for the four routes available to the southeast market, the route using the proposed ferry service is by far the most expensive, time consuming, and is least convenient.

Manitoulin Island or E.U.P. terminals -

For the remainder of the tourists, the Canadian routes through Port Huron do not offer any advantages. Therefore once in the E.U.P. or on the island, there are only two probable routes that these tourists would consider.

1. Via proposed ferry

	<u>Miles</u>	<u>Hours</u>	<u>Speed</u>
Interchange to DeTour	41	.82	50 mph
DeTour to Meldrum Bay -via ferry	50	5.0	
Meldrum Bay to Excelsior	<u>60</u>	<u>1.7</u>	35 mph
Total	151	7.52	

Cost of trip:

101 driving miles	\$5.05
Ferry fare	<u>20.00 - 40.00</u>
	\$25.05 - 45.05

2. Via highways

	<u>Miles</u>	<u>Hours</u>	<u>Speed</u>
Interchange to S. S. Marie			55 mph
S. S. Marie to Little Current	216	4.25	50 mph
Little Current to Excelsior	<u>30</u>	<u>.85</u>	35 mph
Total	246	5.10	

Cost of trip:

246 driving miles	\$12.30
Bridge fare	<u>1.50</u>
Total	\$13.80

Driving via the Canadian Highway is faster, cheaper, and more convenient than using the proposed ferry service.

A further comparison has been made with the assumption that for every hour of driving time, 10 minutes is taken for rest, dining, etc. Thus for a six hour straight drive trip actual elapsed time would be seven hours. The results of this comparison and the previous comparisons are shown in Table L.

TABLE L

Summary of Travel Costs and Times

ROUTE	COST	DRIVING	
		without additional 10 minutes/hour	TIMES with additional 10 minutes/hour
Detroit to Excelsior via proposed ferry	\$67.65 to 87.65 (w/out lodging cost \$42.65 - 62.65)	13.37 hrs.	14.70 hrs.
Detroit to Excelsior via Canadian ferry	\$33.45	9.97	11.12
Detroit to Excelsior via Canadian highway	\$28.95	11.73	13.60
Detroit to Excelsior via Sault Ste. Marie	\$30.50	10.58	12.26
Eastern UP to Excelsior via proposed ferry	\$25.05 to 45.05	7.52	7.92
Eastern UP to Excelsior via Canadian highway	\$13.80	5.10	5.91

Conclusion and Summary

Using the proposed ferry service is more expensive, takes longer and is less convenient than any other route for all tourists. This strongly suggests that the only users would be those who perceive the ferry ride as an attraction in itself. There are undoubtedly some who would use the ferry service because it is an attraction. However, the fact that using the proposed ferry service is more expensive, more time consuming and less convenient, in our opinion, severely limits market acceptance.

VIII. PRIMARY SOURCES OF DEMAND FOR THE
PROPOSED FERRY SERVICE

Potential sources of demand for the proposed ferry service fall into the following categories:

Current tourists in the Eastern Upper Peninsula

Overnight tourists

Tourists who stay part of a day

Tourists who drive through without stopping

Current Canadian tourists

Tourists on Manitoulin Island

Tourists in regions around Manitoulin Island

Resident population of the Eastern Upper Peninsula

Resident population of Manitoulin Island

All estimates of the sources of demand are based on a season of May 25 to September 7. Other estimates are based on data relative to 1975 unless otherwise stated. Demand is stated in terms of vehicles for the purposes of this study. Based upon the TPMA* study and other data available to the Travel Bureau it is reasonable to assume an average of three tourists per vehicle.⁴³

Current Tourists to the Eastern Upper Peninsula

The largest potential market for the proposed ferry service is the current tourists to the Eastern Upper Peninsula. There are several methods of estimating the number of these tourists.

The first method of estimating the number of tourists in the Eastern Upper Peninsula is derived by adding:

* Travel Product Market Analysis

1. The number of tourists in the Eastern Upper Peninsula that enter the area via the Mackinac Bridge.
2. The number of tourists in the Eastern Upper Peninsula that enter the area via western routes.
3. The number of tourists that enter the area via the International Bridge.

(See Appendix E)

This results in an over-estimation for several reasons. Not all tourists coming over the International Bridge and the Mackinac Bridge stay or even stop in the area. Also the Soo Locks visitor count was used as a basis for calculating the number of tourists using western routes. Not all Lock visitors spend time on the American side other than to see the locks. To the extent that not all tourists coming from the West visit the Soo Locks, the over estimate is somewhat moderated.

This method results in an estimate of 648,270 tourist vehicles in the Eastern Upper Peninsula from May 25th to September 7th. This includes tourists who drive through the area without stopping, those who stop for part of a day, and those who stay overnight.

The second method is similar to the first. However, this method considers only those tourists who actually stay overnight in the Eastern Upper Peninsula. This estimate is derived by adding:

1. The number of tourists in the Eastern Upper Peninsula that enter via the Mackinac Bridge and stay overnight.
2. The number of tourists in the Eastern Upper Peninsula that enter via western routes and stay overnight.
3. The number of tourists from Ontario in the Eastern Upper Peninsula who stay overnight.

(See Appendix F)

This method is an under-estimation. The Soo Locks visitor count was again used as a basis for calculation and not all Eastern Upper Peninsula tourists visit the Locks. This results in a conservative figure both for the number of tourists entering the E.U.P. from the west and for the number of tourists from Ontario.

Overall this method results in an estimate of 265,531 tourist vehicles.

The third method involves using expenditure data, an average length of stay estimate, and a per person day expenditure figure.

1. Tourist expenditures for May 25 - September 7 amount to \$57,346,746.
2. Per person day expenditures = \$20.48
3. Average length of stay estimated at 1.72 days.

(See Appendix G)

Dividing \$57,346,746 by \$20.48 and 1.72 results in total tourists of 1,627,985 or 542,662 tourist vehicles. Of these, approximately 54% stay overnight as found in the 1969 Highway Department survey of Mackinac Bridge crossings which amounts to 293,037 tourist vehicles.

In summary, the three methods resulted in the following estimates:

Method 1	648,270 tourist vehicles
Method 2	265,531 tourist vehicles
Method 3	293,037 tourist vehicles

The first estimate includes those tourists staying overnight, those passing through without stopping, and those stopping for only part of a day. Those tourists staying overnight in the Eastern Upper Peninsula offer the greatest potential for using the ferry. This is because they already demonstrate a willingness to spend time in the region. Those who do not stay overnight generally have other final destinations in mind and would not be willing to give up the one or two days that would be necessary to use the ferry. This leaves methods two and three as the best estimates for this segment of the potential market. Because method two under-estimates the number of tourists, the estimate in method three will be used.

Current Canadian Tourists

According to the Tourism Statistical Handbook published by the Ontario Ministry of Industry and Tourism,⁴⁴ the following number of person visits and related expenditures occurred in 1973 in the Canadian regions under consideration:

	<u>No. Person Visits</u>	<u>Expenditures</u>
Manitoulin Island	198,000	\$ 8,200,000
Sudbury - Algoma	4,127,000	76,700,000
Bruce - Grey - Dufferin	2,703,000	41,400,000

Because information was not available on the seasonality of this travel, it is assumed that it is roughly equivalent to the seasonality of travel

in the Eastern Upper Peninsula. Therefore it is assumed that 64.48% of all person visits and expenditures occur during the May 25 to September 7 season. This results in the following:

	<u>No. Person Visits</u>	<u>Expenditures</u>
Manitoulin Island	127,670	\$ 5,287,360
Sudbury - Algoma	2,661,090	49,456,160
Bruce - Grey - Dufferin	1,742,900	26,694,720

Transportation links to the island are already present and are convenient for tourists in the Sudbury - Algoma and Bruce - Grey - Dufferin regions of Ontario. The addition of the proposed ferry service will not add to the attractiveness of the island from the perspective of the tourists in these two regions. It is therefore, not expected that the proposed ferry service will attract any more tourists from these regions to the island. Accordingly, current tourists to Manitoulin Island offer the greatest potential Canadian market for the new ferry service. According to the Canadian survey of island tourists in 1968,⁴⁵ there are 3.39 tourists per vehicle. Thus 127,670 tourists equate with 37,661 tourists vehicles on the island from May 25 to September 7. The origin of the island tourists according to the Canadian survey of the island⁴⁶ is as follows.

Province or State of Origin of Respondent-Parties Visiting Manitoulin Island

<u>Province or State of Origin</u>	<u>Percent</u>
Ontario	62.23%
Quebec	1.08
Manitoba	0.48
Saskatchewan	0.96
Alberta	0.60
British Columbia	0.36
Atlantic Provinces	0.24
Massachusetts	0.24
Connecticut	0.24
New York State	1.80
Pennsylvania	1.44
Ohio	10.79
Michigan	12.35
Wisconsin	0.60
Illinois	0.96
Other	<u>5.63</u>
TOTAL	100.00%

Other Demand Sources

Other sources of demand are the resident populations of the Eastern Upper Peninsula and Manitoulin Island. The E.U.P. has a population of 16,713 households and the island has a population of 3,100 households. The demand from these sources is an unknown factor but would be minimal at best because the proposed ferry service does not offer any advantage over existing access routes.

Estimate of the Potential Market

The greatest potential sources of demand are the current tourists visiting the Eastern Upper Peninsula and the current tourists visiting Manitoulin Island.

E.U.P. Tourist Vehicles	293,037
Manitoulin Island Tourist Vehicles	<u>37,661</u>
Total Potential Market	330,698

Future Growth of the Potential Market

To assure a conservative approach, 1975 levels of demand are used in assessing market potential. Based upon past trends growth in the potential market for the ferry service will only be about 1% per year (those that stay overnight). It should be noted that there is a potential for increasing tourism in the Eastern U.P. by as much as 100% over present levels. To do so, however, would require aggressive marketing, promotion and product development efforts and this is not considered in this study. A reduction in Mackinaw Bridge tolls would also help increase Eastern U.P. tourism activity as was suggested in the 1977 state of the State message to the Michigan Legislature by Governor William Milliken.

IX. SHARE OF POTENTIAL MARKET NECESSARY TO BREAK EVEN

The major variables of the proposed ferry service have been determined along with the market environment the ferry service would be operating in. All of this information can be combined to provide a good idea of the possible operating position of the ferry service.

Break Even Analysis

The season has been defined as May 25 to September 7. During this season there are approximately 37,661 tourist vehicles on Manitoulin Island and 293,037 tourist vehicles in the Eastern Upper Peninsula that compose the total potential market of 330,698 tourist vehicles for the proposed ferry service.

The assumed capacity of the ferry is 200 vehicles. Rates of \$20, \$30, and \$40 per vehicle are used. The approximate operating costs of a vessel of this size lie in a range of from \$4,400 to \$6,600 with a midpoint of \$5,500 per day for a trip of 110 miles. With a season of 106 days, vessel operating costs for the season range from \$466,400 to \$699,600 with a midpoint of \$583,000. In addition, promotional costs generally could average \$15,000 per season.

Using this information, a break even chart can be constructed. It should be realized that a change in any one of the above variables would cause a change in the following chart, either increasing or decreasing the number of vehicles that need to be attracted.

<u>Operating Cost (including promotion)</u>	<u>Rate</u>	<u># of Vehicles that must be attracted to cover operating costs</u>
\$481,400	\$20	24,070
	30	16,047
	40	12,035
598,000	20	29,900
	30	19,933
	40	14,950
714,600	20	35,730
	30	23,820
	40	17,865

As can be seen by the chart, it will be necessary to attract from 12,035 vehicles to 35,730 vehicles in order to generate enough revenue to cover vessel operating costs and promotional costs. This amounts to attracting from 3.6% to 10.8% of the total potential market. The number of vehicles needed will vary according to the actual vessel operating costs experienced, the actual promotional expenses incurred, and the actual rate chosen.

Total operating costs will be even greater than above depending on the method of financing the purchase of a ferry. If a grant is obtained, then no debt retirement expense will be incurred. However, under any other method of financing the purchase, an annual debt retirement figure will have to be included in total operating costs of the service. Also, any expenses incurred for the upgrading of docking facilities or any other expense will have to be included. These factors could cost approximately \$1.7 million with an annual debt retirement expense of \$148,000. This would alter the break even chart as follows:

<u>Total Operating & Debt Retirement Costs</u>	<u>Rate</u>	<u>Vehicles</u>
629,000	\$20	31,470
	30	20,980
	40	15,735
746,000	20	37,300
	30	24,867
	40	18,650
862,000	20	43,130
	30	28,753
	40	21,565

This would mean attracting from 4.7% to 13.0% of the total potential market.

Ability of Ferry Service to Attract Breakeven Level of Patronage

While the percent of the potential market that must be attracted to break even is relatively small in comparison to the size of the potential market, the ability of the ferry service to attract traffic is, in our opinion, questionable. There are three key factors that make the attractiveness of the service questionable:

1. The service does not offer any time or cost savings and is less convenient than present access routes.
2. There is no reason to conclude that the island would attract more tourists even with the proposed new service. It is questionable as to whether present recreational and accommodation facilities on the island can handle increased traffic.

(Appendix H)

3. Use of the ferry service to go to the island involves at least one full day compared to just a few hours to see other Eastern U.P. attractions. While this might increase the length of stay -- the increased time will be spent outside the Eastern U.P.

Capacity Considerations

The market potential information shows 7.8 times as many tourists in the Eastern U.P. as there are on the Island (293,037 vs. 37,661). Assuming 50% of those using the ferry will use it on a round trip basis there will be 1.7 times as many tourists using the ferry from DeTour to Meldrum Bay as those using it from Meldrum Bay to DeTour (See Appendix I). Given this assumption, capacity problems are likely to be encountered at some of the higher usage levels of the break-even analysis.

A vessel capacity of 200 vehicles and a 1.7 to 1 split of users means a maximum of 319 vehicles on any given day -- 200 to Meldrum Bay and 119 to DeTour. An average of 319 vehicles per day equals 33,814 vehicles in a 106 day season. This figure is exceeded once in the analysis that did not consider debt retirement costs (p. 37, operating cost - \$714,600, rate - \$20) and twice in the analysis that does (p. 38, operating cost - \$746,000, rate - \$20, and operating cost - \$862,600, rate - \$20). In these three cases the market characteristics and capacity limitation could produce a short fall in the revenues needed to break even.

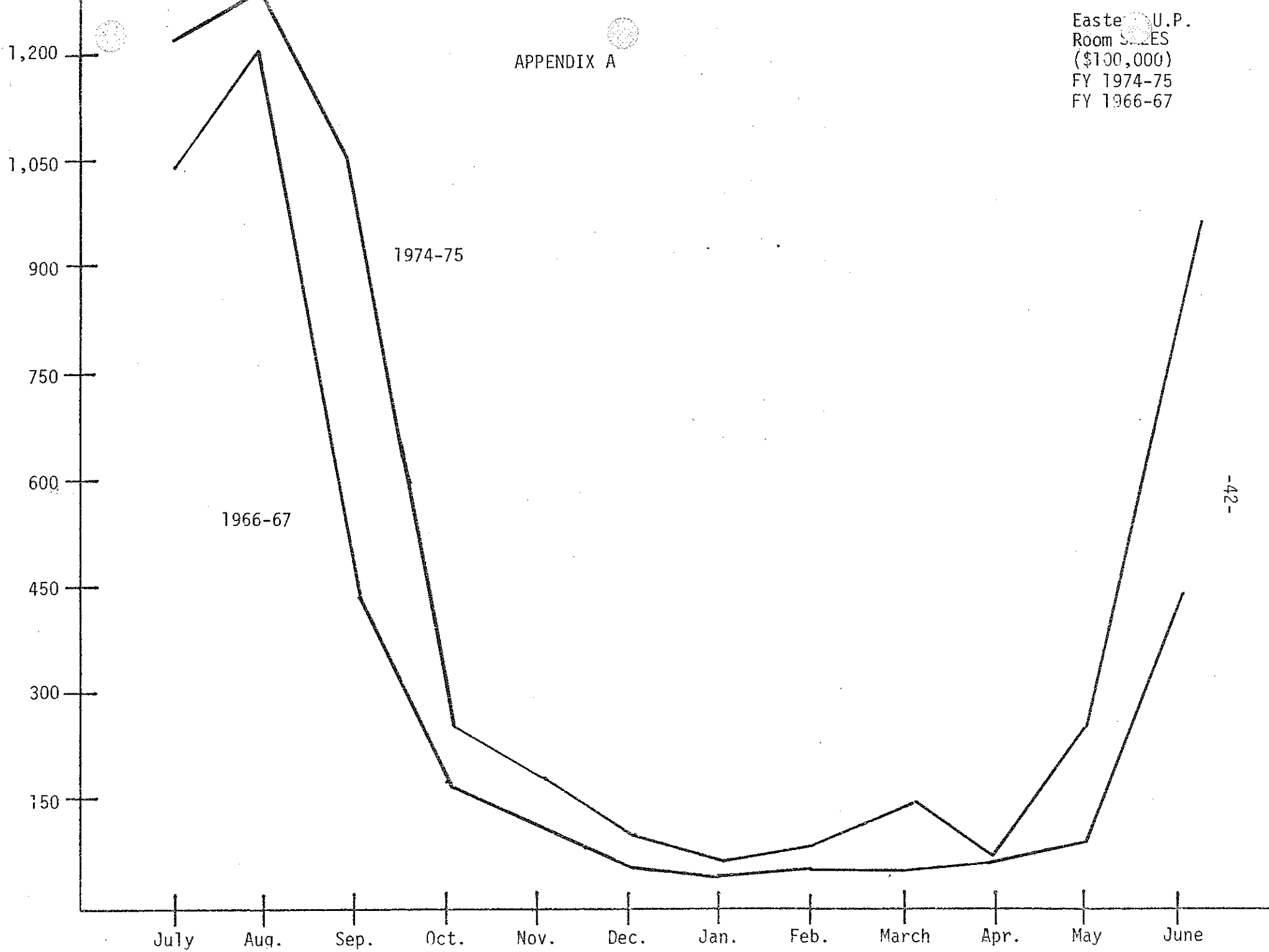
In addition, capacity problems are also likely to be encountered in those instances where the total number of vehicles necessary to break-even approaches 33,814. For example when operating and debt retirements costs equal \$629,400 and the rate is \$20 per vehicle, 31,470 vehicles per season are necessary.

This requires an average daily number of vehicles of approximately 297. Demand, however, will fluctuate from day to day and month to month with some days falling significantly below 297 vehicles. There will probably be problems in compensating for such days with days where demand is greater than 297 vehicles because of the possible 319 vehicles per day capacity limitation.

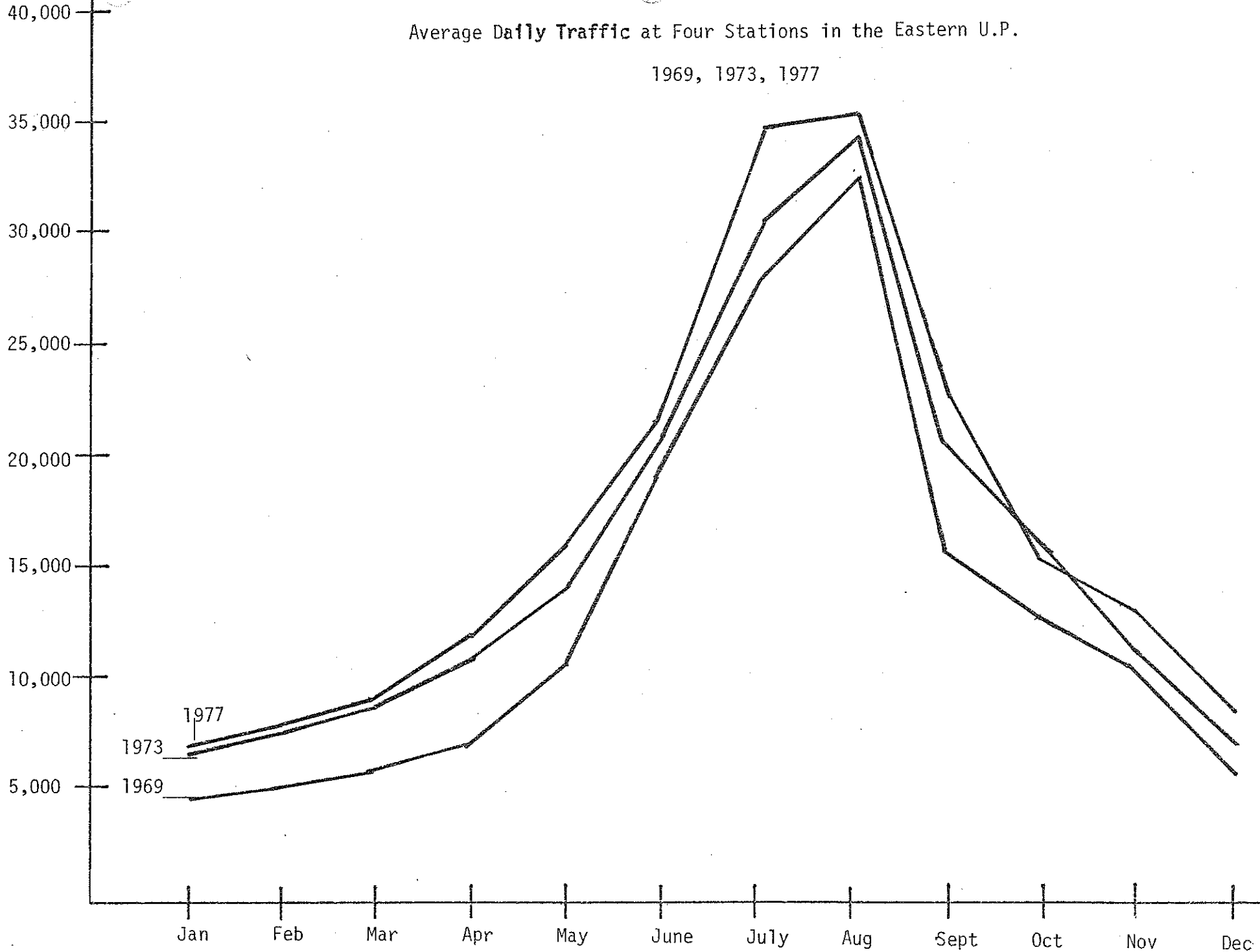
X. APPENDICES

APPENDIX A

Eastern U.P.
Room Sales
(\$100,000)
FY 1974-75
FY 1966-67



Average Daily Traffic at Four Stations in the Eastern U.P.
1969, 1973, 1977



APPENDIX C

Ferry System	Destination Points	Rates (One-Way)			Season
		Auto	Adult	Child	
1. Beaver Island Boat Co.	St. James, Beaver Island Charlevoix, MI	\$17.50	\$5.50	\$2.75	June 18 - Sept. 5
2. Lake Michigan Autoferry Service Chessie System	Ludington, MI Milwaukee, WI Manitowoc, WI	15.00	8.50	4.25	June 11 - Sept. 7
3. Conrail	Frankfort, MI Kewaunee, WI	17.75	9.75	4.90	May 26 - Sept. 4
4. Neuman Boat Line, Inc.	Marblehead, OH Sandusky, OH Kelly's Island	3.50	2.00	1.00	April 2 - Nov. 20
5. M.V. Pelee Islander	Kingsville, Ont. Sandusky, OH Leamington, Ont. Pellee Island	11.00	5.50	2.75	June 11 - Sept. 11
6. Ontario Northland Marine Service	Tobermory, Ont. South Bay Mouth Manitoulin Island	9.00	4.80	2.40	April 30 - Oct. 31

DAILY OPERATING PROFORMA AND OTHER VESSEL SPECIFICATION FOR GREAT LAKES FERRIES

	<u>Arthur K. Atkinson</u>	<u>Viking</u>	<u>Badger</u>	<u>City of Midland</u>	<u>Spartan</u>	<u>Madison</u>	<u>City of Milwaukee</u>
Daily Operating Proforma							
Wages	\$2,276.25	\$1,962.64	\$2,963.49	\$2,963.49	\$2,963.49	\$2,002.40	\$2,002.40
Commissary	139.20	118.83	190.12	190.12	190.12	135.83	135.83
Maintenance	487.95	306.66	195.00	195.00	195.00	200.00	200.00
Insurance	267.86	267.86	321.27	321.27	321.27	150.00	150.00
Fuel & Oils	1,297.51	1,260.92	5,013.87	5,013.87	5,013.87	2,504.00	2,504.00
Office & Shop Costs	<u>139.75</u>	<u>259.50</u>	<u>526.66</u>	<u>526.66</u>	<u>526.66</u>	<u>105.94</u>	<u>105.94</u>
TOTAL	\$4,592.92	\$4,176.42	\$9,210.41	\$9,210.41	\$9,210.41	\$5,098.23	\$5,098.23
Miles Steaming	212	277	183	183	291	150	150
Cost/Mile	\$ 21.70	\$ 15.00	\$ 50.30	\$ 50.30	\$ 31.60	\$ 33.99	\$ 33.99
Capacities							
Passengers	119	225	459	459	459	--	--
Autos	--	--	50	50	50	--	--
R&R Cars	22	22	23	23	23	22	22
Tonnage							
Gross	3,241	2,713	4,244	3,968	4,244	2,942	2,742
Net	1,826	1,287	2,033	1,833	2,033	1,485	1,488
Size							
Length	372'	347.9'	393.7'	389.2'	393.7'	347'	374'
Beam	58'	58.0'	59.7'	58.2'	59.7'	56'	56'
Speed (Knots)	17.5	16.5	18.5	17.5	18.5	14.0	14.0

Source: Survey of Vessels and Docks of Ann Arbor Railroad, Chesapeake and Ohio Railroad, Grand Trunk Railroad, and Mackinac Transportation Company. Prepared by Michigan Traffic Company, December 10, 1975.

APPENDIX E

Method 1 -

1. Mackinac Bridge figures -

Cars and cars plus trailers going north over the bridge from May 25 to September 7 amount to 503,968 vehicles.⁴⁷ According to the Travel Bureau's Tourist Industry Growth Study data, 83.7% of all travel activity in the Eastern Upper Peninsula during this season is due to tourists. Adjusting the number of vehicles to reflect this gives 421,821 tourist vehicles.

2. Western route figures -

This estimate is subject to the following assumptions:

- 50% of Illinois tourists enter the E.U.P. from the west.
- 70% of Wisconsin tourists enter the E.U.P. from the west.
- Illinois and Wisconsin tourists comprise the majority of tourist entering the E.U.P. from the west.
- The majority of E.U.P. tourists visit the Soo Locks.

Soo Locks attendance in June, July, and August of 1977 was 762,592.⁴⁸ According to the Travel Product Market Analysis by Market Opinion Research, 16.1% of all Soo Lock visitors come from Illinois and 8.5% come from Wisconsin. Therefore to find the number of western route tourists, the following formulas were used:

Wisconsin tourists	$70\% \times 8.5\% \times 762,592 =$	45,374
Illinois tourists	$50\% \times 16.1\% \times 762,592 =$	61,389
Total western route tourists =		106,763
Total western route tourists vehicles =		35,588

3. International Bridge figures -

The number of cars and cars plus trailers going south over the Bridge into the E.U.P. from May 25 to September 7 amount to 228,030.⁴⁹

To adjust this to reflect only tourists, this figure is multiplied by 83.7% as was done in step 1. This amounts to 190,861 tourist vehicles.

APPENDIX F

Method 2 -

1. Mackinac Bridge figures -

The number of tourist vehicles in the E.U.P. during the season as developed in Method 1 is 421,821. According to a Michigan Department of State Highway's origin - destination study,⁵⁰ approximately 54% of all vehicles over the Mackinac Bridge have a destination in the E.U.P. This amounts to 227,783 vehicles.

2. Western Route figures -

This is calculated as in Method 1. This resulted in an estimate of 35,588 vehicles. One further assumption is that 80% of these tourist vehicles stay overnight in the E.U.P. This results in 28,470 vehicles.

3. Ontario tourists -

This is developed using the following assumptions:

- The majority of Ontario tourists in the E.U.P. visit the Soo Locks
- Ontario tourists comprise the largest segment of tourists entering the E.U.P. over the International Bridge.
- 50% of these tourists stay overnight in the E.U.P.

There were 762,592 visitors to the Soo Locks in June, July, and August of 1977. According to the Travel Product Market Analysis by Market Opinion Research, 7.3% of the visitors to the locks come from Ontario. This amounts to 55,669 tourists or 18,556 tourist vehicles. Approximately 9,278 of these vehicles stay overnight in the E.U.P.

APPENDIX G

Method 3 -

1. Tourist expenditures

This figure is derived primarily from the Travel Bureau's Tourist Industry Growth Study for 1975. The following is the percent of annual tourist expenditures each month accounts for:

May	6.89%
June	11.23%
July	18.24%
August	18.77%
September	11.89%

Traffic counts show approximately 1/3 of the month of May's and September's activity takes place during the last week of May ($6.89\% \times .33 = 2.27\%$) and the first week of September ($11.89\% \times .33 = 3.92\%$). Thus total tourist expenditures from May 25 through September 7 is 54.43% of annual travel expenditures. Annual travel expenditures are \$105,358,710, 54.43% of which is \$57,346,745.

2. Per person day expenditures -

The Travel Bureau derived this from the 1975 National Travel Expenditure study by the U.S. Travel Data Center and from the Travel Market for Michigan by Market Opinion Research.

3. Average length of stay -

The following assumptions are used in developing this figure:

- There are 421,821 tourist vehicles coming into the Eastern Upper Peninsula via the Mackinac Bridge as developed in Method 1. According to an origin-destination study by the

Michigan Department of State Highways,⁵¹ 54% of these vehicles have a destination in the Eastern Upper Peninsula.

- There are 35,588 tourist vehicles coming into the E.U.P. via western routes as developed in Method 1. Of these, the Travel Bureau estimates that approximately 80% stay overnight.

- There are 18,556 Ontario tourist vehicles in the E.U.P. as developed in Method 2. Of these, the Travel Bureau estimates that 50% stay overnight.

Using the above assumptions and constructing a weighted average, approximately 56% of all E.U.P. tourists during the May 25 to September 7 season stay overnight. From the Travel Bureau's Tourist Industry Growth Study data it is known that the average length of stay for those 56% who stay overnight is 2.83 days. One further assumption is that the remaining 44% of tourists spend an average of .3 days in the E.U.P. on their way to their final destination.

Thus $56\% \times 2.83 \text{ days} + 44\% \times .3 \text{ days}$ equals an average length of stay of 1.72 days for all tourists.

APPENDIX H

Increase in Occupancy Rate Resulting From Increased Visitors on Manitoulin Island

	<u>Source</u>
940 rental units available	Survey of Visitors to Manitoulin Island. 1968. Ontario Dept. of Tourism and Information
<u>x106</u> day season (May 25-Sept. 7)	
99,640 rm/night available	
198,000 visitors/yr to Manitoulin Island	Tourism Statistical Handbook 1975: Ontario, Canada. Ontario Ministry of Industry and Tourism.
<u>±3.39</u> person/vehicle	Survey of Visitors to Manitoulin Island
58,407 visitor vehicles/yr.	
<u>x64.48%</u>	%annual activity between May 25 and Sept. 7.
37,661 visitor vehicles May 25-Sept 7.	
<u>x49%</u> - % using cabins, cottages, motels	Survey of visitors to Manitoulin Island
18,454 cars using cabins, cottages, motels	
<u>x3.9</u> days - avg. length of stay	Survey of Visitors to Manitoulin Island. Assumes 1 car per room
71,971 room/ngts needed	
<u>±99,640</u> room/ngts available	
72% avg. occupancy rate May 25-Sept. 7	
15,725 to 34,980 vehicles from proposed ferry	Survey of Visitors to Manitoulin Island
<u>x49%</u> <u>x49%</u> -% using cabins, cottage, motel	
7,705 to 21,119 rm/ngts needed for additional cars	
<u>+71,971</u> <u>+71,971</u> rm/ngts needed for current cars	
80% to 93% potential avg. occupancy rate May 25 - Sept. 7	

An 80 - 93% average occupancy rate will likely mean the demand of rooms will exceed supply during peak periods of the week such as weekends.

Appendix I

-Eastern U.P. tourists - 293,037

-Manitoulin Island tourists - 37,661

-Ratio of E.U.P. to Island tourists - 7.8:1

-Assuming 50% of the ferry users use it on a round trip basis the following is true:

1. Of vehicles originating in the E.U.P.:

-7.8 go to the Island

-3.9 return to the E.U.P.

2. Of vehicles originating on the Island:

-1 goes to the E.U.P.

-.5 return to the Island

-Total vehicles going to the E.U.P. are $7.8 + .5 = 8.3$

-Total vehicles going to the Island are $3.9 + 1 = 4.9$

-Ratio of vehicles from E.U.P. to the Island vs. vehicles from the Island to the E.U.P. is 8.3:4.9 or 1.7:1.

XI. FOOTNOTES

XI. FOOTNOTES

1. David I. Verway, William Grier, ed., "Michigan Statistical Abstract", Division of Research, Graduate School of Business Administration, Michigan State University (12th edition; East Lansing: Michigan State University, September 1977), p.35.
2. Division of Research, Graduate School of Business Administration, The Michigan Economic Record, Vol. 20, No. 2, February 1978 (East Lansing, Michigan State University), p.5.
3. Verway, op. cit., p.303.
4. Ibid., pp.344, 348.
5. Ibid., p.1011
6. Travel Bureau, Michigan Department of Commerce, "Tourist Industry Growth Study: A Report to the Upper Great Lakes Regional Planning Commission" (unpublished report, The Michigan Department of Commerce, 1975), pp. 89-93.
7. Ibid., pp. 37, 52, 53.
8. Market Opinion Research, "Travel Product Market Analysis, 1976" (unpublished report to the Travel Bureau, Michigan Department of Commerce, March, 1976),p.42.
9. Ibid.
10. Ibid.
11. From a special release by the Parks Division of the Department of Natural Resources, Michigan.
12. From a special release of Central Statistical Services, Ontario Ministry of Treasury, Economics and Intergovernmental Affairs.
13. "Canadian Survey of Buying Power," Sales and Marketing Management, Vol 119, No. 2, July 25, 1977, p. D-24.
14. From a special release of the Ontario Ministry of Industry and Tourism.
15. The Ontario Department of Tourism and Information, "A Survey of Visitors to Manitoulin Island, Ontario, Canada 1968" (an unpublished report by the Travel Research Branch of the Ontario Department of Tourism and Information), p. 24.
16. Ontario Ministry of Industry and Tourism, "Ontario/Canada Accomodations", 1976.
17. "Canadian Survey of Buying Power," op. cit., D-22 - D-26.
18. "Tourist Industry Growth Study", op. cit., pp. 89-93.

19. Based on calculations with data from the 1975 National Travel Expenditure Study by the U.S. Travel Data Center, U. S. Department of Commerce and the Travel Product Market Analysis Survey, prepared by Market Opinion Research, Inc. for the Travel Bureau, Michigan Department of Commerce, July, 1975.
20. Ibid.
21. Ibid.
22. "Tourist Industry Growth Study", op. cit., p.75.
23. Ibid., pp. 110, 141, 142.
24. Derivation:

\$105,358,710	E.U.P. Travel Expenditures
<u>÷ \$20.48</u>	Average daily expenses/person
5,144,468	Person days
<u>÷ 1.72</u>	Average length of stay
2,990,970	Travelers
25. "Tourist Industry Growth Study" op. cit., (unpublished data related to the report).
26. By "impact of tourism" is meant the relative ranking of the importance of travel and tourism to the economy of a county versus other counties in the state. The factors considered in developing this ranking are:
 - 1.) percent of total personal income that is travel generated,
 - 2.) percent of employment that is travel related, and
 - 3.) per capita travel expenditures.Each county was ranked for each of these three factors from high to low. By combining the value of the ranking for each, the aggregate travel impact was established.
27. "Tourist Industry Growth Study", op. cit., (unpublished data related to the report).
28. Based on expanded tax data from a special release of the Michigan Department of Treasury.
29. Michigan Traffic Data from Automatic Traffic Recorder Stations, 1969, 1973, 1977, Stations 2029, 2069, 2089, 2109, Bureau of Transportation Planning, Michigan Department of State Highways and Transportation.
30. Ibid., 1976, 1977.
31. Mackinac Bridge Authority, "Financial Statement and Report of Traffic and Revenue," December 31, 1977, p. 8.
32. From a special release of lodging tax receipts from the Michigan Department of Treasury.
33. From a special release of attendance figures at Brimley, Tahquamenon Falls, Muskallonge Lake and Mackinac Straits State Parks by the Parks Division of the Michigan Department of Natural Resources.
34. Ibid.

35. From a special release of eating and drinking establishment sales tax receipts by the Michigan Department of Treasury.
36. Michigan Traffic Data from Automatic Recorder Stations, 1969 through 1976, Station No. 2069, Bureau of Transportation Planning, Michigan Department of State Highways and Transportation.
37. Ibid., Station No. 2029.
38. Ibid., Station No. 2109.
39. From the Bureau of National Affairs (Policy and Practices Series).
40. Michigan Traffic Data from Automatic Recorder Stations, op. cit., Stations 2029, 2069, 2089, 2109.
41. "Origin-Destination Studies Taken at Mackinac Bridge, Mackinac County for 1967, 1969, and 1970, "Northwest Analysis Unit, Transportation Survey and Analysis Section, Transportation Planning Division, Michigan Department of State Highways and Transportation, pp.3-18.
42. Based on estimates from the Department of Naval Architecture and Engineering, University of Michigan.
43. The 1975 National Travel Survey by the U.S. Travel Data Center cites a 2.24 persons per traveling party average. The Travel Product Market Analysis for Michigan cites a 2.82 average, and the 1968 Survey of Visitors to Manitoulin Island gives a 3.39 average.
44. Tourism Research Branch, Ontario Ministry of Industry and Tourism, "Tourism Statistical Handbook, 1975", Table 3.
45. "A Survey of Visitors to Manitoulin Island, Ontario, Canada 1968", op. cit., p. 26.
46. Ibid., p. 25.
47. Mackinac Bridge Authority, Financial Statement and Report of Traffic and Revenue. December 31, 1975, p. 8.
48. From a special release of estimated attendance at the Soo Locks by the Army Corps of Engineers.
49. From a special release of the International Bridge Authority.
50. "Origin-Destination Studies Taken at Mackinac Bridge, Mackinac County for 1967, 1969, and 1970," op. cit.
51. Ibid.