PUBLIC TRANSPORTATION
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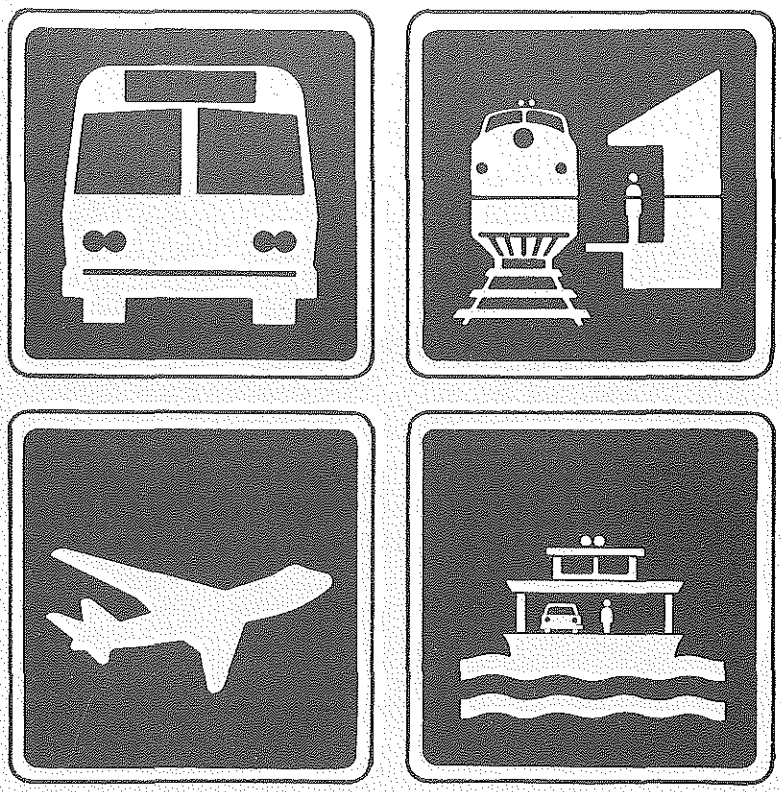
MICHIGAN INTERCITY BUS STUDY

A COMPARISON OF 1985 AND 1977 USER AND TICKET SURVEYS



PASSENGER TRANSPORTATION PLANNING SECTION
MICHIGAN DEPARTMENT OF TRANSPORTATION

MICHIGAN DEPARTMENT

OF

TRANSPORTATION

Report 9

MICHIGAN INTERCITY BUS STUDY

A COMPARISON OF 1985 AND 1977 USER AND TICKET SURVEYS

December 1985

Bureau of Transportation Planning
Intercity Transportation Planning Division
Passenger Transportation Planning Section

ACKNOWLEDGMENTS

This document was prepared by the staff of the Bureau of Transportation Planning, Passenger Transportation Planning Section. Major staff contributors were Robert L. Kuehne and Douglas C. Hollandsworth of the Surface Systems Unit.

The User Survey was conducted by the Transportation Surveys Section of the Transportation Planning Services Division. Cross tabulations of the User Survey data were developed by Homer Sprague of the Computer Services Division, Scientific Systems Development Section. Staff of the Passenger Transportation Planning Section conducted the ticket survey. Trip tables, origin-destination information, and computer graphics were developed by the Transportation Planning Procedures Section. Special thanks to Alan R. Friend, William R. Sanford, and Joyce A. Newell. The Bureau of Urban and Public Transportation, Intercity Division assisted in ticket survey information development, provided background information, contacted bus companies, and reviewed the report contents throughout its development.

Graphics assistance was provided by the Bureau of Transportation Planning graphics personnel. Mary Ann Barrett of the Passenger Transportation Planning Section and the Bureau of Transportation Planning Word Processing Center typed drafts and the final version of this document.

The cooperation and assistance of the intercity bus carriers serving the State of Michigan made this study possible and is deeply appreciated.

If further information is desired, please contact:

Passenger Transportation Planning Section
Bureau of Transportation Planning
Transportation Building
P.O. Box 30050
Lansing, MI 48909
Telephone: (517) 373-1880

EXECUTIVE SUMMARY

Intercity bus service in the United States is at a crossroad in its some 60-year history. Deregulation and its concomitant competition, increasing costs and declining ridership, and continued competition from other intercity passenger transportation modes have brought the intercity bus industry to the threshold of major modification and/or collapse. Symptoms of the industry's ill-health are discontinuance of routes, sale of terminals, franchising of services, cross-subsidizing, and anemic operating ratios.

The purpose of this study is to increase MDOT's ability to assist in the preservation and/or provision of needed intercity bus service to Michigan residents and visitors at this critical time. Toward this end, two separate but interrelated surveys were conducted in May 1985: (1) a User Survey, and (2) a Ticket Survey. The objectives of these were to assist in...

- Measuring the effect of intercity bus deregulation on intercity bus users and service levels in Michigan.
- Determining if the profile of the intercity bus user has changed since 1977 when a similar study was conducted.
- Identifying changes in the intercity bus user tripmaking patterns since 1977.
- Determining the user's perception of intercity bus service in Michigan.

Changes in intercity bus service use since 1977 include a 44 percent decrease in Michigan-based intercity bus users, an increased percentage of users generated by Michigan's urbanized areas, and some shifts in the top ten city-pairs in terms of intercity bus passengers.

The intercity bus user in 1985 is somewhat older, has more operating cars per household, has a higher family income, and has made fewer intercity bus trips during the past twelve (12) months than his/her 1977 counterpart. The predominant user continues to be female, but the female-male percentage gap has narrowed. The percentage of employed users has increased, college students decreased, and retirees remained about the same.

Intercity bus passengers are using the automobile more, local public transit about the same, and walking less to access bus terminals. There is very little interconnecting with other intercity bus routes or Amtrak. Social/recreation trips continue to be the primary trip purpose. Nearly 16 percent of the riders would not make the trip if intercity bus service was not available, primarily because they have no car (nearly 25 percent in this category), rail service is not available, and/or air travel is too expensive.

The user gives intercity bus employees, condition of buses, and schedule information high marks (80 percent or more rank these very good or good). Adherence to schedule, frequency of service, and condition of terminals received average or below average marks. A significant number believe no changes are needed.

Some specific finding highlights are presented below.

1. System and Use. The amount and use of intercity bus service in Michigan have significantly decreased since 1977, whereas rail, air and highway have increased. This reflects the dilemma confronting the intercity bus industry today.

Mode	Annual Person Trips (millions) 1985	1977	% Chg.
Bus	0.9	1.6	-44.0
Rail	0.5	0.4	+ 5.7
Air	14.0	11.5	+22.2
Auto	478.0	443.0	+ 7.9

2. Survey Sample Size. The 1985 intercity bus user survey sample size was 18 percent compared to over 50 percent in 1977. The return rate was 37 percent compared to 75 percent in 1977. The lower 1985 return rate was due to offering the user the option of mailing back the survey questionnaire.

3. Station Access. In 1985, the automobile was used more and local transit the same as in 1977 to go to and from intercity bus terminals. For instance, 64 percent used the automobile to go to the station compared to 54 percent in 1977. Approximately 10 percent used transit. Consequently, catering to the walk-in user may not be as critical a terminal location criteria as in the past.

4. Connecting Intercity Transportation Service. Few people use intercity bus service to access Amtrak (less than one percent), and not many more transfer from one intercity coach to another (less than five percent). This is true for both 1985 and 1977. This suggests the need to re-examine intercity bus services feeding Amtrak trains in Michigan or connecting with other intercity bus services.

5. Trip Purpose. Visiting friends and relatives continues to be the dominant trip purpose, approximately four of ten trips, although to a lesser extent than 1977. When vacation trips are added, the 1985 and 1977 ratios are approximately the same (six of ten). Work trips continue to constitute about one of ten intercity bus trips. This indicates that

convenient weekend service is a "must" so as to accommodate these social/recreation trips, but not at the expense of dependable daily service to accommodate the work trips in selected corridors.

6. Frequency of Intercity Bus Use. The user is making somewhat fewer trips by intercity bus. Nearly three of ten users made more than 10 trips by bus in the past year in 1977 compared to less than two of ten in 1985.

7. Socio-Economic Characteristics of the User. Users display the following features compared to 1977.

- Fewer are from no-car households...down from 36 to 24 percent.
- More are employed full or part-time...up from three of ten to four of ten.
- Fewer are college students...down from three of ten to two of ten.
- Retired users remained the same...15 percent.
- The average age has increased...up from 28 to 33 years.
- Median family income (in 1985 dollars) has increased... up from $16,900 to $18,100.

These suggest the need to tailor and market intercity bus services to at least two primary groups, college students and retirees, as Michigan college enrollments have remained stable and Michigan's retired population increased to 9.6 percent as of 1980.

8. Intercity Bus Ticket Sales. Approximately one-third of all intercity bus tickets sold in Michigan are purchased at the Detroit terminals. Detroit is still the hub of Michigan's intercity bus system as it was in 1977. Conversely, Chicago is the hub of Michigan's rail passenger system.

While both Detroit and Chicago are Michigan's major air transportation gateways, Chicago dominates. Other Michigan communities with weekly ticket sales of 500 or more are East Lansing, Flint, and Grand Rapids.

9. Top Ten Michigan Intercity Bus Communities (based on weekly ticket sales). In descending order, the top five are: (1) Detroit (2) East Lansing, (3) Grand Rapids, (4) Flint, and (5) Ann Arbor. The second five are: (6) Kalamazoo, (7) Lansing, (8) Battle Creek, (9) Ypsilanti, and (10) Jackson. There is one newcomer to the top since 1977, that being Jackson which replaced Saginaw. Jackson's increase could be due to cessation of the Jackson-Detroit commuter rail service which was offered in 1977, changed to Ann Arbor-Detroit in 1982, and discontinued in 1984.

10. Top Ten Michigan Intercity Bus Corridors (based on daily passengers). In descending order, the top five are: (1) Detroit-Ann Arbor, (2) Detroit-East Lansing, (3) Detroit-Flint, (4) Detroit-Ypsilanti, and (5) Detroit-Lansing. The second five are: (6) Detroit-Jackson, (7) Detroit-Grand Rapids, (8) Ann Arbor-East Lansing (9) Detroit-Saginaw, and (10) Battle Creek-Kalamazoo. There are two new pairs in the top ten since 1977, Ann Arbor-East Lansing and Battle Creek-Kalamazoo which replaced East Lansing-Flint and Grand Rapids-Kalamazoo. When out-of-state stations are included as termini of city-pairs, Detroit-Chicago is the highest and Detroit-Toledo is in the top ten.

11. Major Corridor Ticket Sales. Ticket sales between communities comprising the top ten city-pairs have decreased significantly less than

the total ticket sales of these communities. While ticket sales in the top ten communities have decreased by 39 percent, passengers between the top ten city-pairs have decreased by only 14 percent. This suggests that continued focus of intercity bus services in Michigan's major intercity bus corridors is warranted. Further, that these services should be promoted through (1) services tailored to the travelers' transportation needs and (2) special fare programs for, at least, selected groups such as college students and retirees.

The results of the 1985 Michigan Intercity Bus User/Ticket Study are subject to some limitations. These limitations should be considered when using the results of the User and Ticket surveys.

- As the User Survey questionnaire was completed independently by the user, and not in a personal interview setting, it is possible for erroneous data to be reported.
- The User Survey sample size is small.
- The Ticket Survey doesn't identify the potential for additional service, only how much existing services are used.
- The Ticket Survey doesn't portray year-round travel patterns and trip purposes, only for the period surveyed.
- The assumption that each non-surveyed station will generate the same trips as those destined for that station may not be valid.
- The assumption that round trips will "mirror" themselves may not be valid.

The objectives of the Michigan Intercity Bus User/Ticket Study have been achieved to varying degrees. The 1985 user profile has been determined and compared to the 1977 user. Changes in tripmaking patterns have been identified. The user's perception of intercity bus service has been

described. Just how many of the changes are due to intercity bus deregulation, however, is subject to question. Certainly, service reconfigurations, reductions, and discontinuances have affected intercity bus tripmaking patterns. However, economic conditions and alternate transportation modes also affect intercity bus use and the user profile, so all the changes noted are clearly not attributable to intercity bus deregulation.

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PART I
INTRODUCTION

I. INTRODUCTION

IA. NEED FOR STUDY

Significant changes have occurred nationwide in the intercity bus industry, population, and economy in the more than eight years which have passed since the last Michigan intercity bus survey. It is becoming increasingly difficult for revenues to cover operating costs (the 1984 operating ratio was 98.3%), the number of operating companies has tripled, the number of employees has increased by more than 10 percent, and the number of bus miles has decreased somewhat. At the same time, the number of passengers has increased by 10 percent and revenue passenger miles by 5 percent (see Appendix B).

Linked to some of these changes is deregulation. Passage of the Motor Bus Transportation Act of 1982 in Michigan and the Bus Regulatory Reform Act of 1982 at the Federal level triggered changes in the delivery and cost of intercity bus transportation which are still taking place three years later. Some of these changes are service discontinuance, service reduction, franchising services, a move away from terminal ownership to terminal leasing, and a proliferation of intercity bus companies.

Michigan's population decreased during the early eighties, although it recovered somewhat in 1984, and remains substantially below its 9.3 million 1980 Census population. And the State continues to constitute a decreasing percentage of the nation's population: 4.4% in 1970, 4.1% in 1980, and an estimated 3.9% in 1984. Wayne County (comprised primarily of Detroit), as a percentage of Michigan, has experienced a more rapid decline.

The employment picture in Michigan is uncertain. On one hand, the State's 1984 employment is higher than any year in the past two decades, excepting 1978 and 1979 (see Appendix A). On the other hand, the 1984 unemployment rate of 11.2 percent, while lower than 1980, is more than 1.5 times the national average (7.1%) and has fluctuated between 10 and 11 percent in 1985.

Consequently, with the advent of deregulation, changes in the intercity bus industry and a variable socio-economic climate in Michigan, the need existed to survey users of intercity bus service in Michigan. Some of the study objectives were to...

- Measure the effect of intercity bus deregulation on intercity bus users and service levels in Michigan.
- Determine if the profile of the intercity bus user has changed since 1977 when a similar study was conducted.
- Identify changes in the intercity bus user tripmaking patterns since 1977.
- Determine the user's perception of intercity bus service in Michigan.

IB. PREVIOUS STUDY (1977)

Two surveys were conducted in Michigan during the same time period in May 1977 to provide socio-economic and travel information regarding intercity bus passengers. These were an intercity bus ticket survey and an on-board user survey.

The ticket survey consisted of tickets being counted for at least seven consecutive days (May 9-15) at 36 intercity bus stations located throughout Michigan (see Figure 1). Round trip ticket information was obtained at eight of these stations. The following were among the findings of the ticket survey.

- A daily average of 2,033 tickets were sold at the 36 surveyed stations.
- Round trip ticket sales accounted for one-third (33.2%) of all tickets sold at the Detroit station and an average of one out of five (21.8%) of total ticket sales at the other seven stations for which round trip information was recorded.
- The month of May typifies an average month for intercity bus patronage since it avoids both the low and high ridership periods experienced by the industry.
- Detroit was the most frequent Michigan destination, generally followed by Michigan's larger urbanized areas. It was also the most frequent origin of out-of-state destined trips.
- Chicago was the largest out-of-state attraction for trips originating in Michigan...116 trips daily.

The user survey was conducted in 12 travel corridors (see Figure 11). Nearly 75 percent of the approximately 3,300 questionnaires distributed were useable. Major findings of this on-board survey included...

- Somewhat more than half (53%) traveled by automobile at the origin and destination ends of their trip. The exception to this were stations located adjacent to college campuses where an above average number of riders walked to and from the station.
- Half (50%) were riding the bus to visit friends or relatives; one in six (17%) for personal business reasons.
- Nearly half (47%) of the users were 18-29 years, while one in four (25%) were 50 or older.
- College students were the largest group (22%) of users.
- Approximately 60% of the users were female.

These and other findings are contained in the technical report entitled "Michigan Intercity Bus Study: Ridership and Travel Characteristics," dated November 1977.

IC. CHARACTERISTICS OF THE STUDY AREA

The study area was the entire state of Michigan. This consisted of the upper and lower peninsulas, Michigan's 83 counties, and 13 urbanized areas. Michigan has...

- 9.3 million residents, eighth largest of the states, with 80 percent living in its 13 urbanized areas plus those portions of two out-of-state urbanized areas (South Bend and Toledo) which extend into Michigan. Some 85 percent reside in the southern half of the lower peninsula as defined by an imaginary line from Muskegon to Bay City (see figures 1 and 2);

- over 57,000 square miles or 36.5 million acres, twenty-third among all the states, with nearly 10 percent being owned by the federal government and 12 percent by the State;

- some 1,600 employers with 250 employees or more (see Figure 3);

- over 90 percent of its four year college enrollment attend schools located in the southern half of the Lower Peninsula. This amounts to over one-quarter million students (see Figure 4 and Appendix A);

- approximately 117,300 miles of roads carrying 64.2 billion annual vehicle miles of travel;

- some 9,500 miles of these are interstate freeways and state trunklines (see Appendix C) which carry 31.9 billion annual vehicle miles of travel (8 percent of the roads carry nearly 50 percent of the traffic);

- a maximum driving distance of approximately 640 miles from boundary to boundary (New Buffalo to Ironwood). This is further than Detroit to St. Louis or Philadelphia.

ID. STRATEGY TO MEET THE NEED

The timing for the survey seemed appropriate to measure the effect of intercity bus deregulation. Over two years had passed since passage of the deregulation legislation at the state and federal levels. While more

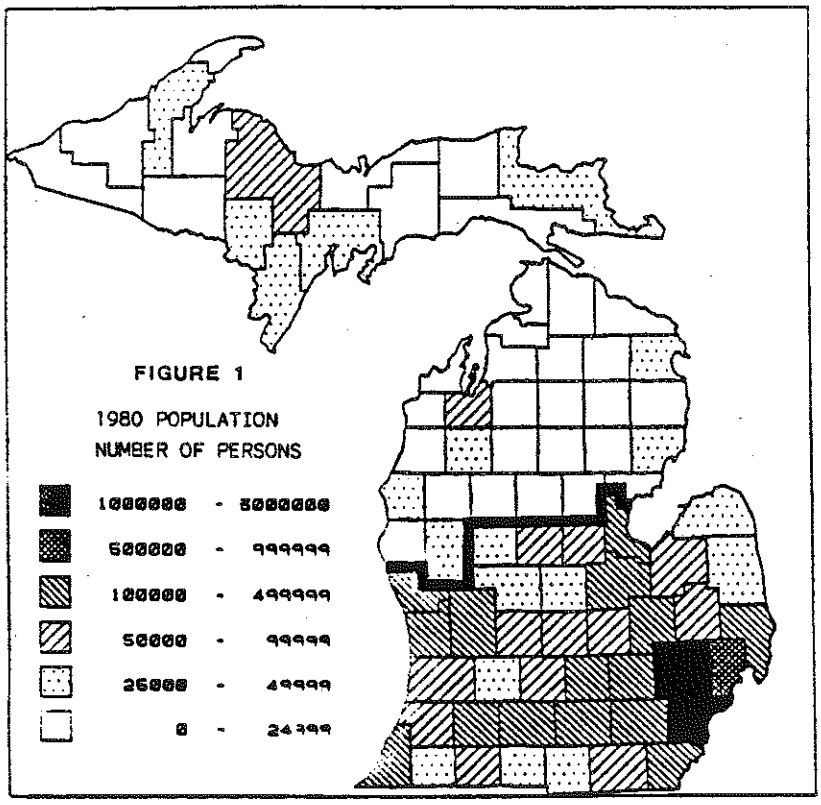


FIGURE 1
1980 POPULATION
NUMBER OF PERSONS
1000000 - 5000000
500000 - 999999
100000 - 499999
50000 - 99999
25000 - 49999
0 - 24999

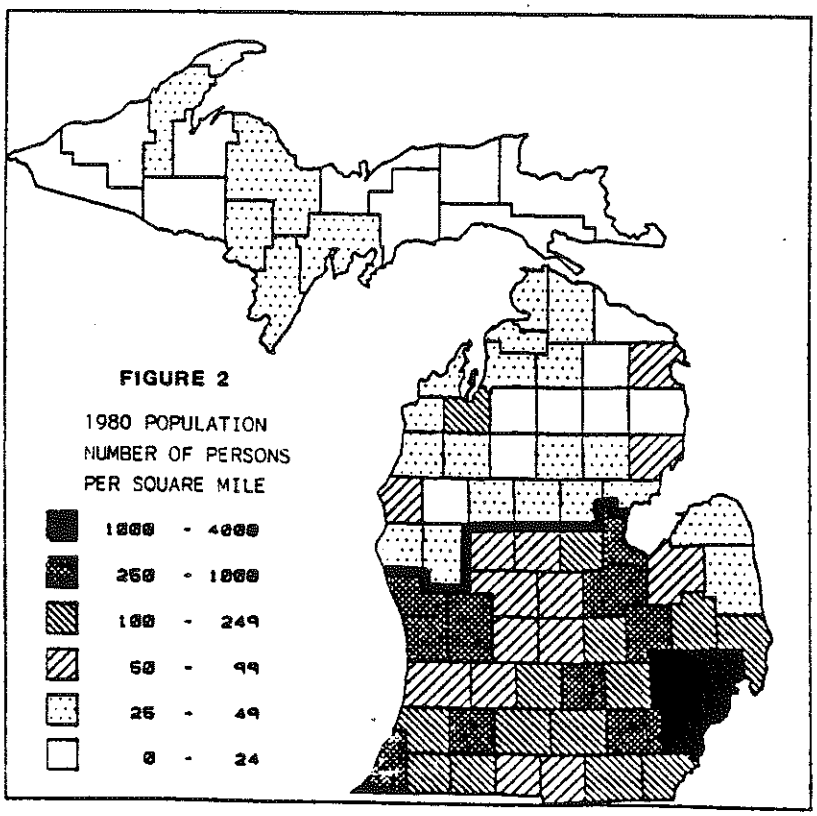


FIGURE 2
1980 POPULATION
NUMBER OF PERSONS
PER SQUARE MILE
1000 - 4000
250 - 1000
100 - 249
50 - 99
25 - 49
0 - 24

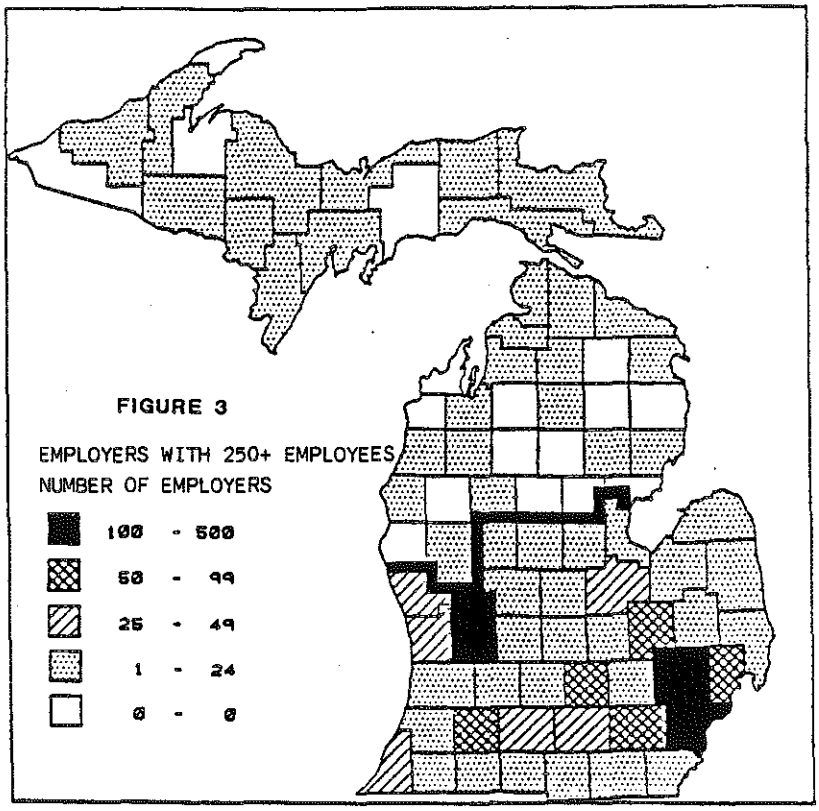


FIGURE 3
EMPLOYERS WITH 250+ EMPLOYEES
NUMBER OF EMPLOYERS
100 - 500
50 - 99
25 - 49
1 - 24
0 - 0

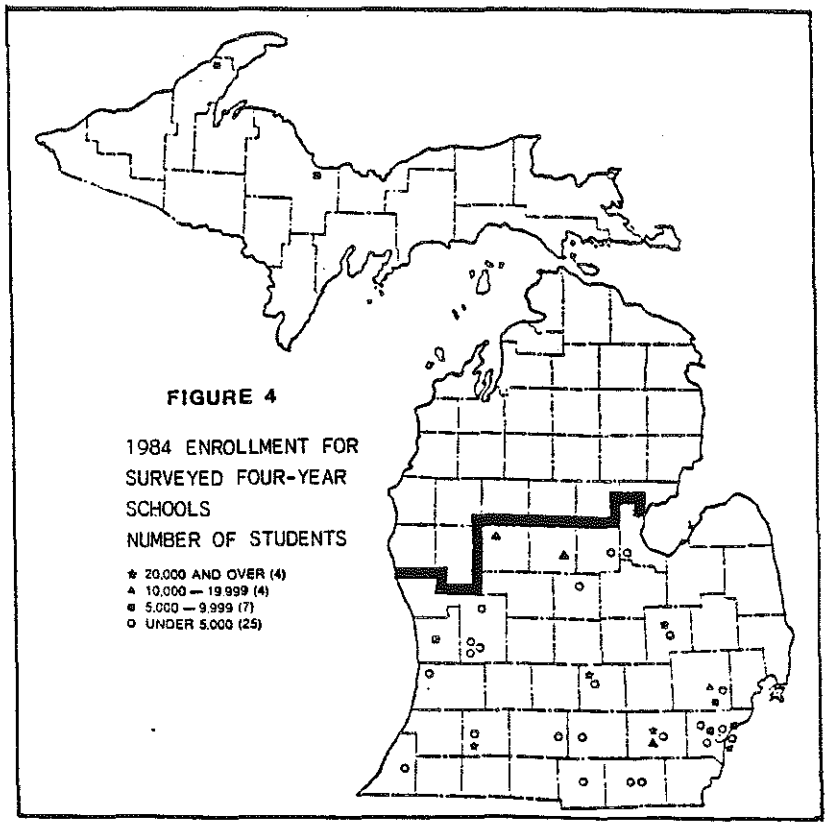


FIGURE 4
1984 ENROLLMENT FOR
SURVEYED FOUR-YEAR
SCHOOLS
NUMBER OF STUDENTS
20,000 AND OVER (4)
10,000 — 19,999 (4)
5,000 — 9,999 (7)
UNDER 5,000 (25)

changes in intercity bus services could be expected, many had already occurred. Improved knowledge could contribute to making wise decisions regarding service and policy in the future.

The survey should be conducted during the same time of year as the 1977 survey to maximize comparability. This was the second full week in May 1977. Consequently, the period May 12-18, 1985, was selected as the time when all tickets sold were tabulated and most of the user survey conducted.

The same corridors and stations included in the 1977 study should be the minimum surveyed in 1985. This will improve data comparability. Twelve corridors and 36 stations were surveyed in the 1977 user and ticket surveys, respectively. In 1985, fifteen corridors were included in the user survey and 40 stations in the ticket survey (see figures 11 and 28).

Users should be asked to rate several features of the intercity bus service. The survey provides the opportunity to ask the users how they feel about intercity bus service in a non-threatening manner. This may be difficult for the intercity bus carriers to accomplish individually. Six characteristics of the service, the bus, and the terminal were presented to each questionnaire recipient for evaluation.

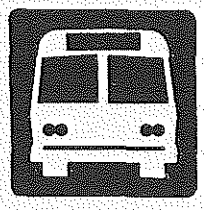
IE. REPORT CONTENT

The report presents findings regarding the profile of the 1985 intercity bus user, intercity bus passenger tripmaking patterns, and the user's perception of the quantity and quality of intercity bus service. These are based on the results of two surveys - the user survey (Part III) and

the ticket survey (Part IV). The limitations of these surveys are identified and some perceptions addressed (Part V).

The 1985 and 1977 surveys are compared. This includes (1) the questionnaire and procedures used, (2) the survey data obtained, and (3) the major findings identified. Service levels, tripmaking patterns, and fare structures for the two years are described for intercity modes (bus, rail, air, and automobile) to better understand the results of the 1985 to 1977 comparative analysis. The impact of the 1982 deregulation legislation is identified to the extent possible.

PART II
EXISTING SYSTEM AND SERVICES



II. EXISTING SYSTEMS & SERVICES

IIA. SERVICE LEVELS

Several changes have occurred in Michigan's intercity passenger transportation system since May 1977. Intercity bus route mileage and communities served have decreased, intercity rail passenger route mileage and communities served have increased, air service departures and communities served have increased, and state trunkline mileage has increased.

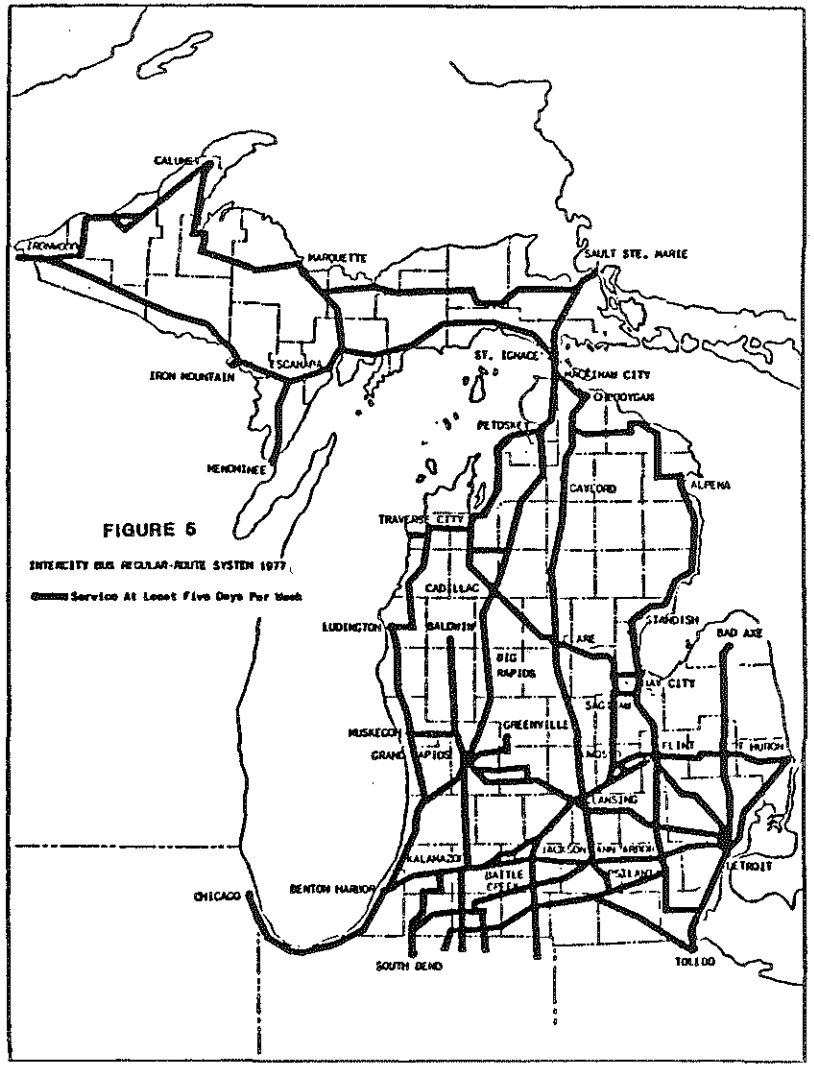
IIA1. BUS

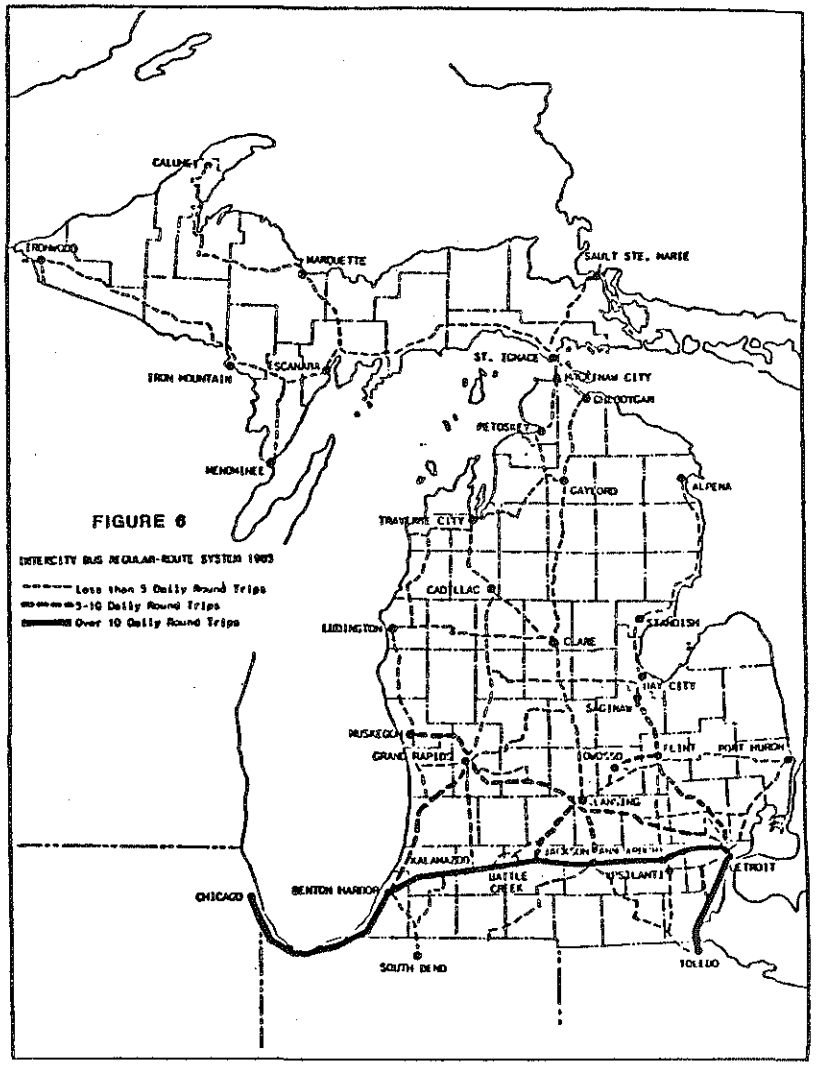
The amount of intercity bus service in Michigan is less in 1985 than 1977. Several routes have been discontinued (see Figure 5, Figure 6 and Appendix B). These include the following: (1) M-53 between Bad Axe and I-69, (2) US-12 between Ypsilanti and Coldwater, (3) M-60 between I-69 and Niles, (4) US-23 between Alpena and Cheboygan, (5) M-28 between Sault Ste. Marie and Marquette, and (6) services to White Pine Mine from Ironwood, Calumet and Bruce Crossing.

IIA2. RAIL

Two new rail services have been added since 1977 (see Figure 7). One commenced in August 1980 from Detroit to Toledo (one round trip daily). This provided connections in Toledo with overnight train service to and from the northeastern United States. The other addition occurred in August 1984 between Grand Rapids and Chicago (one round trip daily).

Two changes in existing service were made during the same period. The


CALUMET
IRONWOOD
MARQUETTE
SAULT STE. MARIE
IRON MOUNTAIN
ESCANABA
ST. IGNACE
MACKINAW CITY
GAYLORD
ALPENA
MENOMINEE
TRAVERSE CITY
CADILLAC
LUDINGTON
BALDWIN
BAD AXE
BIG RAPIDS
GREENVILLE
MUSKEGON
GRAND RAPIDS
FLINT
PORT HURON
LANSING
KALAMAZOO
BATTLE CREEK
DETROIT
CHICAGO
BENTON HARBOR
SOUTH BEND
TOLEDO
FIGURE 5
INTERCITY BUS REGULAR-ROUTE SYSTEM 1977
Service At Least Five Days Per Week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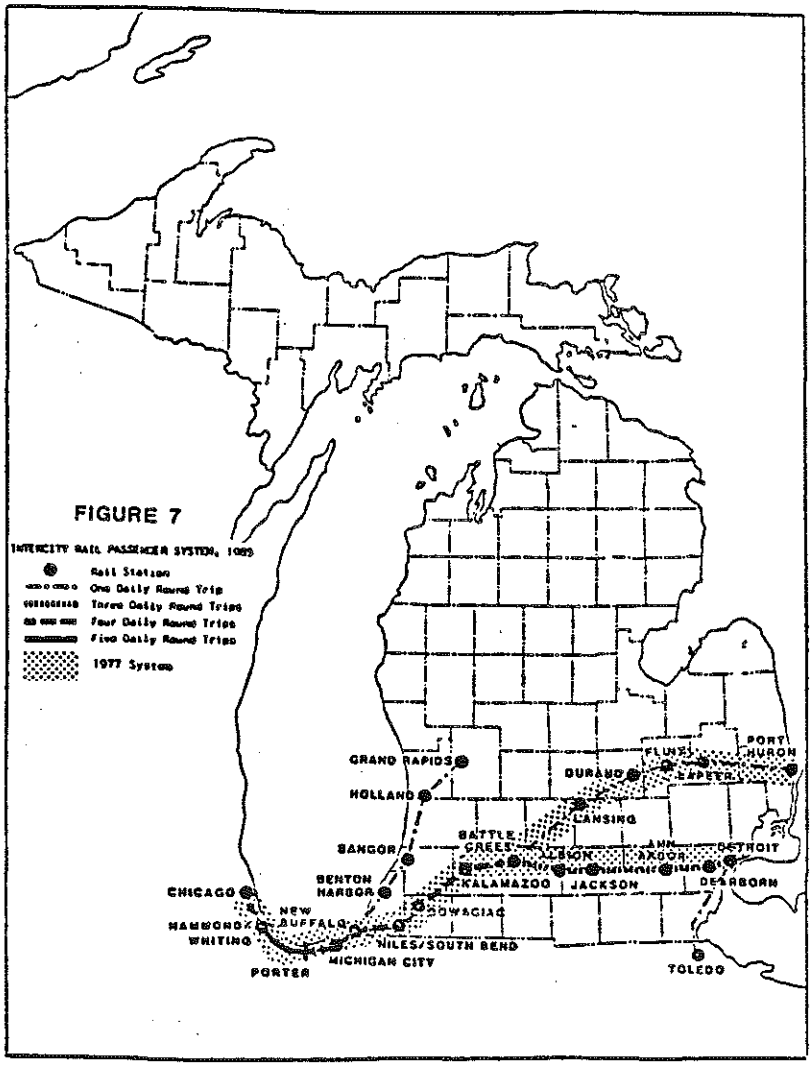
MENOMINEE
TRAVERSE CITY
CADILLAC
LUDINGTON
CLARE
BAD AXE
SAGINAW
MUSKEGON
GRAND RAPIDS
FLINT
PORT HURON
LANSING
KALAMAZOO
BATTLE CREEK
DETROIT
CHICAGO
BENTON HARBOR
SOUTH BEND
TOLEDO
FIGURE 6
INTERCITY BUS REGULAR-ROUTE SYSTEM 1983
Less than 5 Daily Round Trips
5-10 Daily Round Trips
Over 10 Daily Round Trips



existing Port Huron-Chicago (one round trip daily) service was rescheduled to provide convenient through train service between Chicago and Toronto via Port Huron. In the other case, commuter rail services from Pontiac and Jackson (Ann Arbor in 1982) to Detroit were discontinued in October 1983 and January 1984, respectively.

Several stations were improved or relocated since 1977. These include Ann Arbor, Battle Creek, Dearborn, Dowagiac, East Lansing, Jackson, and Kalamazoo.

IIA3. AIR

The number of Michigan air carrier airports was 22 in 1985 and 1977. All 1985 air carrier airports had scheduled air service year round in 1977 plus seasonal service to Mackinaw Island in 1985 (see Appendix C). The number of scheduled commercial airline departures at these airports increased some 70 percent from less than 400 to 674. More than half of these departures occur at Detroit Metropolitan Airport, followed by Grand Rapids, Flint, Lansing, Saginaw, Kalamazoo, and Detroit City Airport in descending order.

At the same time, the number of seats increased by approximately 20 percent. This percentage differential reflects the increased use of smaller aircraft to accommodate commercial air service needs.

IIA4. AUTOMOBILE

The extent of Michigan's highway system has increased by some 68 miles since May 1977. Most of this increase, from 9,435 miles in 1977 to 9,503 miles in 1985, was interstate mileage (see Appendix C).

It should be noted that Michigan's highway system is ubiguitous and most of its interstate components are open to traffic. Consequently, major changes in system mileage have not been the case in the recent past and are not expected to occur in the near future.

IIB. TRAVEL PATTERNS

Travel patterns in Michigan can be characterized in terms of total volume of trips in the state as a whole, the volume of trips in each corridor, and the volume of trips generated at each station or community.

The automobile is the primary mode of intercity travel in Michigan. Of the some 453,000 daily person trips over 50 miles in length, approximately 94 percent are made by automobile (see Table 1). Travel in Michigan's highest volume corridor, Detroit-Chicago, typifies this (see Table 2).

Mode	% of Total Corridor Intercity Person Trips
Bus	1.2
Rail	3.9
Air	6.9
Auto	88.0

There are some 24,100 trips over 50 miles in length in the corridor, with 15,300 of these being over 100 miles.

Between 1977 and 1985, intercity bus use declined, rail passenger increased, air increased, and automobile increased. Some of the top 10 volume city pairs have been replaced by others. Rail continues to be oriented toward Chicago and intercity bus toward Detroit. Detroit and Chicago are the highest generators of trips in Michigan and its hinterland.

IIB1. BUS

The number of average daily bus passengers in Michigan in 1985 is approximately 56 percent of the 1977 figure. The top 10 bus ridership corridors have changed somewhat although the top corridor continues to be Detroit-Ann Arbor and the top seven emanate from Detroit. In terms of station volumes, Detroit is highest followed by East Lansing, Grand Rapids, Flint, and Ann Arbor.

Regarding monthly regular-route ridership, July and August continue to be

TABLE 1

PERSON TRIPS BY MODE IN MICHIGAN & DETROIT-CHICAGO CORRIDOR 1/
1980

Mode	Detroit-Chicago Corridor Over 50	Detroit-Chicago Corridor Over 100	Michigan Over 50	Michigan Over 100	Detroit Changes as % of Michigan Over 50	Detroit Changes as % of Michigan Over 100
Bus	301 1.2%	245 1.6%	3,693 0.8%	2,537 0.9%	8.2	9.7
Rail	937 3.9%	892 5.8%	1,291 0.3%	1,214 0.4%	73.6	73.5
Air	1,670 6.9%	1,669 10.9%	23,858 5.3%	23,858 8.6%	7.0	7.0
Auto	21,226 88.0%	12,498 81.7%	424,520 93.6%	249,960 90.1%	5.0	5.0
Total	24,134 100.0%	15,304 100.0%	453,362 100.0%	277,569 100.0%	5.3	5.5

Notes: 1/ 1980 is the actual year for automobile person trips. Intercity bus person trips are estimates for 1980 determined by factoring 1977 data obtained in a ticket survey. Intercity rail passenger person trips are for 1981 and were determined using actual 1981 ridership for the months of February and July. Air person trips are for 1981 and determined from FAA ticket survey data. Automobile trips are estimated assuming the Detroit-Chicago corridor figure is 5 percent of all automobile person trips over 50 miles in length in Michigan in 1980.

Source: MDOT, Bureau of Transportation Planning, Intercity Transportation Planning Division.

TABLE 2

DETROIT-CHICAGO CORRIDOR DAILY PERSON TRIPS
1980

City Pair	Bus	Rail	Air	Auto	Total
Detroit-Jackson	45	17	1	6,166	6,229
Detroit-Battle Creek	31	16	3	691	741
Detroit-Kalamazoo	26	60	29	838	953
Detroit-Niles	2	20	0	132	154
Detroit-Chicago	136	316	1,550	7,433	9,435
Ann Arbor-Battle Creek	7	8	0	439	454
Ann Arbor-Kalamazoo	13	30	0	407	450
Ann Arbor-Niles	1	13	0	35	49
Ann Arbor-Chicago	11	151	0	584	746
Jackson-Kalamazoo	3	5	0	1,443	1,451
Jackson-Niles	1	3	0	67	71
Jackson-Chicago	4	33	4	405	446
Battle Creek-Niles	0	4	0	118	122
Battle Creek-Chicago	2	52	19	406	479
Kalamazoo-Niles	1	11	0	562	574
Kalamazoo-Chicago	16	151	64	840	1,071
Niles-Chicago	2	47	0	660	709
Total	301	937	1,670	21,226	24,134

Notes: Total trips over 50 miles in length: 24,100

Total trips over 100 miles in length: 15,300

Source: MDOT, Bureau of Transportation Planning,
Intercity Transportation Planning Division

the highest months and December the lowest. This assumes Indian Trails is experiencing ridership patterns typical of other intercity bus carriers serving Michigan (see figures 8 and 9). Indian Trails ridership figures indicate fall months to be somewhat lower than winter and spring months.

IIB2. RAIL

Intercity rail passenger ridership increased by approximately six percent between 1977 and 1984. If the Grand Rapids-Chicago service had not been introduced during this period, a ridership decrease would have occurred.

	1984	1977	% Change
Toledo-Detroit-Chicago	347,251	333,405	4.2
Port Huron-Chicago	89,895	110,232	(-18.4)
Grand Rapids-Chicago	31,754	---	--
Total	468,900	443,637	5.7

During this same period, passenger miles per train mile decreased since 1977, from 89.6 to 85.8. The highest city-pair 1984 average daily passenger volumes were Detroit-Chicago (148), Ann Arbor-Chicago (143), Kalamazoo-Chicago (120), Dearborn-Chicago (99), and Port Huron-Chicago (67). The top five stations (based on pasenger volumes) in descending order are Chicago, Ann Arbor, Kalamazoo, Detroit and Dearborn.

IIB3. AIR

Commercial air travel in Michigan increased by 22.2 percent since 1977, from 11.5 to 14.0 million passengers (see Appendix C). Detroit Metropolitan Airport increased by 2.7 million and Grand Rapids by over 300,000. The only

FIGURE 8

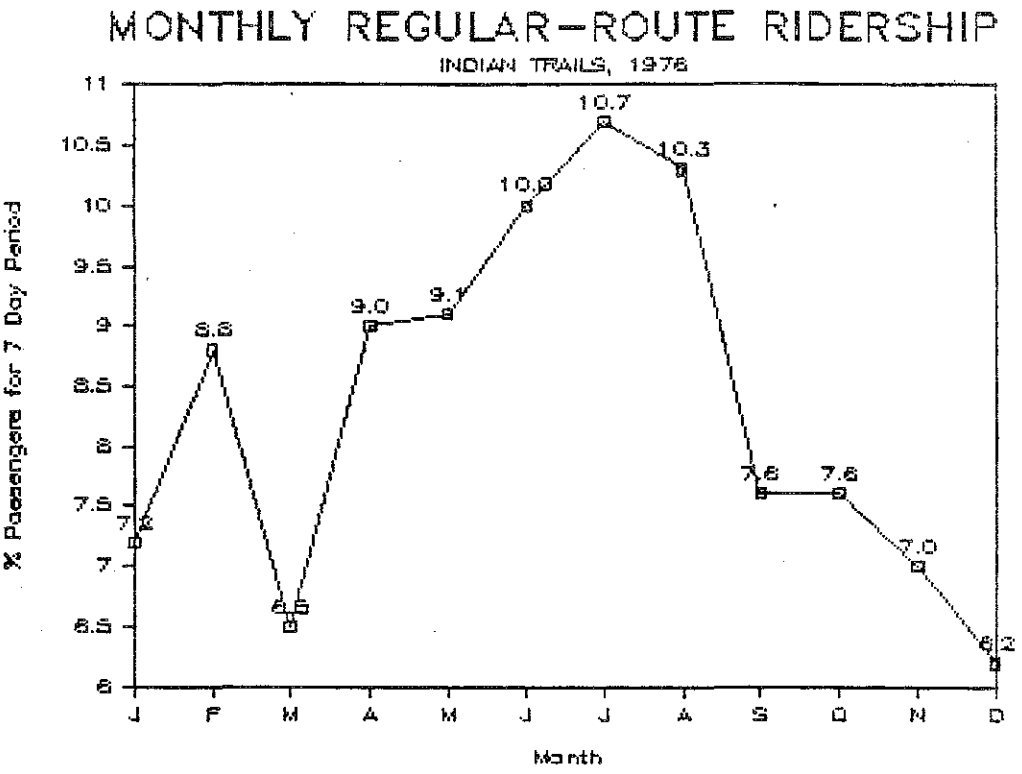
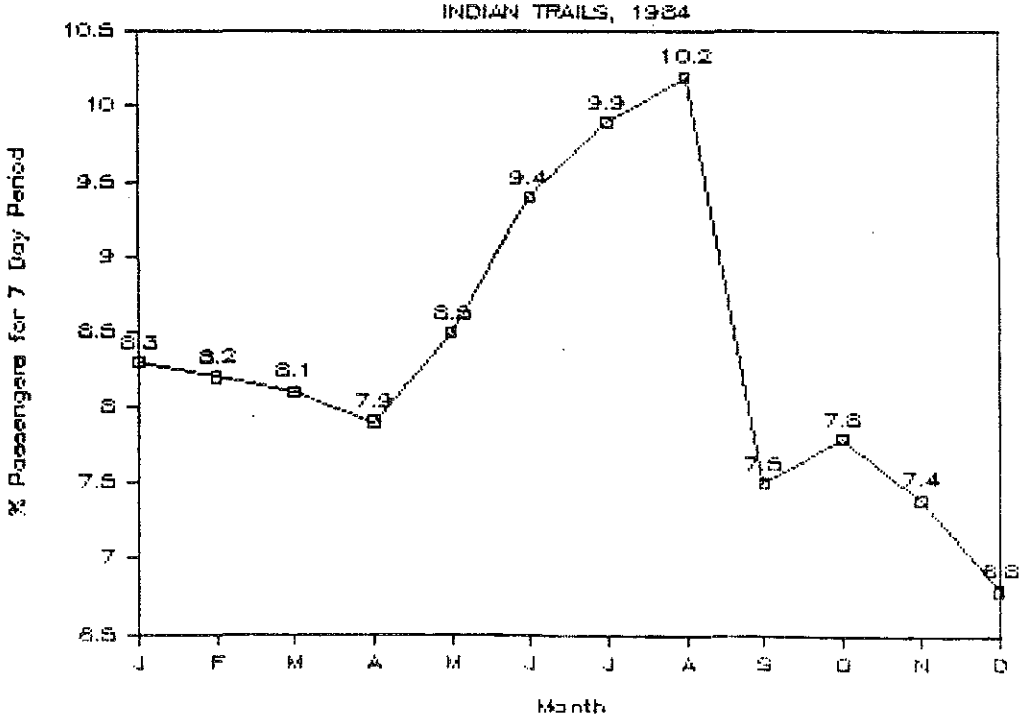


FIGURE 9



other airports to experience patronage increases were Kalamazoo (36,391) and Traverse City (1,545). Commercial air service enplanements/deplanements decreased at all other Michigan airports, over 50 percent at eight of these.

IIB4. AUTOMOBILE

Vehicle use of Michigan's trunkline system (includes interstate) has increased by some eight percent since 1977. Annual vehicle miles of travel (VMT) on trunklines have increased from 31.6 billion in 1977 to 33.1 billion in 1983. This constitutes about 50 percent of the state's total VMT which includes that using city and village streets and county roads as well as state and federal highways.

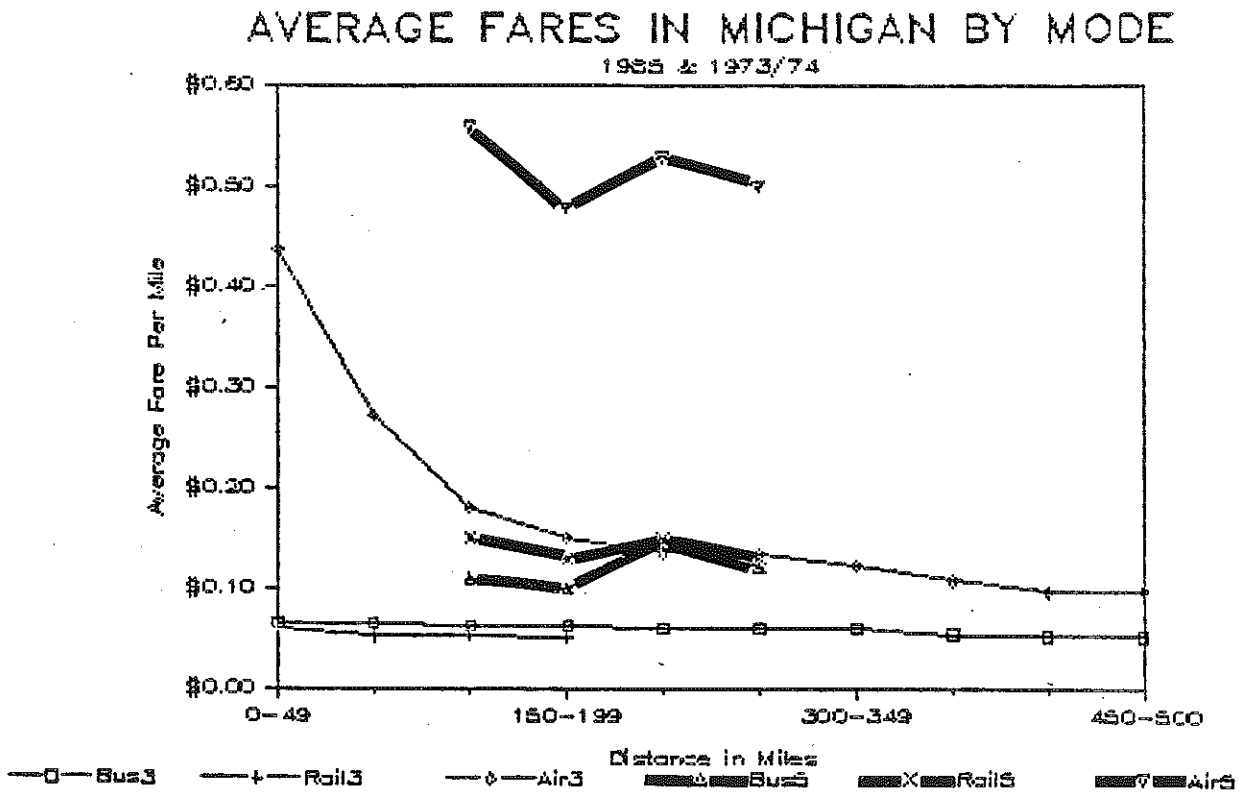
IIC. FARES

In May 1985, intercity bus passengers had to pay as much to use the bus as they did to drive alone or take the train in the Detroit-Chicago corridor. This is based on out-of-pocket driving expenses and an off-peak rail fare.

	Detroit to Chicago	Kalamazoo to Chicago
Bus	$ 30	$14
Rail	$ 25	$15
Air	$109	$79
Auto	$ 30	$16

When using all automobile costs and the peak rail fare, intercity bus passengers paid one-third to one-half (see Appendix C). Air travel was generally five to six times more expensive than intercity bus, although some Detroit-Chicago air passengers travelled at a discount fare.

FIGURE 10



As of April 1974, in an MDOT report entitled Michigan Intercity Bus Study: Phase I (Inventory and Analysis), the finding was that rail travel is somewhat less expensive and air travel significantly more expensive, but less so as trip length increases (see Figure 10). Furthermore, the average intercity bus fare per mile was six cents in 1974; in 1985 this figure had increased to 10.5 cents for trips of similar length. Total automobile costs increased from 17.9 cents per mile in 1976 to 27.8 cents in 1984.

PART III
USER SURVEY

III. USER SURVEY

IIIA. PURPOSE

In December 1982, the federal and concurrent state deregulation of the intercity bus industry created a void in data collection efforts relating to intercity bus users. At a time when the industry is experiencing significant change in service levels, the regulations requiring information reporting to government agencies have all but been eliminated. As a result, it has been difficult for the Michigan Department of Transportation to assess the impact deregulation has had on intercity bus users.

The user survey was designed to fill this void by determining the profile of the intercity bus user in the current deregulated environment and comparing it to the profile existing in 1977. In addition, riders rated the services provided by the bus carriers. This information will help the carriers understand the passenger's perspective of the industry, and may be used by the carriers to adjust their services to better accommodate the passenger's desires.

IIIB. PROCEDURES

It was recognized that any such survey needed the consent and cooperation of the intercity bus carriers serving Michigan. Also, it should generate data comparable to the 1977 survey results. The following seven steps were followed in planning for and conducting the user survey.

IIIB1. SEEK PERMISSION FROM INTERCITY BUS CARRIERS

A letter was sent to all regular route carriers serving the state describing the proposed user survey and requesting their participation. Since deregulation, the state lacks direct authority to require the carriers to participate in this type of survey, so voluntary cooperation was necessary. It was important to receive permission from a majority of the carriers to obtain accurate results. Follow-up telephone calls were made to companies that had not responded by the date listed in the letter.

All thirteen of the regular-route carriers agreed to participate in the survey. Letters were obtained from each company indicating permission to conduct the survey and to introduce MDOT survey personnel to station managers and bus drivers. It was agreed that the data collected would not be published except in combination for all intercity bus carriers, and the survey crew would not interfere with the normal operations of the scheduled bus service when conducting the survey.

IIIB2. SELECT DATES TO CONDUCT THE SURVEY

Once permission was obtained, the dates to conduct the survey were finalized. Letters were sent to each station manager, along with a copy of the authorization letter from the parent company, indicating our intent to conduct the survey and the date(s) MDOT survey personnel would be at his or her station. The station managers were asked to contact the Passenger Transportation Planning Section if the scheduled dates presented a significant conflict.

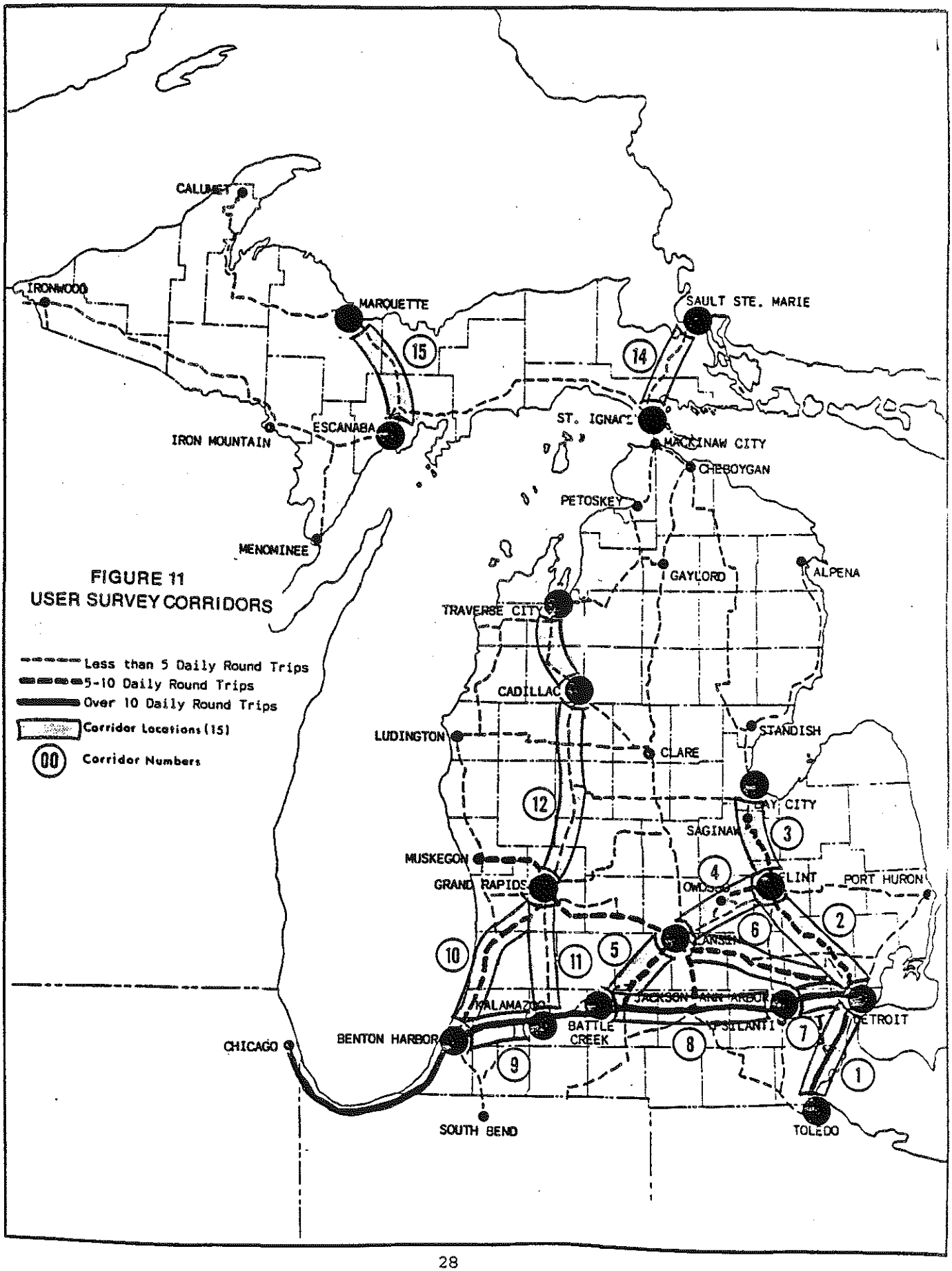
The weeks of May 13-16 and May 20-23 (Monday - Thursday) were selected as the dates to conduct the user survey for several reasons. Past ridership surveys indicated that May is an average ridership month. In conducting a survey, it is important to obtain average numbers and not low levels, high peaks, or unusual traffic patterns (unless the survey is designed to study these special conditions). Since the intent of this survey was to provide a profile of the average user, unusual conditions were avoided. This is also the reason the surveys were conducted on Monday - Thursday. Weekends are traditionally atypical of transportation patterns in all modes of travel and are generally avoided when conducting a survey to determine average use.

Most of the colleges and universities in the state are still in session during the middle and end of May. It was important to conduct the survey during a time when these students would be utilizing the intercity bus service because college students are perceived to be major users of intercity bus service.

Finally, this period of weeks corresponded closely with the weeks surveyed in 1977 (May 10-13, May 16-18, and May 23-25). Keeping the two surveys similar was a goal in the design and conduct of the 1985 survey to assure comparability of the results.

IIIB3. SELECT CORRIDORS AND STATIONS TO SURVEY

Two major considerations were used in determining the location of the corridors and stations to be surveyed (see Figure 11). First, the


CALUMET
IRONWOOD
MARQUETTE
SAULT STE. MARIE
15
14
ESCANABA
IRON MOUNTAIN
ST. IGNACE
MACKINAW CITY
CHEBOYGAN
PETOSKEY
MENOMINEE
GAYLORD
ALPENA
TRAVERSE CITY
CADILLAC
LUDINGTON
STANDISH
CLARE
BAY CITY
12
SAGINAW
3
MUSKEGON
4
GRAND RAPIDS
FLINT
PORT HURON
OWOSSO
2
6
LANSING
10
11
5
JACKSON
ANN ARBOR
KALAMAZOO
DETROIT
BATTLE CREEK
YPSILANTI
7
BENTON HARBOR
CHICAGO
8
9
1
SOUTH BEND
TOLEDO
FIGURE 11
USER SURVEY CORRIDORS
Less than 5 Daily Round Trips
5-10 Daily Round Trips
Over 10 Daily Round Trips
Corridor Locations (15)
00
Corridor Numbers

corridors were selected so that as many passengers as possible could be surveyed with the most efficient use of staff, while providing a representative mix of intercity bus travelers. Consequently, many major travel corridors in Michigan were included. Second, the corridors and stations were compatible with the 1977 survey. The fifteen corridors included all of the twelve 1977 corridors and some additional corridors not surveyed in 1977.

IIIB4. DEVELOP SCHEDULE TABLES AND SURVEY INSTRUCTIONS

Russell's Official Bus Guide was consulted to determine the schedule of the regular-route buses serving the fifteen corridors selected for study. This route information was translated into survey summary sheets (see Appendix F). The summary sheets were used by the surveyors in the field to identify buses to be surveyed and to record the surveys distributed to and collected from each bus, using a form number assigned to each questionnaire.

These summary sheets proved to be useful as tally sheets though too detailed for the needs of the field crew. They were developed on the microcomputer which proved to be an effective method for quickly developing quality tabulation sheets. A set of instructions with general information on how to conduct the survey and use the survey summary sheets was written.

A pre-survey meeting was held with the survey crew supervisors to discuss survey procedures and answer questions about the survey and

the procedures to be followed. Copies of these instructions were provided to each member of the survey crew along with the survey summary sheets.

IIIB5. FINALIZE SURVEY QUESTIONNAIRE

While the previous events were in progress, a survey questionnaire was drafted, reviewed within the Department, and revised. This revised draft was sent to the central offices of all intercity bus companies serving Michigan for their review and comment.

Since the questionnaire was to be self-administered, it was designed to be clear, concise, and easy-to-read. Most of the questions were designed to be answered by checking a box, thereby eliminating the need respondent to write out long answers. The questions and the answer categories were designed to be compatible (although expanded) to the 1977 survey. A booklet format was used to make the questionnaire easier to handle and to complete. Each survey was given an unique, consecutive number to aid in identifying the station at which it was distributed and collected. A new feature was the postage-paid, business-reply address. This had been successful in obtaining a high level of mailback returns in other recently conducted MDOT surveys. When comments from all parties had been received, six-thousand questionnaires were printed on a neutral colored, heavy stock paper (see Appendix E).

IIIB6. CONDUCT THE SURVEY

Utilizing the survey summary sheets members of the Transportation

Surveys Section, supplemented by the Passenger Transportation Planning Section, distributed and collected survey questionnaires at the 18 stations (see Table 3 and Appendix F) Monday through Thursday, May 13-16 and May 20-23. The procedure was to distribute survey questionnaires to persons getting on the bus at the 18 survey stations and to those pasengers already on the bus.

When the surveys were distributed, passengers were given a brief description of the purpose of the survey (an abbreviated version is included at the top of the questionnaire), a copy of the questionnaire and a pencil. Passengers were requested to return the questionnaire to the survey team member at the next major station (surveyors boarded each arriving bus to collect forms from passengers not disembarking at the station). Passengers disembarking before the next station were requested to deposit the form in the mail.

IIIB7. EVALUATION OF PROCEDURES

At the conclusion of the survey, a meeting was held with all of the parties involved in developing, conducting and evaluating the survey. The purpose of this meeting was to discuss problems, successes, and improvements that could be incorporated into or avoided in the next survey (see Appendix I).

IIIC. SAMPLE SIZE

The amount and accuracy of the data collected is an important concern in conducting and using the results of such an user survey. Information that reflects the views of an insufficient or non-representative segment of bus

users would not provide a true picture. This could lead to erroneous conclusions.

Careful attention was given to the sample size when evaluating the data collected in the user survey. For the survey, 1,187 questionnaires were distributed. Of these, 437 were useable returns. This constituted an 18 percent sample of the approximately 2,400 daily intercity bus users in Michigan and is a 36.8 percent return rate (see Table 3). It is not as large a return rate as desired, nor was it as large as that obtained in the 1977 survey (74.5%). The 36.8 percent return rate is, however, acceptable, and fairly standard for mailback surveys that are conducted by the Michigan Department of Transportation (a 30 percent return rate is average).

As long as the 437 responses obtained in the 1985 User Survey is not stratified too finely, it can be used with confidence. The minimum standard for using stratified data was fifty responses, although a base of one hundred responses was considered a better sample from which to draw conclusions. This limited the number of cross tabulations that could be used to depict ridership characteristics, but preserved the validity of the conclusions made from the data.

In addition to statistical checks on the validity of the data, other significance factors were applied when drawing conclusions and analyzing data. For example, when survey results showed a decrease in the percent of college student riders, comparisons were made between the 1977 college

TABLE 3

USER SURVEY DISTRIBUTION AND RETURN RATES BY STATION
FOR USEABLE SURVEYS
MICHIGAN INTERCITY BUS SYSTEM
MAY 1985

Station	Surveys Distributed	Useable Returns	Useable Return
Battle Creek	44	5	11.4%
Bay City	11	5	45.5%
Benton Harbor	129	60	46.5%
Detroit	335	113	33.7%
East Lansing	52	28	53.8%
Escanaba	12	11	91.7%
Flint	84	26	31.0%
Cadillac	4	0	0.0%
Grand Rapids	43	9	20.9%
Kalamazoo	95	28	29.5%
Lansing	99	32	32.3%
Mackinaw City	15	4	26.7%
Marquette	21	20	95.2%
Rapid River	1	1	100.0%
St. Ignace	15	5	33.3%
SS Marie	3	2	66.7%
Toledo	220	87	39.5%
Traverse City	4	1	25.0%
Total	1,187	437	36.8%

SOURCE: MDOT, Passenger Transportation Planning Section.

enrollment figures for the state and the 1985 enrollment figures. Similar checks were conducted throughout the analysis to assure that the data accurately represented characteristics of the intercity bus ridership.

IIID. RESULTS

The results of the Intercity Bus User Survey have been grouped into three categories: travel characteristics, user characteristics, and users service rating. Each of the items have been referenced to the User Survey questionnaire (see Appendix E).

IIID1. TRAVEL CHARACTERISTICS

These consist of (1) place of residence, (2) trip origins and destinations, (3) access to the service, (4) trip purpose, (5) option if the bus service were discontinued, (6) number of intercity bus trips taken in the past 12 months, and (7) fare. Statistics for these characteristics are presented in tables 4 and 5, portrayed in figures 12-27, and detailed in Appendix G.

a. Place of Residence (Question 2): Nearly 70 percent of the User Survey respondents resided in Michigan. Approximately 85 percent of these lived in the southern half of the Lower Peninsula, a percentage similar to Michigan's population distribution.

Area			Respondents Number	%
Michigan			287	69.3%
Detroit	67	23.3%		
Remainder of Lower Peninsula	177	61.7%		
Northern Lower Peninsula	17	5.9%		
Upper Peninsula	26	9.1%		
Subtotal	287	100.0%		
Neighboring States			58	14.0%
Remainder of United States			58	14.0%
Canada			11	2.7%
Total			414	100.0%

b. Trip Origins and Destinations (Questions 3 & 4): The number of origins and destinations for any particular area are generally reflected by the place of residence distribution pattern (see Appendix G). For instance, 86 percent of the origins of Michigan-based trips are located in the southern half of the Lower Peninsula, 3 percent in the northern half of the Lower Peninsula, and 11 percent in the Upper Peninsula (see Table 4). The highest number of users surveyed were those travelling from one part of the southern half of the Lower Peninsula to another.

c. Access to the Service (Questions 5 & 6): The automobile was the primary means of access to the intercity bus service (64%) and to destinations after the bus trip (57%). Local transit or taxi are used some 20 percent of the time to travel to and from the bus terminal.

Virtually no (0.5%) interconnected tripmaking between Amtrak and intercity bus service was reported even though approximately 50 percent of the trips had a city with an Amtrak station as its origin or destination.

d. Trip Purpose (Question 7): Over half (55%) of the trips are discretionary (vacation, visit friends/relatives). This correlates well with the high percentage of intercity bus passengers who have ridden the bus less than three times in the past 12 months since a vacation or visit trip is generally made less frequently than other trips such as work or personal business. It is noteworthy that 1 of every 10 trips is for the work trip purpose. Shopping trips, on the other hand, are seldom made using intercity bus service (0.9%).

e. Option if Bus Discontinued (Question 8): A full one-third (36.5%) of the users would make the trip by automobile if the intercity bus service were discontinued. Another one-third would take the plane or Amtrak. The final one-third would ride with a friend or not make the trip at all.

f. Number of Passenger Trips in Past 12 Months (Question 9): Nearly half (47.7%) of the users have made less than three intercity bus trips in the past year. One of every six (16.8%) of the users make the trip by bus 11 or more times a year, roughly one a month. College students are the most frequent, and retirees one of the least frequent, users of intercity bus service. Over 12 percent of college students had used it 11 or more times and less than 10 percent had not used intercity bus service during the past 12 months. In contrast, less than 8 percent of retirees had used it 11 or more times and a full 20 percent had not used intercity bus service at all in the past 12 months.

g. Fare (Question 17): Most users (68.9%) consider the fare to be "about

TABLE 4

TRIP ORIGINS & DESTINATIONS OF USER SURVEY RESPONSES
MICHIGAN INTERCITY BUS SYSTEM
MAY 1985

Origin	Destination Detroit	Southern Low. Pen.	Northern Low. Pen.	Upper Peninsula	Chicago	Neighboring States	Remainder US & Canada	Total 1/
Detroit	3	26	1	0	2	19	22	73
Southern Lower Peninsula	23	88	4	7	9	20	20	171
Northern Lower Peninsula	0	5	0	1	0	1	2	9
Upper Peninsula	1	3	0	8	5	11	4	32
Chicago	1	17	2	0	0	0	0	20
Neighboring States	26	22	2	1	0	8	4	63
Remainder U.S. and Canada 2/	19	30	0	1	0	1	6	57
Total	73	191	9	18	16	60	58	425

Notes: 1/ Unknown responses have been excluded from this table but are included in the detailed table presented in the Appendix.

2/ Canada has been included with "Remainder of U.S." There were 7 trip ends in Canada.

Source: MDOT, Bureau of Transportation Planning, Passenger Transportation Planning Section

TABLE 5

TRAVEL CHARACTERISTICS
MICHIGAN INTERCITY BUS SYSTEM
MAY 1985

Data Item	1985 No.	1985 %	1977 No.	1977 %	Ratio 1985/1977
Access to Bus					
Walk	44	10.5	389	17.2	0.6
Amtrak Train	3	0.7	5	0.2	3.5
Taxi	32	7.8	237	10.5	0.7
Automobile	267	63.7	1210	53.5	1.2
Local Transit	46	11.0	240	10.6	1.0
Commuter Train	2	0.5	10	0.4	1.3
Connecting Intercity Bus	21	5.0	105	4.6	1.1
Other	4	1.0	67	3.0	0.3
Total	419	100.0	2263	100.0	1.0
Access to Final Destination After Bus Trip					
Walk	59	13.8	249	11.1	1.2
Amtrak Train	2	0.5	2	0.1	5.0
Taxi	57	13.4	371	16.5	0.8
Automobile	243	57.0	1221	54.4	1.0
Local transit	39	9.2	211	9.4	1.0
Commuter Train	4	0.9	10	0.5	1.8
Connecting Intercity Bus	12	2.8	92	4.1	0.7
Other	10	2.3	89	3.9	0.6
Total	426	100.0	2245	100.0	1.0
Trip Purpose					
Work	44	10.4	183	8.2	1.3
Vacation	47	11.1	153	6.8	1.6
Shopping	4	0.9	27	1.2	0.7
Other Social/Rec.	13	3.1	60	2.7	1.2
Personal Business	110	25.9	394	17.6	1.5
Visit Friend/Relative	186	43.9	1144	51.2	0.9
Other	20	4.7	275	12.3	0.4
Total	424	100.0	2236	100.0	1.0
Option if Bus Discontinued					
Not Take Trip	63	15.6	--	--	--
Drive Car	148	36.5	--	--	--
Airplane	67	16.5	--	--	--
Ride With Friend	52	12.8	--	--	--
Amtrak	63	15.6	--	--	--
Other	12	3.0	--	--	--
Total	405	100.0	--	--	--
No. Bus Trips in Past 12 Months					
None	80	18.4	--	--	--
1-2 Trips	127	29.3	--	--	--
3-4 Trips	70	16.1	--	--	--
5-10 Trips	84	19.4	1321 1/	72.5 1/	0.3 1/
11-19 Trips	34	7.8	227 2/	12.5 2/	0.6 2/
20 or More Trips	39	9.0	273	15.0	0.6
Total	434	100.0	1821	100.0	1.0
Fare					
Too High	124	30.2	--	--	--
Too Low	4	1.0	--	--	--
About Right	283	68.9	--	--	--
Total	411	100.0	--	--	--

Notes: The percentages are based on the number of responses, not on the total number of surveys distributed.

A "--" indicates that 1977 data was not available.

1/ Represents the number of trips in the past 12 months for the category 0-9 trips. Finer grouping is not possible with the 1977 data.

2/ Represents the number of trips in the past 12 months for the category 10-19 trips. Finer grouping is not possible with the 1977 data.

Source: MDOT, Bureau of Transportaion Planning, Passenger Transportation Planning Section.

FIGURE 12
ACCESS TO BUS

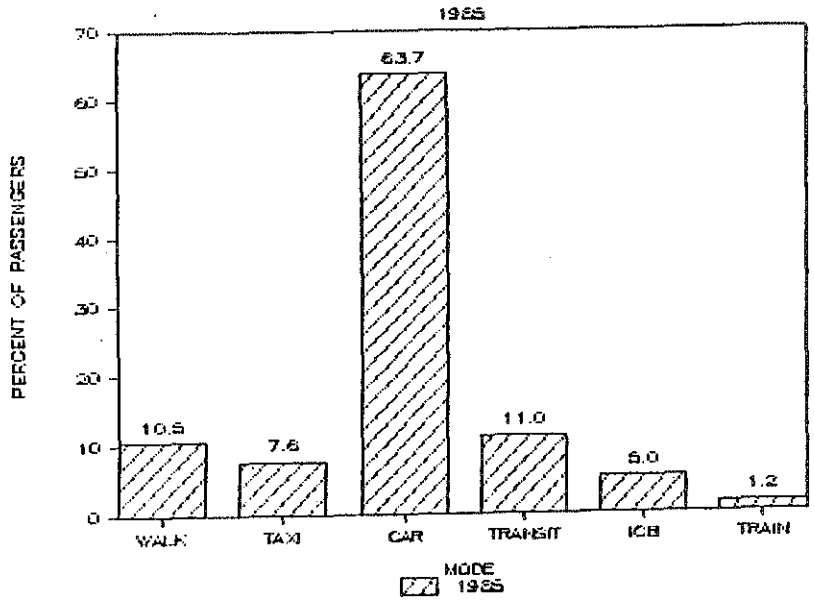


FIGURE 13
ACCESS TO DESTINATION

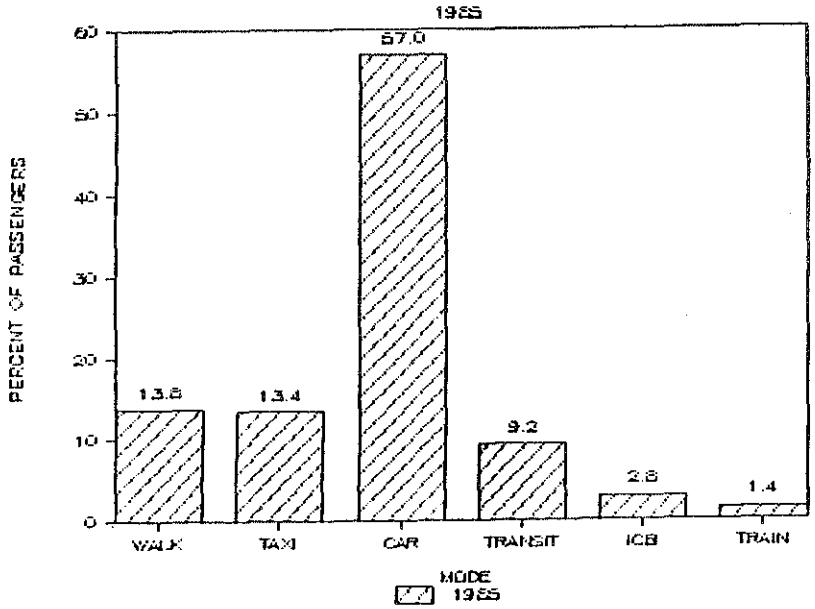


FIGURE 14
TRIP PURPOSE

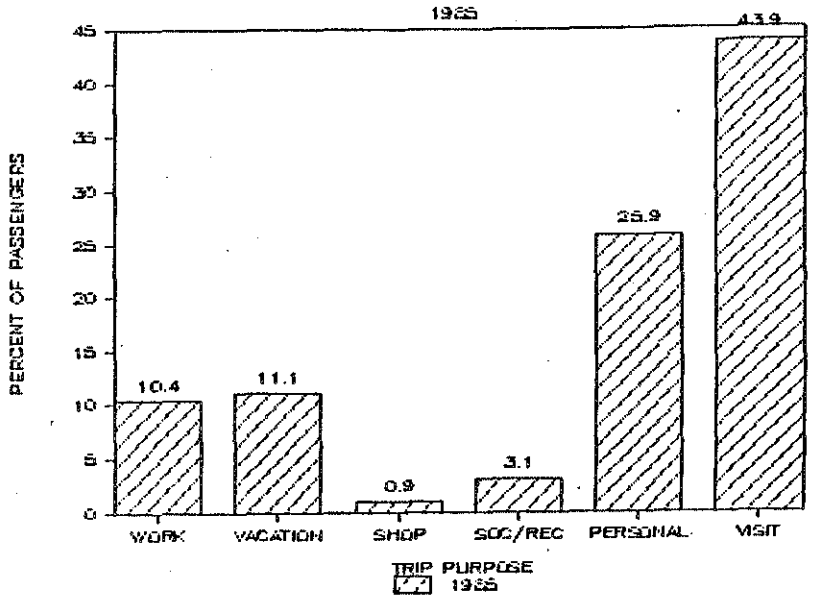


FIGURE 15
NO. TRIPS IN PAST 12 MONTHS

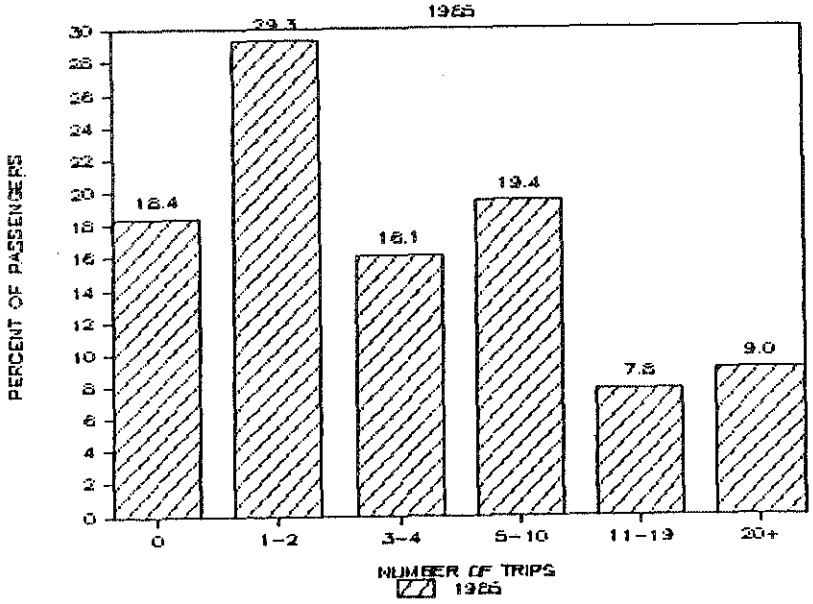


FIGURE 16
OPERATING VEHICLES PER HOUSEHOLD

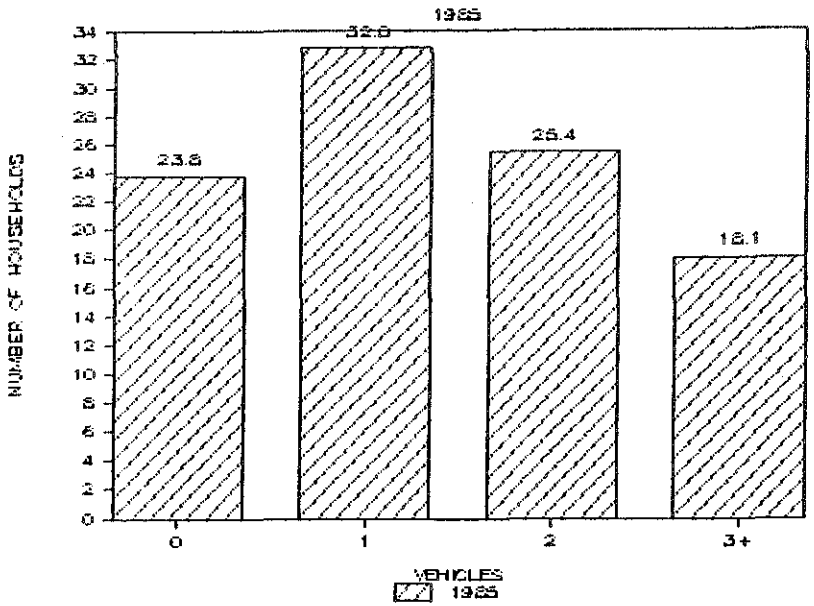


FIGURE 17
PASSENGER EMPLOYMENT

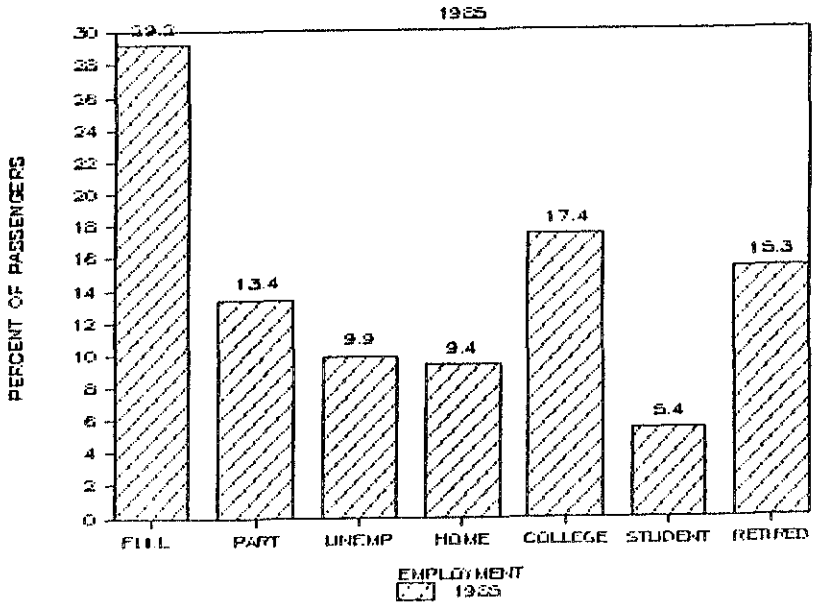


FIGURE 18
PASSENGER AGE

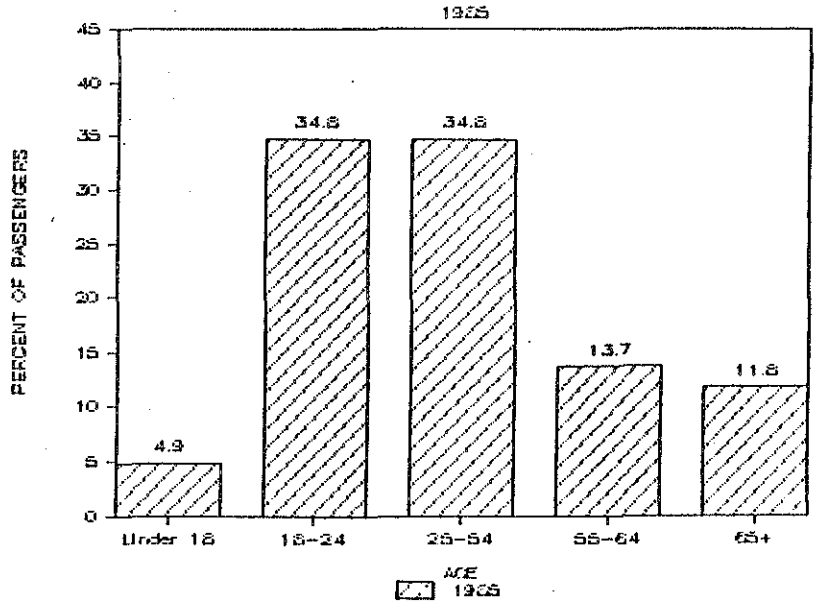
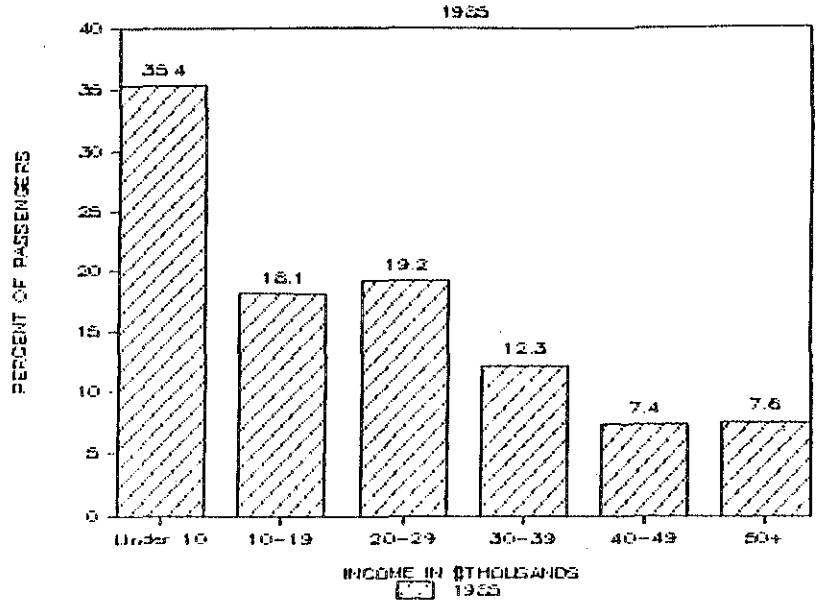


FIGURE 19
PASSENGER FAMILY INCOME



right." College students expressed the most dissatisfaction with the fare as nearly half (43.8%) considered the fare too high (see Appendix C).

IIID2. USER CHARACTERISTICS

These consist of (1) number of people in the user's household, (2) number of household members on the surveyed trip, (3) number of personal vehicles owned by household of the user, (4) employment status of the user, (5) sex of the user, (6) age of the user, and (7) family income of the user's household. Figures for these characteristics are presented in Table C, portrayed in figures 12-15, and detailed in Appendix C.

The typical 1985 intercity bus passenger is from a household with 2.7 persons, not travelling with others in their household, has 0.8 operating cars, employed, female, approximately 33 years old, and with an average family income of $18,100 (in 1985 $).

a. Number in Household (Question 10): Intercity bus users are members of a wide variety of household sizes. While the highest number of users (21.7%) come from single person households, this is not substantially larger than the number coming from 2, 3 or 4 person households. The distribution of users by household size mirrors the total population.

Household Size	User Survey	State of Michigan
1	21.7%	21.0%
2	18.5%	30.3%
3	14.7%	17.3%
4	17.4%	16.5%
5 or more	27.7%	19.9%

The average size household of intercity bus users is 2.7, whereas the State as a whole is 2.8.

TABLE 6

RIDER CHARACTERISTICS
MICHIGAN INTERCITY BUS SYSTEM
MAY 1985

Data Item	1985 No.	1985 %	1977 No.	1977 %	Ratio 1985/1977
No. in Household					
1	95	21.7	--	--	--
2	81	18.5	--	--	--
3	64	14.7	--	--	--
4	76	17.4	--	--	--
5-6	68	15.6	--	--	--
7-10	25	5.7	--	--	--
11 or more	28	6.4	--	--	--
Total	437	100.0	--	--	--
No. of Household Members on Trip					
1	293	80.3	--	--	--
2	52	14.2	--	--	--
3	13	3.6	--	--	--
4	5	1.4	--	--	--
5 or More	2	0.6	--	--	--
Total	365	100.0	--	--	--
No. of Personal Vehicles Owned by Household of Rider					
None	100	23.8	773	35.5	0.7
1 Vehicle	138	32.8	611	28.1	1.2
2 Vehicles	107	25.4	505	23.2	1.1
3 or More	76	18.1	287	13.2	1.4
Total	421	100.0	2176	100.0	1.0
Employment Status					
Full-Time	124	29.2	518 1/	25.9 1/	1.1 1/
Part-Time	57	13.4	--	--	--
Unemployed	42	9.9	169	8.5	1.2
Homemaker	40	9.4	322	16.1	0.6
College Student	74	17.4	528	26.4	0.7
Other Student	23	5.4	167	8.4	0.6
Retired	65	15.3	295	14.8	1.0
Total	425	100.0	1999	100.0	1.0
Sex					
Male	197	46.5	853	38.9	1.2
Female	227	53.5	1342	61.1	0.9
Total	425	100.0	2195	100.0	1.0
Age					
17 or Under	21	4.9	151	6.8	0.7
18-24	148	34.8	--	--	--
25-54	148	34.8	--	--	--
55-64	58	13.7	1815 2/	81.5 2/	0.2 2/
65 +	50	11.8	262	11.7	1.0
Total	425	100.0	2228	100.0	1.0
Family Income 3/					
Under $10,000	135	35.4	623	32.7	1.1
$10,000 - $19,999	69	18.1	476	25.0	0.7
$20,000 - $29,999	73	19.2	--	--	--
$30,000 - $39,999	47	12.3	540 4/	28.3 4/	0.4 4/
$40,000 - $49,999	28	7.4	--	--	--
$50,000 or More	29	7.6	266 5/	14.0 5/	0.5 5/
Total	381	100.0	1905	100.0	1.0

Notes: The percentages are based on the number of responses, not on the total number of surveys distributed.

A "--" indicates that 1977 data was not available.

1/ Represents employed persons. It is not possible to distinguish between full- and part- time workers in the 1977 data.

2/ Represents the number of riders for the age category 18-64. Finer grouping is not possible with the 1977 data.

3/ 1977 values are adjusted to 1985 dollars.

4/ Represents the number of riders for the family income category $20,000-$39,999. Finer grouping is not possible with the 1977 data.

5/ Represents the number of passengers for the family income category $40,000 or more. Finer grouping is not possible with the 1977 data.

Source: MDOT, Bureau of Transportaion Planning, Passenger Transportation Planning Section.

b. Number of Household Members on Trip (Question 10): Over 80 percent are travelling by themselves or, at least, not travelling with other household members. Only 5-6 percent are travelling with 3 or more household members.

c. Number of Personal Vehicles Owned by Household of Users (Question 11): Nearly one-fourth (23.8%) of all intercity bus users are members of households without a car. This group is totally dependent on public transportation or friends to make intercity trips. Another one-third (32.8%) are in one-car households.

d. Employment Status (Question 12): Three of every 10 users are employed full-time and another 1 in 10 is employed part-time. This is similar to Michigan's employed percentage of its population (42.7%). Nearly 2 of every 10 are college students and 1.5 in 10 are retired.

e. Sex (Question 13): A majority of the users (53.5%) are female. This is somewhat higher than Michigan's female percentage (51.2%).

f. Age (Question 14): Two groups dominate the intercity bus user profile: 18-24 (34.8%) and 25-54 (34.8%). A full one of every three users approximate the college student age, but only one-half of these are actually college students. Somewhat more than one of 10 are 65 or older which roughly corresponds to the "retired" employment status (15.3%). The median age is 33 years which is somewhat higher than Michigan's 29.

g. Family Income (Question 15): More than three of every 10 users (35.4%) are from households with a family income under $10,000. Two of 10

(18.1%) are in the $10,000 to $20,000 range. More than one of 10 (15.0%) make $40,000 or more. The median family income is $18,100 compared to Michigan's $24,200.

IIID3. SERVICE RATING BY USERS (QUESTION 16)

The service features rated were (1) adherence to schedule, (2) frequency of service, (3) schedule information, (4) condition of bus, (5) condition of terminal, and (6) courtesy of employees. Figures for these service ratings are presented in Table 7 and Appendix C.

a. Adherence to Schedule: This received a high rating (79.6% rated it very good or good). It is the perception of the user that intercity buses usually arrive and depart on time.

b. Frequency of Service: This appeared to be more difficult for users to rate. Some five percent fewer respondents rated this feature than any other, and another five percent checked "don't know." Those that did rate it gave it a marginally satisfactory rating (69.5% very good or good.)

c. Schedule Information: This received a high rating (80.1% rated it very good or good). This means that people using the bus service have the information necessary to use intercity bus service.

d. Condition of Bus: This feature was rated second highest (83.8%) among the six features. Also, it received the lowest percentage of "poor" responses (1.5%) by a wide margin. it is the perception of the user that intercity buses are clean and comfortable.

e. Condition of Terminal: This was rated the lowest of the six features.

TABLE 7

INTERCITY BUS USERS' SERVICE RATING
MICHIGAN INTERCITY BUS SYSTEM
MAY 1985

Service	Rating											
	Very Good		Good		Fair		Poor		Don't Know		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Adherence to Schedule	174	43.3	146	36.3	59	14.7	21	5.2	2	0.5	402	100.0
Frequency of Service	101	26.8	161	42.7	79	21.0	18	4.8	18	4.8	377	100.0
Schedule Information	163	41.6	151	38.5	54	13.8	23	5.9	1	0.3	392	100.0
Condition of Bus	137	34.6	195	49.2	56	14.1	6	1.5	2	0.5	413	100.0
Condition of Terminal	100	25.2	166	41.8	105	26.4	23	5.8	3	0.7	397	100.0
Courtesy of Employees	175	44.1	162	40.8	44	11.1	12	3.0	4	1.0	397	100.0

Source: MDOT, Bureau of Transportation Planning, Passenger Transportation Planning Section

Only 67.0 percent rated it very good or good.

f. Courtesy of Employees: This received the highest rating of any feature. Nearly 85 percent (84.9%) considered the courtesy of the ticket agents and drivers to be very good or good.

The six features rated in descending order based on the sum of very good and good are as follows...

Rank	Feature	Very Good & Good
1	Courtesy of Employees	84.9%
2	Condition of Bus	83.8%
3	Schedule Information	80.1%
4	Adherence to Schedule	79.6%
5	Frequency of Service	69.5%
6	Condition of Terminal	67.0%

IIID4. USER COMMENT ANALYSIS

Some 58 percent of the 437 useable questionnaires contained a response to Question 18, "If you could, what one thing would you change about the bus service?" Most frequently mentioned was "Level of Service" closely followed by "Condition of Buses" (see Table 8).

Rank	Feature	Percentage
1	Level of Service	38.4
2	Condition of buses	24.1
3	Fares	13.3
4	Condition of terminals/rest stops	7.8
5	No changes needed	7.4
6	Courtesy of employees	5.5
7	Schedule information	3.5

The greatest concern about "Level of Service" is service frequency (18.0%) followed by a desire for improved connections (6.2%). Some preferred fewer stops (4.7%) which, of course, would be one way to meet another concern...to reduce the travel time (4.7%). Regarding condition of buses, the greatest concern was to eliminate smoking (5.9%) followed by a desire for cleaner bathrooms (4.3%).

A significant percentage indicated no change was needed. In fact, the "no changes needed" percentage (7.4%) is probably low as many of the "no response" passengers probably felt no changes were needed. Many of the "other comment" responses (Question 19) reflected this highly favorable perspective of intercity bus service. A complete listing of responses to questions 18 and 19 are presented in Appendix H.

IIIE. COMPARISON TO 1977 STUDY

Every effort was made to maintain the integrity of the 1977 User Survey procedures and questions. However, some changes were made for various reasons. Also, some additional questions were added to the questionnaire. These changes and additions are discussed in other parts of this document. The purpose of this unit is to examine in what ways the 1985 intercity bus

TABLE 8

WHAT ONE THING WOULD YOU CHANGE ABOUT THE BUS SERVICE? 1/
MICHIGAN INTERCITY BUS SYSTEM
MAY 1985

Service Feature	No. of 2/ Responses		% of Subtotal
LEVEL OF SERVICE		98	38.3
Improve Frequency of Service	46	18.0	
Change Arrival and/or Departure Time	12	4.7	
Improve Connections	16	6.2	
Reduce Number of Stops	12	4.7	
Reduce Travel Time	12	4.7	
SCHEDULE INFORMATION		9	3.5
CONDITION OF BUSES		62	24.2
Cleaner Buses	6	2.3	
Cleaner Bus Bathrooms	11	4.3	
Improve Seating	10	3.9	
Eliminate Smoking	15	5.9	
Provide Music	7	2.7	
Other	13	5.1	
CONDITION OF TERMINAL/REST STOPS		20	7.8
Improve Terminal	11	4.3	
Improve Rest Stops/Eating Places	9	3.5	
EMPLOYEES		14	5.5
FARES		34	13.3
NO CHANGES NEEDED		19	7.4
SUBTOTAL		256	100.0
NO RESPONSE		181	--
TOTAL		437	--

Notes: 1/ Information based on Question 18 of the survey questionnaire. A complete listing of the comments received can be found in Appendix H.

2/ Percentages are based on the 256 responses to the question. The 181 "No Responses" may or may not mean "No Changes Needed."

Source: MDOT, Passenger Transportation Planning Section, 1985 Intercity Bus User Survey.

user is similar to, and different than, the 1977 user. These are examined in terms of travel (Table 5 and Figures 13-16) and user characteristics (Table 6 and Figures 17-20).

IIIE1. PROCEDURES

a. The 1985 survey return rate was about half (49.4 percent) that of the 1977 survey.

	1985	1977	1985 % of 1977
Questionnaires Distributed	1,187	3,292	36.1%
Questionnaires Returned	437	2,454	17.8%
Percent (%) Returned	36.8%	74.5%	49.4%

b. The 25-54 age group should be subdivided in the survey questionnaire response set. Nearly 35 percent of the users are in this category and the average age of the intercity bus user and Michigan's total population is in this group.

IIIE2. ACCESS

a. Fewer people walk to the intercity bus station to begin their bus trip. Approximately 10 percent in 1985 compared to 17 percent in 1977. At the same time, more bus passengers access bus stations via the automobile (64 percent versus 54 percent). This may be partly attributable to the higher cars per household and family income of 1985 users. This shift could continue if more bus terminals are relocated to improve bus travel times (such as near freeway interchanges) and terminals are shared with other tranpsortation modes.

b. Use of local public transit going to and from intercity bus terminals remains about the same. About 11 percent use local public

transportation to reach a terminal and 9 percent their destination from a terminal in 1985 and 1977.

c. There continues to be little interconnecting of intercity bus and Amtrak trips. That is, few people use intercity bus service to reach an Amtrak terminal (less than 1 percent).

d. Less than five percent of the users transfer from one intercity route to another to complete their trip, either in 1985 or 1977 (less than 5 percent).

IIIE3. TRIP PURPOSE AND FREQUENCY

a. Visiting friends and relatives continues to be the dominant trip purpose, approximately 5 of every 10 trips, although to a lesser extent than in 1977...44 percent versus 51 percent. When vacation trips are added, the 1985 and 1977 percentages are approximately the same.

b. Personal business trips continues to rank second, one-fourth of all trips. This is significantly higher than the 1977 figure of 18 percent. This change is tempered by a possible lack of understanding of what "personal business" connotes to the respondent.

c. Work trips continue to constitute about 1 of every 10 trips made by intercity bus. This percentage has increased slightly since 1977 from 8 to 10 percent.

d. The user is making somewhat fewer trips by intercity bus. Nearly 3 of 10 users made more than 10 trips in past year in 1977

FIGURE 20
ACCESS TO BUS
1985 AND 1977

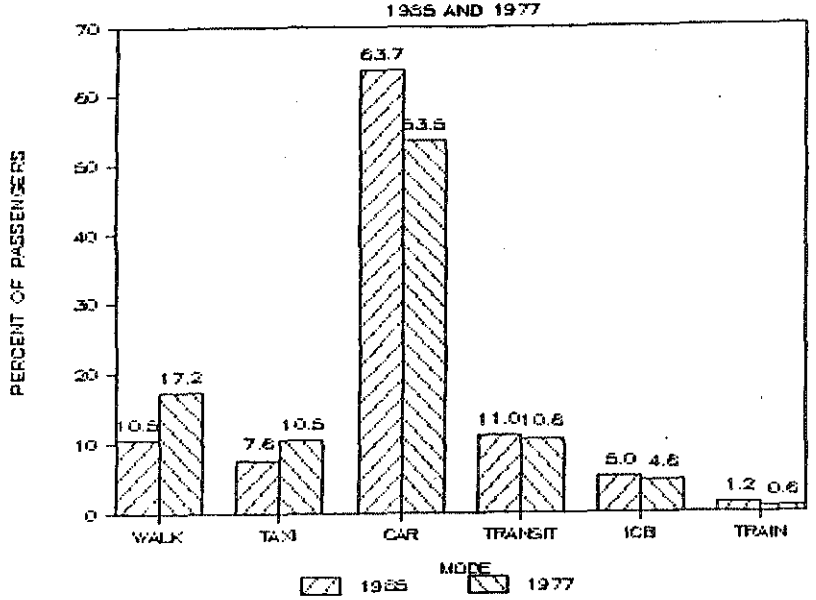


FIGURE 21
ACCESS TO DESTINATION
1985 AND 1977

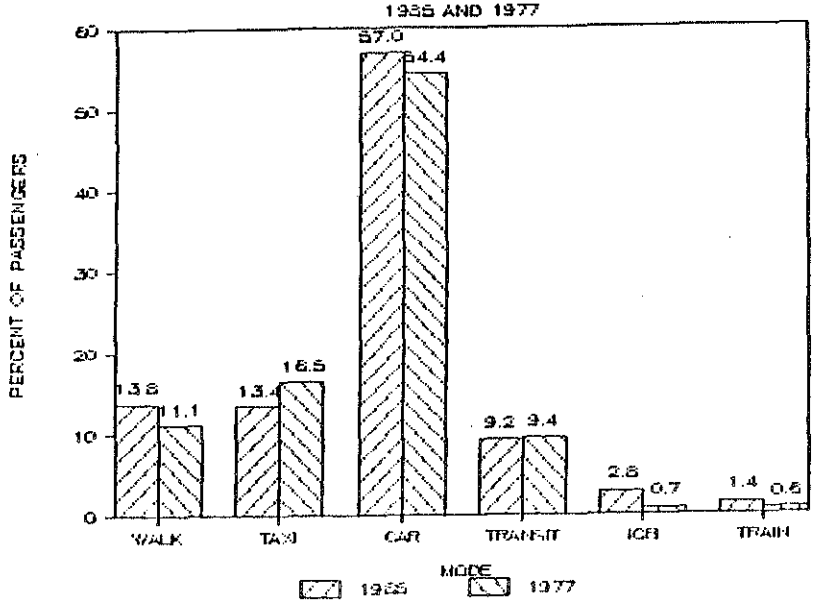


FIGURE 22
TRIP PURPOSE
1985 AND 1977

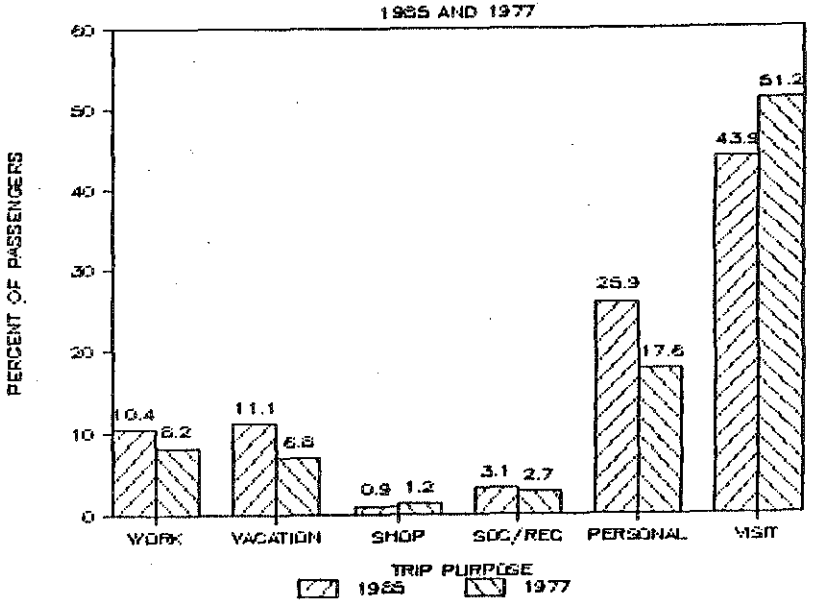


FIGURE 23
NO. TRIPS IN PAST 12 MONTHS
1985 AND 1977

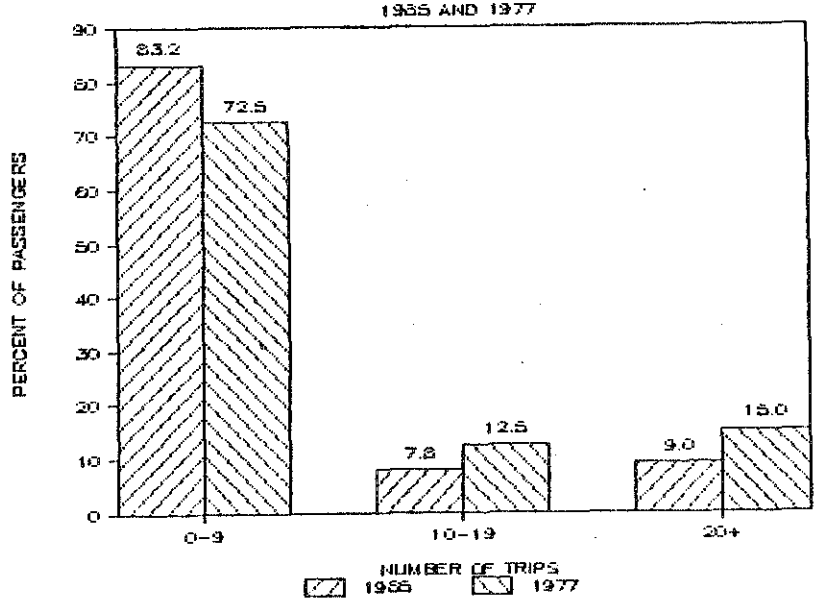


FIGURE 24
OPERATING VEHICLES PER HOUSEHOLD
1955 AND 1977

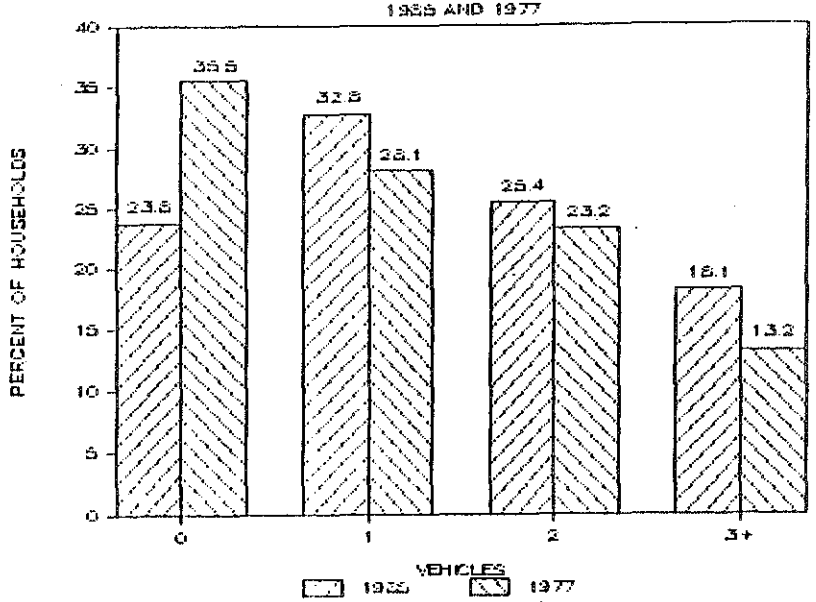


FIGURE 25
PASSENGER EMPLOYMENT
1955 AND 1977

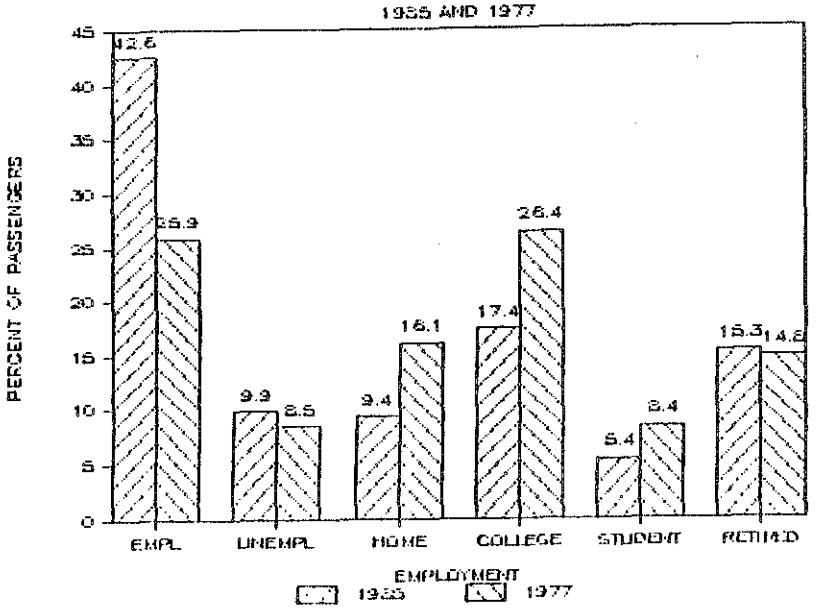


FIGURE 26
PASSENGER AGE
1955 AND 1977

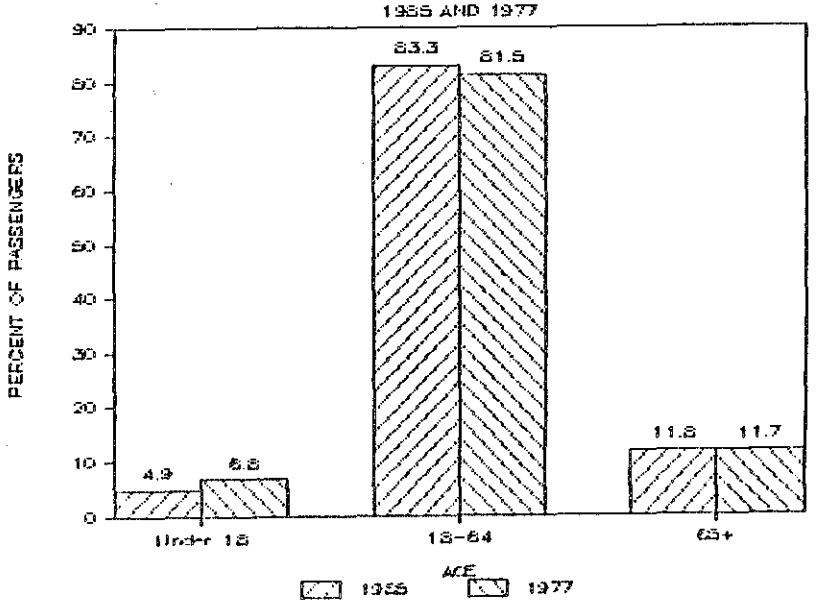
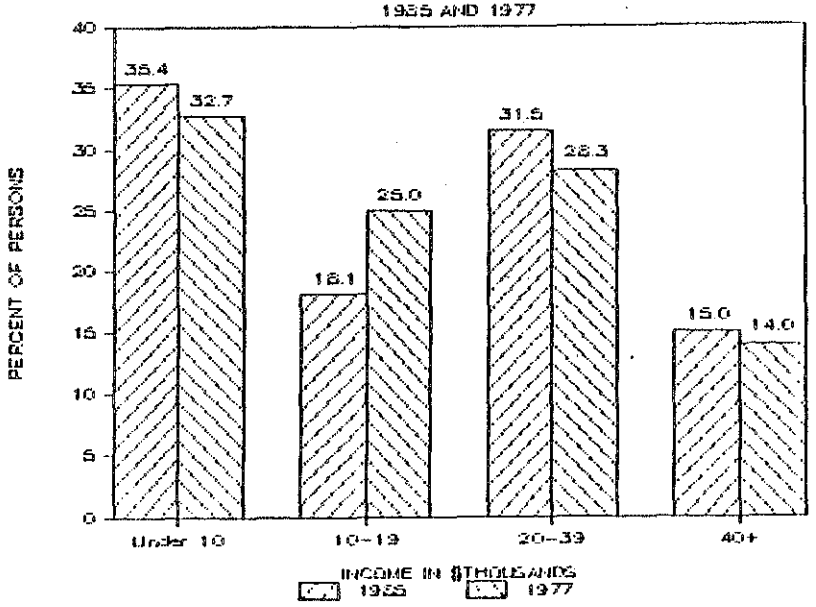


FIGURE 27
PASSENGER FAMILY INCOME
1955 AND 1977



compared to less than 2 of 10 in 1985.

IIIE4. OPERATING VEHICLES PER HOUSEHOLD

a. There are significantly fewer intercity bus users from no-car households. A reduction of 12 percent from 36 to 24 percent has been experienced.

b. There has been a similar percentage increase in the one car, two car, and three or more car operating vehicles per household groups. This increase is 5 percent in the one and three cars per household groups and 2 percent in the two-car per household group.

IIIE5. EMPLOYMENT STATUS

a. The number of employed (full or part-time) users has increased substantially. More than 4 of 10 users were employed in 1985 compared to less than 3 of 10 in 1977.

b. The number of unemployed users remained about the same, 10 percent versus 9 percent. This occurred during a time when the unemployment rate in Michigan increased by 37 percent from 8.2 percent (1977) to 11.2 percent (1985) as noted in Appendix A.

c. College students decreased as a percentage of total users from nearly 3 of 10 to less than 2 of 10. This occurred during a period when Michigan's college enrollment was stable. Enrollment at four year universities/colleges in Michigan was 284,947 in 1977 and 282,413 in 1984 (see Appendix A).

d. Retired users remained about the same as a percentage of total users (15 percent). At the same time, senior citizens (65 and

over) are constituting an increasing percentage of Michigan's population... 8.2 percent in 1960, 8.5 percent in 1970, and 9.6 percent in 1980.

IIIE6. SEX AND AGE

a. The majority of intercity bus users continue to be female, although decreasingly so. The 1977 percentage differential of 22.2 percent has been narrowed to 7.0 percent in 1985. The differential for Michigan's total population in 1980 was 2.5 percent.

b. The age distribution of users has not changed markedly since 1977 although the average age has increased from 28 to 33 years. This is similar to the average age of Michigan residents which was 29.6 years in 1980.

IIIE7. FAMILY INCOME

a. No major shifts in the income distribution of users is discernible, although the median family income (in 1985 $) has increased about $1,000. These figures are considerably below the median family income of Michigan's residents in 1980 which was $24,200. The median family income (in 1985 $) of intercity bus users was $18,100 in 1985 and $16,900 in 1977.

PART IV
TICKET SURVEY

IV. TICKET SURVEY

IVA. PURPOSE

There have been significant intercity bus service changes in some areas of the state since the inception of deregulation in 1982. The thumb, northeast lower peninsula, and areas south of the I-94 expressway west of the Detroit-Toledo corridor are all regions of the state that have experienced service discontinuations, reductions, or changes. The user survey described in Part III was designed to profile the current intercity bus user. The ticket survey described in this section is designed to profile current travel patterns, some of which have emerged in the post deregulation period, and compare them to 1977 travel patterns.

The user survey in Part III provided some basic origin and destination characteristics for those riders who completed a survey questionnaire. The ticket survey provides data for every trip made from 40 different intercity bus stations throughout the state. Information at some stations was collected for an entire month. At the remaining stations, information was collected for a period of one week. This data has been expanded into a trip-table, which shows the number of trips from area to area and indicates major travel patterns for intercity bus companies over an average period of time.

IVB. PROCEDURES

Several steps were followed to develop and conduct the ticket survey. Many of the procedures are the same as, or similar to, those followed for the user survey. In actual practice these steps were combined to include both the ticket and user surveys. Because of this, some of the

procedures listed in this section have an abbreviated description since they have been previously described in Part III.

IVB1. SEEK PERMISSION TO CONDUCT THE SURVEY

The letter sent to each regular route intercity bus carrier requesting permission to conduct the user survey also included a description of the ticket survey. The two surveys were treated as interconnected parts, each measuring a separate characteristic, but supporting the other. Permission to conduct the ticket survey was obtained at the same time approval for the user survey was obtained. This avoided the duplication of sending two separate letters to the intercity bus companies. It also introduced the bus companies to both aspects of the proposed study from the beginning of the process.

IVB2. DETERMINE DATES TO CONDUCT THE SURVEY

The dates to conduct the ticket survey were coordinated with the user survey to allocate available staff and schedule survey times so that the ticket stubs would be available for the time required (either the entire month or one week). The intent was to survey the stations that have larger traffic patterns for one week, May 12-18. Other stations, with lower passenger volumes, would be surveyed for the entire month of May. This would assure that a representative sample of trips would be collected for the smaller stations.

In the field, this convention was not strictly followed. When an entire month's data was easily available for the larger volume stations, it was collected. At some of the smaller stations it was not possible to collect data for the entire month for various reasons (usually because part of the

ticket stubs had been sent to a different location). In all cases, however, data was collected for at least the week of May 12-18 (see Figure 28).

To accomplish the data collection, two survey periods were selected. The week of May 28-31 was scheduled to collect information from the larger stations. June 3-7 was scheduled to obtain the monthly ticket information from the smaller stations and from the central offices of the bus companies. These dates avoided overlapping with the user survey so that staff would be available for both efforts.

IVB3. IDENTIFY STATIONS TO SURVEY

A total of 40 stations were included in the survey (see Figure 28). These stations correspond to the major travel corridors identified in the user survey. The exact location and number of the stations varied as the survey progressed. Data collected at the central offices allowed stations to be added because the information was available. Some low volume, distant stations, with no easy method to obtain the ticket information, were excluded. Data was collected for all stations that represent major contributors to the intercity bus traffic in the state.

IVB4. DEVELOP TABULATION SHEETS AND HOLD TRAINING SESSIONS

Matrix sheets were developed to assist in the uniform collection of the data from the various stations. A group of surveyors visited the Lansing bus station to obtain first-hand experience with the ticketing system; how it works, type of tickets to expect, and how to best code the matrix sheets. This information was then transferred to

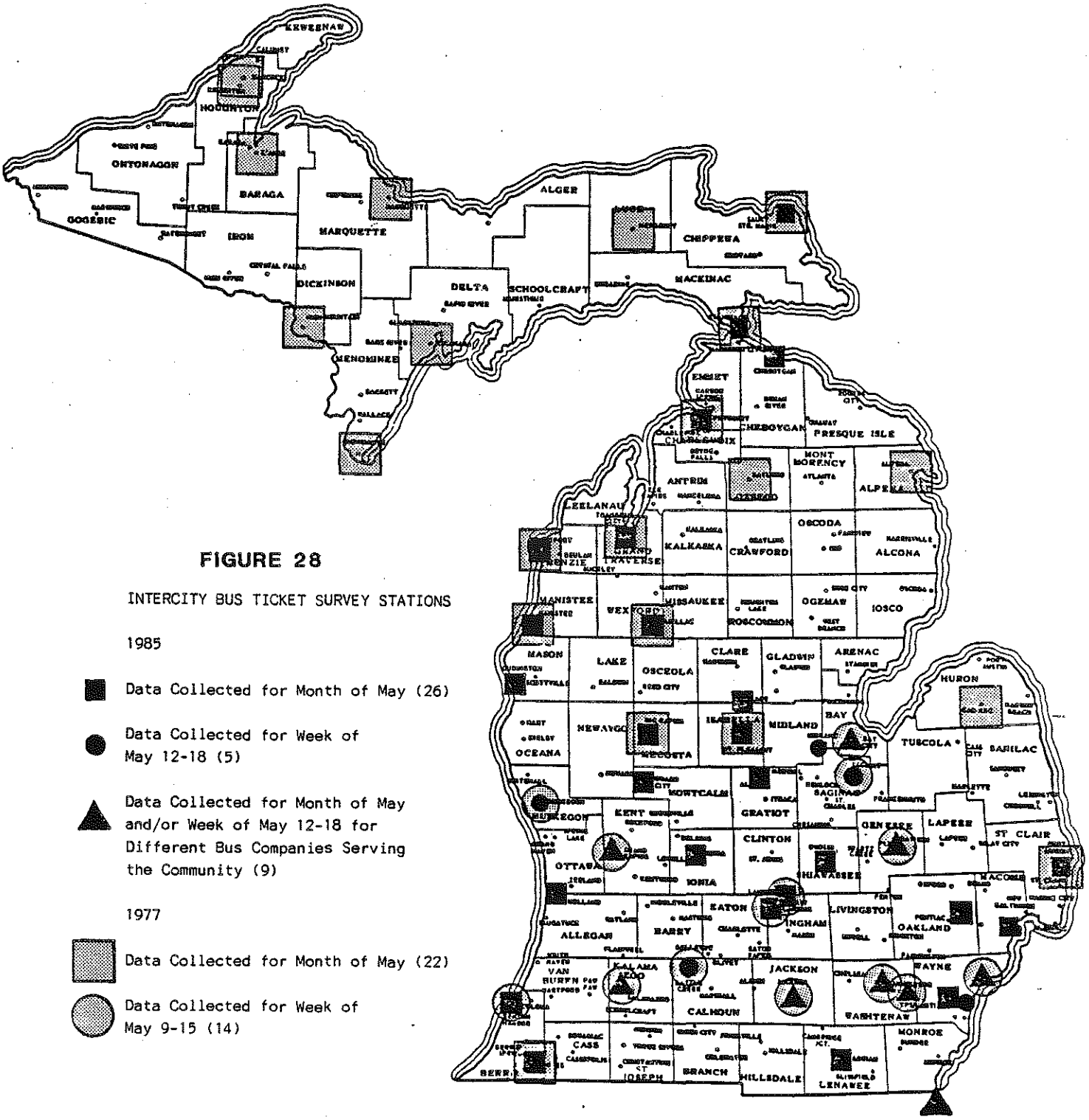


FIGURE 28

INTERCITY BUS TICKET SURVEY STATIONS

1985

- Data Collected for Month of May (26)
- Data Collected for Week of May 12-18 (5)
- Data Collected for Month of May and/or Week of May 12-18 for Different Bus Companies Serving the Community (9)

1977

- Data Collected for Month of May (22)
- Data Collected for Week of May 9-15 (14)

other survey members through training sessions.

IVB5. CONDUCT THE SURVEY

Members of the Passenger Transportation Planning Section were assigned dates and stations to collect the data. Maps detailing the location of the intercity bus terminals and a list of addresses and telephone numbers were provided to assist in locating the stations. Groups of two persons were assigned two or more bus stations per day, depending on the travel time to and between stations and the expected number of tickets that would require tabulation at each station. In some instances, overnight trips were required to collect data from several distant areas. Larger survey groups of at least four persons were sent to the central offices to tabulate the large number of tickets at these locations.

Problems with collecting data from some small stations early in the survey led to a re-thinking of the process. Contact was made with the locally based central offices requesting permission to tally the ticket information for all stations at the central office.

This was a successful change, allowing large amounts of information to be collected with less effort and in a more complete manner. Five central offices were visited in this survey; G & M Coaches - Grand Rapids, Shortway North Star - Grand Rapids, Indian Trails - Owosso, Tower/American Trails - Mt. Clemens, and Shortway Lines - Toledo.

The number of trips to each destination from each station was recorded by hand. Trips were calculated by determining the number of tickets

sold. A separate record was kept of one-way and round trip tickets at all stations. Each round trip ticket was considered to be two trips; commuter tickets, between known points, were included. Unlimited riding passes (such as Ameripass) were recorded, but ignored in the evaluation of the data because it was impossible to determine trip origins and destinations on these passes. Tickets purchased at one station for trips between two different locations were treated as if the ticket was purchased at the origin of the trip. For example, a ticket purchased at the Lansing station for a trip from Jackson to Grand Rapids was treated as if it was purchased at Jackson.

All origin and destination information was entered onto the tabulation sheets by hand. Later, special codes were added to each origin and destination. These codes permit computer identification of the locations to generate tables and graphics that represent the intercity bus trips (see figures 29 and 30).

IVC. SAMPLE SIZE

Virtually all tickets issued at the major and several minor intercity bus atations throughout the state were included in the ticket survey. Only if the month of May or the week of May 12-18 are completely atypical could the data be unrepresentative of intercity bus trip characteristics throughout the state.

Four assumptions were made in obtaining ticket information that are important when determining the validity of the ticket data. The first assumption was that most tickets would be used within one week of purchase. The second assumption was that the return portion of a round trip ticket would, in the

majority of instances, be used within one week as well. The third assumption was that round trip tickets would be mirrored in paired cities. This means that the same number of round trip tickets would be bought from Lansing to Jackson as were bought from Jackson to Lansing. The fourth assumption was that all tickets to out-of-state or other non-surveyed stations would be mirrored.

Station managers generally concurred with these assumptions. Even should this not be the case, there would be those making like trips who had purchased tickets prior to the survey period. If these assumptions are invalid, then the travel patterns presented in this report cannot be considered completely accurate since ticket sales and number of trips are obviously interrelated.

The sample size, based on tickets sold at stations surveyed, was over 95 percent. That is, while the percentage of stations surveyed was small, the percentage of tickets surveyed exceeded 95 percent of all tickets sold in Michigan. Due to the assumptions described above, the one-way tickets sold is approximately two-thirds the 2,400 average daily intercity bus passengers carried:

$$\frac{(7{,}225 + (2{,}139 \times 2))}{7} \cong 2/3\ (2.400)$$

The information collected will be used to factor travel patterns for stations not included in the ticket survey. In this way, a trip table for the entire state can be created. Since the sampled data represents a majority of the trip origins and destinations throughout the state, including all urbanized areas, the factored data is expected to be fairly accurate.

IVD. RESULTS

The results of the ticket survey have been grouped into two categories: (1) ticket sales and (2) origin-destination patterns.

IVD1. TICKET SALES

During the week of May 12-18, 1985, some 9,364 tickets were sold at the stations included in the ticket survey. This is an average of 1,338 tickets per day. Approximately one-third of these were sold in Detroit (3,534). Over 500 were sold at these additional Michigan communities in descending order: East Lansing (805), Grand Rapids (770), and Flint (578). Twenty-three stations had ticket sales of less than 100 (see Appendix J).

Round trip tickets account for 22 percent of all tickets sold. Most communities are in the 10 to 20 percentile range. Clare (35.2 percent) and Detroit (30.6 percent) had the highest percent of round trip ticket sales.

Number of Communities	Round Trip Tickets as % of Total Tickets
2	30% or more
11	20 - 29%
20	10 - 19%
3	Under 10%
4	None

Major intercity bus corridors in Michigan, based on bus passengers carried, are I-75, I-94, I-96, US-23, and US-131. This corresponds closely to the level of service offered in Michigan as these corridors have more daily intercity bus round trips than most other Michigan corridors (see figures 6, 29, and 30).

IVD2. ORIGIN-DESTINATION PATTERNS

The top 10 Michigan city pairs in 1985 had 18 or more bus passenger trips between them with the highest volume being 62.

City Pairs	Average Daily Passenger Trips
Detroit-Ann Arbor	62
Detroit-East Lansing	60
Detroit-Flint	49
Detroit-Ypsilanti	43
Detroit-Lansing	40
Detroit-Jackson	29
Detroit-Grand Rapids	24
Ann Arbor-East Lansing	23
Detroit-Saginaw	20
Battle Creek-Kalamazoo	18

The highest number of intercity bus passenger trips between Detroit and Chicago exceeded all intrastate city combinations. The Detroit-Chicago city pair is 82, with Chicago being Michigan's gateway to the west and southwest. Also one of the highest is the Detroit-Toledo city pair at 36, with Toledo representing Michigan's gateway to the east and southeast.

Several Michigan cities had more than 100 daily intercity bus passenger trip ends. These consisted of Detroit (956), East Lansing (252), Grand Rapids (239), Flint (210), Lansing (159), Kalamazoo (154) and Ann Arbor (152).

IVE. COMPARISON TO 1977 STUDY

IVE1. PROCEDURES

Many features were the same in the 1985 and 1977 surveys. These included (1) using seven day and month long daily ticket counts depending on the volume of ticket sales at a station, (2) differentiating between one-way

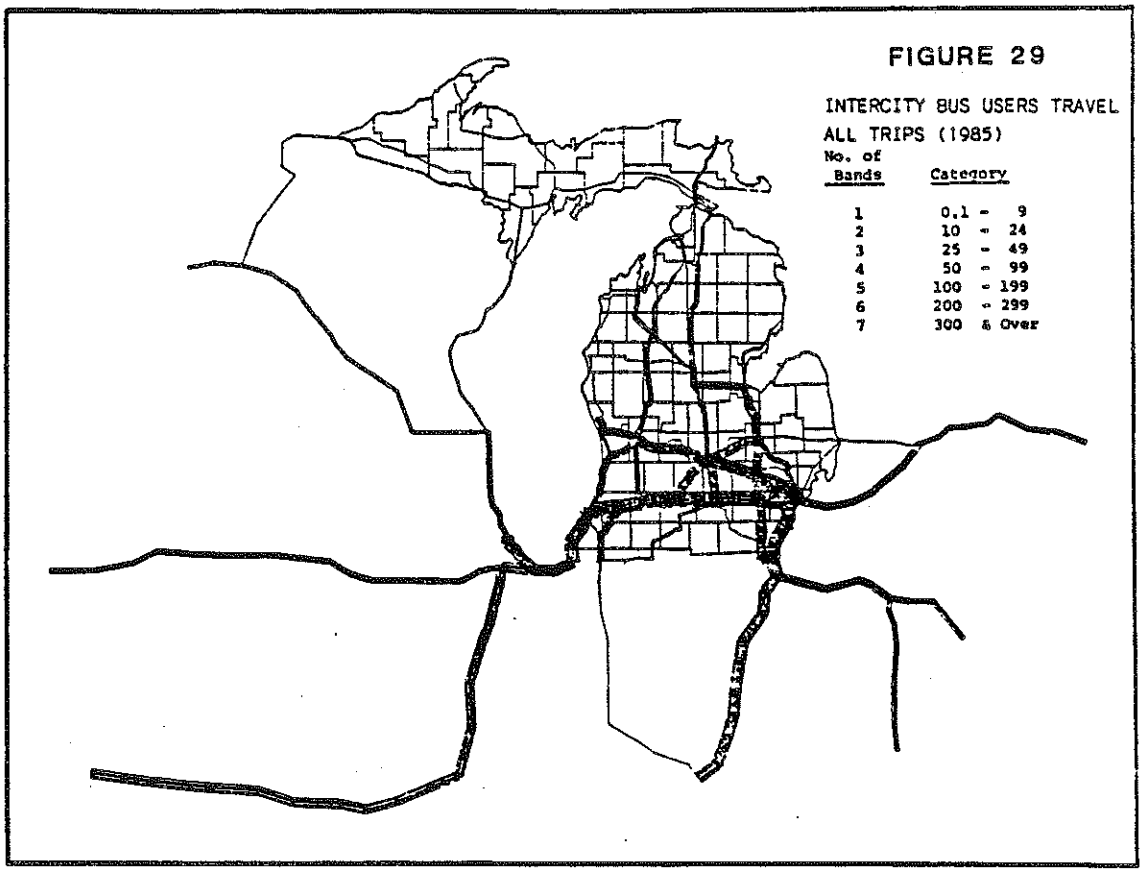


FIGURE 29
INTERCITY BUS USERS TRAVEL
ALL TRIPS (1985)
No. of Bands
Category
1 0.1 - 9
2 10 - 24
3 25 - 49
4 50 - 99
5 100 - 199
6 200 - 299
7 300 & Over

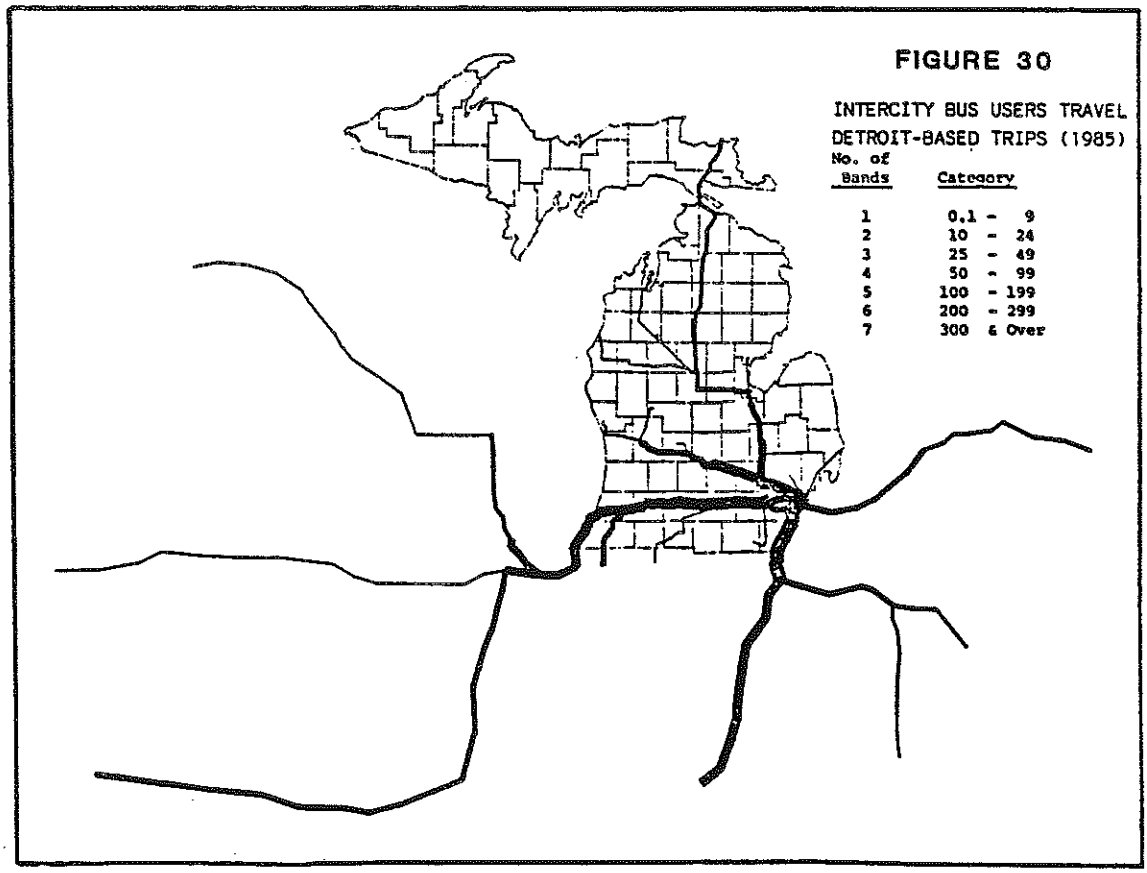


FIGURE 30
INTERCITY BUS USERS TRAVEL
DETROIT-BASED TRIPS (1985)
No. of Bands
Category
1 0.1 - 9
2 10 - 24
3 25 - 49
4 50 - 99
5 100 - 199
6 200 - 299
7 300 & Over

and two-way tickets in the counting process.

One difference was greater use of intercity bus company records viewed at the main and district offices. This resulted in a more comprehensive counting of tickets in 1985 than in 1977. Data was gathered for 40 stations in 1985 compared to 36 in 1977 (see Figure 28).

IVE2. TICKET SALES

The 1985 ticket sales for the week of May 12-18 (See Appendix J) was significantly lower than 1977 figure: 9,364 versus 14,233. Correspondingly, the average daily tickets sold at surveyed stations were 1,338 and 2,033. This constituted a decrease of 34.2 percent during the eight year period. As the 1985 figure is based on counts at more stations in a system comprised of fewer stations than in 1977, the actual decrease in ridership exceeds the 34.2 percent...possibly as high as 44 percent.

The five most productive stations changed somewhat. Detroit continued to be the highest in weekly ticket sales, followed by East Lansing, Grand Rapids, and Flint (See Table 9). The only change in the top five was Ann Arbor replacing Kalamazoo in the number five position. In the second five, some shuffling occurred and Jackson bumped Saginaw from the top 10.

IVE3. ORIGIN-DESTINATION PATTERNS

The top Michigan five city-pairs remain the same, although not in rank order, as 1977. Detroit-Ann Arbor continues to be the number one city-pair. The order of the other four, however, has changed (see Table 10). Two city-pairs are new to the top 10. Ann Arbor-East Lansing, and Battle Creek-Kalamazoo have replaced East Lansing-Flint and Grand Rapids-Kalamazoo.

TABLE 9

TOP TEN MICHIGAN INTERCITY BUS COMMUNITIES (BASED ON WEEKLY TICKET SALES) 1/
1985 & 1977

Community	1980 Population	1985 Rank	1985 Tickets	1977 Rank	1977 Tickets
Detroit	1,203,339	1	2,919	1	4,865
East Lansing	48,309	2	805	2	1,376
Grand Rapids	181,843	3	770	3	1,103
Flint	159,611	4	578	4	877
Ann Arbor	107,316	5	497	6	664
Kalamazoo	79,722	6	467	5	817
Lansing	130,414	7	447	8	631
Battle Creek	35,724	8	284	7	654
Ypsilanti	24,031	9	241	9	470
Jackson	39,739	10	237	12	357

Note: 1/ The 1985 survey week was May 12-18 (Sunday through Saturday). The 1977 survey week was May 9-15 (Monday through Sunday).

Source: MDOT, Bureau of Transportation Planning, Passenger Transportation Planning Section

TABLE 10

TOP TEN MICHIGAN INTERCITY BUS CORRIDORS (BASED ON DAILY PASSENGERS)
1985 & 1977

City Pair	Distance (miles)	1985 Rank	1985 Passengers	1977 Rank	1977 Passengers
(Detroit-Chicago)	280	--	82	--	92
Detroit-Ann Arbor	38	1	62	1	79
Detroit-East Lansing	80	2	60	3	59
Detroit-Flint	60	3	49	4	57
Detroit-Ypsilanti	30	4	43	2	68
Detroit-Lansing	85	5	40	5	42
(Detroit-Toledo)	58	--	36	--	66
Detroit-Jackson	73	6	29	6	36
Detroit-Grand Rapids	149	7	24	7	28
Ann Arbor-East Lansing	58	8	23	13	16
Detroit-Saginaw	96	9	20	10	23
Battle Creek-Kalamazoo	23	10	18	12	20

Source: MDOT, Bureau of Transportation Planning, Passenger Transportation Planning Section

The predominant distance defined by the top 10 Michigan city-pairs is in the 50 to 100 mile range. Six city-pairs are in this category, and one is nearly 150 miles. Eight were in this group in 1977. These are truly intercity transportation distances. However, three city-pairs are less than 40 miles with the shortest being 23 miles. These fall into the commuter service range.

Five city-pairs are segments of the Detroit-Chicago corridor compared to three in 1977. This is the most highly-used transportation corridor in Michigan. Eight of the city-pairs have Detroit as one terminus, the same as in 1977.

When city-pairs with one terminus outside Michigan are included in the "Top Ten" list, Detroit-Chicago and Detroit-Toledo rank first and seventh respectively. There are 82 daily intercity bus passenger trips between Detroit and Chicago and 36 between Detroit and Toledo. One reason for the dominance of Chicago and Toledo as termini is that they are Michigan's gateways to the rest of the nation via intercity bus.

PART V
FINDINGS

V. FINDINGS

VA. FINDINGS

Several of the more significant survey results are presented in this unit as findings. They are grouped according to the order they appeared on the survey used to obtain the data. Additional survey results and more detail regarding the findings are contained in parts III and IV.

1. Finding: Questionnaire Distribution and Collection. The return rate was less than half that realized in 1977... 37 percent versus 75 percent.

- Consideration: Surveyors should make every effort to collect the completed questionnaires rather than rely on the mailback feature.
- Consideration: Surveyors should ride a selected number of buses between selected communities such as East Lansing and Lansing to distribute and collect questionnaires.

2. Finding: Questionnaire Design. The 25-54 age group on the user survey questionnaire is too large an age span. Nearly 35 percent of the survey respondents are in this age group.

- Consideration: Subdivide the 25-54 age group into 25-34, 35-44, and 45-54.

3. Finding: Access. The automobile is being used more now than in 1977 between intercity bus terminals and trip origins/destinations. This is particularly true of trips to terminals as the automobile is used 64 percent of the time, a 10 percent increase over 1977.

- Consideration: Insure that adequate off-street parking, drop-off, waiting, and pick-up space is available at intercity bus terminals.
- Consideration: Catering to the walk-in intercity bus user may not be as important a station location criteria as in the past.

4. Finding: Access. Use of local public transportation to go to and from terminals remains about the same as 1977, approximately 10 percent.

- Consideration: Maintain or improve local transit to and from intercity bus terminals from, as a minimum, higher density housing areas.

5. Finding: Connecting Intercity Transportation Service. Few people use intercity bus service to access Amtrak (less than 1 percent) and not many more transfer from one intercity coach to another (less than 5 percent). This is true for both 1985 and 1977.

- Consideration: Reevaluate intercity bus services feeding Amtrak trains.

6. Finding: Trip Purpose. Visiting friends and relatives continues to be the dominant trip purpose, approximately 5 of every 10 trips, although to a lesser extent than 1977. When vacation trips are added, the 1985 and 1977 percentages are approximately the same.

7. Finding: Trip Purpose. Work trips continue to constitute about 1 of every 10 intercity bus trips.

- Consideration: Focus on forming bus pools to serve major employment centers.

8. Finding: Operating Vehicles per Household. There has been a 12 percent reduction in the number of intercity bus users from no-car households, from 36 to 24 percent.

9. Finding: Employment Status. More than 4 of 10 users in 1985 are employed full-time or part-time compared to less than 3 of 10 in 1977.

10. Finding: College Students. College students decreased as a percentage of total users from nearly 3 of 10 to less than 2 of 10.

- Consideration: Evaluate services to major four-year universities and colleges so as to better accommodate weekend student travel.

11. Finding: Retirees. The percent of intercity bus users who are retired remained at 15 percent even though the percentage of Michigan's retired population increased to 9.6 percent by 1980.

- Consideration: Create a fare structure and marketing program that would increase retirees' use of intercity bus service.

12. Finding: Ticket Counting. Counting tickets at the central offices of intercity bus companies serving Michigan increased the survey coverage, reduced survey labor and travel costs, and may have increased accuracy.

- Consideration: Continue this procedure in future surveys at least to the extent undertaken in the 1985 study.

13. Finding: Processing Round Trip Ticket Tabulations. These were done manually using field data sheets after the ticket counts had been entered into the computer file.

- Consideration: Enter ticket data into the computer file, keeping one-way and round trip ticket counts separate, then determine total passenger trip figures.

14. Finding: Detroit Ticket Sales. Approximately one-third of all intercity bus tickets sold in Michigan are purchased at the Detroit terminals. Detroit is still the hub of the intercity bus system in Michigan as it was in 1977.

15. Finding: Other Urbanized Area Ticket Sales. The larger urbanized areas in Michigan, other than Detroit, continue to have the largest number of tickets sold (500 or more weekly): East Lansing, Flint, and Grand Rapids:

- Consideration. Maintain and improve the terminals in these urbanized areas keeping them convenient, safe, clean, and attractive.

16. Finding: Round Trip Tickets. Two of every 10 tickets sold is a round trip ticket with Detroit's ratio being 3 of 10. This is similar to the 1977 findings when the state average was 21.8 percent and Detroit's was 33.2 percent.

17. Finding: Major Corridor Ticket Sales. Ticket sales between communities comprising the top 10 city pairs have decreased significantly less than the total ticket sales of these communities. While ticket sales in the top 10 (see Table 9) have decreased by 38.7 percent, passengers between the top 10 city pairs (see Table 10) have decreased by only 14.0 percent.

	1985	1977	% Change
Weekly Ticket Sales	7,245	11,814	38.7
Daily Passengers Carried	368	428	14.0

- Consideration: Continue to provide frequent, convenient service in Michigan's major intercity bus corridors.
- Consideration: Promote use of intercity bus service in major intercity bus corridors through special fare programs.

18. Finding: Major Intercity Bus Corridors. In Michigan, based on bus passengers carried, major corridors are (1) I-75, (2) I-94, (3) I-96, (4) US-23, and (5) US-131.

- Consideration: Continue to focus on frequent, on-time service in these corridors.

19. Finding: Average Daily Bus Passenger Trips. Based on 9,364 tickets counted at the 40 stations surveyed, the average daily passenger volume in Michigan is 2,400. This is 44 percent lower than in 1977.

20. Finding: Top 10 Michigan City Pairs. These are with their daily passenger volumes and in decreasing order: Detroit-Ann Arbor (62), Detroit-East Lansing (60), Detroit-Flint (49), Detroit-Ypsilanti (43), Detroit-Lansing (40), Detroit-Jackson (29), Detroit-Grand Rapids (24), Ann Arbor-East Lansing (23), Detroit-Saginaw (20), and Battle Creek-Kalamazoo (18). Eight of these were in the top 10 in 1977. Detroit-Chicago is the highest city pair with 82 daily bus passenger trips.

21. Finding: Daily Trip Ends Over 100. These consist of Detroit (956), East Lansing (252), Grand Rapids (239), Flint (238), Lansing (159), Kalamazoo (154), and Ann Arbor (152).

VB. PERCEPTIONS

1. Perception: Older Americans have fewer alternatives than younger bus riders. Most retirees (85 percent) would still make the trip if intercity bus service were discontinued. A full one-third (36 percent) would drive a car, another one-third (36 percent) would ride with a friend or take an Amtrak train, and more than 10 percent would fly thereby considerably increasing their trip cost.

Alternative to Bus	Retirees	All Respondents
Not Take the Trip	14.8%	15.3%
Drive a Car	36.0%	36.6%
Take Airplane	11.5%	16.6%
Ride with Friend	11.5%	12.9%
Take Amtrak Train	24.6%	15.6%
Other	1.6%	3.0%
Total	100.0%	100.0%

Roughly, one-third of retirees do not have a car in their household, one-third have one car, and one-third have two or more cars (see Appendix

G). The average intercity bus user has fewer no-car households and more two or more car households than retirees.

- Conclusion: While older Americans using intercity bus service have fewer automobiles and less income (over half with incomes less than $10,000), they would make the trip as often as any other user.
- Conclusion: Retirees would be less likely to fly and more likely to take an Amtrak train, if intercity bus service were not available, than the average intercity bus user.

2. Perception: Intercity bus terminals are generally undesireable either due to their location, their condition, or both. The condition of terminals was rated lowest of six service features. Nearly one-third (32.2 percent) considered bus terminals to be in fair or poor condition.

Rating	% of Responses
Very Good	25.2%
Good	41.8%
Fair	26.4%
Poor	5.8%
Dont't Know	0.7%

While a few comments to survey questions 18 and 19 (see Appendix H) were negative regarding terminal location and condition, most were referring to other intercity bus service features.

3. Perception: Most riders are younger or older with few in between. Nearly 4 of 10 intercity bus users are under 25 and 1 in 10 are 65 or over. This means approximately half of the survey respondents were 25 to 64 years of age.

- Conclusion: There are a significant number of intercity bus users who are in the 25-64 age group.

VC. LIMITATIONS

1. Limitation: As the User Survey questionnaire is completed independently by the user, and not in a personal interview setting, it is possible for erroneous data to be reported. This could be due to sensitive data like age and income, a lack of understanding, or inadequately defined terms in the question.

2. Limitation: The User Survey sample size is small. While 437 observations is a sufficient base from which to draw conclusions (in fact, 50 is usually considered acceptable and 100 preferable), care must be exercised in stratifying User Survey results. This includes stratifying data by corridor and multi-dimensional cross tabulations. Only two corridors have a sufficient number of observations for valid corridor analysis.

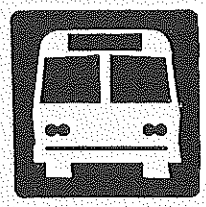
3. Limitation: The Ticket Survey doesn't identify the potential for additional services. This could include more frequent service along an existing bus route or an entirely new service. The reason is that the location and schedule of the existing intercity bus service affects the amount and distribution of trip making.

4. Limitation: The Ticket Survey does not portray year round travel patterns and trip purposes. While May is about one-twelfth of the annual ridership, it doesn't reflect the distribution of trip purposes in the summer when colleges are not in session or enrollment is less.

5. Limitation: The assumption that each non-surveyed station will yield the same trips as those destined for that station may not be valid. That is, just because 100 tickets are sold for the Detroit-Chicago trip doesn't necessarily mean there will be 100 tickets sold in Chicago to go to Detroit.

6. Limitation: The assumption that round trips will "mirror" themselves may not be valid. Just because a round trip ticket is sold for Detroit to city "x" and back, doesn't necessarily mean a round trip ticket will be sold at city "x" for a trip to Detroit and back.

APPENDICES



APPENDIX A

Selected Socio-Economic Characteristics

CIVILIAN POPULATION 1/ & EMPLOYMENT FOR THE UNITED STATES, MICHIGAN, & WAYNE COUNTY, 1960-84 (000s)
1960-1984

Item	1960	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
United States																
Population 2/	178,136	201,985	204,866	207,511	209,600	211,636	213,788	215,894	218,106	220,467	222,969	225,552	227,656	239,116	232,286	234,443
Labor Force 3/	69,628	82,771	84,382	87,034	89,429	91,949	93,775	96,158	99,009	102,251	104,962	106,940	108,670	110,204	111,550	113,900
Employed 3/	65,778	78,678	79,367	82,153	85,064	86,794	85,846	88,752	92,017	96,048	98,824	99,303	100,397	99,526	100,824	105,700
Unemployed 3/	3,852	4,093	5,016	4,882	4,365	5,156	7,929	7,406	6,991	6,202	6,137	7,637	8,273	10,678	10,717	8,100
% Unemployed	5.5%	4.9%	5.9%	5.6%	4.9%	5.6%	8.5%	7.7%	7.1%	6.1%	5.8%	7.1%	7.6%	9.7%	9.6%	7.1%
Michigan																
Population 2/	7,818	8,800	8,957	9,011	9,058	9,098	9,095	9,105	9,147	9,194	9,242	9,251	9,260	9,105	9,058	9,075
MI as % of US	4.4%	4.4%	4.4%	4.3%	4.3%	4.3%	4.3%	4.2%	4.2%	4.2%	4.1%	4.1%	4.1%	4.0%	3.9%	3.9%
Labor Force 3/	2,959	3,590	3,623	3,698	3,802	3,879	3,891	3,989	4,112	4,194	4,312	4,290	4,309	4,279	4,303	4,359
Employed 3/	2,760	3,350	3,347	3,437	3,578	3,591	3,405	3,617	3,775	3,905	3,977	3,756	3,780	3,617	3,693	3,871
Unemployed 3/	199	241	276	258	223	288	486	373	336	289	335	534	529	661	610	488
% Unemployed	6.7%	6.7%	7.6%	7.0%	5.9%	7.4%	12.5%	9.4%	8.2%	6.9%	7.8%	12.4%	12.3%	15.5%	14.2	11.2%
Wayne County																
Population 4/	2,666	2,670	2,670	2,654	2,595	2,553	2,513	2,465	2,420	2,388	2,357	2,338	2,289	2,242	2,203	2,186
CO as % of MI	34.1%	30.3%	29.8%	29.6%	28.6%	28.1%	27.6%	27.1%	26.5%	26.0%	25.5%	25.3%	24.7%	24.6%	24.3%	24.1%
Labor Force 5/, 8/	714	1,062	1,093	1,116	1,140	1,159	1,135	971	1,001	1,017	1,149	1,094	1,079	1,064	1,061	1,062
Employed 5/	653	998	1,007	1,035	1,075	1,077	995	863	904	933	1,054	941	937	896	907	946
Unemployed 5/	61	64	86	81	65	82	140	108	97	84	95	153	142	168	154	116
% Unemployed	8.6%	6.0%	7.9%	7.2%	5.7%	7.1%	12.4%	11.1%	9.7%	8.2%	8.3%	14.0%	13.2%	15.8%	14.5%	10.9%
Detroit Population 6/	1,670	1,514	1,514	1,484	1,430	1,390	1,359	1,328	1,297	1,266	1,234	1,203	1,193	1,182	1,172	1,161

NOTES: 1/ Population figures are as of July 1 for the year specified.
2/ United States and Michigan population figures are those presented in the Michigan Statistical Abstract 1984, p.5.
3/ United States and Michigan employment figures are those presented in the Michigan Statistical Abstract 1984, p. 131.
4/ Wayne County population figures were obtained from Michigan Department of Management and Budget as developed through the Federal/State Cooperative Program.
5/ Wayne County employment figures are Michigan Employment Security Commission (MESC) annual averages.
6/ Detroit City population figures were determined as follows: The 1960, 1970, and 1980 figures are from the U.S. Bureau of the Census; 1971-1979 estimated using the 1970 and 1980 census figures; 1981-84 estimated using Michigan Department of Management and Budget estimates for Wayne County.
7/ The 1984 population and employment figures for the United States, Michigan, and Wayne County were obtained from the Michigan Department of Management and Budget. The 1984 employment figures for Michigan and Wayne County were developed by MESC.
8/ The 1960 labor force consisted of persons 14 & over; in 1970 and years following, the age of the labor force is 16 & over.

SOURCE: Michigan Statistical Abstract, Michigan Department of Management and Budget, and Michigan Employment Security Commission as specified in the notes.

ENROLLMENT OF FOUR YEAR UNIVERSITIES/COLLEGES IN MICHIGAN 1/
1977 - 1984

Institution	1977	1978	1979	1980	1981	1982	1983	1984
Under 5,000								
Adrian College	912	824	945	1,116	1,242	1,222	1,192	1,220
Albion College	1,705	1,784	1,781	1,860	1,876	1,742	1,662	1,569
Alma College	1,170	1,183	1,201	1,198	1,110	1,059	1,004	1,016
Andrews University	2,837	2,924	2,983	3,018	3,083	2,851	2,878	3,034
Aquinas College	1,684	1,918	2,163	2,529	2,753	2,743	2,787	2,831
Calvin College	4,075	3,977	3,988	4,058	3,919	3,806	3,938	3,973
Center For Creative Art	983	1,009	1,034	1,086	1,103	1,113	1,124	1,141
Cleary College	461	459	586	765	416	1,006	1,089	970
Detroit College Of Bus	2,065	1,887	2,198	2,368	2,789	2,965	3,496	3,318
G. M. I. Eng. & Mgt. Inst	2,354	2,248	2,241	2,327	2,389	2,433	2,494	2,998
Grand Rapids Baptist	1,048	1,137	1,144	1,216	1,132	1,077	1,029	951
Hillsdale College	1,048	989	1,035	1,035	1,043	1,044	992	1,032
Hope College	2,330	2,371	2,355	2,464	2,458	2,530	2,519	2,550
Jordan College	179	281	914	683	654	1,026	1,460	1,703
Kalamazoo College	1,534	1,444	1,438	1,452	1,367	1,234	1,126	1,108
Lake Superior State	2,261	2,401	2,309	2,501	2,559	2,425	2,820	2,783
Madonna College	2,521	3,011	3,131	3,213	3,385	3,409	3,924	3,879
Marygrove College	811	871	958	1,025	1,149	1,189	1,237	1,182
Mercy College	2,226	2,272	2,281	2,484	2,119	2,106	2,204	2,465
Northwood Institute	1,510	1,653	1,789	1,945	1,929	1,846	1,870	1,836
Saginaw Valley State	3,529	3,706	3,818	4,285	4,324	4,370	4,612	4,833
Siena Heights College	1,070	1,131	1,327	1,420	1,478	1,481	1,404	1,480
Spring Arbor College	825	845	1,048	1,086	1,011	976	1,012	1,046
Thomas Cooley Law	998	1,046	1,079	1,052	1,045	1,115	1,159	1,128
Walsh College	1,287	1,393	1,583	1,583	1,707	1,811	2,053	2,025
5,000-9,999								
Grand Valley State	7,469	7,065	7,142	6,984	6,699	6,366	6,710	7,153
Lawrence Inst. Of Tech.	4,714	4,861	4,991	5,260	5,703	5,868	6,230	6,121
Michigan Tech	6,807	7,130	7,690	7,865	7,779	7,640	7,414	6,935
Northern Michigan	8,844	8,995	9,452	9,379	9,073	8,377	8,054	7,824
University Of Detroit	8,094	7,848	7,025	6,397	6,187	5,967	6,015	5,828
U of M, Dearborn	5,480	5,955	6,406	6,291	6,575	6,390	6,399	6,321
U Of M, Flint	3,801	3,884	4,122	4,410	4,609	5,025	5,707	5,596
10,000-19,999								
Central Michigan	17,973	17,802	17,779	18,269	17,653	17,132	17,259	16,882
Eastern Michigan	19,104	18,655	18,865	19,323	18,766	18,078	18,880	19,210
Ferris State	9,965	10,208	10,596	11,112	11,261	11,008	10,767	10,540
Oakland University	11,051	11,220	11,729	12,006	11,644	11,721	12,084	11,971
20,000 and Over								
Michigan State	47,383	46,567	47,350	47,316	44,887	42,730	41,765	42,193
U Of M, Ann Arbor	35,954	36,577	36,158	37,117	35,677	34,907	34,593	34,467
Wayne State	34,389	34,514	34,337	33,408	31,522	29,775	29,639	29,070
Western Michigan	22,496	22,447	22,842	22,641	21,999	20,580	20,296	20,233
Total	284,947	286,492	291,813	295,547	288,074	280,143	282,897	282,413

Notes: 1/ Official fall enrollment figures as reported by the Michigan Department of Education.

Source: MDOT, Passenger Transportation Planning Section.

APPENDIX B

Selected U.S. Characteristics & Brief Michigan History of the Intercity Bus Industry

INTERCITY BUS INDUSTRY IN THE UNITED STATES 1/
1960-1984

Item	1960	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984 2/
Number of Operating Companies	1,150	1,000	1,000	1,000	1,000	950	950	1,000	1,050	1,100	1,200	1,330	1,470	1,520	2,300	3,000
Number of Buses	21,000	22,000	21,900	21,400	20,800	21,000	20,500	20,100	20,300	20,250	20,680	21,400	21,500	22,000	23,500	25,000
Number of Employees	45,000	49,500	50,200	49,100	48,400	49,400	46,700	46,000	46,200	46,200	47,000	49,100	49,200	49,500	50,000	51,000
Total Bus Miles (Millions)	1,092	1,209	1,202	1,182	1,178	1,195	1,126	1,118	1,118	1,099	1,135	1,162	1,134	1,115	1,120	1,098
Total Revenue Passengers (Millions)	366	401	395	393	381	386	351	340	328	338	359	370	375	370	365	362
Charter and Tour Passengers (Millions)	50	92	--	--	--	131	--	--	--	--	--	195	205	208	210	214
Total Revenue Passenger Miles (Millions)	19,300	25,300	25,500	25,600	26,400	27,700	25,400	25,100	25,700	25,400	27,200	27,400	27,100	26,900	26,500	27,100
Operating Revenue (Millions)	$556.2	$901.4	$953.2	$974.4	$1022.7	$1151.9	$1171.6	$1231.9	$1330.9	$1420.3	$1654.8	$1943.0	$2068.7	$2103.1	$2211.3	$2279.7
Operating Expenses (Millions)	$494.8	$812.2	$851.8	$882.1	$937.9	$1070.0	$1103.2	$1179.9	$1276.2	$1366.3	$1564.6	$1810.9	$1956.1	$2044.3	$2167.1	$2240.8
Net Operating Revenue (Millions)	$61.4	$89.2	$101.4	$92.3	$84.8	$81.9	$68.4	$52.0	$54.7	$54.0	$90.2	$132.1	$112.6	$58.8	$44.2	$39.9
Operating Ratio	89.0	90.1	89.4	90.5	91.7	92.9	94.2	95.8	95.9	96.2	94.6	93.2	94.6	97.2	98.0	98.3

Notes: 1/ Figures include both regular-route and special intercity bus transportation for the calendar years indicated. This includes class I, II, and III carriers.

2/ Figures for 1984 are estimated.

A "--" indicates that information was not available from the sources used for this data item.

Source: American Bus Association, Bus Facts (1981 Edition) and Annual Report 1984.

HISTORY OF INTERCITY BUS SERVICE IN MICHIGAN 1974 - 1985

April 1974	The first meeting of the Governor's Intercity Task Force is held. Private carriers express concern over energy crisis and express need for operating, capital, and passenger facility assistance. Programs to address these needs are offered for FY 1975-76.
January 1976	Intercity Bus Operation Grant program initiated by State of Michigan. Assists intercity private carriers in the operation of new service or existing service subject to termination.
January 1976	Intercity bus program providing service from Marquette to Sault Ste. Marie via M-28 is established on a two year demonstration basis. The program is not continued due to lack of riders.
December 1976	BUS/TRAK I, the state's first major intercity, intermodal service is inaugurated. Offered daily round-trip service from Grand Rapids to the intermodal Transportation Center in Kalamazoo.
March 1977	Intercity Bus Loan Program initiated by State of Michigan (first product units delivered). Provides low interest loans to private carriers to purchase new equipment.
June 1977	BUS/TRAK II program provides intercity bus service that complements the Amtrak "Blue Water Limited" service in the Chicago-Kalamazoo-Battle Creek-Lansing-Flint-Saginaw corridor.

Fall 1977	BUS/TRAK III program expands BUS/TRAK II by extending bus service from Chicago to Sarnia, Ontario connecting with Canadian National trains to London and Toronto, Ontario.
March - June 1981	Strike by Indian Trails bus drivers.
November 1982	Bus Regulatory Reform Act of 1982 passed by the U.S. Congress deregulating intercity bus industry at the federal level.
December 1982	Motor Bus Transportation Act of 1982 passed by the Michigan Legislature deregulating intercity bus service in the state.
August 1983	Indian Trails introduces reduced fares to compete with Amtrak along the Flint-Chicago Corridor (BUS/TRAK II).
November - December 1983	Strike by Greyhound drivers.
Spring 1984	Intercity bus service reduction and discontinuances in Michigan effected south of I-94 resulting in service discontinuances between Coldwater-Ypsilanti and between Jackson-Niles.
August 1984	North Star Lines purchased by Shortway Lines. New company name is Shortway North Star. Most North Star services continued.
October 1984	Scheduled, regular-route service connecting Indian Trails and Amtrak service at Battle Creek is discontinued (BUS/TRAK II).
October 1984	Regular-route service from Detroit to Bad Axe is discontinued. This is the final step in eliminating all intercity bus service to the thumb area. Service had been slowly reduced in this corridor since 1981.

July 1985	Greyhound Lines enters into the first franchise agreement in Michigan with the Alpena-based Rainbow Charters and Tours. This company will provide regular-route service between Alpena and Bay City-Saginaw and between Bay City and Petoskey.
December 1985	Shortway North Star Lines discontinues regular-route service from Holland to Petoskey via U.S. 31 along the lakeshore leaving many urban and rural communities without any form of public transporation. Replacement of essential transportation service is being sought.

APPENDIX C

System Use & Fares for Various Passenger Transportation Modes

PASSENGERS USING MICHIGAN COMMERCIAL SERVICE AIRPORTS
1984 and 1977

Community or Airport	1984	1977	% Change
Alpena	8,571	21,921	-60.9%
Battle Creek	37,731	58,513	-35.5%
Benton Harbor	26,817	69,686	-61.5%
Detroit City Airport	43,640	64,211	-32.0%
Detroit Metro Airport	11,297,825	8,610,412	31.2%
Escanaba	30,619	36,255	-15.5%
Flint	233,420	261,811	-10.8%
Grand Rapids	1,039,771	729,291	42.6%
Houghton/Hancock	39,646	45,837	-13.5%
Iron Mountain	21,563	38,803	-44.4%
Ironwood	6,105	18,803	-67.5%
Jackson	2,445	20,586	-88.1%
Kalamazoo	249,659	213,268	17.1%
Lansing	333,804	406,844	-18.0%
Mackinac Island	1,413	--	--
Manistee	1,724	5,697	-69.7%
Marquette	72,156	76,021	-5.1%
Menominee	3,186	20,446	-84.4%
Muskegon	87,788	166,686	-47.3%
Pellston	41,539	55,712	-25.4%
Saginaw	317,635	410,762	-22.7%
Sault Ste Marie	8,044	27,134	-70.4%
Traverse City	136,123	134,578	1.1%
Total	14,041,224	11,493,277	22.2%

Source: MDOT, Bureau of Transportation Planning,
Aviation Planning Unit.

STATE TRUNKLINE MILEAGES & ADDITIONS, 1977-1985

Highway Type	1977	1978	1979	1980	1981	1982	1983	1984	1985
Trunkline 1/ Mileage	9435.000	9455.000	9468.000	9479.000	9502.000	9476.000	9471.000	9460.000	9503.000
Interstate Additions	37.595 I-275	0.000	10.219 I-696	0.000	6.377 I-475	0.000	0.000	0.000	54.191
Other Trunkline Additions	11.739 US-131	4.802 US-31	16.298 M-14	13.706 US-131 4.350 US-31	0.000	0.000	10.529 US-131	39.726 I-69	101.150

Notes: 1/ "Trunkline Mileage" includes interstate and is certified as of July of the year indicated.

Source: MDOT, Intercity Transportation Planning Division.

COMPARISON OF SERVICE LEVELS AND ONE-WAY FARES BETWEEN CHICAGO AND SELECTED OTHER COMMUNITIES IN THE DETROIT-CHICAGO CORRIDOR
MAY 1985

	Air			Intercity Bus			Intercity Rail			Automobile		
		Fare			Fare			Fare			Driving Cost	
Community	Daily Round Trips	Same Day Purchase	3 Day Advance Purchase	Daily Round Trips	One-Way	1/ One-half Round Trip	Daily Round Trips	2/ Peak	Off Peak	Distance (miles)	12/ Total Cost	13/ "Out Of Pocket" Expenses
Detroit	9/ 39	3/ $173.00	$109.00	4/ 12	$38.00	5/ $29.50	3	$49.00	$25.00	10/ 279	$77.56	$30.41
Jackson	0	$109.00	None	5	$31.00	$29.45	3	$41.00	$21.50	11/ 206	$57.27	$22.45
Battle Creek	1	6/ $ 79.00	None	7/ 8	$18.00	$14.50	4	$29.00	$15.00	11/ 165	$45.87	$17.99
Kalamazoo	16	$79.00	None	8/ 10	$17.50	$14.25	4	$28.00	$14.75	11/ 145	$40.31	$15.81

Notes: 1/ One-half round trip intercity bus fare is the round trip ticket price divided by two.

2/ Peak rail fare applies when station departures are scheduled between 10:00 a.m. and 4:00 p.m. on Fridays and Sundays.

3/ Detroit to Chicago nonstop air fare via Midway, American, and Republic Airlines charge $109.00 with the latter two airlines requiring 3 days advance purchase. Jet America has a $59.00 discount fare their full fare is $173.00.

4/ Detroit to Chicago intercity bus round trips (12) comprised of 6 Greyhound Lines, 3 Trailways (2 via Toledo), and 3 Greyhound Lines connecting with Indian Trails at Kalamazoo.

5/ Trailways offers a $19.00 fare for a 1:30 a.m. Detroit departure time via Toledo to Chicago.

6/ Battle Creek to Chicago nonstop one-way discount fare is $79.00 with the full fare being $96.00 (via Air Wisconsin).

7/ Battle Creek to Chicago intercity bus round trips (8) comprised of 5 Greyhound Lines and 3 Indian Trails round trips.

8/ Kalamazoo to Chicago intercity bus round trips (10) comprised of 5 Greyhound Lines and 5 Indian Trails. Greyhound actually has 7 trips from Chicago to Kalamazoo, but only 5 from Kalamazoo to Chicago.

9/ These 39 nonstop round trips are provided by seven commercial air carriers with Republic Airlines providing 13 of them.

10/ Mileage obtained from the North American Road Atlas, 1984.

11/ Mileage compiled by the Passenger Planning Section staff with information obtained from the North American Atlas, 1984 and the 1985 Official State Highway Map.

12/ FHWA figure of 27.8 cents per mile.

13/ FHWA figure of 10.9 cents per mile. "Out of Pocket" expenses include gasoline, oil, tires, and maintenance costs.

Source: Official Airline Guide (May 1985), Russell's Official Bus Guide (May 1985), The Official Railway Guide (April/May 1985), and telephone contacts with selected ticket agents.

APPENDIX D

547 Zone Equivalents

REGIONAL 547 ZONE CODES
PASSENGER TRANSPORTATION PLANNING SECTION

URBANIZED AREAS (14 ZONES):

ANN ARBOR	479	JACKSON	216
BATTLE CREEK	55	KALAMAZOO	226
BAY CITY	29	LANSING/E.LANSING	183
BENTON HARBOR	37	MUSKEGON	342
DETROIT	493	PORT HURON	442
FLINT	128	SAGINAW	409
GRAND RAPIDS	236	YPSILANTI	483

REMAINING SOUTH-	7-12	184-200	323-340
ERN LOWER	25-28	210-215	343-351
PENINSULA	30-33	217-225	358-375
(DOES NOT IN-	38-54	227-233	395-403
CLUDE THE	56-74	237-248	410-429
URBANIZED AREAS	92-100	252-258	433-441
LISTED ABOVE)	113-123	262-276	443-478
(335 ZONES)	129-141	284-290	480-482
	156-168	306-310	484-492
	176-182	315-319	494-504

NORTHERN LOWER	1-2	250-251
PENINSULA	13-21	259-261
(93 ZONES)	34-36	291-294
	75-82	302-305
	89-91	320-322
	101-102	341
	124-127	352-357
	142-145	376-382
	151-155	387-394
	201-204	404-408
	234-235	505-508

UPPER	3-6	205-209
PENINSULA	22-24	249
(66 ZONES)	83-88	277-283
	103-112	295-301
	146-150	311-314
	169-175	383-386
		430-432

APPENDIX E

User Survey Questionnaires

1985 & 1977

1985

MICHIGAN INTERCITY BUS SURVEY

0933

The Michigan Department of Transportation, in cooperation with intercity bus companies serving Michigan communities, is conducting this survey to identify existing and plan for future bus service. Please take a few minutes to answer the following questions. The information you provide will be treated as confidential and used only in combination with other questionnaires received. Thank you for your assistance.

Larry K. Britton, Manager
Passenger Transportation Planning Section
Bureau of Transportation Planning
Michigan Department of Transportation

1. Which bus company are you using for this trip? (Check only one)

(1) ☐	Indian Trails	(7) ☐	Four Star Lines
(2) ☐	Michigan Trailways	(8) ☐	Shortway Lines
(3) ☐	G & M Coaches	(9) ☐	Tower Bus
(4) ☐	Shortway North Star	(10) ☐	Brooks Charters & Tours
(5) ☐	Greyhound Lines	(11) ☐	American Trails
(6) ☐	Indiana Motor Bus	(12) ☐	Wisconsin Michigan Trailways

Please answer the next three questions by PRINTING the City and State names in the spaces provided. Use only one space per letter. Skip a space between words. Print only the first four letters of the State name.

2. What city and state do you live in? College students, please answer for your legal residence.

|_/_/_/_/_/_/_/_/_/_/_/_/_/_/_| City or Town |_/_/_/_| State

3. At what city did your bus trip begin?

|_/_/_/_/_/_/_/_/_/_/_/_/_/_/_| City or Town |_/_/_/_| State

4. At what city will your bus trip end?

|_/_/_/_/_/_/_/_/_/_/_/_/_/_/_| City or Town |_/_/_/_| State

5. How did you get to this bus? (Check only one)

(1) ☐	Walk	(5) ☐	Local bus or rapid transit
(2) ☐	Amtrak train	(6) ☐	Commuter train
(3) ☐	Taxi	(7) ☐	Connecting intercity bus
(4) ☐	Automobile (drive or ride)	(8) ☐	Other (list)_____

(MORE QUESTIONS INSIDE)

BUSINESS REPLY MAIL
FIRST CLASS PERMIT NO. 1312 LANSING, MI
POSTAGE WILL BE PAID BY ADDRESSEE

MICHIGAN DEPARTMENT OF TRANSPORTATION
Bureau of Transportation Planning
Passenger Transportation Planning Section
Post Office Box 30050
Lansing, MI 48909

NO POSTAGE NECESSARY IF MAILED IN THE UNITED STATES

6. How will you get to where you are going after leaving this bus? (Check only one)

(1) ☐ Walk
(2) ☐ Amtrak train
(3) ☐ Taxi
(4) ☐ Automobile (drive or ride)
(5) ☐ Local bus or rapid transit
(6) ☐ Commuter train
(7) ☐ Connecting intercity bus
(8) ☐ Other (list)_____

7. What is the purpose of your trip? (Check only one)

(1) ☐ Work
(2) ☐ Vacation
(3) ☐ Shopping
(4) ☐ Other social or recreational
(5) ☐ Personal business
(6) ☐ Visit friends or relatives
(7) ☐ Other (list)_____

8. If this intercity bus route were discontinued, which of the following options would you choose? (Check only one)

(1) ☐ Not take the trip
(2) ☐ Drive a car
(3) ☐ Take an airplane
(4) ☐ Ride with friends
(5) ☐ Take an Amtrak train
(6) ☐ Other (list)_____

9. How many times in the past 12 months have you ridden on a bus between cities? (If you are not sure, give your best guess)

|___/___| Number of times

10. How many persons are there in your household? |___/___| Number

How many of these, including yourself, are on this trip? |___/___| Number

11. How many personal cars, vans, or pickup trucks are owned or leased and regularly used by you and your family who live with you? College students, please answer for your legal residence. (Check only one)

(1) ☐ None
(2) ☐ 1 Vehicle
(3) ☐ 2 Vehicles
(4) ☐ 3 or more vehicles

12. What is your employment status? (Check only one)

(1) ☐ Employed full-time
(2) ☐ Employed part-time
(3) ☐ Unemployed
(4) ☐ Homemaker
(5) ☐ College student
(6) ☐ Other student
(7) ☐ Retired

13. What is your sex?

(1) ☐ Male
(2) ☐ Female

14. What is your age range? (Check only one)

(1) ☐ 17 or under
(2) ☐ 18-24
(3) ☐ 25-54
(4) ☐ 55-64
(5) ☐ 65 or older

15. What is your approximate FAMILY income range before taxes? College students, please answer for your legal residence. (Check only one)

(1) ☐ under $10,000
(2) ☐ $10,000 - $19,999
(3) ☐ $20,000 - $29,999
(4) ☐ $30,000 - $39,999
(5) ☐ $40,000 - $49,999
(6) ☐ $50,000 or more

16. Please rate the bus service for each of the following items: (Check only one for each category.)

	(1) Very Good	(2) Good	(3) Fair	(4) Poor	(5) Don't Know
(1) Buses arrive and leave on time....	___	___	___	___	___
(2) Frequency of service.....	___	___	___	___	___
(3) Schedule information availability.	___	___	___	___	___
(4) Condition of bus.....	___	___	___	___	___
(5) Condition of terminal.....	___	___	___	___	___
(6) Courtesy of bus employees.....	___	___	___	___	___

17. How do you consider the fare you paid for this bus trip?

(1) ☐ Too High?
(2) ☐ Too Low?
(3) ☐ About Right?

18. If you could, what one thing would you change about the bus service?

_____

_____

_____

19. Other comments:_____

_____

_____

_____

_____

Please fold and tape before mailing. Do NOT staple.
Thank you for your assistance.

A977

1790 (5/77)

MICHIGAN INTERCITY BUS SURVEY

(1) (6)

The Michigan Department of State Highways and Transportation is conducting this survey to plan future improvements in intercity bus service. Will you please take a few moments and fill out the following questionnaire. This data will be kept in strictest confidence and will only be used for statistical analysis.

PLEASE answer the first two questions by PRINTING THE CITY AND STATE NAMES in the squares provided. USE ONE SQUARE FOR EACH LETTER. SKIP A SQUARE between words. Print only the FIRST FOUR LETTERS OF THE STATE NAME.

1. At what city did you begin your bus trip?

(7) City (or nearest city) (20) (21) State (24)

2. At what city will you end your bus trip?

(25) City (or nearest city) (38) (39) State (42)

(43) 3. How did you get to this bus? (check only one)

- 1 ☐ walk
- 2 ☐ automobile
- 3 ☐ taxi
- 4 ☐ a connecting intercity bus
- 5 ☐ local bus or rapid transit
- 6 ☐ commuter train
- 7 ☐ AMTRAK train
- 8 ☐ other

(44) 4. How will you get to where you are going after leaving this bus? (check only one)

- 1 ☐ walk
- 2 ☐ automobile
- 3 ☐ taxi
- 4 ☐ a connecting intercity bus
- 5 ☐ local bus or rapid transit
- 6 ☐ commuter train
- 7 ☐ AMTRAK train
- 8 ☐ other

(45) 5. What is the purpose of your trip? (check only one)

- 1 ☐ work
- 2 ☐ shopping
- 3 ☐ personal business
- 4 ☐ visit friends or relatives
- 5 ☐ vacation
- 6 ☐ other social or recreational
- 7 ☐ other

(46) 6. How many personal car or truck type vehicles are owned or leased (more than 30 days) by you, your spouse or a relative of either living as a family in one household? (College students please answer for your legal residence.) (Check only one)

- 1 ☐ none
- 2 ☐ 1 vehicle
- 3 ☐ 2 vehicles
- 4 ☐ 3 or more vehicles

(47–50) 7. How many times in the past 12 months have you ridden on a bus between cities? (IF EXACT NUMBER OF TIMES IS NOT KNOWN, PLEASE GIVE YOUR BEST ESTIMATE.)

_____ Number of Times

(51) 8. What is your occupation? (Check only one)

- 1 ☐ professional/ technical/ managerial
- 2 ☐ craftsman/laborer
- 3 ☐ service/sales
- 4 ☐ office/clerical
- 5 ☐ homemaker
- 6 ☐ student (other than college)
- 7 ☐ student (college)
- 8 ☐ retired
- 9 ☐ unemployed
- 10 ☐ other

(52) 9. What is your approximate family income range before taxes? (College students please answer for your legal residence) (check only one)

- 1 ☐ less than $2,999
- 2 ☐ $3,000 – $5,999
- 3 ☐ $6,000 – $8,999
- 4 ☐ $ 9,000 – $11,999
- 5 ☐ $12,000 – $14,999
- 6 ☐ $15,000 – $24,999
- 7 ☐ $25,000 or more

(53) 10. What is your sex?

- 1 ☐ male
- 2 ☐ female

(54) 11. What is your age range? (check only one)

- 1 ☐ 17 or under
- 2 ☐ 18 – 29 years
- 3 ☐ 30 – 39 years
- 4 ☐ 40 – 49 years
- 5 ☐ 50 – 64 years
- 6 ☐ 65 years or older

THANK YOU

APPENDIX F

User Survey Questionnaire

Distribution and Collection

USER SURVEY QUESTIONNAIRE DISTRIBUTION AND COLLECTION
MICHIGAN INTERCITY BUS SYSTEM
MAY 1985

Useable Surveys Collected At:	That Were Distributed At:	No.	%
Battle Creek	Battle Creek	1	9.1%
	Detroit	3	27.3%
	Lansing	7	63.6%
	Total	11	100.0%
Bay City	Bay City	1	33.3%
	Detroit	1	33.3%
	Flint	1	33.3%
	Total	3	100.0%
Benton Harbor	Grand Rapids	1	20.0%
	Kalamazoo	4	80.0%
	Total	5	100.0%
Cadillac	NA NA		0.0%
Detroit	Battle Creek	1	1.0%
	Bay City	1	1.0%
	Detroit	8	8.3%
	East Lansing	2	2.1%
	Flint	8	8.3%
	Lansing	12	12.5%
	Toledo	64	66.7%
	Total	96	100.0%
East Lansing	Benton Harbor	6	21.4%
	Detroit	4	14.3%
	East Lansing	11	39.3%
	Lansing	7	25.0%
	Total	28	100.0%
Escanaba	Escanaba	10	100.0%
	Total	10	100.0%
Flint	Bay City	2	7.7%
	Detroit	7	26.9%
	East Lansing	6	23.1%
	Flint	11	42.3%
	Total	26	100.0%
Grand Rapids	Benton Harbor	22	71.0%
	East Lansing	2	6.5%
	Grand Rapids	1	3.2%
	Kalamazoo	6	19.4%
	Total	31	100.0%
Kalamazoo	Benton Harbor	16	64.0%
	Grand Rapids	4	16.0%
	Kalamazoo	5	20.0%
	Total	25	100.0%
Lansing	Battle Creek	2	9.1%
	Benton Harbor	8	36.4%
	Detroit	9	40.9%
	East Lansing	1	4.5%
	Flint	1	4.5%
	Lansing	1	4.5%
	Total	22	100.0%
Mackinaw City	NA	NA	0.0%
Marquette	Marquette	20	100.0%
	Total	20	100.0%
Rapid River	Rapid River	1	100.0%
	Total	1	100.0%
St. Ignace	NA	NA	0.0%
SS Marie	NA	NA	0.0%
Toledo	Detroit	47	88.7%
	Toledo	6	11.3%
	Total	53	100.0%
Traverse City	NA	NA	0.0%
Mailback	Battle Creek	1	1.0%
	Bay City	1	1.0%
	Benton Harbor	8	7.7%
	Detroit	33	31.7%
	East Lansing	6	5.8%
	Escanaba	1	1.0%
	Flint	5	4.8%
	Cadillac	0	0.0%
	Grand Rapids	3	2.9%
	Kalamazoo	13	12.5%
	Lansing	5	4.8%
	Mackinaw City	4	3.8%
	Marquette	0	0.0%
	Rapid River	0	0.0%
	St. Ignace	5	4.8%
	SS Marie	2	1.9%
	Toledo	16	15.4%
	Traverse City	1	1.0%
	Total	104	100.0%
Grand Total		435	100.0%
Returned But Unusable: 15 (3.5%)			
Returned at Station Distributed:		76	(17.5%)

SOURCE; MDOT, Passenger Transportation Planning Section.

LANSING TERMINAL
ON-BOARD SURVEY SUMMARY

TIME	BUS LINE	BUS NO.	SCH. NO.	ESTIMATED PASSENGER ON/OFF	DEPARTURE ?	SURVEYS DIST. # TO #	ARRIVAL ?	TOTAL SURVEYS COLLECTED	ORIGIN	DESTIN.
((910A))	IT	17	1482		Y		Y		FLINT	BATTLE CREEK
910A	GL	5095	375		Y		N	--	--	DETROIT
(930A)	GL	5088	375		N	--	Y		DETROIT	
1130A	GL	5089	375		Y		N	--	--	DETROIT
(((1140A)))	IT	21	1482		Y		Y		FLINT	BATTLE CREEK
((105P))	IT	14	1482		Y		Y		BATTLE CREEK	FLINT
(135P)	GL	5090	375		N	--	Y		DETROIT	--
((230P))	IT	25	1482		Y		Y		FLINT	BATTLE CREEK
430P	GL	5091	375		Y		N	--	--	DETROIT
((525P))	IT	24	1482		Y		Y		BATTLE CREEK	FLINT
(540P)	GL	5092	375		N	--	Y		DETROIT	--
((655P))	IT	33	1482		Y		Y		FLINT	BATTLE CREEK
710P	GL	5093	375		Y		N	--	--	DETROIT
(840P)	GL	5094	375		N	--	Y		DETROIT	--
(((1120P)))	IT	28	1482		Y		Y		BATTLE CREEK	SAGINAW

X=DISTRIBUTE SURVEY
(X)=COLLECT SURVEY
((X))=COLLECT AND DISTRIBUTE SURVEYS

IT=INDIAN TRAILS
GL=GREYHOUND LINES

APPENDIX G

User Survey Cross Tabulations

RIDER RESIDENCE, TRIP ORIGIN, AND TRIP DESTINATION
MICHIGAN INTERCITY BUS SYSTEM
MAY 1985

Location	Permanent Residence No.	%	Trip Origin No.	%	Trip Destination No.	%
Detroit	67	15.3	73	16.7	73	16.7
Flint	13	2.9	20	4.6	19	4.4
Grand Rapids	16	3.7	18	4.1	28	6.4
Kalamazoo	14	3.2	22	5.0	18	4.1
Lansing	10	2.3	25	5.7	15	3.4
Remainder of S. Low. Pen. 1/	124	28.4	88	20.1	112	25.6
Northern Lower Peninsula 1/	17	3.9	9	2.1	9	2.1
Upper Peninsula	26	6.0	32	7.3	18	4.1
Chicago	13	2.9	20	4.6	16	3.7
Remainder of Illionis	3	0.7	3	0.7	2	0.5
Indiana	7	1.6	13	3.0	6	1.4
Toledo	8	1.8	15	3.4	7	1.6
Remainder of Ohio	18	4.1	26	6.0	32	7.3
Wisconsin	9	2.1	8	1.8	13	3.0
Canada	11	2.5	3	0.7	4	0.9
Other Locations	58	13.3	57	13.0	54	14.4
Unknown Locations	23	5.3	5	1.4	11	2.5
Total	437	100.0	437	100.0	437	100.0

Notes: See figures 1-4 for boundaries of Southern Lower Peninsula and Northern Lower Peninsula.

Source: MDOT, Bureau of Transportation Planning, Passenger Transportation Planning Section

ORIGIN BY DESTINATION CROSS TABULATION: USER SURVEY DATA
MICHIGAN INTERCITY BUS SYSTEM
MAY 1985

	Destination																	
Origin	Detroit	Flint	Grand Rapids	Kalamazoo	Lansing	S. Lower Pen.	N. Lower Pen.	Upper Pen.	Chicago	Other Illinois	Other Indiana	Toledo	Other Ohio	Wis-consin	Canada	Other Known	Unknown	Total
Detroit	3	1	4	2	3	16	1	0	2	0	2	1	16	0	0	22	0	73
Flint	4	0	0	0	0	3	2	0	1	0	2	1	1	1	0	5	0	20
Grand Rapids	2	1	2	2	0	3	0	1	2	0	1	0	0	1	0	2	1	18
Kalamazoo	1	2	1	0	2	9	1	2	4	0	0	0	0	0	0	0	0	22
Lansing	5	1	3	2	0	8	0	0	0	1	0	0	1	0	0	4	0	25
S. Lower Pen.	11	6	5	5	3	30	1	4	2	0	1	2	0	0	0	9	1	80
N. Lower Pen.	0	0	1	1	0	3	0	1	0	0	0	0	1	0	0	2	0	9
Upper Pen.	1	0	1	0	1	1	0	9	5	0	0	0	1	10	0	4	0	32
Chicago	1	3	2	4	1	7	2	0	0	0	0	0	0	0	0	0	0	20
Other Illinois	0	0	1	0	0	1	0	0	0	1	0	0	0	0	0	0	0	3
South Bend	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Other Indiana	3	1	3	0	0	1	0	0	0	0	0	0	0	0	0	4	0	12
Toledo	7	1	0	0	0	2	1	0	0	0	0	3	0	0	0	0	1	15
Other Ohio	15	0	0	0	1	7	0	0	0	0	0	0	3	0	0	0	0	26
Wisconsin	1	0	0	0	1	3	1	1	0	0	0	0	0	1	0	0	0	8
Canada	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3
Other Known	19	3	5	2	3	17	0	1	0	0	0	0	1	0	0	3	3	57
Unknown	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	4	5
TOTAL	73	19	28	18	15	112	9	18	16	2	6	7	32	13	4	54	11	437

SOURCE: MDOT, Passenger Transportation Planning Section.

FILE INTERBUS (CREATION DATE = 07/30/85)

* * * * * * * * * * * * * * * * * * C R O S S T A B U L A T I O N O F * * * * * * * * * * * * * * * * * *
OLOC CODED ORIGIN BY DLOC CODED DESTINATION

OLOC (COUNT / ROW PCT / COL PCT / TOT PCT)	DETROIT 1	FLINT 2	GRAND RAPIDS 3	KALAMAZOO 4	LANSING 5	S. LOWER P. 6	N. LOWER P. 7	UPPER P. 8	CHICAGO 9	OTHER ILLINOIS 10	OTHER INDIANA 12	TOLEDO 13	OTHER OHIO 14	WISCONSIN 15	CANADA 16	OTHER KNOWN 17	UNKNOWN 18	ROW TOTAL
1 DETROIT	3 4.1 4.1 0.7	1 1.4 5.3 0.2	4 5.5 14.3 0.9	2 2.7 11.1 0.5	3 4.1 20.0 0.7	16 21.9 14.3 3.7	1 1.4 11.1 0.2	0 0.0 0.0 0.0	2 2.7 12.5 0.5	0 0.0 0.0 0.0	2 2.7 33.3 0.5	1 1.4 14.3 0.2	16 21.9 50.0 3.7	0 0.0 0.0 0.0	0 0.0 0.0 0.0	22 30.1 40.7 5.0	0 0.0 0.0 0.0	73 16.7
2 FLINT	4 20.0 5.5 0.9	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	3 15.0 2.7 0.7	2 10.0 22.2 0.5	0 0.0 0.0 0.0	1 5.0 6.3 0.2	0 0.0 0.0 0.0	2 10.0 33.3 0.5	1 5.0 14.3 0.2	1 5.0 3.1 0.2	1 5.0 7.7 0.2	0 0.0 0.0 0.0	5 25.0 9.3 1.1	0 0.0 0.0 0.0	20 4.6
3 GRAND RAPIDS	2 11.1 2.7 0.5	1 5.6 5.3 0.2	2 11.1 7.1 0.5	2 11.1 11.1 0.5	0 0.0 0.0 0.0	3 16.7 2.7 0.7	0 0.0 0.0 0.0	1 5.6 5.6 0.2	2 11.1 12.5 0.5	0 0.0 0.0 0.0	1 5.6 16.7 0.2	0 0.0 0.0 0.0	0 0.0 0.0 0.0	1 5.6 7.7 0.2	0 0.0 0.0 0.0	2 11.1 3.7 0.5	1 5.6 9.1 0.2	18 4.1
4 KALAMAZOO	1 4.5 1.4 0.2	2 9.1 10.5 0.5	1 4.5 3.6 0.2	0 0.0 0.0 0.0	2 9.1 13.3 0.5	9 40.9 8.0 2.1	1 4.5 11.1 0.2	2 9.1 11.1 0.5	4 18.2 25.0 0.9	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	22 5.0
5 LANSING	5 20.0 6.8 1.1	1 4.0 5.3 0.2	3 12.0 10.7 0.7	2 8.0 11.1 0.5	0 0.0 0.0 0.0	8 32.0 7.1 1.8	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	1 4.0 50.0 0.2	0 0.0 0.0 0.0	0 0.0 0.0 0.0	1 4.0 3.1 0.2	0 0.0 0.0 0.0	0 0.0 0.0 0.0	4 16.0 7.4 0.9	0 0.0 0.0 0.0	25 5.7
6 S. LOWER P.	11 12.5 15.1 2.5	6 6.8 31.6 1.4	5 5.7 17.9 1.1	5 5.7 27.8 1.1	3 3.4 20.0 0.7	30 34.1 26.8 6.9	1 1.1 11.1 0.2	4 4.5 22.2 0.9	2 2.3 12.5 0.5	0 0.0 0.0 0.0	1 1.1 16.7 0.2	2 2.3 28.6 0.5	8 9.1 25.0 1.8	0 0.0 0.0 0.0	0 0.0 0.0 0.0	9 10.2 16.7 2.1	1 1.1 9.1 0.2	88 20.1
7 N. LOWER P.	0 0.0 0.0 0.0	0 0.0 0.0 0.0	1 11.1 3.6 0.2	1 11.1 5.6 0.2	0 0.0 0.0 0.0	3 33.3 2.7 0.7	0 0.0 0.0 0.0	1 11.1 5.6 0.2	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	1 11.1 3.1 0.2	0 0.0 0.0 0.0	0 0.0 0.0 0.0	2 22.2 3.7 0.5	0 0.0 0.0 0.0	9 2.1
8 UPPER P.	1 3.1 1.4 0.2	0 0.0 0.0 0.0	1 3.1 3.6 0.2	0 0.0 0.0 0.0	1 3.1 6.7 0.2	1 3.1 0.9 0.2	0 0.0 0.0 0.0	8 25.0 44.4 1.8	5 15.6 31.3 1.1	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	1 3.1 3.1 0.2	10 31.3 76.9 2.3	0 0.0 0.0 0.0	4 12.5 7.4 0.9	0 0.0 0.0 0.0	32 7.3
9 CHICAGO	1 5.0 1.4 0.2	3 15.0 15.8 0.7	2 10.0 7.1 0.5	4 20.0 22.2 0.9	1 5.0 6.7 0.2	7 35.0 6.3 1.6	2 10.0 22.2 0.5	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	20 4.6
10 OTHER ILLINOIS	0 0.0 0.0 0.0	0 0.0 0.0 0.0	1 33.3 3.6 0.2	0 0.0 0.0 0.0	0 0.0 0.0 0.0	1 33.3 0.9 0.2	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	1 33.3 50.0 0.2	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	3 0.7
11 SOUTH BEND	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	1 100.0 9.1 0.2	1 0.2
12 OTHER INDIANA	3 25.0 4.1 0.7	1 8.3 5.3 0.2	3 25.0 10.7 0.7	0 0.0 0.0 0.0	0 0.0 0.0 0.0	1 8.3 0.9 0.2	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	4 33.3 100.0 0.9	0 0.0 0.0 0.0	0 0.0 0.0 0.0	12 2.7
13 TOLEDO	7 46.7 9.6 1.6	1 6.7 5.3 0.2	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	2 13.3 1.8 0.5	1 6.7 11.1 0.2	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	3 20.0 42.9 0.7	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	1 6.7 9.1 0.2	15 3.4
14 OTHER OHIO	15 57.7 20.5 3.4	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	1 3.8 6.7 0.2	7 26.9 6.3 1.6	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	3 11.5 9.4 0.7	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	26 5.9
15 WISCONSIN	1 12.5 1.4 0.2	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	1 12.5 6.7 0.2	3 37.5 2.7 0.7	1 12.5 11.1 0.2	1 12.5 5.6 0.2	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	1 12.5 7.7 0.2	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	8 1.8
16 CANADA	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	3 100.0 5.6 0.7	0 0.0 0.0 0.0	3 0.7
17 OTHER KNOWN	19 33.3 26.0 4.3	3 5.3 15.8 0.7	5 8.8 17.9 1.1	2 3.5 11.1 0.5	3 5.3 20.0 0.7	17 29.8 15.2 3.9	0 0.0 0.0 0.0	1 1.8 5.6 0.2	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	1 1.8 3.1 0.2	0 0.0 0.0 0.0	0 0.0 0.0 0.0	3 5.3 5.6 0.7	3 5.3 27.3 0.7	57 13.0
18 UNKNOWN	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	1 20.0 0.9 0.2	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	0 0.0 0.0 0.0	4 80.0 36.4 0.9	5 1.1
COLUMN TOTAL	73 16.7	19 4.3	28 6.4	18 4.1	15 3.4	112 25.6	9 2.1	18 4.1	16 3.7	2 0.5	6 1.4	7 1.6	32 7.3	13 3.0	4 0.9	54 12.4	11 2.5	437 100.0

CROSSTABULATION OF

Q05 HOW GOT TO BUS BY Q06 TRANSPORTATION AFTER LEAVE BUS

Q05	Q06	1 WALK	2 AMTRAK RAIN	3 TAXI	4 AUTOMOBILE	5 LOCAL BUS	6 COMMUTER TRAIN	7 CONNECTING IC BU	8 OTHER	ROW TOTAL
1 WALK	COUNT	14	0	2	21	4	2	3	1	47
	ROW PCT	29.8	0.0	4.3	44.7	8.5	4.3	6.4	2.1	11.0
	COL PCT	23.3	0.0	3.5	8.7	10.3	50.0	25.0	10.0	
	TOT PCT	3.3	0.0	0.5	4.9	0.9	0.5	0.7	0.2	
2 AMTRAK TRAIN	COUNT	0	0	1	0	2	0	0	0	3
	ROW PCT	0.0	0.0	33.3	0.0	66.7	0.0	0.0	0.0	0.7
	COL PCT	0.0	0.0	1.8	0.0	5.1	0.0	0.0	0.0	
	TOT PCT	0.0	0.0	0.2	0.0	0.5	0.0	0.0	0.0	
3 TAXI	COUNT	3	0	16	11	2	1	0	0	33
	ROW PCT	9.1	0.0	48.5	33.3	6.1	3.0	0.0	0.0	7.7
	COL PCT	5.0	0.0	28.1	4.5	5.1	25.0	0.0	0.0	
	TOT PCT	0.7	0.0	3.8	2.6	0.5	0.2	0.0	0.0	
4 AUTOMOBILE	COUNT	32	2	31	178	11	1	6	8	269
	ROW PCT	11.9	0.7	11.5	66.2	4.1	0.4	2.2	3.0	63.1
	COL PCT	53.3	100.0	54.4	73.6	28.2	25.0	50.0	80.0	
	TOT PCT	7.5	0.5	7.3	41.8	2.6	0.2	1.4	1.9	
5 LOCAL BUS	COUNT	9	0	5	15	18	0	1	0	48
	ROW PCT	18.8	0.0	10.4	31.3	37.5	0.0	2.1	0.0	11.3
	COL PCT	15.0	0.0	8.8	6.2	46.2	0.0	8.3	0.0	
	TOT PCT	2.1	0.0	1.2	3.5	4.2	0.0	0.2	0.0	
6 COMMUTER TRAIN	COUNT	0	0	0	1	1	0	0	0	2
	ROW PCT	0.0	0.0	0.0	50.0	50.0	0.0	0.0	0.0	0.5
	COL PCT	0.0	0.0	0.0	0.4	2.6	0.0	0.0	0.0	
	TOT PCT	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	
7 CONNECTING IC BU	COUNT	1	0	1	15	1	0	2	0	20
	ROW PCT	5.0	0.0	5.0	75.0	5.0	0.0	10.0	0.0	4.7
	COL PCT	1.7	0.0	1.8	6.2	2.6	0.0	16.7	0.0	
	TOT PCT	0.2	0.0	0.2	3.5	0.2	0.0	0.5	0.0	
8 OTHER	COUNT	1	0	1	1	0	0	0	1	4
	ROW PCT	25.0	0.0	25.0	25.0	0.0	0.0	0.0	25.0	0.9
	COL PCT	1.7	0.0	1.8	0.4	0.0	0.0	0.0	10.0	
	TOT PCT	0.2	0.0	0.2	0.2	0.0	0.0	0.0	0.2	
COLUMN TOTAL		60	2	57	242	39	4	12	10	426
		14.1	0.5	13.4	56.8	9.2	0.9	2.8	2.3	100.0

NUMBER OF MISSING OBSERVATIONS = 11

CROSSTABULATION OF Q05 HOW GOT TO BUS BY Q07 PURPOSE OF TRIP

Q05	COUNT / ROW PCT / COL PCT / TOT PCT	Q07 1 WORK	2 VACATION	3 SHOPPING	4 OTHER SO C. OR RE	5 PERSONAL BUSINES	6 VISIT FR TENDS OR	7 OTHER	ROW TOTAL
1 WALK		2	2	2	2	17	19	2	46
		4.3	4.3	4.3	4.3	37.0	41.3	4.3	10.8
		4.5	4.3	50.0	15.4	15.5	10.2	10.0	
		0.5	0.5	0.5	0.5	4.0	4.5	0.5	
2 AMTRAK TRAIN		0	0	0	0	1	2	0	3
		0.0	0.0	0.0	0.0	33.3	66.7	0.0	0.7
		0.0	0.0	0.0	0.0	0.9	1.1	0.0	
		0.0	0.0	0.0	0.0	0.2	0.5	0.0	
3 TAXI		2	5	1	1	11	11	1	32
		6.3	15.6	3.1	3.1	34.4	34.4	3.1	7.5
		4.5	10.6	25.0	7.7	10.0	5.9	5.0	
		0.5	1.2	0.2	0.2	2.6	2.6	0.2	
4 AUTOMOBILE		32	36	0	8	56	122	15	269
		11.9	13.4	0.0	3.0	20.8	45.4	5.6	63.4
		72.7	76.6	0.0	61.5	50.9	65.6	75.0	
		7.5	8.5	0.0	1.9	13.2	28.8	3.5	
5 LOCAL BUS		5	2	1	1	17	21	1	48
		10.4	4.2	2.1	2.1	35.4	43.8	2.1	11.3
		11.4	4.3	25.0	7.7	15.5	11.3	5.0	
		1.2	0.5	0.2	0.2	4.0	5.0	0.2	
6 COMMUTER TRAIN		0	1	0	0	0	1	0	2
		0.0	50.0	0.0	0.0	0.0	50.0	0.0	0.5
		0.0	2.1	0.0	0.0	0.0	0.5	0.0	
		0.0	0.2	0.0	0.0	0.0	0.2	0.0	
7 CONNECTING IC BU		3	1	0	0	6	9	1	20
		15.0	5.0	0.0	0.0	30.0	45.0	5.0	4.7
		6.8	2.1	0.0	0.0	5.5	4.8	5.0	
		0.7	0.2	0.0	0.0	1.4	2.1	0.2	
8 OTHER		0	0	0	1	2	1	0	4
		0.0	0.0	0.0	25.0	50.0	25.0	0.0	0.9
		0.0	0.0	0.0	7.7	1.8	0.5	0.0	
		0.0	0.0	0.0	0.2	0.5	0.2	0.0	
COLUMN TOTAL		44	47	4	13	110	186	20	424
		10.4	11.1	0.9	3.1	25.9	43.9	4.7	100.0

NUMBER OF MISSING OBSERVATIONS = 13

CROSSTABULATION OF

Q05 HOW GOT TO BUS BY Q11 PERSONAL VEHICLES OWNED BY HH

Q05	COUNT / ROW PCT / COL PCT / TOT PCT	Q11 1 NONE	1 VEHICLE	2 VEHICLES	3 OR MORE VEHICLES	4	ROW TOTAL
1		19	12	6	7		44
WALK		43.2	27.3	13.6	15.9		10.5
		19.0	8.8	5.6	9.3		
		4.5	2.9	1.4	1.7		
2		1	0	2	0		3
AMTRAK TRAIN		33.3	0.0	66.7	0.0		0.7
		1.0	0.0	1.9	0.0		
		0.2	0.0	0.5	0.0		
3		15	10	5	2		32
TAXI		46.9	31.3	15.6	6.3		7.6
		15.0	7.3	4.7	2.7		
		3.6	2.4	1.2	0.5		
4		41	93	79	54		267
AUTOMOBILE		15.4	34.8	29.6	20.2		63.7
		41.0	67.9	73.8	72.0		
		9.8	22.2	18.9	12.9		
5		17	12	8	9		46
LOCAL BUS		37.0	26.1	17.4	19.6		11.0
		17.0	8.8	7.5	12.0		
		4.1	2.9	1.9	2.1		
6		1	0	0	1		2
COMMUTER TRAIN		50.0	0.0	0.0	50.0		0.5
		1.0	0.0	0.0	1.3		
		0.2	0.0	0.0	0.2		
7		5	10	4	2		21
CONNECTING IC BU		23.8	47.6	19.0	9.5		5.0
		5.0	7.3	3.7	2.7		
		1.2	2.4	1.0	0.5		
8		1	0	3	0		4
OTHER		25.0	0.0	75.0	0.0		1.0
		1.0	0.0	2.8	0.0		
		0.2	0.0	0.7	0.0		
COLUMN TOTAL		100	137	107	75		419
		23.9	32.7	25.5	17.9		100.0

NUMBER OF MISSING OBSERVATIONS = 18

CROSSTABULATION OF

Q06 TRANSPORTATION AFTER LEAVE BUS BY Q07 PURPOSE OF TRIP

Q06	COUNT / ROW PCT / COL PCT / TOT PCT	Q07 1 WORK	2 VACATION	3 SHOPPING	4 OTHER SO C. OR RE	5 PERSONAL BUSINES	6 VISIT FR FRNDS OR	7 OTHER	ROW TOTAL
1 WALK		15	5	3	2	17	14	3	59
		25.4	8.5	5.1	3.4	28.8	23.7	5.1	13.9
		34.1	10.6	75.0	15.4	15.3	7.6	15.0	
		3.5	1.2	0.7	0.5	4.0	3.3	0.7	
2 AMTRAK TRAIN		0	0	0	0	0	2	0	2
		0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.5
		0.0	0.0	0.0	0.0	0.0	1.1	0.0	
		0.0	0.0	0.0	0.0	0.0	0.5	0.0	
3 TAXI		5	9	1	1	13	25	2	56
		8.9	16.1	1.8	1.8	23.2	44.6	3.6	13.2
		11.4	19.1	25.0	7.7	11.7	13.5	10.0	
		1.2	2.1	0.2	0.2	3.1	5.9	0.5	
4 AUTOMOBILE		15	26	0	10	60	119	12	242
		6.2	10.7	0.0	4.1	24.8	49.2	5.0	57.1
		34.1	55.3	0.0	76.9	54.1	64.3	60.0	
		3.5	6.1	0.0	2.4	14.2	28.1	2.8	
5 LOCAL BUS		5	4	0	0	14	15	1	39
		12.8	10.3	0.0	0.0	35.9	38.5	2.6	9.2
		11.4	8.5	0.0	0.0	12.6	8.1	5.0	
		1.2	0.9	0.0	0.0	3.3	3.5	0.2	
6 COMMUTER TRAIN		2	0	0	0	1	1	0	4
		50.0	0.0	0.0	0.0	25.0	25.0	0.0	0.9
		4.5	0.0	0.0	0.0	0.9	0.5	0.0	
		0.5	0.0	0.0	0.0	0.2	0.2	0.0	
7 CONNECTING IC BU		0	1	0	0	6	5	0	12
		0.0	8.3	0.0	0.0	50.0	41.7	0.0	2.8
		0.0	2.1	0.0	0.0	5.4	2.7	0.0	
		0.0	0.2	0.0	0.0	1.4	1.2	0.0	
8 OTHER		2	2	0	0	0	4	2	10
		20.0	20.0	0.0	0.0	0.0	40.0	20.0	2.4
		4.5	4.3	0.0	0.0	0.0	2.2	10.0	
		0.5	0.5	0.0	0.0	0.0	0.9	0.5	
COLUMN TOTAL		44	47	4	13	111	185	20	424
		10.4	11.1	0.9	3.1	26.2	43.6	4.7	100.0

NUMBER OF MISSING OBSERVATIONS = 13

CROSSTABULATION OF Q07 PURPOSE OF TRIP BY Q12 EMPLOYMENT STATUS

Q07	Q12	1 FULL TIME	2 PART TIME	3 UNEMPLOYED	4 HOMEMAKER	5 COLLEGE STUDENT	6 OTHER ST UDENT	7 RETIRED	ROW TOTAL
WORK	1	25	8	2	0	5	0	3	43
		58.1	18.6	4.7	0.0	11.6	0.0	7.0	10.2
		20.3	14.0	4.9	0.0	6.8	0.0	4.7	
		5.9	1.9	0.5	0.0	1.2	0.0	0.7	
VACATION	2	17	6	5	1	8	1	8	46
		37.0	13.0	10.9	2.2	17.4	2.2	17.4	10.9
		13.8	10.5	12.2	2.5	11.0	4.3	12.5	
		4.0	1.4	1.2	0.2	1.9	0.2	1.9	
SHOPPING	3	0	0	0	0	1	0	3	4
		0.0	0.0	0.0	0.0	25.0	0.0	75.0	1.0
		0.0	0.0	0.0	0.0	1.4	0.0	4.7	
		0.0	0.0	0.0	0.0	0.2	0.0	0.7	
OTHER SOC. OR RE	4	1	1	3	1	5	1	1	13
		7.7	7.7	23.1	7.7	38.5	7.7	7.7	3.1
		0.8	1.8	7.3	2.5	6.8	4.3	1.6	
		0.2	0.2	0.7	0.2	1.2	0.2	0.2	
PERSONAL BUSINES	5	30	9	12	10	24	11	13	109
		27.5	8.3	11.0	9.2	22.0	10.1	11.9	25.9
		24.4	15.8	29.3	25.0	32.9	47.8	20.3	
		7.1	2.1	2.9	2.4	5.7	2.6	3.1	
VISIT FRIENDS OR	6	49	28	15	27	24	9	34	186
		26.3	15.1	8.1	14.5	12.9	4.8	18.3	44.2
		39.8	49.1	36.6	67.5	32.9	39.1	53.1	
		11.6	6.7	3.6	6.4	5.7	2.1	8.1	
OTHER	7	1	5	4	1	6	1	2	20
		5.0	25.0	20.0	5.0	30.0	5.0	10.0	4.8
		0.8	8.8	9.8	2.5	8.2	4.3	3.1	
		0.2	1.2	1.0	0.2	1.4	0.2	0.5	
COLUMN TOTAL		123	57	41	40	73	23	64	421
		29.2	13.5	9.7	9.5	17.3	5.5	15.2	100.0

NUMBER OF MISSING OBSERVATIONS = 16

Q07 PURPOSE OF TRIP BY Q14 AGE

Q07	COUNT / ROW PCT / COL PCT / TOT PCT	Q14 17 OR UNDER	18-24	25-54	55-64	65 OR OLDER	ROW TOTAL
1 WORK		1	17	16	6	3	43
		2.3	39.5	37.2	14.0	7.0	10.2
		4.8	11.6	11.0	10.5	6.0	
		0.2	4.0	3.8	1.4	0.7	
2 VACATION		3	18	13	8	4	46
		6.5	39.1	28.3	17.4	8.7	11.0
		14.3	12.3	8.9	14.0	8.0	
		0.7	4.3	3.1	1.9	1.0	
3 SHOPPING		0	1	1	0	2	4
		0.0	25.0	25.0	0.0	50.0	1.0
		0.0	0.7	0.7	0.0	4.0	
		0.0	0.2	0.2	0.0	0.5	
4 OTHER SOC. OR RE		1	7	3	2	0	13
		7.7	53.8	23.1	15.4	0.0	3.1
		4.8	4.8	2.1	3.5	0.0	
		0.2	1.7	0.7	0.5	0.0	
5 PERSONAL BUSINES		8	42	42	10	8	110
		7.3	38.2	38.2	9.1	7.3	26.2
		38.1	28.8	28.8	17.5	16.0	
		1.9	10.0	10.0	2.4	1.9	
6 VISIT FRIENDS OR		6	51	65	29	33	184
		3.3	27.7	35.3	15.8	17.9	43.8
		28.6	34.9	44.5	50.9	66.0	
		1.4	12.1	15.5	6.9	7.9	
7 OTHER		2	10	6	2	0	20
		10.0	50.0	30.0	10.0	0.0	4.8
		9.5	6.8	4.1	3.5	0.0	
		0.5	2.4	1.4	0.5	0.0	
COLUMN TOTAL		21	146	146	57	50	420
		5.0	34.8	34.8	13.6	11.9	100.0

NUMBER OF MISSING OBSERVATIONS = 17

* * * * * * * * * * * * * * * * * * C R O S S T A B U L A T I O N O F * * *

Q07 PURPOSE OF TRIP BY Q14 AGE

CONTROLLING FOR..

Q13 SEX VALUE.. 1 MALE

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Q07	Q14: COUNT / ROW PCT / COL PCT / TOT PCT	17 OR UNDER 1	18-24 2	25-54 3	55-64 4	65 OR OLDER 5	ROW TOTAL
1 WORK	COUNT	1	14	14	6	2	37
	ROW PCT	2.7	37.8	37.8	16.2	5.4	19.2
	COL PCT	10.0	18.2	18.9	28.6	18.2	
	TOT PCT	0.5	7.3	7.3	3.1	1.0	
2 VACATION	COUNT	1	9	5	5	0	20
	ROW PCT	5.0	45.0	25.0	25.0	0.0	10.4
	COL PCT	10.0	11.7	6.8	23.8	0.0	
	TOT PCT	0.5	4.7	2.6	2.6	0.0	
3 SHOPPING	COUNT	0	0	1	0	2	3
	ROW PCT	0.0	0.0	33.3	0.0	66.7	1.6
	COL PCT	0.0	0.0	1.4	0.0	18.2	
	TOT PCT	0.0	0.0	0.5	0.0	1.0	
4 OTHER SOC. OR RE	COUNT	0	2	2	0	0	4
	ROW PCT	0.0	50.0	50.0	0.0	0.0	2.1
	COL PCT	0.0	2.6	2.7	0.0	0.0	
	TOT PCT	0.0	1.0	1.0	0.0	0.0	
5 PERSONAL BUSINES	COUNT	4	27	25	4	3	63
	ROW PCT	6.3	42.9	39.7	6.3	4.8	32.6
	COL PCT	40.0	35.1	33.8	19.0	27.3	
	TOT PCT	2.1	14.0	13.0	2.1	1.6	
6 VISIT FRIENDS OR	COUNT	3	17	23	5	4	52
	ROW PCT	5.8	32.7	44.2	9.6	7.7	26.9
	COL PCT	30.0	22.1	31.1	23.8	36.4	
	TOT PCT	1.6	8.8	11.9	2.6	2.1	
7 OTHER	COUNT	1	8	4	1	0	14
	ROW PCT	7.1	57.1	28.6	7.1	0.0	7.3
	COL PCT	10.0	10.4	5.4	4.8	0.0	
	TOT PCT	0.5	4.1	2.1	0.5	0.0	
COLUMN TOTAL		10	77	74	21	11	193
		5.2	39.9	38.3	10.9	5.7	100.0

* * * * C R O S S T A B U L A T I O N O F * * *

Q07 PURPOSE OF TRIP BY Q14 AGE

CONTROLLING FOR..

Q13 SEX VALUE.. 2 FEMALE

Q07 \ Q14	COUNT / ROW PCT / COL PCT / TOT PCT	17 OR UNDER 1	18-24 2	25-54 3	55-64 4	65 OR OLDER 5	ROW TOTAL
1 WORK	COUNT	0	3	2	0	1	6
	ROW PCT	0.0	50.0	33.3	0.0	16.7	2.7
	COL PCT	0.0	4.3	2.8	0.0	2.6	
	TOT PCT	0.0	1.3	0.9	0.0	0.4	
2 VACATION	COUNT	2	9	8	3	4	26
	ROW PCT	7.7	34.6	30.8	11.5	15.4	11.5
	COL PCT	20.0	13.0	11.1	8.3	10.3	
	TOT PCT	0.9	4.0	3.5	1.3	1.8	
3 SHOPPING	COUNT	0	1	0	0	0	1
	ROW PCT	0.0	100.0	0.0	0.0	0.0	0.4
	COL PCT	0.0	1.4	0.0	0.0	0.0	
	TOT PCT	0.0	0.4	0.0	0.0	0.0	
4 OTHER SOC. OR RE	COUNT	1	5	1	2	0	9
	ROW PCT	11.1	55.6	11.1	22.2	0.0	4.0
	COL PCT	10.0	7.2	1.4	5.6	0.0	
	TOT PCT	0.4	2.2	0.4	0.9	0.0	
5 PERSONAL BUSINES	COUNT	3	15	17	6	5	46
	ROW PCT	6.5	32.6	37.0	13.0	10.9	20.4
	COL PCT	30.0	21.7	23.6	16.7	12.8	
	TOT PCT	1.3	6.6	7.5	2.7	2.2	
6 VISIT FRIENDS OR	COUNT	3	34	42	24	29	132
	ROW PCT	2.3	25.8	31.8	18.2	22.0	58.4
	COL PCT	30.0	49.3	58.3	66.7	74.4	
	TOT PCT	1.3	15.0	18.6	10.6	12.8	
7 OTHER	COUNT	1	2	2	1	0	6
	ROW PCT	16.7	33.3	33.3	16.7	0.0	2.7
	COL PCT	10.0	2.9	2.8	2.8	0.0	
	TOT PCT	0.4	0.9	0.9	0.4	0.0	
COLUMN TOTAL		10	69	72	36	39	226
		4.4	30.5	31.9	15.9	17.3	100.0

NUMBER OF MISSING OBSERVATIONS = 18

CROSSTABULATION OF Q07 PURPOSE OF TRIP BY Q15 FAMILY INCOME

Q07	COUNT / ROW PCT / COL PCT / TOT PCT	1 UNDER $10000	2 $10000 0 $19999	3 $20000 0 $29999	4 $30000 0 $39999	5 $40000 0 $49999	6 $50000 OR MORE	ROW TOTAL
WORK	1	8	5	12	6	6	5	42
		19.0	11.9	28.6	14.3	14.3	11.9	11.1
		6.0	7.2	16.4	12.8	21.4	18.5	
		2.1	1.3	3.2	1.6	1.6	1.3	
VACATION	2	13	8	6	6	1	3	37
		35.1	21.6	16.2	16.2	2.7	8.1	9.8
		9.8	11.6	8.2	12.8	3.6	11.1	
		3.4	2.1	1.6	1.6	0.3	0.8	
SHOPPING	3	2	0	1	0	0	0	3
		66.7	0.0	33.3	0.0	0.0	0.0	0.8
		1.5	0.0	1.4	0.0	0.0	0.0	
		0.5	0.0	0.3	0.0	0.0	0.0	
OTHER SOC. OR RE	4	3	2	1	1	3	2	12
		25.0	16.7	8.3	8.3	25.0	16.7	3.2
		2.3	2.9	1.4	2.1	10.7	7.4	
		0.8	0.5	0.3	0.3	0.8	0.5	
PERSONAL BUSINES	5	36	16	22	10	6	7	97
		37.1	16.5	22.7	10.3	6.2	7.2	25.7
		27.1	23.2	30.1	21.3	21.4	25.9	
		9.5	4.2	5.8	2.7	1.6	1.9	
VISIT FRIENDS OR	6	62	36	30	21	9	8	166
		37.3	21.7	18.1	12.7	5.4	4.8	44.0
		46.6	52.2	41.1	44.7	32.1	29.6	
		16.4	9.5	8.0	5.6	2.4	2.1	
OTHER	7	9	2	1	3	3	2	20
		45.0	10.0	5.0	15.0	15.0	10.0	5.3
		6.8	2.9	1.4	6.4	10.7	7.4	
		2.4	0.5	0.3	0.8	0.8	0.5	
COLUMN TOTAL		133	69	73	47	28	27	377
		35.3	18.3	19.4	12.5	7.4	7.2	100.0

NUMBER OF MISSING OBSERVATIONS = 60

Q08 OPTION IF BUS DISCONTINUED BY Q07 PURPOSE OF TRIP

Q08	COUNT / ROW PCT / COL PCT / TOT PCT	Q07 1 WORK	2 VACATION	3 SHOPPING	4 OTHER SO C. OR RE	5 PERSONAL BUSINES	6 VISIT FR TENDS OR	7 OTHER	ROW TOTAL
1 NOT TAKE TRIP		6	6	1	1	12	35	2	63
		9.5	9.5	1.6	1.6	19.0	55.6	3.2	15.7
		14.6	13.3	25.0	7.7	11.3	20.1	11.1	
		1.5	1.5	0.2	0.2	3.0	8.7	0.5	
2 DRIVE CAR		15	9	1	6	41	66	7	145
		10.3	6.2	0.7	4.1	28.3	45.5	4.8	36.2
		36.6	20.0	25.0	46.2	38.7	37.9	38.9	
		3.7	2.2	0.2	1.5	10.2	16.5	1.7	
3 TAKE AIRPLANE		6	14	0	2	19	23	2	66
		9.1	21.2	0.0	3.0	28.8	34.8	3.0	16.5
		14.6	31.1	0.0	15.4	17.9	13.2	11.1	
		1.5	3.5	0.0	0.5	4.7	5.7	0.5	
4 RIDE WITH FRIEND		4	6	1	2	16	22	1	52
		7.7	11.5	1.9	3.8	30.8	42.3	1.9	13 0
		9.8	13.3	25.0	15.4	15.1	12.6	5.6	
		1.0	1.5	0.2	0.5	4.0	5.5	0.2	
5 TAKE AMTRAK TRAI		7	9	1	2	16	25	3	63
		11.1	14.3	1.6	3.2	25.4	39.7	4.8	15.7
		17.1	20.0	25.0	15.4	15.1	14.4	16.7	
		1.7	2.2	0.2	0.5	4.0	6.2	0.7	
6 OTHER		3	1	0	0	2	3	3	12
		25.0	8.3	0.0	0.0	16.7	25.0	25.0	3.0
		7.3	2.2	0.0	0.0	1.9	1.7	16.7	
		0.7	0.2	0.0	0.0	0.5	0.7	0.7	
COLUMN TOTAL		41	45	4	13	106	174	18	401
		10.2	11.2	1.0	3.2	26.4	43.4	4.5	100.0

NUMBER OF MISSING OBSERVATIONS = 36

* CROSSTABULATION OF * * * * * * * * * * * * * * * * * * *

Q08 OPTION IF BUS DISCONTINUED BY Q11 PERSONAL VEHICLES OWNED BY HH

Q08	COUNT / ROW PCT / COL PCT / TOT PCT	Q11 NONE	1 VEHICLE	2 VEHICLES	3 OR MORE VEHICLE	4	ROW TOTAL
1 NOT TAKE TRIP		24	23	7	8		62
		38.7	37.1	11.3	12.9		15.5
		25.8	17.4	6.7	11.1		
		6.0	5.7	1.7	2.0		
2 DRIVE CAR		15	56	47	30		148
		10.1	37.8	31.8	20.3		36.9
		16.1	42.4	45.2	41.7		
		3.7	14.0	11.7	7.5		
3 TAKE AIRPLANE		17	21	15	14		67
		25.4	31.3	22.4	20.9		16.7
		18.3	15.9	14.4	19.4		
		4.2	5.2	3.7	3.5		
4 RIDE WITH FRIEND		14	13	17	7		51
		27.5	25.5	33.3	13.7		12.7
		15.1	9.8	16.3	9.7		
		3.5	3.2	4.2	1.7		
5 TAKE AMTRAK TRAI		19	15	17	10		61
		31.1	24.6	27.9	16.4		15.2
		20.4	11.4	16.3	13.9		
		4.7	3.7	4.2	2.5		
6 OTHER		4	4	1	3		12
		33.3	33.3	8.3	25.0		3.0
		4.3	3.0	1.0	4.2		
		1.0	1.0	0.2	0.7		
COLUMN TOTAL		93	132	104	72		401
		23.2	32.9	25.9	18.0		100.0

NUMBER OF MISSING OBSERVATIONS = 36

CROSSTABULATION OF

Q08 OPTION IF BUS DISCONTINUED BY Q12 EMPLOYMENT STATUS

Q08	COUNT / ROW PCT / COL PCT / TOT PCT	Q12 1 FULL TIME	2 PART TIME	3 UNEMPLOYED	4 HOMEMAKER	5 COLLEGE STUDENT	6 OTHER STUDENT	7 RETIRED	ROW TOTAL
1 NOT TAKE TRIP		15	13	6	8	10	1	9	62
		24.2	21.0	9.7	12.9	16.1	1.6	14.5	15.3
		12.6	24.1	14.6	22.2	14.1	4.5	14.8	
		3.7	3.2	1.5	2.0	2.5	0.2	2.2	
2 DRIVE CAR		49	16	14	15	25	7	22	148
		33.1	10.8	9.5	10.1	16.9	4.7	14.9	36.6
		41.2	29.6	34.1	41.7	35.2	31.8	36.1	
		12.1	4.0	3.5	3.7	6.2	1.7	5.4	
3 TAKE AIRPLANE		26	8	8	3	8	7	7	67
		38.8	11.9	11.9	4.5	11.9	10.4	10.4	16.6
		21.8	14.8	19.5	8.3	11.3	31.8	11.5	
		6.4	2.0	2.0	0.7	2.0	1.7	1.7	
4 RIDE WITH FRIEND		13	10	4	2	16	0	7	52
		25.0	19.2	7.7	3.8	30.8	0.0	13.5	12.9
		10.9	18.5	9.8	5.6	22.5	0.0	11.5	
		3.2	2.5	1.0	0.5	4.0	0.0	1.7	
5 TAKE AMTRAK TRAI		14	4	6	8	9	7	15	63
		22.2	6.3	9.5	12.7	14.3	11.1	23.8	15.6
		11.8	7.4	14.6	22.2	12.7	31.8	24.6	
		3.5	1.0	1.5	2.0	2.2	1.7	3.7	
6 OTHER		2	3	3	0	3	0	1	12
		16.7	25.0	25.0	0.0	25.0	0.0	8.3	3.0
		1.7	5.6	7.3	0.0	4.2	0.0	1.6	
		0.5	0.7	0.7	0.0	0.7	0.0	0.2	
COLUMN TOTAL		119	54	41	36	71	22	61	404
		29.5	13.4	10.1	8.9	17.6	5.4	15.1	100.0

NUMBER OF MISSING OBSERVATIONS = 33

CROSSTABULATION OF Q08 OPTION IF BUS DISCONTINUED BY Q15 FAMILY INCOME

Q08	Q15	1 UNDER $10000	2 $10000 TO $19999	3 $20000 TO $29999	4 $30000 TO $39999	5 $40000 TO $49999	6 $50000 OR MORE	ROW TOTAL
NOT TAKE TRIP	1	27	10	15	4	0	3	59
		45.8	16.9	25.4	6.8	0.0	5.1	16.2
		21.3	14.7	21.4	8.9	0.0	10.7	
		7.4	2.7	4.1	1.1	0.0	0.8	
DRIVE CAR	2	30	26	24	17	16	16	129
		23.3	20.2	18.6	13.2	12.4	12.4	35.3
		23.6	38.2	34.3	37.8	59.3	57.1	
		8.2	7.1	6.6	4.7	4.4	4.4	
TAKE AIRPLANE	3	21	9	7	13	2	6	58
		36.2	15.5	12.1	22.4	3.4	10.3	15.9
		16.5	13.2	10.0	28.9	7.4	21.4	
		5.8	2.5	1.9	3.6	0.5	1.6	
RIDE WITH FRIEND	4	23	11	5	5	4	0	48
		47.9	22.9	10.4	10.4	8.3	0.0	13.2
		18.1	16.2	7.1	11.1	14.8	0.0	
		6.3	3.0	1.4	1.4	1.1	0.0	
TAKE AMTRAK TRAI	5	20	10	15	6	5	3	59
		33.9	16.9	25.4	10.2	8.5	5.1	16.2
		15.7	14.7	21.4	13.3	18.5	10.7	
		5.5	2.7	4.1	1.6	1.4	0.8	
OTHER	6	6	2	4	0	0	0	12
		50.0	16.7	33.3	0.0	0.0	0.0	3.3
		4.7	2.9	5.7	0.0	0.0	0.0	
		1.6	0.5	1.1	0.0	0.0	0.0	
COLUMN TOTAL		127	68	70	45	27	28	365
		34.8	18.6	19.2	12.3	7.4	7.7	100.0

NUMBER OF MISSING OBSERVATIONS = 72

CROSSTABULATION OF

Q09A INTERCITY BUS TRIPS BY Q11 PERSONAL VEHICLES OWNED BY HH

Q09A	COUNT / ROW PCT / COL PCT / TOT PCT	Q11 1 NONE	1 VEHICLE	2 VEHICLES	3 OR MORE VEHICLE	4	ROW TOTAL
0 TRIPS	0	13	24	19	15		71
		18.3	33.8	26.8	21.1		16.9
		13.0	17.4	17.8	19.7		
		3.1	5.7	4.5	3.6		
1 TRIP	1	15	19	13	19		66
		22.7	28.8	19.7	28.8		15.7
		15.0	13.8	12.1	25.0		
		3.6	4.5	3.1	4.5		
2 TRIPS	2	14	17	19	9		59
		23.7	28.8	32.2	15.3		14.0
		14.0	12.3	17.8	11.8		
		3.3	4.0	4.5	2.1		
3 TRIPS	3	9	15	10	3		37
		24.3	40.5	27.0	8.1		8.8
		9.0	10.9	9.3	3.9		
		2.1	3.6	2.4	0.7		
4 TRIPS	4	9	12	8	4		33
		27.3	36.4	24.2	12.1		7.8
		9.0	8.7	7.5	5.3		
		2.1	2.9	1.9	1.0		
5 OR 6 TRIPS	5	10	15	8	8		41
		24.4	36.6	19.5	19.5		9.7
		10.0	10.9	7.5	10.5		
		2.4	3.6	1.9	1.9		
7 TO 10 TRIPS	6	10	10	13	10		43
		23.3	23.3	30.2	23.3		10.2
		10.0	7.2	12.1	13.2		
		2.4	2.4	3.1	2.4		
11 TO 19 TRIPS	7	11	10	8	3		32
		34.4	31.3	25.0	9.4		7.6
		11.0	7.2	7.5	3.9		
		2.6	2.4	1.9	0.7		
20 OR MORE TRIPS	8	9	16	9	5		39
		23.1	41.0	23.1	12.8		9.3
		9.0	11.6	8.4	6.6		
		2.1	3.8	2.1	1.2		
	COLUMN TOTAL	100	138	107	76		421
		23.8	32.8	25.4	18.1		100.0

NUMBER OF MISSING OBSERVATIONS = 16

Q09A INTERCITY BUS TRIPS BY Q12 EMPLOYMENT STATUS

Q09A	COUNT / ROW PCT / COL PCT / TOT PCT	Q12 1 FULL TIME	2 PART TIME	3 UNEMPLOYED	4 HOMEMAKER	5 COLLEGE STUDENT	6 OTHER STUDENT	7 RETIRED	ROW TOTAL
0		20	14	6	11	7	1	13	72
0 TRIPS		27.8	19.4	8.3	15.3	9.7	1.4	18.1	16.9
		16.1	24.6	14.3	27.5	9.5	4.3	20.0	
		4.7	3.3	1.4	2.6	1.6	0.2	3.1	
1		17	8	9	6	12	6	10	68
1 TRIP		25.0	11.8	13.2	8.8	17.6	8.8	14.7	16.0
		13.7	14.0	21.4	15.0	16.2	26.1	15.4	
		4.0	1.9	2.1	1.4	2.8	1.4	2.4	
2		17	5	6	6	15	1	9	59
2 TRIPS		28.8	8.5	10.2	10.2	25.4	1.7	15.3	13.9
		13.7	8.8	14.3	15.0	20.3	4.3	13.8	
		4.0	1.2	1.4	1.4	3.5	0.2	2.1	
3		11	4	3	3	5	1	10	37
3 TRIPS		29.7	10.8	8.1	8.1	13.5	2.7	27.0	8.7
		8.9	7.0	7.1	7.5	6.8	4.3	15.4	
		2.6	0.9	0.7	0.7	1.2	0.2	2.4	
4		11	6	2	2	4	1	7	33
4 TRIPS		33.3	18.2	6.1	6.1	12.1	3.0	21.2	7.8
		8.9	10.5	4.8	5.0	5.4	4.3	10.8	
		2.6	1.4	0.5	0.5	0.9	0.2	1.6	
5		12	3	3	3	13	3	4	41
5 OR 6 TRIPS		29.3	7.3	7.3	7.3	31.7	7.3	9.8	9.6
		9.7	5.3	7.1	7.5	17.6	13.0	6.2	
		2.8	0.7	0.7	0.7	3.1	0.7	0.9	
6		11	5	6	2	9	3	7	43
7 TO 10 TRIPS		25.6	11.6	14.0	4.7	20.9	7.0	16.3	10.1
		8.9	8.8	14.3	5.0	12.2	13.0	10.8	
		2.6	1.2	1.4	0.5	2.1	0.7	1.6	
7		10	5	2	5	2	5	4	33
11 TO 19 TRIPS		30.3	15.2	6.1	15.2	6.1	15.2	12.1	7.8
		8.1	8.8	4.8	12.5	2.7	21.7	6.2	
		2.4	1.2	0.5	1.2	0.5	1.2	0.9	
8		15	7	5	2	7	2	1	39
20 OR MORE TRIPS		38.5	17.9	12.8	5.1	17.9	5.1	2.6	9.2
		12.1	12.3	11.9	5.0	9.5	8.7	1.5	
		3.5	1.6	1.2	0.5	1.6	0.5	0.2	
COLUMN TOTAL		124	57	42	40	74	23	65	425
		29.2	13.4	9.9	9.4	17.4	5.4	15.3	100.0

NUMBER OF MISSING OBSERVATIONS = 12

CROSSTABULATION OF

Q10A NUMBER IN HOUSEHOLD BY Q10B HOUSEHOLD MEMBERS ON TRIP

Q10A	COUNT / ROW PCT / COL PCT / TOT PCT	Q10B 1	2	3	4	9	13	ROW TOTAL
1		61	1	0	0	0	0	82
		88.8	1.2	0.0	0.0	0.0	0.0	22.7
		27.9	1.9	0.0	0.0	0.0	0.0	
		22.4	0.3	0.0	0.0	0.0	0.0	
2		50	22	0	0	0	0	72
		69.4	30.6	0.0	0.0	0.0	0.0	19.9
		17.2	42.3	0.0	0.0	0.0	0.0	
		13.8	6.1	0.0	0.0	0.0	0.0	
3		37	11	8	1	0	0	57
		64.9	19.3	14.0	1.8	0.0	0.0	15.7
		13.8	21.2	61.5	20.0	0.0	0.0	
		10.2	3.0	2.2	0.3	0.0	0.0	
4		51	7	2	3	1	0	64
		79.7	10.9	3.1	4.7	1.6	0.0	17.7
		17.6	13.5	15.4	60.0	100.0	0.0	
		14.1	1.9	0.6	0.8	0.3	0.0	
5		30	5	0	0	0	0	35
		85.7	14.3	0.0	0.0	0.0	0.0	9.7
		10.3	9.6	0.0	0.0	0.0	0.0	
		8.3	1.4	0.0	0.0	0.0	0.0	
6		17	5	2	1	0	0	25
		68.0	20.0	8.0	4.0	0.0	0.0	6.9
		5.9	9.6	15.4	20.0	0.0	0.0	
		4.7	1.4	0.6	0.3	0.0	0.0	
7		11	0	0	0	0	0	11
		100.0	0.0	0.0	0.0	0.0	0.0	3.0
		3.8	0.0	0.0	0.0	0.0	0.0	
		3.0	0.0	0.0	0.0	0.0	0.0	
8		5	1	0	0	0	0	6
		83.3	16.7	0.0	0.0	0.0	0.0	1.7
		1.7	1.9	0.0	0.0	0.0	0.0	
		1.4	0.3	0.0	0.0	0.0	0.0	
9		3	0	1	0	0	0	4
		75.0	0.0	25.0	0.0	0.0	0.0	1.1
		1.0	0.0	7.7	0.0	0.0	0.0	
		0.8	0.0	0.3	0.0	0.0	0.0	
10		1	0	0	0	0	0	1
		100.0	0.0	0.0	0.0	0.0	0.0	0.3
		0.3	0.0	0.0	0.0	0.0	0.0	
		0.3	0.0	0.0	0.0	0.0	0.0	
11		1	0	0	0	0	0	1
		100.0	0.0	0.0	0.0	0.0	0.0	0.3
		0.3	0.0	0.0	0.0	0.0	0.0	
		0.3	0.0	0.0	0.0	0.0	0.0	
12		1	0	0	0	0	0	1
		100.0	0.0	0.0	0.0	0.0	0.0	0.3
		0.3	0.0	0.0	0.0	0.0	0.0	
		0.3	0.0	0.0	0.0	0.0	0.0	
13		1	0	0	0	0	1	2
		50.0	0.0	0.0	0.0	0.0	50.0	0.6
		0.3	0.0	0.0	0.0	0.0	100.0	
		0.3	0.0	0.0	0.0	0.0	0.3	
16		1	0	0	0	0	0	1
		100.0	0.0	0.0	0.0	0.0	0.0	0.3
		0.3	0.0	0.0	0.0	0.0	0.0	
		0.3	0.0	0.0	0.0	0.0	0.0	
COLUMN TOTAL		290	52	13	5	1	1	362
		80.1	14.4	3.6	1.4	0.3	0.3	100.0

NUMBER OF MISSING OBSERVATIONS = 79

CROSSTABULATION OF

Q12 EMPLOYMENT STATUS BY Q11 PERSONAL VEHICLES OWNED BY HH

Q12	COUNT / ROW PCT / COL PCT / TOT PCT	Q11 1 NONE	1 VEHICLE	2 VEHICLES	3 OR MORE VEHICLE	ROW TOTAL
	1	22	46	31	24	123
FULL TIME		17.9	37.4	25.2	19.5	29.2
		22.0	33.3	29.0	31.6	
		5.2	10.9	7.4	5.7	
	2	8	19	18	12	57
PART TIME		14.0	33.3	31.6	21.1	13.5
		8.0	13.8	16.8	15.8	
		1.9	4.5	4.3	2.9	
	3	18	8	10	6	42
UNEMPLOYED		42.9	19.0	23.8	14.3	10.0
		18.0	5.8	9.3	7.9	
		4.3	1.9	2.4	1.4	
	4	16	14	6	4	40
HOMEMAKER		40.0	35.0	15.0	10.0	9.5
		16.0	10.1	5.6	5.3	
		3.8	3.3	1.4	1.0	
	5	8	18	27	19	72
COLLEGE STUDENT		11.1	25.0	37.5	26.4	17.1
		8.0	13.0	25.2	25.0	
		1.9	4.3	6.4	4.5	
	6	4	10	5	4	23
OTHER STUDENT		17.4	43.5	21.7	17.4	5.5
		4.0	7.2	4.7	5.3	
		1.0	2.4	1.2	1.0	
	7	24	23	10	7	64
RETIRED		37.5	35.9	15.6	10.9	15.2
		24.0	16.7	9.3	9.2	
		5.7	5.5	2.4	1.7	
	COLUMN TOTAL	100	138	107	76	421
		23.8	32.8	25.4	18.1	100.0

NUMBER OF MISSING OBSERVATIONS = 16

CROSSTABULATION OF

Q12 EMPLOYMENT STATUS BY Q13 SEX

Q12	COUNT / ROW PCT / COL PCT / TOT PCT	Q13 MALE (1)	Q13 FEMALE (2)	ROW TOTAL
1 FULL TIME		81	42	123
		65.9	34.1	29.1
		41.3	18.6	
		19.2	10.0	
2 PART TIME		20	36	56
		35.7	64.3	13.3
		10.2	15.9	
		4.7	8.5	
3 UNEMPLOYED		23	18	41
		56.1	43.9	9.7
		11.7	8.0	
		5.5	4.3	
4 HOMEMAKER		2	38	40
		5.0	95.0	9.5
		1.0	16.8	
		0.5	9.0	
5 COLLEGE STUDENT		41	33	74
		55.4	44.6	17.5
		20.9	14.6	
		9.7	7.8	
6 OTHER STUDENT		9	14	23
		39.1	60.9	5.5
		4.6	6.2	
		2.1	3.3	
7 RETIRED		20	45	65
		30.8	69.2	15.4
		10.2	19.9	
		4.7	10.7	
COLUMN TOTAL		196	226	422
		46.4	53.6	100.0

NUMBER OF MISSING OBSERVATIONS = 15

Q12 . EMPLOYMENT STATUS CROSSTABULATION OF ** BY Q14 AGE

Q12	Q14	17 OR UNDER	18-24	25-54	55-64	65 OR OLDER	ROW TOTAL
FULL TIME	1	1	36	65	19	2	123
		0.8	29.3	52.8	15.4	1.6	29.1
		4.8	24.5	44.2	32.8	4.0	
		0.2	8.5	15.4	4.5	0.5	
PART TIME	2	4	21	24	4	4	57
		7.0	36.8	42.1	7.0	7.0	13.5
		19.0	14.3	16.3	6.9	8.0	
		0.9	5.0	5.7	0.9	0.9	
UNEMPLOYED	3	5	12	21	2	1	41
		12.2	29.3	51.2	4.9	2.4	9.7
		23.8	8.2	14.3	3.4	2.0	
		1.2	2.8	5.0	0.5	0.2	
HOMEMAKER	4	0	4	20	15	1	40
		0.0	10.0	50.0	37.5	2.5	9.5
		0.0	2.7	13.6	25.9	2.0	
		0.0	0.9	4.7	3.5	0.2	
COLLEGE STUDENT	5	0	64	10	0	0	74
		0.0	86.5	13.5	0.0	0.0	17.5
		0.0	43.5	6.8	0.0	0.0	
		0.0	15.1	2.4	0.0	0.0	
OTHER STUDENT	6	11	9	3	0	0	23
		47.8	39.1	13.0	0.0	0.0	5.4
		52.4	6.1	2.0	0.0	0.0	
		2.6	2.1	0.7	0.0	0.0	
RETIRED	7	0	1	4	18	42	65
		0.0	1.5	6.2	27.7	64.6	15.4
		0.0	0.7	2.7	31.0	84.0	
		0.0	0.2	0.9	4.3	9.9	
COLUMN TOTAL		21	147	147	58	50	423
		5.0	34.8	34.8	13.7	11.8	100.0

NUMBER OF MISSING OBSERVATIONS = 14

CROSSTABULATION OF Q12 EMPLOYMENT STATUS BY Q15 FAMILY INCOME

Q12		Q15 1 UNDER $10000	Q15 2 $10000 TO $19999	Q15 3 $20000 TO $29999	Q15 4 $30000 TO $39999	Q15 5 $40000 TO $49999	Q15 6 $50000 OR MORE	ROW TOTAL
FULL TIME	1	22	25	32	20	9	9	117
	ROW PCT	18.8	21.4	27.4	17.1	7.7	7.7	30.8
	COL PCT	16.4	36.2	43.8	42.6	32.1	31.0	
	TOT PCT	5.8	6.6	8.4	5.3	2.4	2.4	
PART TIME	2	20	10	9	5	3	7	54
	ROW PCT	37.0	18.5	16.7	9.3	5.6	13.0	14.2
	COL PCT	14.9	14.5	12.3	10.6	10.7	24.1	
	TOT PCT	5.3	2.6	2.4	1.3	0.8	1.8	
UNEMPLOYED	3	24	1	2	3	4	2	36
	ROW PCT	66.7	2.8	5.6	8.3	11.1	5.6	9.5
	COL PCT	17.9	1.4	2.7	6.4	14.3	6.9	
	TOT PCT	6.3	0.3	0.5	0.8	1.1	0.5	
HOMEMAKER	4	14	11	5	2	0	1	33
	ROW PCT	42.4	33.3	15.2	6.1	0.0	3.0	8.7
	COL PCT	10.4	15.9	6.8	4.3	0.0	3.4	
	TOT PCT	3.7	2.9	1.3	0.5	0.0	0.3	
COLLEGE STUDENT	5	14	8	18	8	10	10	68
	ROW PCT	20.6	11.8	26.5	11.8	14.7	14.7	17.9
	COL PCT	10.4	11.6	24.7	17.0	35.7	34.5	
	TOT PCT	3.7	2.1	4.7	2.1	2.6	2.6	
OTHER STUDENT	6	10	3	2	4	1	0	20
	ROW PCT	50.0	15.0	10.0	20.0	5.0	0.0	5.3
	COL PCT	7.5	4.3	2.7	8.5	3.6	0.0	
	TOT PCT	2.6	0.8	0.5	1.1	0.3	0.0	
RETIRED	7	30	11	5	5	1	0	52
	ROW PCT	57.7	21.2	9.6	9.6	1.9	0.0	13.7
	COL PCT	22.4	15.9	6.8	10.6	3.6	0.0	
	TOT PCT	7.9	2.9	1.3	1.3	0.3	0.0	
COLUMN TOTAL		134	69	73	47	28	29	380
		35.3	18.2	19.2	12.4	7.4	7.6	100.0

NUMBER OF MISSING OBSERVATIONS = 57

CROSSTABULATION OF Q17 FARE LEVEL BY Q12 EMPLOYMENT STATUS

Q17	Q12	1 FULL TIME EMPLOYED	2 PART TIME EMPLOYED	3 UNEMPLOYED	4 HOMEMAKER	5 COLLEGE STUDENT	6 OTHER STUDENT	7 RETIRED	ROW TOTAL
1 TOO HIGH	COUNT	31	18	13	6	32	9	15	124
	ROW PCT	25.0	14.5	10.5	4.8	25.8	7.3	12.1	30.3
	COL PCT	25.8	33.3	31.7	15.8	43.8	39.1	25.0	
	TOT PCT	7.6	4.4	3.2	1.5	7.8	2.2	3.7	
2 TOO LOW	COUNT	0	0	0	1	0	2	1	4
	ROW PCT	0.0	0.0	0.0	25.0	0.0	50.0	25.0	1.0
	COL PCT	0.0	0.0	0.0	2.6	0.0	8.7	1.7	
	TOT PCT	0.0	0.0	0.0	0.2	0.0	0.5	0.2	
3 ABOUT RIGHT	COUNT	89	36	28	31	41	12	44	281
	ROW PCT	31.7	12.8	10.0	11.0	14.6	4.3	15.7	68.7
	COL PCT	74.2	66.7	68.3	81.6	56.2	52.2	73.3	
	TOT PCT	21.8	8.8	6.8	7.6	10.0	2.9	10.8	
COLUMN TOTAL		120	54	41	38	73	23	60	409
		29.3	13.2	10.0	9.3	17.8	5.6	14.7	100.0

NUMBER OF MISSING OBSERVATIONS = 28

APPENDIX H

User Survey Respondents' Comments

ON-BOARD USERS SURVEY
SUMMARY OF USER'S COMMENTS
MICHIGAN INTERCITY BUS SYSTEM
MAY 1985

Q.18. If you could, what one thing would you change about the bus service?

LEVEL OF SERVICE

Improve Frequency of Service

More rides between Flint and Lansing.
The hours the bus runs are very awkward.
To drop the night time route and travel by day.
Schedule a bus for all the little towns and schedule one for going through big cities.
Make more runs available to the people in the Upper Peninsula of Michigan.
Frequency of trips to Flint. Some buses are too crowded and there are not enough runs to allow for my schedule.
I need service that will take me closer to the Rochester area.
On Friday, send more buses to the East Lansing Station going to Southfield and Detroit.
I would make the on campus stations more through.
Better service.
Not familiar with service on regular basis.
Information is almost impossible to get.
More frequent service.
I would make trips more frequently between large cities so as to cut down the customer's layover times.
Increase frequency of buses and extend hours, earlier and later.
I would like a bus that took I-69 and I-94 highway to Detroit.
Make more buses do more trips so they wouldn't be so crowded.
Put on better service, more frequent.
Better service, more frequent.
Increase frequency of services.
More bus service and not less.
Get buses to pick up in Detroit suburbs.
More buses leaving Cheboygan since there is just one a day.
Schedule more service to more out of way places. Also a bit more punctual.
Make more cities available.
Should have express from Detroit to Grand Rapids.
Except frequency of service be increased, everything is o.k.
Not to stop where there is no one getting on or off, also W. Cleveland.
Cut down on all the run around places.
Promptness at Ann Arbor departures.
Could serve more communities.
More of them (buses).
More bus lines.
Would like a bus line in front of my home.
More buses.
Have better service to small towns.
I would like to have bus service to more of the smaller towns.

More routes.
Speed limited, they drive too fast.
Speed it up.
Have the bus make a quick stop in Portage.
Go more than once a day.
Need more frequent service into Berrien Springs.
Buses coming more frequently.
The U.P. has only one time bus service to Chicago. I don't think it is enough.
Should be more buses going out more often.

Change Arrival and/or Departure Time

Daytime service to Lower Michigan over the Straights.
There is no Detroit - Ann Arbor bus from 11:40 to 4:15. I'd like one about 2:30.
Leave on time, which may better assure arrival on time schedule.
Leave 15 minutes earlier.
They should keep to their schedule better.
Bus arrival and departure more punctual; buses less crowded.
Depart from Detroit earlier and arrive in Marquette at a reasonable hour; stop at a better place for dinner than Kentucky Fried Chicken in Houghton Lake.
Make sure the buses are on time.
Make sure they're on time.
Punctuality.
Being on time, more and longer breaks on the trip.
Leaving Chicago on time.

Improve Connections

The long layovers.
Reduce layover times.
The long layovers.
The layovers.
The layovers; 2 hours is too long.
Well, the long wait in Lansing, if it were possible to cut that down.
Too long layovers in Chicago.
Better connections in Chicago.
Better connections on Sunday/Monday.
Better connections.
A more direct route to Chicago via Iron Mountain would shorten the trip.
Earlier hours arriving at destination; shorter waits between transfers.
At least one bus during A.M. from Charlotte to Lansing around 7:30 am. and one later bus around 9:00 p.m.
Cut down on the hour of the time to make trips.
I need to stay in Detroit less than 1 hour, but I must stay there four and a half hours before there is a bus back.
Connection between different lines.

Reduce Number of Stops

Less stops for shorter distances.
Most of the small stops could be discontinued.
Too many unnecessary stops.
Number of stops it makes.
It would not stop in Drayton Plains or Royal Oak.
Too many stops.

Stop stopping at so many stops.
Possibly less stops. Only stop at major cities; this would make the trip go a bit faster.
Have fewer package pick-ups.
Make it more accessible and also express routes would stop only at designated terminals.
Stop making so many stops to small towns on the way to big cities such as Detroit, New York.
Make straight trips.

Reduce Travel Time

That a two and a half to three hour trip not take four hours.
Make it get from Grand Rapids to Chicago faster than it does; it shouldn't take almost 6 hours.
Have a through bus and no stopping but to eat.
Straight through runs for short trips.
Go straight thru Ann Arbor.
Give more express service.
Faster.
Drive it faster.
Go through Canada (to reduce trip time).
It would be nice to have an express bus on the schedule, a real express.
I usually ride between Lansing and Kalamazoo when I take a bus. The trip by car takes only 1 hour and 15 minutes, while 2 hours is needed for bus; I wish I could shorten it.
Make it quicker to get from one place to another.

SCHEDULE INFORMATION

I would tell people the truth; schedules where there are closer together to get where they are going, faster.
Provide a source of information locally and insure its accuracy (fares and departures and arrival times).
Information is almost impossible to get.
More schedule information and don't let one traveler hold up the bus and put everybody off schedule.
If possible, coordination with Amtrak schedules.
The schedule.
Make sure the schedule information is right.
Information available.
Improve schedule information availability.

CONDITION OF BUSES

Cleaner Buses

Clean windows more.
Get some clean water.
Make the buses smell better.
Have clean buses.
Condition of buses.
Could you clean the bus better, my feet stick to the floor.

Cleaner Bus Bathrooms

Improve restroom cleanliness.
Clean the bathrooms a lot better, the condition of them is terrible.
Have more smoking seats and better stocked bathroom supplies, otherwise its a very good way to travel.
The smell of the bathroom, its nauseating.

Make the bathrooms bigger.
Restrooms.
The stainless steel toilets, for they are too hot after a long amount of time.
Cleaner bathrooms.
Toilet stinks.
Cleaner bathrooms, more room in seats.
Bathroom has unsanitary stuff on seats.

Improve Seating

Allow a few more seats in back of bus for people who smoke. Bus drivers call loudly the next bus station you arrive at.
Bigger seats.
Have bigger seats.
Put the arm rest back in the middle of the section.
The seats should be roomier and there should be a coffee vendor at the back.
Reserved seating, if guaranteed seating.
Assigned seats.
The seats on the bus are too close and uncomfortable.
Inflatable pillows.
Wider and cleaner seats, center fold-up armrest.

Eliminate Smoking

I would have no smoking on the bus at any time.
No smoking.
Ban smoking all together.
I would prohibit smoking on the bus (the air is bad and it makes me nauseous).
No smoking! Absolutely none!
No smoking.
No smoking at all and better comfortable seats.
Make smoking illegal on all buses or physically separate smoking section, that is why I wont travel on buses unless I have to.
No smoking at all on the bus.
More ventilation for the smoking section.
More ventilation, no smoking.
No smoking.
Terminate smoking in all seats.
No smoking at all.
Enforcement of smoking regulations.

Provide Music

Have some music, T.V., pop machine and pillows.
Have music available, at least easy listening.
Soft music on bus any kind.
Have televisions or radios.
F.M. radio.
Have a radio put in aisles with earphones.
Radio (soft music).

Other

Enforce more strongly the bus regulations, other than that the service is not bad.
I would try to boost business by changing the image bus travel has, for example, advertising campaign etc.

Stop people from getting on the bus intoxicated.
Have them take the rails out of the interior of the buses, everything else is fine.
Tighten discipline on fellow passengers.
How about an automatic ticket dispenser for the most popular routes, (some bus companies have them).
I would provide T.V. sets for the customers.
Use more Indian Trails, they are nicer buses and the drivers are more courteous.
The temperature is too cold at night.
Too cold on bus.
Make routes more comfortable.
The only thing I would add would be comfortable beds.
Never fill it all the way up, its much more comfortable only filled 3/4 of the way up.

CONDITION OF TERMINALS AND REST STOPS

Improve Terminal

The places where you eat.
Carport would be nice, we got soaked.
I would like to see a bus terminal closer to the downtown area.
Improvement in terminal snack service.
Post schedules outside terminal so one can find out when buses leave when terminal closed.
On bus terminal we must find maps of the city and also a guide to public transportation and hotels.
At terminals have more personnel for faster service.
Nothing, except get the loudspeakers in the terminal fixed.
Get rid of trashy businesses in terminal (e.g., video games, arcade) which attract mischief-makers and petty criminals.
Have more astute terminal employees (announcing departures).
The bus terminal service is no good, I would consider that if I were you.

Improve Rest Stops/Eating Places

Facilities and condition of bus terminals.
Terminal bathrooms in some cities.
Better places to eat.
Better facilities for dinner stops.
Better dinner stop facilities.
Put pop on it.
More personal service, food late at night, snack bar booths often fail to operate.
Coffee, tea, etc.
I would like to stop where you can buy some good food.

EMPLOYEES

The caliber and attitude of the driver; he talked too much to passengers and used poor grammar.
More employees to wait on the customers, the folks are friendly but so busy they shouldn't be bothered with small questions.
You can't play a radio or smoke past the last three rows, the driver was rude.
Employees at Springfield, MO Greyhound Terminal are rude and treat passengers like low class scum.
I think they should take better care of luggage.
The friendliness of employees.
I would like to understand the driver when he announces stations.
Sometimes the drivers are very grouchy and grudging about giving information, I figure they must be treated bad by Greyhound or else poorly paid. I'd take care of this problem.
The bus employees attitudes toward riders, especially around midnight to morning.
Found the driver most helpful and courteous.
Teach the employees to be much more courteous.

Employees at Philadelphia, Pennsylvania Station.
The staff more courteous.
Drivers are most helpful and courteous, I am a grateful passenger.

FARES

Lower rates a bit.
Slightly lower rates.
Lowering the fare, increase demand because of the fare. I only go one way. If the fare was lower, I would go both ways.
Fare prices, frequency of service.
Change fare Midland to Lansing, same as Lansing to Midland.
Cheaper, it is cheaper to drive a car with the rates they have now.
First I would decrease the cost of the ticket.
Bus fare.
I should not have to pay U.S. exchange rate for full trip.
Consider fare too low because of a student special.
Should have bus special at certain months or dates, cut rates down.
Lower the price a litte; also don't stop so much.
Fare
I would check and see what other states have to offer such as a military discount special.
Cheaper, more often.
Bus should always be cheaper than trains.
The fare I could have driven both ways for the rate of a one way ticket, ya know.
Lower prices.
Lower the fare.
A little cheaper.
I think there should be a cheaper rate for college students going home for the summer, they should have lower one-way trips or bus tickets.
The pay.
The fare would be the only thing.
Lower price.
Whatever happened to the military discount? I think the discount was a compliment to the service members.
Try to lower the price a little on the trips for people. Try to help people if they lose their tickets.
Pay rates.
The price, only because I need the money.
Lower some prices.
Special rates for people who use the bus a certain number of times.
Fares.
Keep the cost down.
Less rates.
The price seems too high, but I suppose it is a good bargain compared to other places.

NO CHANGES NEEDED

I'm grateful for the services we have, I'm sure they will improve it in the future.
Nothing. Excellent.
O.K.
Nothing; it seems efficiently run.
It is all right. I'd keep everything like it is.
Not a thing, they make sure I get there and that's what I like about Greyhound.
Service was great.
O.K.
Very satisfactory.
Nothing, they are all nice.
Would not change a thing, well pleased with it, hope to see it continue.

Nothing; I am 16. I like riding the bus with the nice people.
You have done that; 3 routes rather than 2 a day.
I wouldn't change nothing about the service; I have come to rely on the bus system.
For a bus ride everything was o.k.
Satisfied; no changes recommended.
Nothing where I had to go.
Nothing; everything seems o.k.
Nothing; I like riding buses.

Q. 19. Other comments?

Very much pleased with service.
All very good.
Keep it up.
Trailways is a good comfortable ride at a price your pocket can appreciate.
Just right, but cool the air some.
You could add a stop at West Branch.
Leave everything as is, very nice trip.
I think you need more room between the seat, not enough leg room.
Overall I am grateful for the Greyhound service.
I like the fact that it is non-stop from East Lansing to Grand Rapids.
Trips could be faster. Provide water to drink. There could be soft easy listening music.
Hire me to drive for you.
Buses are well cleaned but they do not leave and or arrive on time.
I know the bus driver can't drive under too much heat, but must he freeze us?
Driver should enforce quiet better.
My 4:40 bus was 20 minutes late and they changed the 2:00 bus to 1:00 so I missed that after calling a day earlier to check the time.
No window shades from the sun.
I feel that the air conditioner is on too high, I also feel that the bus should allow 3 bags to be put under the bus instead of only 2 bags.
Indian Trails is a very good bus company.
I need your service. Your buses are the only way I can go or afford, if were cheaper I would go more often.
Shorten routes.
It just would be better if you had a bus station closer to the downtown area.
Believe image could be improved.
The breakfast stops must be on places with good food and reasonable prices.
The wait was too long getting my ticket and the phone was busy for quite a period of time.
I was very pleased with the bus service.
I don't want discrimination.
Driver appeared inexperienced, could not balance passengers and ticket received after boarding was completed and used words appropriate for a truck driver but not for a carrier transporting children.
The driver was rude.
The last time I rode I didn't get my baggage for 2 days.
They get pretty grouchy and shout at you.
Found the driver most helpful and courteous.
I have noticed extreme discourtesy by drivers and workers toward passengers.
Sometimes I have felt so embarrassed for others that I would have left the bus, if possible.
Appreciation
Very nice bathroom. Greyhound has nothing, not even water.
I will travel Greyhound anytime.
Better information system.
I didn't know Greyhound had package express.
The last trip was very lovely.
The bus drivers are very nice.

The bus drivers are very nice.
Drivers very courteous.
Everything seems o.k.
I think all drivers are very friendly, and know what they are doing.
The two girls working in Detroit station are really courteous and helpful.
Non-smoking regulations should be more strictly enforced; there always seems to be someone smoking in the non-smoking section.
They should have drinkable water available to the passengers.
I would have seat belts; they are comfortable and I feel much safer with them on.
Too many people get away with smoking clove cigarettes and pot: I realize this is difficult to control, unless no smoking is allowed at all (which is only wishful thinking on my part anyway so...)
At one point I assume I will own my own car and use it as my major transportation, but there are many people who depend 100% on this service for a life time.
I don't like it when drivers start out late and then race on the road and try to take over their vehicles, which has appeared very risky many times.
I'm generally pleased.
System to let drivers know whether or not anyone is at a small town stop.
There are quite a few men at Buick motors that ride the bus every day to and from work.
Bus drivers are more polite than in most Eastern States.
First trip on Indian trails and was very impressed.
I was very happy with the bus services, I am not a very good reader, but the bus driver took out time and showed me where to go.
Passengers should be able to stay on the bus the entire duration of their trip, instead of being able to unboard and reboard.
There are people still in line to buy tickets for it, you could let them move to the front , and hold the bus, or let them buy tickets on the bus.
Extend the days on a one-way ticket from 60 days to 90 days, also have more non-stops routes.
There should be a non-smoking section available and a section for loud children.
Bathroom has unsanitary stuff on seats.
Much too slow.
Very good service.
The thermostat was stuck, too hot. Jackson terminal especially dirty.
Almost every employee was nice to me. I'd say that helps your business. That is what you should stress the most to your employees.
It would have been cheaper to fly.
I used this bus because fog grounded the planes, I chose the plane solely because half of my ticket was free.
If the bus service was not available I would have been dismayed.
I believe it is unfair for the ticket agents in Houghton-Hancock to demand payment in cash by college students, while non-students are allowed to pay by more convenient means.
Run Amtrak trains into Metro Airport, Detroit.
On a couple of occasions I've received sarcastic toned answers.
Takes too long.
More rest stops; combining greyhound and other companies in the same terminal.
If I could drive myself the trip would have cost me a third less and taken half the time, without inconveniencing other people. No real complaint except for time.
Its unfortunate that the location of the station is rough, as daily commuter its rather unsafe at times getting to station.
Get the windshield wipers fixed on bus No. 5403 they sounded like they were knocking the bus in pieces.
Left from U.P.; had to go to Detroit wait over hours to return to U.P.
Bus 6436 Detroit to Miami, Fl: Columbus, Ohio 25 minutes late leaving; Ashland, Ky 20 minutes late leaving.
Every time I come to suburbs of Detroit I have to hitch into Detroit.
Cleaned very well.
Eliminate Amtrak subsides so bus service may better compete and improve service.
Mr. Jack H. Martin is very excellent bus driver and should receive a citation for long excellent service.
Courtesy and promotes people to use bus service (Jack Martin).

In general we're lucky to have bus service such as we have; complaints seem unfair, considering the high grade of service rendered. Courtesy and kindness predominate.

Too many stops to be on an express.

Bus lavatory was a mess; it was not cleaned until after five stops, the entire bus smelled.

Ashtrays were full when I got on after a layover in Cleveland; there was ample time to empty them.

We need the buses.

As an express today we left the Interstate five times between Cincinnati and Toledo only as a rest stop for passengers.

Its a hassle at the Kalamazoo station to have to carry all my bags out to the bus to be checked, it would make things much more pleasant if I could check them in and have them put on the bus for me.

Terminal food and beverage prices too high.

APPENDIX I

Critique of User Survey Procedures

CRITIQUE OF USER SURVEY PROCEDURES

After the On-Board Users Survey was completed, a meeting was held to critique the procedures used and the survey form composition. Representatives of the Passenger Transportation Planning Section and the Transportation Surveys Section, who were involved in the development, distribution, and collection of the survey forms, were present at this meeting. The comments made at that meeting are summarized below. It is the intent of this summary to provide guidance in questionnaire design and survey distribution procedures for future efforts.

Comments On Questionnaire Design

1. The overall design of the form worked well. It was a convenient size, easy to hand out and collect.

2. It may be easier for the surveyors if the survey form number is stamped on the upper left corner (at the folded edge) instead of the upper right corner.

3. Be sure all intercity bus companies are listed. In question #1, Trailways, Inc., which is separate from Michigan Trailways, was not included.

4. The mailback feature was new to this type of survey. Future surveys utilizing this feature should include some method of sealing the survey form shut; a circle sticker, mucilage, etc. This is especially important since postal regulations will no longer allow business reply mail to be stapled after December 31, 1985.

5. Question 16 in the survey was confusing to many persons who returned the survey. It should be redesigned in future editions if it is used. Suggestions for redesigning the question were:

   a. Use boxes instead of lines for the check-off response space. This would be consistent with the rest of the questionnaire and avoid the problem of riders attempting to write on the blank lines.

   b. The various rating responses; i.e., Very Good, Good, Fair, Poor, Don't Know, could be repeated after each question. The respondent could then just circle the proper response instead of making a check mark under the proper column.

6. Consider eliminating the personal business category under trip purpose. Many passengers cannot distinguish between this category and the visiting and social recreational categories, and are confused by this question.

7. Consultations with the Transportation Planning Information System Development Unit over the surveys led to the suggestion of a standardized questionnaire that could be used for all modes, with room for specialized questions. This would permit the same program to be used to produce summaries of the reports making it faster to process, easier to spot errors, and to develop similar reports for various modes.

The basic standardized format suggested is listed below. These questions could be listed in any order, but are given in general groupings.

Socio-Economic Information

1. Sex
2. Age
3. Income
4. Employment Status
5. Number of Persons in Household
6. Number of Vehicles in Household
7. Location of Residence

Trip Information

8. Trip Purpose
9. Trip Origin
10. Trip Destination
11. How Many Trips Using This Mode Have You Made In The Last Twelve Months?
12. How Did You Get To This Mode Of Transportation?
13. Mode Being Surveyed (IC Bus, Train, Ferry, etc.)

Service Information

14. Service Ratings (condition of vehicle, courtesy, etc.; on schedule, condition of terminal)
15. Fare Level (too high, too low, about right) could possibly be included in Service Ratings
16. What Would You Do If This Service Was Discontinued Or Curtailed?
17. What Would You Change About The Service If You Could?
18. Insert Non-Standard Questions for Specific Issues Here
19. Comments

Comments on Survey Distribution and Collection

1. It is probably more efficient to use the mail-back procedure than to try to collect survey forms by hand. This will result in a lower return rate, but use survey members more effectively.

2. It would result in a larger sample size if passengers on all buses leaving the stations were given surveys instead of selecting only passengers using buses on specified corridors. With a total mail-back system, this will be possible. Passengers already on the bus should receive surveys as well as those passengers boarding.

3. Surveyors felt that it would be important to either use the hand collection method or the mail-back collection. It should be one or the other; a combination of the two systems seemed to be too difficult logistically.

4. Summary sheets, on which surveyors record questionnaire numbers, should contain only basic information and no extra data, such as the assigned bus number from the Russell's Official Bus Guide. This

additional information can be confusing to surveyors at a crowded bus terminal.

5. Group training explaining the purpose of the survey, the intent of each question on the survey form, and the survey procedure should be held with all members of the survey crew present. Questions that arise can then be answered for all to hear in a uniform manner.

6. Surveyors should be instructed to check with station managers as their first step to determine if the schedule information they have been provided is accurate.

7. Problems with scheduling, arrival times, and departing times should, to some degree, be expected. Some terminal locations will have more problems than others. The Toledo station presented the most scheduling difficulties during the 1985 survey.

8. There should be a knowledgable contact person at an accessible location at all times during the survey. This person will be the key contact and answer person in case questions arising during the survey. All surveyors should know how to contact this individual should the need arise.

9. Intercity bus station managers indicated that May and January are generally the two lightest months for bus ridership. Consideration should be given to surveying in a month other than May, while still obtaining the college student riders during the school year.

10. Survey questionnaires should be distributed to each boarding passenger and to all passengers on the bus at each station. Provide a box or envelope on the bus for passengers to deposit their survey forms in if they are deboarding at a station in-between those where surveyors are located.

11. Surveyors, if possible, should ride the bus between key stations, such as Lansing and East Lansing, to distribute and collect questionnaires for all corridors that have buses that pass between these two locations.

APPENDIX J

Ticket Counts at Surveyed Stations

SALES OF ONE-WAY AND ROUND TRIP TICKETS AT SURVEYED STATIONS
MICHIGAN INTERCITY BUS SYSTEM
MAY 1985

STATION	Sunday May 12			Monday May 13			Tuesday May 14			Wednesday May 15			Thursday May 16			Friday May 17			Saturday May 18			Weekly Total		
	OW	RT	TOT	OW	RT	TOT	OW	RT	TOT	OW	RT	TOT	OW	RT	TOT	OW	RT	TOT	OW	RT	TOT	OW	RT	TOT
Adrian	0	0	0	7	0	7	0	0	0	5	0	5	1	0	1	1	0	1	0	0	0	14	0	14
Alma	0	0	0	2	0	2	2	0	2	3	0	3	0	0	0	2	1	3	0	0	0	9	1	10
Ann Arbor	49	9	58	46	13	59	59	7	66	54	12	66	47	7	54	90	27	117	55	18	73	400	97	497
Battle Creek	31	6	37	29	10	39	24	4	28	28	12	40	38	7	45	45	17	62	22	11	33	217	67	284
Bay City	19	4	23	18	2	20	4	3	7	14	3	17	13	2	15	10	7	17	6	4	10	84	25	109
Benton Harbor	22	4	26	27	3	30	12	1	13	11	3	14	35	3	38	44	2	46	25	8	33	176	24	200
Big Rapids	3	1	4	1	1	2	9	0	9	10	0	10	5	0	5	7	3	10	4	0	4	39	5	44
Cadillac	0	0	0	7	1	8	6	0	6	14	0	14	1	0	1	7	0	7	2	1	3	37	2	39
Cheboygan	0	0	0	2	0	2	0	0	0	1	0	1	2	2	4	2	0	2	1	0	1	8	2	10
Clare	0	0	0	3	1	4	0	1	1	1	1	2	1	1	2	1	0	1	1	1	2	7	5	12
Detroit	333	78	411	310	112	422	252	100	352	229	121	350	366	137	503	257	210	467	285	129	414	2032	887	2919
East Lansing	86	7	93	44	4	48	48	11	59	57	10	67	139	13	152	264	36	300	73	13	86	711	94	805
Flint	80	7	87	61	10	71	55	16	71	66	53	119	46	10	56	52	47	99	62	13	75	422	156	578
Frankfort	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
Grand Rapids	106	8	114	76	9	85	52	17	69	68	21	89	86	26	112	151	51	202	64	35	99	603	167	770
Holland	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2	0	2
Howard City	0	0	0	1	0	1	0	0	0	1	0	1	1	0	1	0	0	0	0	2	2	3	2	5
Ionia	0	0	0	0	0	0	7	0	7	1	0	1	3	1	4	8	3	11	2	0	2	21	4	25
Jackson	0	0	0	32	11	43	29	2	31	29	6	35	34	9	43	30	6	36	40	9	49	194	43	237
Kalamazoo	52	6	58	42	3	45	66	13	79	38	12	50	67	40	107	46	8	54	52	22	74	363	104	467
Lansing	60	4	64	38	7	45	78	15	93	40	14	54	15	0	15	73	34	107	53	16	69	357	90	447
Lincoln Park	21	4	25	2	0	2	17	6	23	9	6	15	0	0	0	16	7	23	22	9	31	87	32	119
Ludington	0	0	0	0	0	0	3	3	6	0	0	0	2	1	3	3	1	4	0	0	0	8	5	13
Manistee	4	0	4	0	0	0	0	0	0	1	0	1	2	1	3	2	1	3	1	0	1	10	2	12
Metro Airport	20	1	21	24	6	30	3	0	3	2	3	5	4	0	4	5	2	7	15	0	15	73	12	85
Midland	1	0	1	3	1	4	5	1	6	6	1	7	9	1	10	5	1	6	2	1	3	31	6	37
Mount Clemens	12	0	12	3	0	3	4	0	4	0	0	0	1	0	1	0	1	1	0	0	0	20	1	21
Mount Pleasant	0	0	0	0	0	0	0	0	0	11	1	12	3	1	4	9	2	11	0	0	0	23	4	27
Muskegon	30	3	33	20	5	25	17	2	19	9	4	13	13	8	21	26	7	33	11	4	15	126	33	159
Niles	0	0	0	1	0	1	4	2	6	1	0	1	0	0	0	4	2	6	0	0	0	10	4	14
Owosso	1	0	1	11	0	11	2	0	2	4	5	9	7	1	8	6	0	6	6	0	6	37	6	43
Petoskey	1	0	1	5	1	6	3	0	3	3	4	7	1	0	1	17	8	25	0	0	0	30	13	43
Pontiac	0	0	0	17	2	19	19	0	19	19	0	19	19	3	22	32	4	36	13	4	17	119	13	132
Port Huron	0	0	0	1	0	1	1	0	1	4	0	4	0	0	0	0	0	0	1	0	1	7	0	7
Saginaw	23	5	28	35	1	36	21	2	23	22	6	28	55	8	63	11	8	19	29	4	33	196	34	230
Saint Ignace	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	2	0	2
Sault Sainte Marie	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Toledo	78	10	88	52	26	78	55	13	68	55	21	76	86	15	101	84	44	128	71	18	89	481	147	628
Traverse City	11	0	11	13	1	14	6	3	9	6	3	9	15	1	16	8	3	11	5	1	6	64	12	76
Ypsilanti	40	4	44	28	5	33	10	5	15	11	2	13	20	9	29	70	9	79	22	6	28	201	40	241
Total	1083	161	1244	961	235	1196	874	227	1101	835	324	1159	1137	307	1444	1383	552	1940	947	329	1276	7225	2139	9364

SOURCE: MDOT, Bureau of Transportation Planning, Passenger Transportation Planning Section

APPENDIX K

Intercity Bus Daily Passenger Trip Table

AVERAGE DAILY INTERCITY BUS PASSENGER TRIPS
MICHIGAN INTERCITY BUS SYSTEM
MAY 1985

Origin	Destination Ann Arbor	Battle Creek	Bay City	Benton Harbor	Detroit	East Lansing	Flint	Grand Rapids	Jackson	Kalamazoo	Lansing	Muskegon	Port Huron	Saginaw
Ann Arbor	0	1	1	1	25	12	3	3	5	3	2	0	0	1
Battle Creek	3	0	0	1	5	3	2	2	0	10	4	2	0	2
Bay City	0	0	0	0	1	1	1	0	0	0	1	1	0	1
Benton Harbor	1	1	0	0	1	0	0	2	0	2	2	2	0	0
Detroit	37	5	2	1	0	35	24	11	24	6	23	2	0	13
East Lansing	11	2	1	1	25	0	5	9	1	5	0	2	0	1
Flint	1	2	2	1	25	5	0	5	1	2	3	1	2	6
Grand Rapids	3	2	0	5	13	8	4	0	4	9	7	7	0	1
Jackson	7	1	0	0	5	1	1	2	0	1	2	1	0	0
Kalamazoo	3	8	0	5	3	4	3	7	3	0	10	2	0	1
Lansing	2	4	0	1	17	0	4	7	5	6	0	1	0	2
Muskegon	1	0	0	0	4	2	1	7	0	2	2	0	0	1
Port Huron	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Saginaw	0	0	3	1	7	2	4	1	0	0	1	0	0	0
Ypsilanti	1	1	0	0	20	1	0	0	1	1	1	1	0	0
Rem. S. Low. Pen.	4	8	2	2	5	47	12	18	5	8	11	2	0	4
N. Lower Peninsula	1	1	1	1	2	3	3	9	1	2	2	1	0	3
Upper Peninsula	0	0	0	0	0	0	1	1	0	0	0	0	0	0
Chicago	1	2	0	9	41	3	4	8	1	9	1	2	0	1
Remaining Illinois	0	0	0	0	4	0	1	1	0	0	0	0	0	0
South Bend	0	0	0	1	0	0	0	1	0	0	0	0	0	0
Remaining Indiana	1	1	0	1	18	0	2	3	1	2	0	1	0	0
Toledo	1	0	0	0	18	1	1	1	0	0	0	0	0	0
Remaining Ohio	1	1	0	0	72	0	5	4	0	1	1	1	0	1
Wisconsin	0	0	0	1	4	0	1	2	0	1	0	1	0	0
Remaining U.S.	1	2	1	3	123	2	18	7	2	5	7	5	0	5
Canada	1	0	0	0	15	0	1	1	0	0	0	0	0	0
Total	81	42	13	35	453	130	102	112	54	75	80	35	2	4[illegible]

SOURCE: MDOT, Passenger Transportation Planning Section.

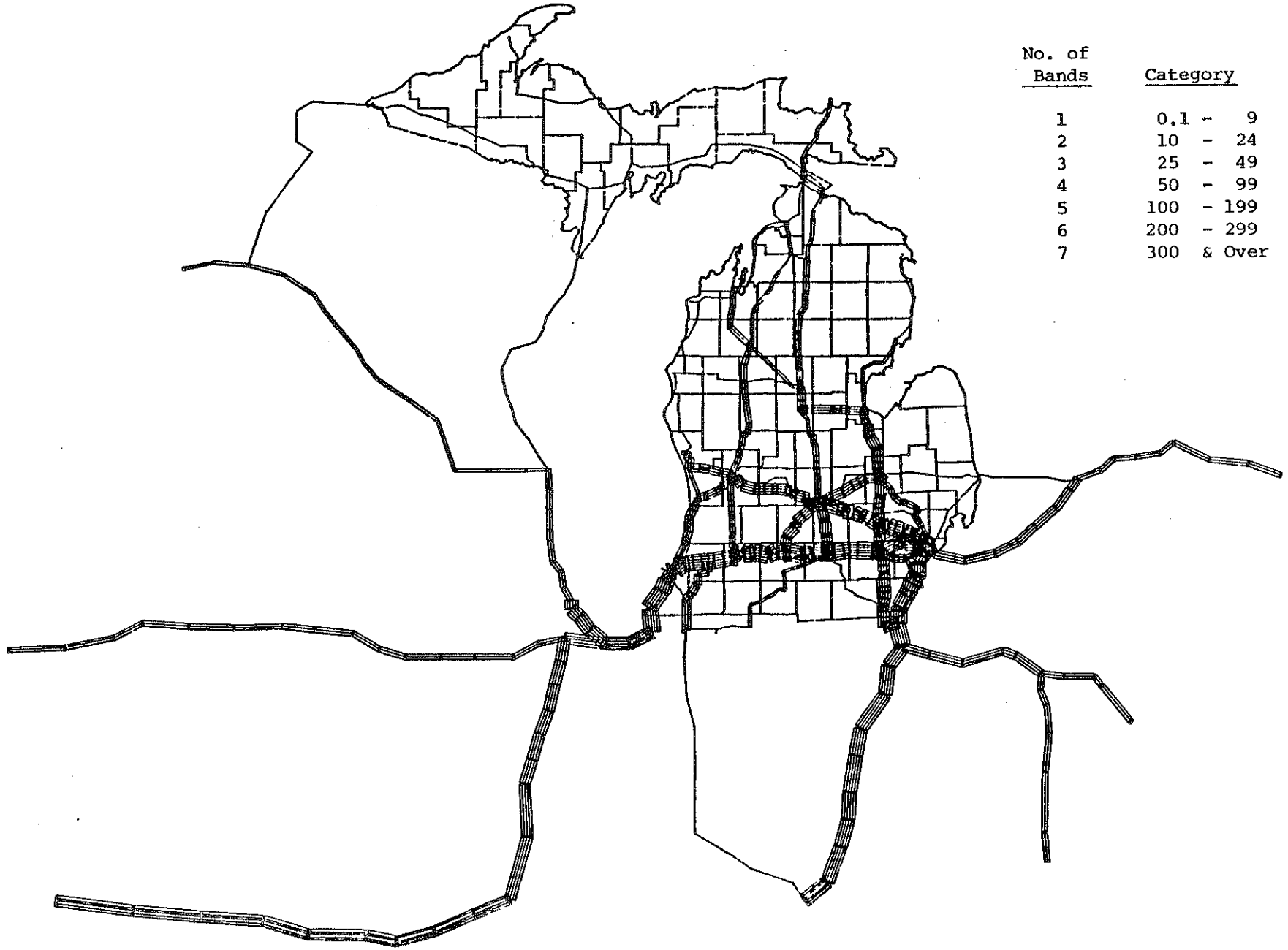
Destination Ypsilanti	S Lower Peninsula	N Lower Peninsula	Upper Peninsula	Chicago	Remaining Illinois	South Bend	Remaining Indiana	Toledo	Remaining Ohio	Wiscon- sin	Remaining U.S.	Canada	Total	Origin
1	5	2	0	1	0	0	1	1	1	0	1	1	71	Ann Arbor
0	8	1	0	2	0	0	1	0	1	0	2	0	49	Battle Creek
0	2	1	0	0	0	0	0	0	0	0	1	0	10	Bay City
0	3	0	0	9	0	1	1	0	0	1	3	0	29	Benton Harbor
23	2	0	0	41	4	0	18	18	72	4	123	15	503	Detroit
2	47	4	0	2	0	0	0	1	1	0	2	0	122	East Lansing
0	14	5	1	4	1	0	2	0	5	1	18	1	108	Flint
0	25	10	1	8	1	1	3	1	4	2	7	1	127	Grand Rapids
1	8	1	0	1	0	0	1	1	0	0	2	0	36	Jackson
0	8	2	1	9	0	0	2	1	1	1	5	0	79	Kalamazoo
3	14	4	0	2	0	0	0	0	0	0	7	0	79	Lansing
0	3	1	1	2	0	0	1	0	1	1	5	0	35	Muskegon
0	0	0	0	0	0	0	0	0	0	0	0	0	1	Port Huron
0	3	3	0	1	0	0	0	0	1	0	5	0	32	Saginaw
0	4	0	0	0	0	0	0	0	0	0	1	0	32	Ypsilanti
3	13	10	1	4	0	1	2	2	7	1	13	1	186	Rem. S. Low. Pen.
0	10	8	2	2	0	0	0	0	0	1	2	0	55	N. Lower Peninsula
0	1	1	0	0	0	0	0	0	0	0	0	0	4	Upper Peninsula
0	3	2	0	0	0	0	0	5	0	0	0	0	92	Chicago
0	0	0	0	0	0	0	0	0	0	0	0	0	6	Remaining Illinois
0	1	0	0	0	0	0	0	1	0	0	0	0	4	South Bend
0	2	0	0	0	0	0	0	9	0	0	0	0	41	Remaining Indiana
0	2	0	0	5	0	1	9	4	42	1	51	1	138	Toledo
0	7	0	0	0	0	0	0	42	0	0	0	0	136	Remaining Ohio
0	1	1	0	1	0	0	0	1	0	0	0	0	14	Wisconsin
1	13	2	0	0	0	0	0	51	0	0	0	0	248	Remaining U.S.
0	1	0	0	0	0	0	0	1	0	0	0	0	20	Canada
34	200	58	7	94	6	4	41	139	136	13	248	20	2257	Total

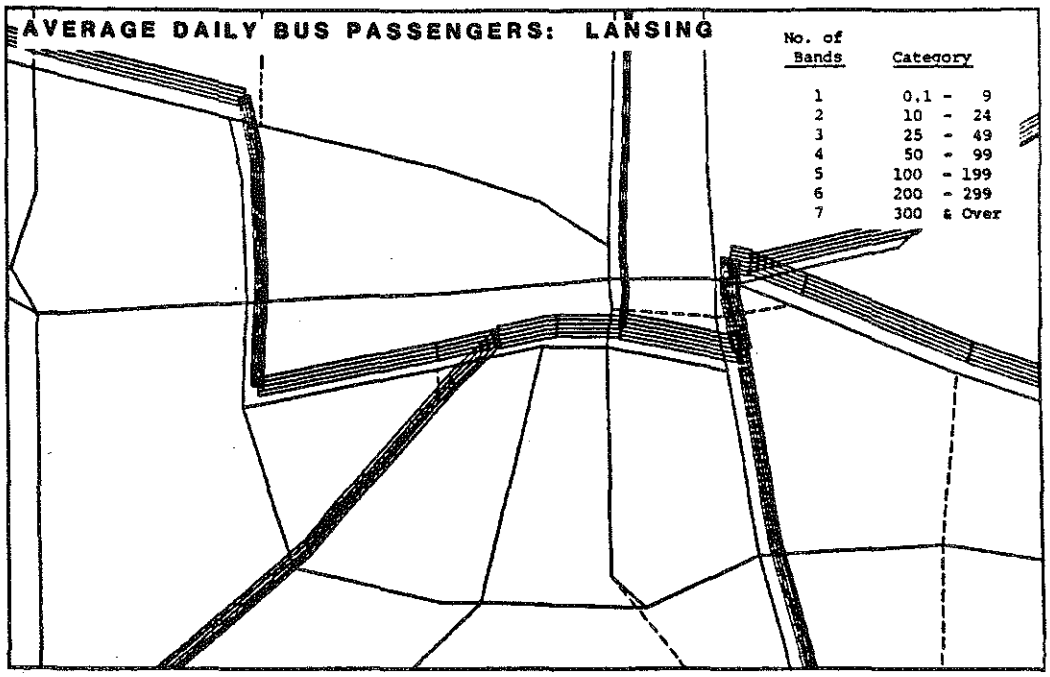
APPENDIX L

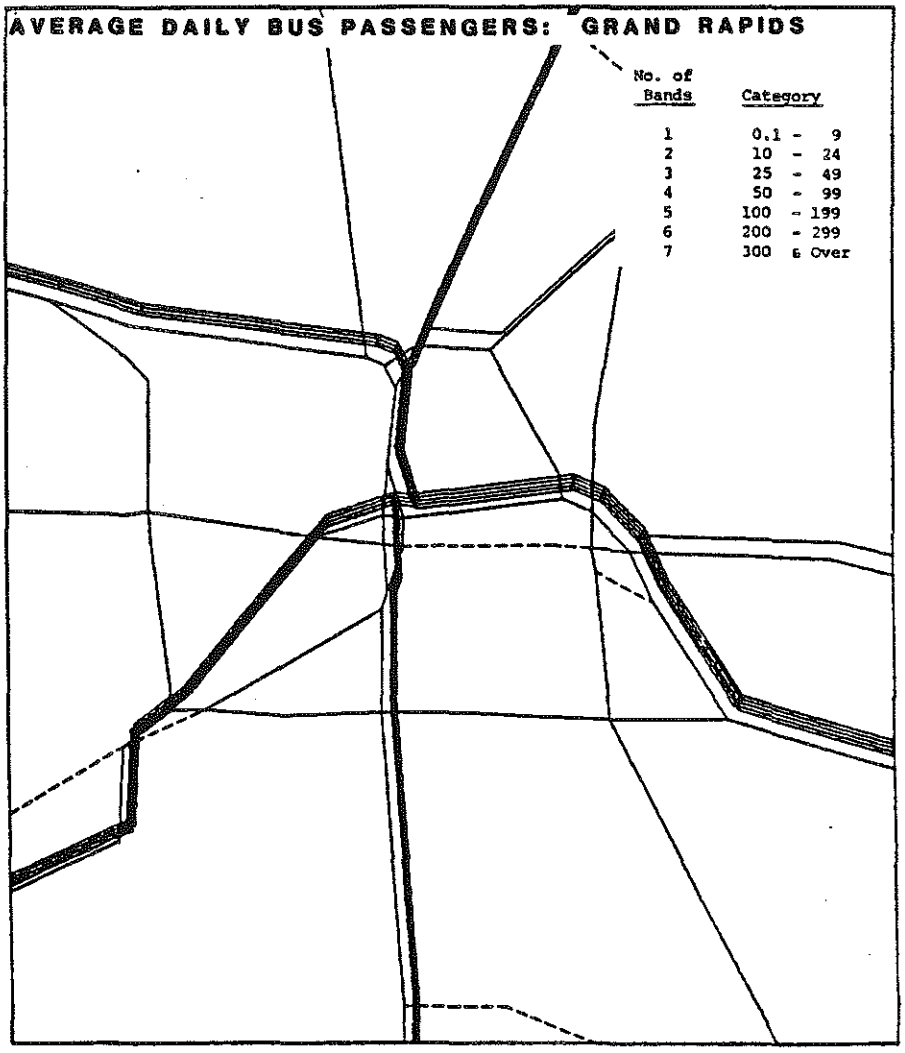
Intercity Bus System

Daily Passenger Plots

AVERAGE DAILY BUS PASSENGERS: ALL MICHIGAN TRIPS




AVERAGE DAILY BUS PASSENGERS: LANSING
No. of Bands
Category
1 0.1 - 9
2 10 - 24
3 25 - 49
4 50 - 99
5 100 - 199
6 200 - 299
7 300 & Over


AVERAGE DAILY BUS PASSENGERS: GRAND RAPIDS
No. of Bands
Category
1 0.1 - 9
2 10 - 24
3 25 - 49
4 50 - 99
5 100 - 199
6 200 - 299
7 300 & Over

APPENDIX M

Bibliography

BIBLIOGRAPHY

1. Frederic D. Fragel, Ecosometrics Inc., Intercity Bus Passenger Profile, prepared for presetnation at the Annual Meeting of the Transportation Research Board, Washington, D.C., January, 1985.

2. MDOT, Michigan Transportation Needs Study Committee, Summary of Michigan's Transportation Needs: 1977-1989, January 1980.

3. MDOT, Resource Planning Associates, Michigan Transportation Needs Study: Technical Report, January 1980.

4. MDOT, Transportation Needs Study Committee, Michigan Transportation Needs: 1983-1994, November 1984.

5. MDOT, Transportation Commission, Michigan State Transportation Plan: Executive Summary, November 1982.

6. MDOT, Transportation Commission, Michigan State Transportation Plan, 1982-1990, November 1982.

7. MDOT, Mass Transportation Planning Section, Michigan Intercity Bus Study: Phase I (Inventory & Analysis), July 1974.

8. MDOT, Mass Transportation Planning Section, Michigan Intercity Bus Study: Ridership and Travel Characteristics, November 1977.