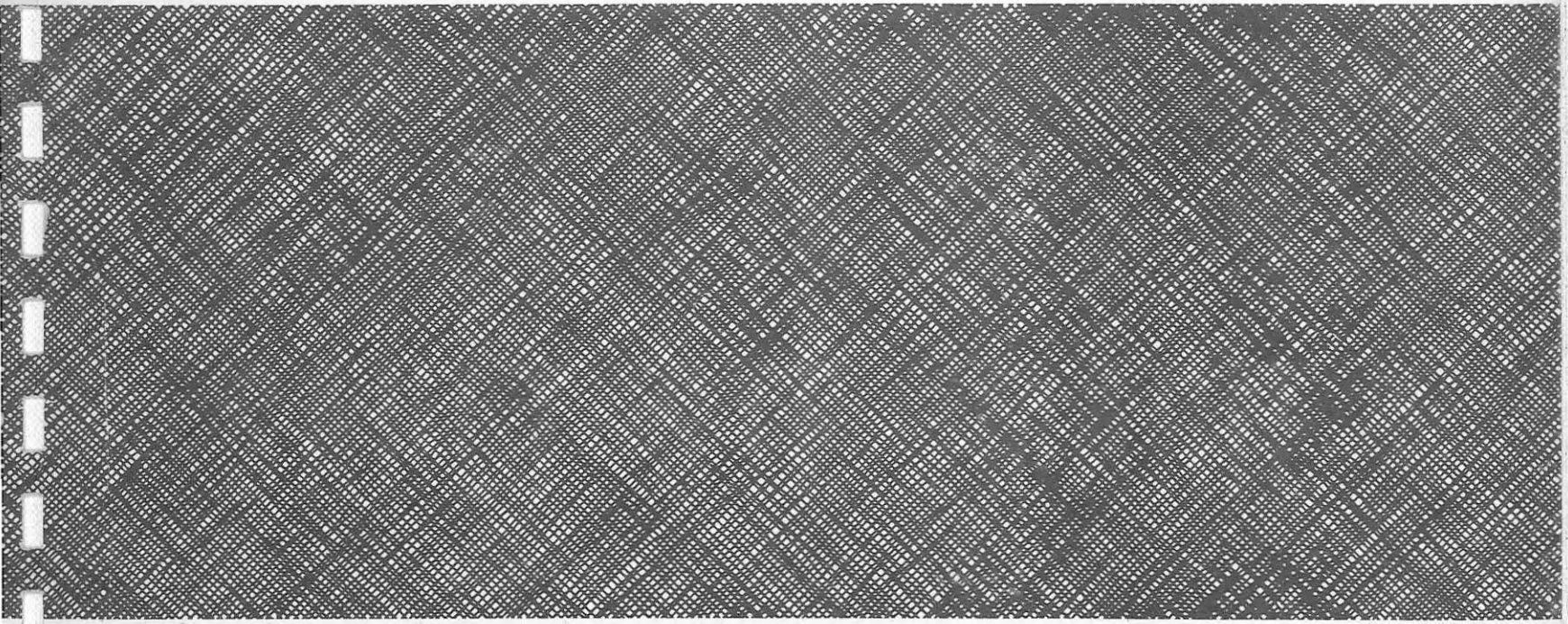


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# SAULT STE. MARIE

## AREA TRAFFIC STUDY

1964



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**MICHIGAN  
DEPARTMENT OF STATE HIGHWAYS**

**SAULT STE. MARIE  
AREA TRANSPORTATION  
STUDY**

**FACTUAL DATA AND TRIP TABLES**

**COOPERATING AGENCIES**  
City of Sault Ste. Marie  
Chippewa County Road Commission,  
U.S. Department of Transportation,  
Federal Highway Administration,  
Bureau of Public Roads

Prepared by:

Transportation Planning Division,  
Transportation Survey & Analysis Section  
Outstate Area Transportation Analysis Unit

December 1968

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**ACKNOWLEDGEMENTS:**

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## FOREWORD

This comprehensive study was undertaken in the summer of 1964. It considers the origins and destinations of traffic on the streets and highways of the immediate Sault Ste. Marie area. Its purpose is to determine today's traffic patterns at Sault Ste. Marie as a sound basis for planning the efficient traffic arteries needed in the future. The study was initiated and conducted by the Michigan Department of State Highways with cooperation and financial assistance provided by the Bureau of Public Roads, Federal Highway Administration, U.S. Department of Transportation.

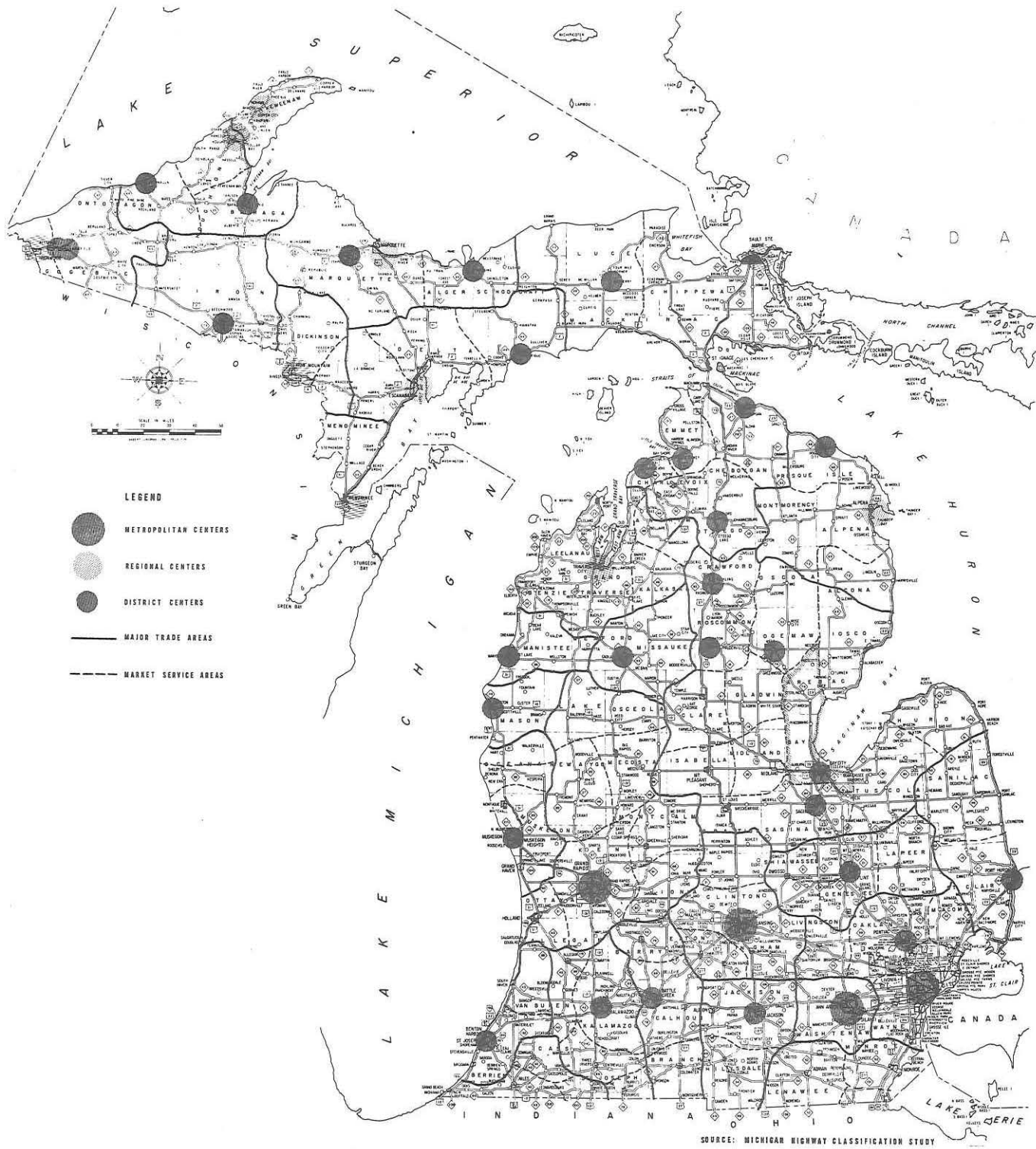
Data for the study project was derived by using sampling techniques developed by the Bureau of the Census, U.S. Department of Commerce and by the U.S. Bureau of Public Roads. The Department's Transportation Planning Division, Transportation Survey and Traffic Analysis Section tabulated the data and provided the initial analysis.

This report "Factual Data and Trip Tables," is the first of two or more reports which will present the results of the traffic study. The data in this report will serve as the basis for study and detailed recommendations by the Department's Planners and by local officials. Subsequent reports will consider the suggested solutions to local traffic problems, made possible by this data.

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# TRADE AREAS AND URBAN CENTERS





## TERMINOLOGY AND DEFINITIONS

Central Business (CBD):	The zones comprising the concentrated commercial and retail business center of the city.
Cordon Line:	A hypothetical line encompassing the area under study.
Cordon Trip:	A trip with one terminal outside the study area and one terminal inside the study area.
Destination:	The place where a trip ends.
Downtown Area:	The zones comprising the CBD and its commercial-residential fringe.
External:	Outside the study area.
External Station:	A point on a highway at the limits of the study area at which the drivers of vehicles were interviewed.
External Trip:	A trip with one or both of its terminals outside the study area.
Internal:	Within the study area.
Internal (Local) Trip:	A trip with both terminals inside the study area.
Nonresident:	A person living outside the study area.
Origin:	The place where the trip begins.
Origin-Destination Zone, O-D Zone, Zone:	A basic subdivision of the study area having a single or dominant land use, designated for purposes of tabulation and analysis.
Resident:	A person living within the study area.
Screenline:	A line through the study area on a natural or artificial division where all cross traffic is counted and classified for later comparison with the expanded survey data.
Study Area:	The area enclosed by the cordon line.
Through Trip:	A trip passing through the study area with the terminals outside the study area.
Trip:	One-way travel between an origin and destination.
Trip Terminal:	The point where a trip begins or ends.



## SURVEY AREA

Sault Ste. Marie is a city of 18,700 people located on the south side of the St. Mary's River, the international border between Ontario, Canada and Michigan's upper peninsula. Population within the study area is estimated at 19,000. This area is composed of the city of Sault Ste. Marie, and the northern part of Soo Township. The total study area covers approximately 23 square miles.

## HISTORY

In 1641, Isaac Joques and Charles Raybault, Jesuit missionaries, reached the rapids at the foot of Lake Superior. They named the site the Sault de Saint Marie. Fathers Jacques Marquette and Claude Dablon, also French missionaries, arrived at the same site from Quebec in 1668 and built the first mission. The mission buildings were the first permanent structures in the state of Michigan.

In 1671, at the same location, Francois Daumont, the Sieur de St. Luson, a nobleman and representative of King Louis XIV proclaimed that the whole interior of the continent belonged to France. This was done before an assemblage of 2000 Indians including the chiefs and warriors of 14 tribes from the North and West. The proclamation was in response to the organization of the Hudson Bay Co. chartered by the British in 1670.

Sault Ste. Marie thereafter served as a relay shipping center for hundreds of trappers who brought in their furs from as far away as the Hudson Bay area for shipment to Eastern buyers. It is said that Michigan later became known as the Wolverine State because of the trans-shipment of wolverine furs from northern Canada through the Soo.

Goods consigned to ports on the lower lakes had to be unloaded and carried to ships at the foot of the St. Marys Rapids. Upbound cargoes also had to be portaged. By the late 1840's copper discovered in the Houghton area and iron ore in the Marquette area began to demand space in down bound ships. The boats had to be dragged across the portage. A water outlet to Lake Huron became vital.

At the urging of Michigan Senators Lewis Cass and Alpheus Felch, Congress, in 1852, passed an act granting Michigan 750,000 acres of public land which could be used to finance a canal and locks. The

Michigan legislature passed an Enabling Act in February of 1853 stipulating that the canal must have locks 350 feet long and 70 feet wide and be completed in two years. The project was constructed under the direction of Charles T. Harvey and employed as many as 1600 men. It was completed ahead of schedule in 1855. The canal was owned and operated by the State of Michigan from 1855 until 1881 and a toll was collected for maintenance.

Increasing traffic became too great for one set of locks and the cost of building others was too heavy a burden for Michigan to bear. Because the whole nation profited by the shipping which passed through the locks, Congress was induced to provide funds. A new lock, named after General Weitzel who was in charge of the project, was completed in 1881. It was 515 feet long and 80 feet wide. The locks were then transferred to the United States Government and all ships were given free passage.

In 1886, Congress appropriated funds to replace the state locks. The new lock was named for General Orlando Poe who supervised its construction. Completed, in 1896, the Poe Lock was 800 feet long and 80 feet wide. Canada opened it's canal the same year with a lock 900 feet long. To meet the ever growing need, a new canal and two parallel locks were constructed: The Davis Lock ready for use in 1914 and the Sabin Lock in 1919. World War II brought still heavier tonnage and in 1943 the MacArthur Lock replaced the Weitzel. The new 1968 Lock, on the site of the obsolete Poe Lock permits safe locking of vessels 1,000 feet long and 100 feet wide.

In a typical year, Great Lakes ships will make about 14,000 passages through the locks, carrying more than 80,000,000 tons of iron ore and grain to the lower lakes. The St. Lawrence Seaway also brings a large fleet of foreign vessels to the Sault Locks heading into western Lake Superior for grain. In an average year, nearly 300 foreign vessels pass through the locks, flying the flags of 22 countries and carrying more than 4,000,000 tons of grain to foreign nations, largely those of Western Europe. About one million tourists visit the locks each year, making them one of America's great tourist attractions.

The International Bridge, a series of eight arch and truss spans crosses the St. Marys River and the Soo Canals. It connects Sault Ste. Marie, Michigan with Sault Ste. Marie, Ontario providing the only direct entry into Canada from the upper penninsula. The two mile long toll bridge was completed in 1962 at a

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cost of \$20,000,000. The bridge is the northern terminous of Interstate Route 75 (I-75) which proceeds southerly to St. Petersburg, Florida. It is also the eastern terminous of US-2 which has its western terminous in Everett, Washington. The Soo area is also served by State Route M-129 and old US-2.

### FIELD PROCEDURE

Field work on the Sault Ste. Marie Traffic Study was conducted during the summer of 1964. The purpose was to accumulate data concerning the movement of people and goods by motor vehicle through, into, out of and within the study area.

#### Internal:

Twenty percent of the dwelling units (every fifth dwelling unit) in the study area, were selected as samples on a block to block basis to insure that the sample would be consistent throughout the area.

Pertinent travel information for each occupant over five years of age of each sample dwelling unit was obtained through interviews in the home. These internal interviews were accomplished by interviewers calling in person at the sample addresses and recording the answers to the questions on Form O-D 2 (Interview Address Summary) and Form O-D 3 (Internal Trip Report).

Form O-D 2, was filled out for each sample address. Form O-D 3 was then used to record each trip made by each person, as listed under Item "D" of Form O-D 2. Any number of O-D 3 Forms may be filled out to record all trips, but only one O-D 2 is filled out for each sample address. See Appendix "B" for sample copies of each of these forms.

Information on travel by trucks and taxis was secured through interviews using a 50 percent sample of all trucks owned in the area and a 100 percent sample for taxis. The information concerning truck and taxi trips was recorded on Form O-D 7 which shows all trips performed by each vehicle for a 24-hour day. Forms O-D 7 and O-D 8 are shown in Appendix "B". Form O-D 8 is the Coding Sheet for the trucks and taxis.

#### External:

Data for the study of external trips was obtained at a cordon of interview stations established on all of the important roads leading into the study area. At each of these stations, vehicles were stopped and the drivers interviewed concerning the origin, destination and purpose of their trips.

The three state trunk line interview stations were operated for twenty-four hours with the interviewing schedule split into three eight-hour periods on three different weekdays. Two of the secondary (nontrunk

	POPULATION		
	<u>MICHIGAN</u>	<u>CHIPPEWA COUNTY</u>	<u>SAULT STE. MARIE</u>
1800	3,106		
1805	5,000		
1820	8,767		
1830	31,640		
1840	212,267	534	
1850	397,654	898	
1860	749,113	1,603	
1870	1,184,059	1,689	
1880	1,636,937	5,248	
1890	2,093,889	12,019	
1900	2,420,982	21,338	
1910	2,810,172	24,472	12,615
1920	3,668,412	24,818	12,096
1930	4,842,325	25,047	13,755
1940	5,256,106	27,807	15,847
1950	6,372,009	29,206	17,912
1960	7,823,194	32,655	18,722

line) stations were operated with sixteen hours of interviewing with no more than 8 hours in any one weekday. One secondary station (Ferry to Sugar Island) was operated for eighteen hours, the actual time the ferry was in operation. Three local county road stations were operated for thirteen hours.

Manual vehicle classification counts were taken at all stations for twenty-four hours, except the Sugar Island Ferry where the counts were taken during the period the Ferry was in operation.

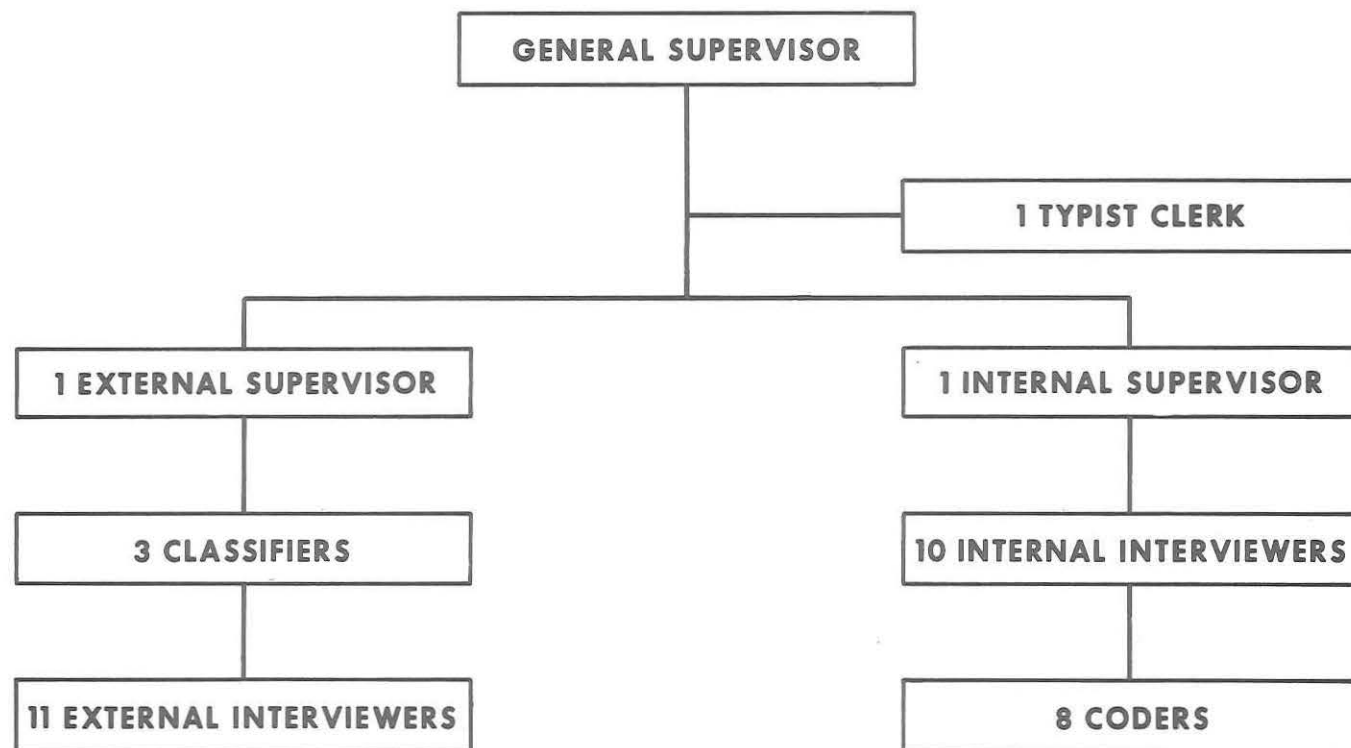
Answers to the interview questions were recorded on Form O-D 4. One line of this form was used for each vehicle interviewed. A sample copy of Form O-D 4 is shown in Appendix "B". Both inbound and outbound vehicles were interviewed. They were recorded each hour at each station by direction of travel.

Traffic was counted and classified at twelve points on a designated screenline within the area during the survey. The screenline was established west of Seymour and Swinton Streets and along the power

canal. Vehicles were counted and classified at the Spruce Street and Portage Avenue bridges over the canal. These screenline vehicle counts were used to test the statistical characteristics of the home interviews by comparing the expanded sample to actual traffic volumes.

Traffic counts were taken by mechanical counters at 124 locations within the study area on the selected street network. One continuous count station (control station) was operated at Portage Avenue Bridge during the month of July. Turning movements were taken at three locations, I-75 and Easterday, I-75 and I-75 BS (3-mile road) and I-75 BS and M-129 (Ashmun). The machine and manual counts were used to compile a Traffic Flow Map for an average weekday during July and August, 1964 as shown on page 4.

Operational fieldwork was conducted by the Traffic Survey Section of the Traffic Division. The organization of the field survey unit is shown on the following chart:





**LIST OF OPERATIONS FOR THE SAULT STE. MARIE STUDY  
SHOWING STARTING AND COMPLETION DATES FOR EACH OPERATION**

	<u>Started</u>	<u>Completed</u>
Preliminary External Station Machine Count	April 14	April 17
Truck Sample Selection	June 8	July 21
First Screenline Count	June 25	July 15
External Interviewing	July 6	August 4
Internal Interviewing	July 7	August 5
Internal Reviewing	July 7	August 6
External Reviewing	July 7	August 7
Internal Interview Coding	July 8	August 6
External Interview Coding	July 13	August 14
Second Screenline Count	July 17	August 11
Taxi Sample Selection	July 20	July 21
Taxi Interviewing	July 22	July 25
Taxi Coding	July 27	August 13
Internal Coding Check	July 27	August 14
Truck Interviewing	July 28	August 4
Truck Interview Coding	July 31	August 21
External Interview Coding Check	August 10	August 21
Taxi Coding Check	August 13	August 21
Truck Coding Check	August 17	August 21

All Field work was completed, and data transmitted to Survey and Analysis Section on August 25, 1964.

## OFFICE PROCEDURE

When the field survey data was submitted to the Transportation Analysis Section, it was grouped and coded by zone and by block. To study travel habits and determine the route of travel, the Sault Ste. Marie Study Area was divided into thirty-eight analysis zones designated as "origin-destination zones". Appendix "A" shows the complete breakdown of the zones by number of blocks and area in acres.

To tabulate and analyze the information obtained by the field survey, the data for each trip on the various interview forms was recorded on International Business Machine tabulation cards. The recording was done by keypunching certain combinations of numbers into the cards which represent, according to a pre-determined system or code, the answers listed on the interview forms. The code numbers were entered on the interview forms by the Field Survey Section before the survey data was submitted to the Transportation Analysis Section.

Four standard punch card forms are used to record the survey data for the interview forms as follows:

Card No. 1	Interview Address Summary	Form O-D 2
Card No. 2	Internal Trip Report	Form O-D 3
Card No. 3	External Interview	Form O-D 4
Card No. 4	Trip Report for Truck and Taxi	Form O-D 7 & 8

Reproductions of these tabulating cards are shown in Appendix "B".

After all the data has been punched into the cards and the cards verified for accuracy, the coding is edit checked. This is not a process for checking the keypunching and verifying; it is a process for checking the coding and it will detect only certain classes of errors. Two general types of errors are:

- (1) Impossible codes for a single item.
- (2) Impossible combination of codes between two or more items.

Specific examples to illustrate the types of errors are:

1. Impossible codes are the result of the erroneous use of code numbers to which no meaning was attached (or could be attached) when codes were set up.

Example:

A combination of zone and block numbers that does not exist.

This occurs in coding origins, destinations and other geographical locations.

2. Impossible combinations of codes for two or more items in the same card or two items each in different cards.

Examples:

(a) In the interview Address Summary card the number of persons age 5 and up at the address must equal the sum of the number of persons age 5 and up making one trip, plus those making no trips, plus those whose number of trips is unknown.

(b) In the External Interview cards, trips with both terminals outside the area must have specific station numbers for routes of both entrance and exit. Conversely, trips with one terminal inside the area can have a specific station number only for the route of entrance or exit. The codes for direction of travel (inbound or outbound), origin, destination and route of entrance or exit are interlocked. The coding of these four items has proved highly susceptible to error. The machine checking detects these errors and they are corrected to permit logical tabulation.

(c) The residence code in the Interview Address Summary cards must be the same as the residence code in the corresponding Internal Trip Report Cards.

The machine checking is a continuous process from the start of keypunching and verifying to final machine checking.

Certain additional data, such as O-D zones and expansion factors, are also entered on the cards by gangpunching. In this manner each card is the complete record of a single trip.

A total of 24,289 cards were punched for this study.

<u>Punched Cards</u>	<u>Number Punched</u>
Interview Address Summary	1,133
Internal Trip Report	8,096

External Trip Report	12,534
Truck and Taxi Trip Report	2,526

### ADJUSTMENT OF BASIC DATA

As previously noted, the 1960 population of the Sault Ste. Marie Study Area was estimated to be 19,000 inhabitants. With a factor of 3.5 persons per dwelling unit, it was estimated that there were 5,430 dwelling units. Sampling every fifth dwelling unit would result in approximately 1,090 interview addresses. This would be 20% of the estimated 5,430 dwelling units.

There were 1,133 Interview Address Summary Cards, which indicated that the original estimate of the number of sample dwelling units was forty-three units low.

### EXPANSION AND ADJUSTMENT OF TRIP DATA

The sampling procedure resulted in a 20 percent sample as planned. If complete interviews had been obtained at each interview address it would have been possible to expand the sample to full representation by using a multiplier of five. Actually, to compensate for the incomplete interviews, it is necessary to increase the expansion factor by an increment representing the ratio of total attempted interviews to completed interviews. This factor is punched into the tabulating cards as a preliminary representation.

Previous traffic studies indicate that interviews, regarded as "complete" actually represent not the total trips performed, but only the number of trips remembered and reported to the interviewer. It is therefore necessary to examine and test the recorded data with the actual data shown by the screenline counts. From this comparison it is possible to determine the final multipliers which are required to expand the sample data to full representation. This examination consists of comparative analysis of any or all of the following phases of travel:

- (1) Trips out of the area by residents: A reliable check on the amount of unreported travel by residents within the area is provided by comparing tabulations of trips to destinations outside the area reported in the internal phase of the survey with the same category of trips recorded in the external phase.
- (2) Truck trips out of the area: Trips by trucks owned or garaged in the area may be tabulated and

compared in the same manner, to arrive at a measure of the unreported truck travel.

(3) Urban mass transit: Travel on the city transit system may be checked by comparing the expanded passenger trips, as reported in the survey, with the number of fares carried on an average weekday, as furnished by the transit company, if such data are obtainable.

(4) The screenline: The total passenger vehicle trips crossing the established screenline may be compared with the actual traffic volume counts at the screenline, by hour. Trucks and taxi trips across the screenline also may be compared, but usually only on the basis of twenty four-hour totals. The screenline check has proven to be most reliable as both internal and external trips are taken into account, and adjustments are made by combinations of trip purposes.

### COMPUTATION OF FINAL MULTIPLIERS

The derivation of adjustment multipliers for this study was made by comparing the actual traffic counts at the twelve screenline points with the internal interview reports of trips crossing the same screenline. It is then necessary to break down the total trips recorded as crossing the screenline by their trip purpose. This is essential in order to determine which combination of trip purposes should be adjusted to bring the interview data into agreement with the actual counts. The total trip data was first compared on an hourly basis and then for three-hour periods. Better agreement with less adjustment was found for the three-hour periods.

An examination of the "Screenline by One-Hour Periods" graph reveals that morning, noon and night work trips are more completely reported than any other. The logical conclusion is that people remember and report more completely the habitual work trips and tend to omit or forget the occasional or casual trips which also constitute a large part of their automobile travel.

Acting upon the forgoing hypothesis the interview data was segregated into various trip purposes and examined to determine in which purpose group the unreported travel had occurred. For this examination, the interview data was grouped into three-hour groups and tabulated in comparison with the actual screenline count. When the difference between the actual

count and the unadjusted interview data is plotted, it results in a "deficiency curve" for the interview data. By plotting graphs of various combinations of purposes, it was determined that the purpose groups "Business, Medical-Dental, School, Social-Recreation, Change Mode of Travel, Eat Meal and Shopping" closely approximated the deficiency curve. The final adjustment applied to these groups produced reasonable agreement at the screenline.

**TABLE A-1**

**Comparison of Actual Passenger Car Counts with Hourly Traffic Volumes Obtained from O-D Data**

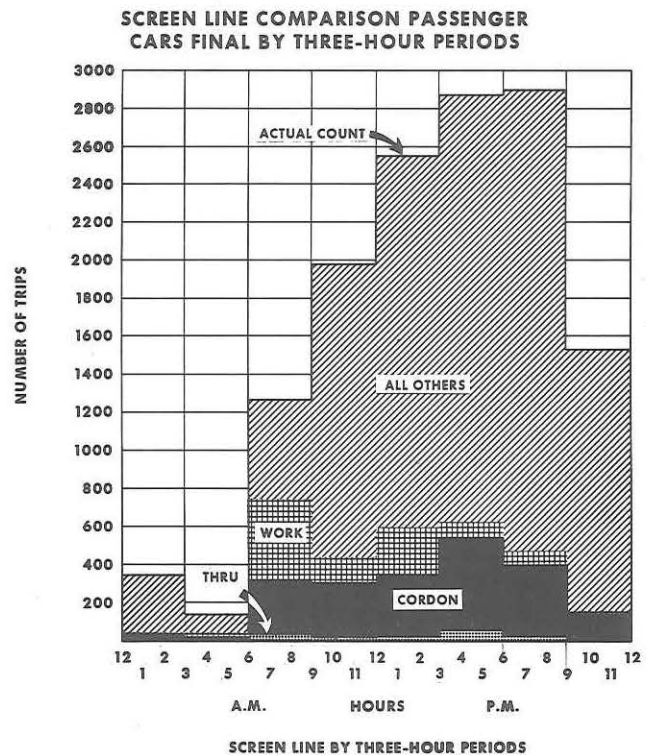
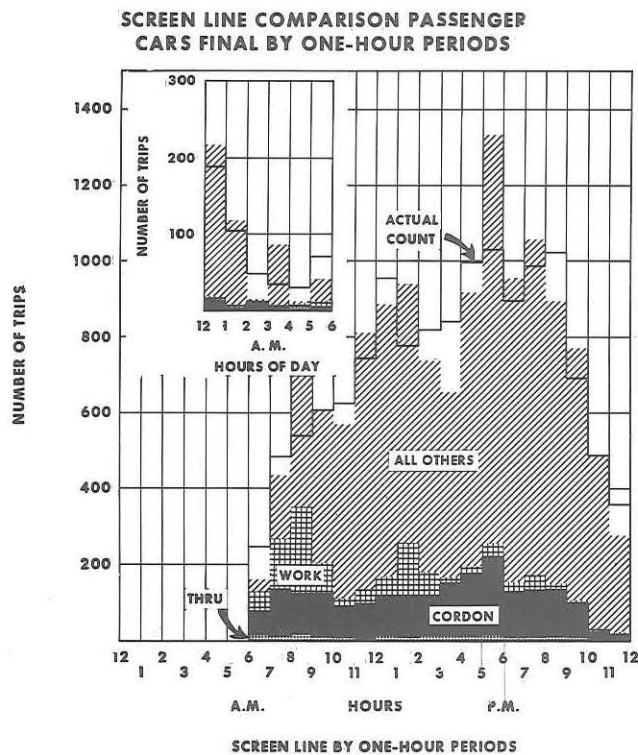
Table A-1 is for passenger car trips from both the internal and external surveys, tabulated on an hourly basis. The trips from the internal survey are subdivided into trip purposes, and the trips from the external survey subdivided into "cordon" and "through" without regard to trip purposes. Expanded external volumes are shown with expanded and adjusted internal volumes.

Comparisons are made by hour periods because it has been found that internal trip data are reported more

completely for some periods than for others. For example, many people will give complete information about their trips going to and from work but neglect to mention some of the other minor trips for other purposes. Generally, the expanded trip data will more closely approach the actual count for the morning and afternoon rush hours. Work trips predominate during these hours more than during any other periods of the day.

Because the time of crossing the screenline is not punched into the cards, it is necessary to use the "time" data obtained for other purposes. In this study, time assigned in the internal survey is the time of leaving the trip origin. This period can be used with reasonable accuracy because the distance traveled from "Origin" to the screenline is comparatively short. The time variation of only a few minutes will tend to be adjusted at the beginning and end of the hour periods. For the external survey, the time is given as the time of passing through the external interview station.

Taxis are shown at the bottom of the A-1 Table and are shown only for the total 24-hour period. All of these trips are work trips, therefore, no further breakdown of trip purpose is shown.

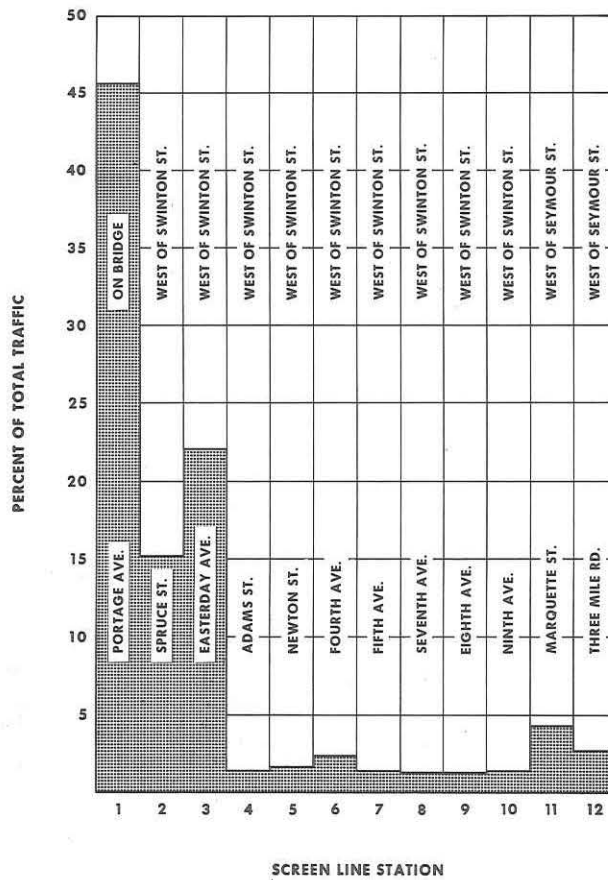




**CLASSIFIED 24-HOUR TRAFFIC VOLUMES  
AT EACH SCREENLINE STATION**

Screen Point	Pass. Cars & Taxi	Per Cent	Single Unit & 3 Axle Trucks	Per Cent	Trailer Comb.	Per Cent	Busses	Per Cent	Total
1	6,620	41.5	641	4.0	24	0.1	14	0.1	7,299
2	2,117	13.3	274	1.7	10	0.1			2,401
3	2,826	17.7	633	4.0	39	0.3	1		3,499
4	183	1.1	30	0.2					213
5	216	1.4	27	0.2					243
6	262	1.6	48	0.3					310
7	183	1.1	45	0.3	2				230
8	169	1.1	27	0.2	1				197
9	172	1.1	26	0.2	1				199
10	187	1.2	24	0.1			12	0.1	223
11	542	3.4	147	0.9	7		1		697
12	340	2.1	101	0.6	2				443
<b>Totals</b>	<b>13,817</b>	<b>86.6</b>	<b>2,023</b>	<b>12.7</b>	<b>86</b>	<b>0.5</b>	<b>28</b>	<b>0.2</b>	<b>15,954</b>

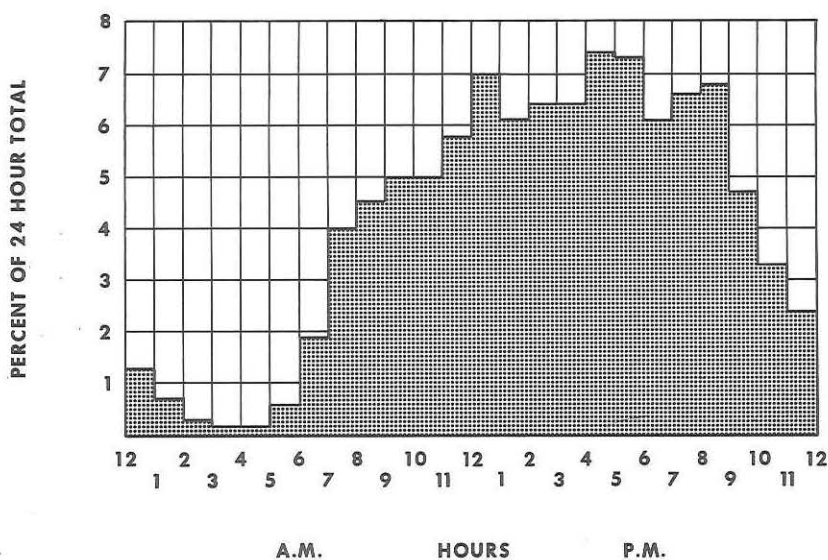
**PERCENT OF TOTAL TRAFFIC AT EACH SCREEN LINE STATION**



**SCREENLINE SUMMARY**  
**TOTAL OF ALL 12 SCREEN POINTS BY HOUR**  
**VEHICLE TYPE**

Hour Period	Pass. Cars & Taxi	Single Unit & 3-Axle Trucks	Trailer Comb.	Busses	Total	24-Hour Per Cent
12-1A	192	11			203	1.3
1-2	108	1			109	0.7
2-3	52	3			55	0.3
3-4	34	2	1		37	0.2
4-5	32	5	1		38	0.2
5-6	75	16	2		93	0.6
6-7	257	41	3	2	303	1.9
7-8	492	135	3	2	632	4.0
8-9	552	157	8	2	719	4.5
9-10	619	164	6	2	791	5.0
10-11	637	160	4	2	803	5.0
11-12N	755	159	6	4	924	5.8
12-1P	972	142	5		1,119	7.0
1-2	792	166	5	3	966	6.1
2-3	830	171	13	1	1,015	6.4
3-4	872	150	11	5	1,038	6.4
4-5	1,021	157	6	2	1,186	7.4
5-6	1,044	114	5	2	1,165	7.3
6-7	902	74	2		978	6.1
7-8	992	60	2		1,054	6.6
8-9	1,030	53	1		1,084	6.8
9-10	703	40			743	4.7
10-11	494	25	1	1	521	3.3
11-12M	360	17	1		378	2.4
<b>Total</b>	<b>13,817</b>	<b>2,023</b>	<b>86</b>	<b>28</b>	<b>15,954</b>	<b>100.0</b>

**HOURLY PERCENTAGE OF TOTAL SCREEN LINE TRAFFIC**



**TABLE A-2**

**Comparison of Actual Truck Counts  
with Volumes Obtained from  
O-D Data**

This table presents only the 24-hour total. Trip purposes were not classified for these internal trips as most of the trips are known to be work trips.

**TABULATION OF DATA**

The data accumulated during the course of this survey can be summarized in many different ways. It can then be applied to the study of specific problems inherent in the improvement of urban state trunk lines, the arterial street system and terminal parking facilities for motor vehicles.

**TABLE A-1  
PASSENGER CAR TRIPS  
COMPARISON FOR SCREEN LINE**

HOUR PERIOD	EXPANDED TRIP DATA										EXTERNAL CORDON THRU	TOTAL TRIPS	ACTUAL COUNT	PERCENT	
	ADJUSTED INTERNAL														
	TRIP PURPOSE TO														
WORK	BUSI- NESS	SHOP	SCHOOL	SOCIAL	MODE CHANGE	EAT	MED. DENT.	SERVE PASS.	HOME						
12-1AM	10		21		79			5	96	7		218	188	116.0	
1-2					20				99	2		121	105	115.2	
2-3										6		6	50	12.0	
3-4					82					3		85	32	265.6	
4-5	5									2	1	8	30	26.7	
5-6	11								27	3		41	72	56.9	
6-7	66						26	5		47	10	154	246	62.6	
7-8	137	25			52		25	5	53	121	9	427	485	88.0	
8-9	227	52			78			18	186	111	12	684	538	127.1	
9-10	79	63	61		140			10	124	115	8	600	603	99.5	
10-11	21	91	106		108		15	15	121	78	7	562	626	89.8	
11-12	33	140	136		63		32	26	276	93	6	805	741	108.6	
12-1PM	57	30	60		92		254	42	233	99	11	878	957	91.7	
1-2	135	112	121		170			24	48	206	114	3	933	773	120.7
2-3	62	61	92		164			15	222	105	12	733	815	89.9	
3-4	15	27	28		140			26	247	134	13	630	840	75.0	
4-5	21	90	94		129		28	9	351	160	15	914	998	91.6	
5-6	31	44	120		150		9	9	37	710	203	18	1,331	1,029	129.3
6-7	26	62	75		250		32		26	352	121	8	952	890	107.0
7-8	36	94	52		530			10	201	125	8	1,056	983	107.4	
8-9	15	43	57		298		10		10	315	126	10	884	1,020	86.7
9-10	5		36		241				11	377	94	4	768	691	111.1
10-11	5		36		99				5	315	23	1	484	485	99.8
11-12	11	22			24		11		204	13	1	286	354	83.6	
TOTAL	1,008	956	1,095	0	2,909	0	442	57	316	4,715	1,905	157	13,560	13,551	100.1
TOTAL 6AM-10PM	966	934	1,038	0	2,605	0	431	57	306	3,974	1,846	154	12,311	12,335	99.8

**TAXI TRIPS**

TAXI	266	24 HOURS			0	0	266	266	100.0
------	-----	----------	--	--	---	---	-----	-----	-------

**TABLE A-2  
TRUCK TRIPS  
COMPARISON FOR SCREENLINE**

SINGLE UNIT & 3-AXLE	1,770			260	18	2,048	2,051	99.9
TRAILER COMB.	76			10	0	86	86	100.0
24-HOUR TOTAL	1,846			270	18	2,134	2,137	99.9

Trip records are available at all times and tabulations will be prepared as the study progresses and the need is revealed. Results will be summarized and presented in appropriate form. The purpose of this report is to develop and present only certain basic tabulations. These are considered essential to demonstrate the scope of the compiled data. They are also necessary for proper use of the data in the preliminary stages of analysis.

The survey methods used resulted in the trip records containing duplications of data as follows:

(1) Trips out of the area by residents were reported on the internal interviews and recorded on the internal records. The same, or similar trips, were reported at the external stations and were recorded on the external records. To eliminate this duplication the internal records, representing trips out of the area, were sorted out and not used. This was done before any tabulations were made.

(2) Trips through the area, i.e. trips with both the origin and destination outside the area, were duplicated because such trips were recorded inbound by the interviewers at one external station and the same, or similar trips were recorded outbound by interviewers at some other external station. This duplication was eliminated by entering into the thru trips records a factor equal to one-half of the computed expansion factor. It was not necessary, therefore, to divide the tabulated figures for thru trips by two.

For the purpose of recording and analyzing the survey data, the entire study area was divided into thirty-eight zones covering four hundred and seventeen

blocks. Six coding spaces are provided on the trip record for all resident addresses, origins and destinations, places where vehicles are garaged and intermediate stops. The first three columns represent the zone and the remaining three columns represent the block. The zones and blocks are all shown on the area base map, and entered in the coding spaces are the numbers identifying the zone and blocks, within which the address is located. All tabulations of trip tables, objective trips and other geographical data, were made on the origin-destination basis. If any studies are made in which the zone area is too large, the tabulations can be made on a block basis.

It should be borne in mind that the data set forth in these tables were determined by expansion of a sample and that they are representative of week-day travel in the summer months of 1964. These data must be regarded as relative rather than absolute. They serve to establish general flow patterns which are reliable within the limits of error of the sampling procedures. Seasonal variations and anticipated future increases in traffic volumes may be estimated by applying appropriate multipliers to the basic data contained in the tables.

**TABLE B-1**

**Summary of Adjusted Dwelling Unit Data**

This table is compiled from data recorded in the dwelling unit summary portion of the internal interview form (Form O-D 2). All of the general statistics regarding the dwelling units, persons, and passenger cars are presented for each of the O-D zones.

## SAULTE STE MARIE

## SUMMARY OF ADJUSTED DWELLING UNIT DATA

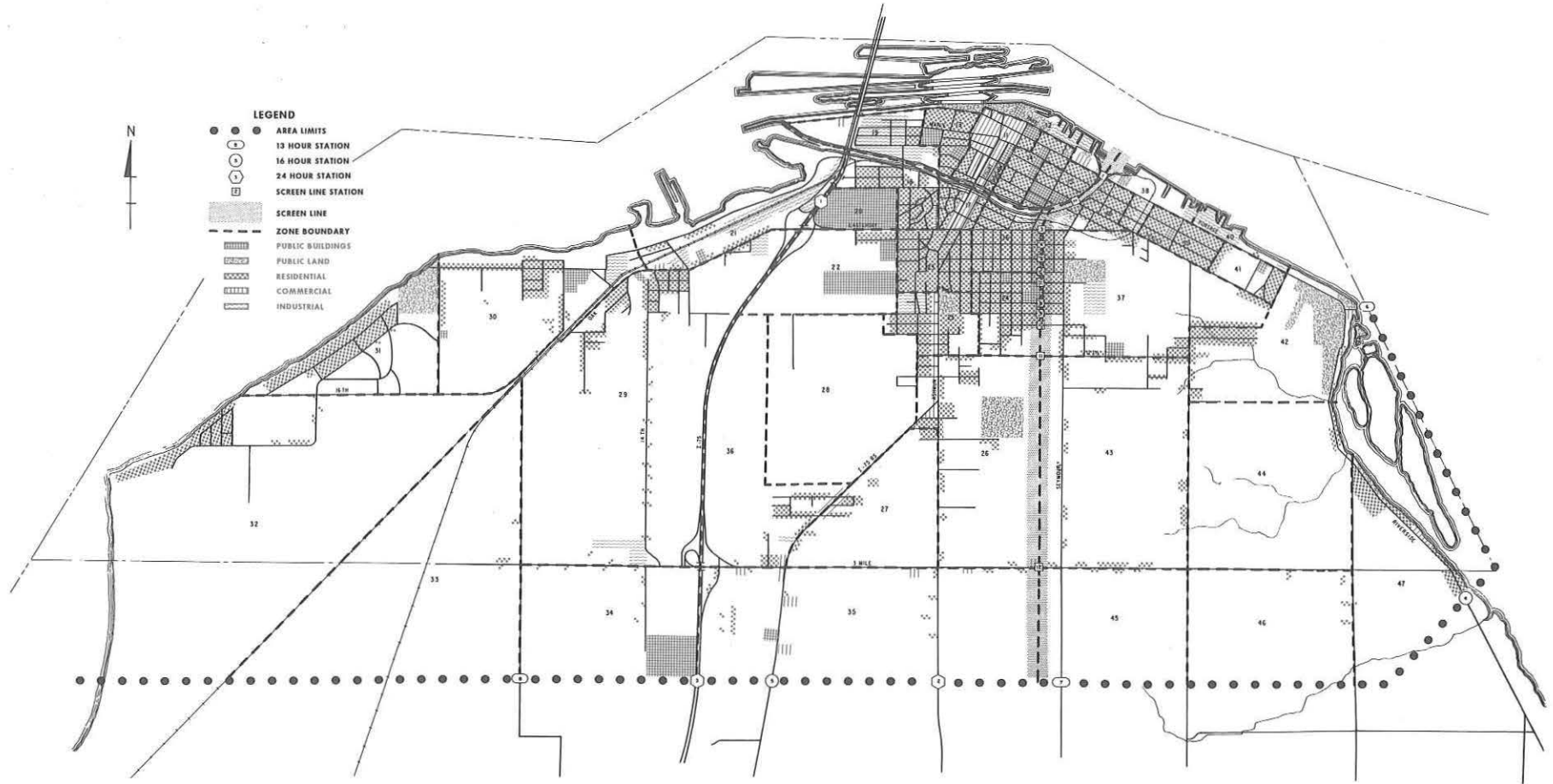
B-1 TABLE

DD ZONE	DWELLING UNIT	TOTAL PERSONS	PASSENGER CARS	PASS CARS PER D-U	PERSONS PER D-U	PERSONS PER CAR	PASSENGER CAR TRIPS <sup>1/</sup>	PASSENGER TRIPS	VEHICLE TRIPS/D-U	TRIPS PER D-U <sup>2/</sup>
11	410.	954.	277.	0.68	2.33	3.44	2116.09	1342.64	5.16	8.43
12	40.	80.	30.	0.75	2.00	2.67	308.90	127.95	7.72	10.92
13	240.	680.	185.	0.77	2.83	3.69	1728.10	1240.25	7.20	12.37
14	361.	999.	319.	0.88	2.77	3.13	3348.82	2111.26	9.28	15.13
15	308.	908.	234.	0.76	2.95	3.89	1747.65	882.19	5.67	8.54
16	511.	1594.	521.	1.02	3.12	3.06	5105.12	3059.72	9.99	15.98
17	205.	605.	210.	1.02	2.95	2.88	1349.30	804.85	6.58	10.51
18	221.	652.	205.	0.93	2.95	3.18	2799.41	1758.71	12.67	20.63
19	106.	308.	74.	0.70	2.90	4.14	655.24	376.47	6.17	9.71
20	60.	113.	30.	0.50	1.88	3.75	328.75	328.40	5.48	10.95
21	50.	185.	60.	1.20	3.70	3.08	684.95	550.95	13.70	24.72
22	50.	195.	50.	1.00	3.90	3.90	582.90	224.00	11.66	16.14
23	423.	1275.	391.	0.93	3.01	3.26	4200.45	2424.80	9.93	15.66
24	356.	1258.	403.	1.13	3.53	3.12	4199.27	2244.10	11.79	18.08
25	241.	686.	262.	1.09	2.85	2.62	3033.48	1297.96	12.58	17.97
26	153.	396.	158.	1.04	2.59	2.50	1078.10	535.12	7.07	10.58
27	45.	115.	60.	1.33	2.56	1.92	528.60	181.10	11.75	15.77
28	25.	45.	30.	1.20	1.80	1.50	477.95	71.45	19.12	21.98
29	241.	776.	241.	1.00	3.22	3.22	1825.00	1290.80	7.57	12.93
30	175.	565.	185.	1.06	3.23	3.05	1827.75	930.35	10.44	15.76
31	65.	230.	100.	1.54	3.54	2.30	957.05	212.55	14.72	17.99
32	75.	220.	90.	1.20	2.93	2.44	657.90	601.45	8.77	16.79
33	10.	50.	20.	2.00	5.00	2.50	117.30	0.00	11.73	11.73
34	140.	320.	165.	1.18	2.29	1.94	1357.15	768.05	9.69	15.10
35	98.	369.	111.	1.12	3.75	3.33	1229.05	913.12	12.49	21.77
36	70.	245.	75.	1.07	3.50	3.27	625.75	264.00	8.94	12.71
37	361.	1097.	356.	0.99	3.04	3.09	4051.83	2072.56	11.23	16.90
38	25.	70.	20.	0.80	2.80	3.50	186.10	53.35	7.44	9.58
39	206.	704.	195.	0.95	3.43	3.61	1815.10	1463.23	8.83	15.95
40	25.	20.	15.	0.60	0.80	1.33	81.50	84.10	3.26	6.62
41	56.	180.	51.	0.90	3.20	3.56	805.03	417.71	14.30	21.72
42	55.	155.	45.	0.82	2.82	3.44	299.20	283.00	5.44	10.59
43	55.	270.	80.	1.45	4.91	3.38	789.30	323.95	14.35	20.24
44	20.	30.	15.	0.75	1.50	2.00	48.35	72.85	2.42	6.06
45	15.	25.	25.	1.67	1.67	1.00	453.85	45.90	30.26	33.32
46	15.	30.	10.	0.67	2.00	3.00	76.65	0.00	5.11	5.11
47	185.	530.	201.	1.09	2.86	2.83	931.14	515.47	5.02	7.80
48	190.	545.	175.	0.92	2.87	3.11	1434.75	1327.70	7.55	14.54
TOTAL	5888.	17479.	5675.	0.96	2.97	3.08	53842.83	31202.06	9.14	14.44

<sup>1/</sup> THE PASSENGER CAR TRIPS ARE THE SAME AS THE PASSENGER CAR DRIVER TRIPS.

<sup>2/</sup> TOTAL TRIPS PER DWELLING UNIT IS THE NUMBER OF DWELLING UNITS DIVIDED INTO THE NUMBER OF PASSENGER CAR DRIVER TRIPS PLUS THE NUMBER OF PASSENGER CAR PASSENGER TRIPS.

# EXISTING LAND USE

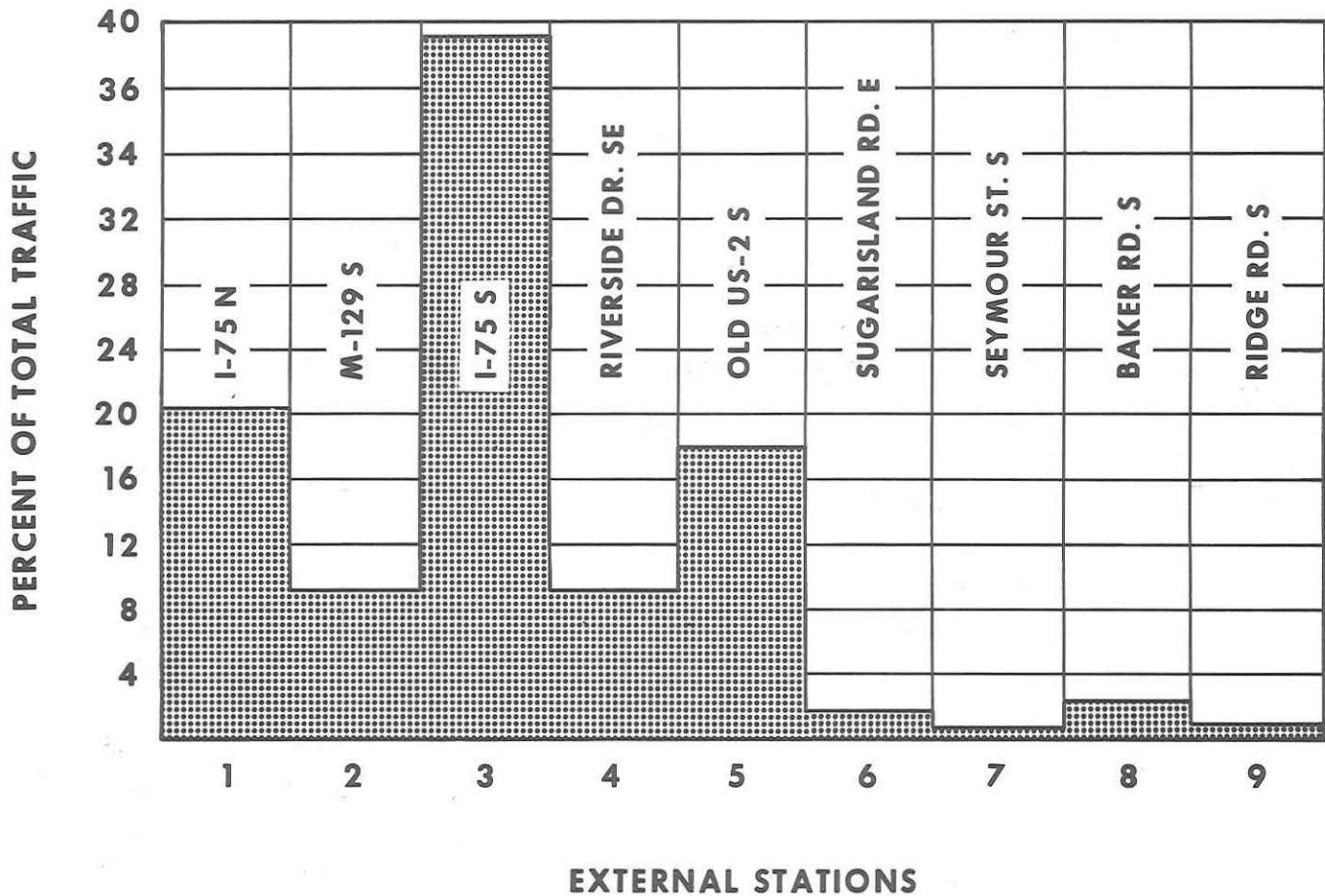


## TRAFFIC VOLUME SUMMARIES

Tables of hourly traffic volumes by vehicle type were compiled from data gathered at the nine external stations. A summary of the individual station counts is shown on page 16.

In addition to the 24-hour count, a summary of the high one-hour, two-hour and three-hour traffic volumes was compiled. It shows the percentage of each hour period at each external station to aid in the analysis of travel habits for this area. This table is reproduced on page 16.

## PERCENT OF TOTAL TRAFFIC AT EACH EXTERNAL STATION



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 state highways  
 LANSING

**EXTERNAL STATION TRAFFIC  
BY VEHICLE TYPE**

Ext. Sta.	Pass. Cars & Taxis	Per Cent	Single Unit & 3 Axle Trucks	Per Cent	Trailer Comb.	Per Cent	Busses	Per Cent	Totals
1	3,246	94.0	150	4.3	26	0.8	31	0.9	3,453
2	1,343	87.3	190	12.4	5	0.3			1,538
3	6,264	94.0	307	4.6	83	1.2	13	0.2	6,667
4	1,379	89.2	167	10.8					1,546
5	2,672	87.8	352	11.6	19	0.6	1		3,044
6	189	83.3	38	16.7					227
7	35	76.1	11	23.9					46
8	277	82.2	60	17.8					337
9	103	79.2	27	20.8					130
Totals	15,508	91.3	1,302	7.6	133	0.8	45	0.3	16,988

**EXTERNAL STATION TRAFFIC  
BY HIGH ONE-HOUR, TWO-HOUR AND THREE-HOUR PERIODS**

Ext. Sta.	HIGH ONE-HOUR			HIGH TWO-HOUR			HIGH THREE-HOUR		
	Time	Vol.	Per Cent	Time	Vol.	Per Cent	Time	Vol.	Per Cent
1	2-3P	329	9.5	11-1P	598	17.3	12-3P	886	25.7
2	5-6P	158	10.3	4-6P	300	19.5	3-6P	418	27.2
3	3-4P	623	9.3	3-5P	1,234	18.5	3-6P	1,785	26.4
4	5-6P	145	9.4	4-6P	253	16.4	5-8P	358	23.2
5	5-6P	236	7.8	2-4P	444	14.6	3-6P	640	21.0
6	5-6P	25	11.0	5-7P	42	18.5	4-7P	58	25.6
7	3-4P	6	13.0	2-4P	9	19.6	2-5P	11	23.9
8	5-6P	31	9.2	4-6P	62	18.4	3-6P	88	26.1
9	5-6P	14	10.8	4-6P	25	19.2	3-6P	31	23.8
Totals		1,567	9.2		2,967	17.5		4,275	25.2



## DESIRE LINE DIAGRAMS

The following three diagrams graphically present data collected at six external interview stations: Two (2) Interstate, One (1) State Trunk Line and Three (3) Major County Roads. They show, by means of weighted lines, the number of vehicles entering and leaving through each station. They also illustrate the interchange of vehicles with each of the other stations shown and the number of trips having terminals inside the study area. It is well to bear in mind that these are desire line diagrams only, and the traffic volumes shown are not assigned to, nor shown on, the street system.

The first diagram is designed to show distribution of through traffic. It indicates total traffic at each external station, through trips and terminal trips. On each of the succeeding two diagrams, terminal trips are further broken down to show the distribution of

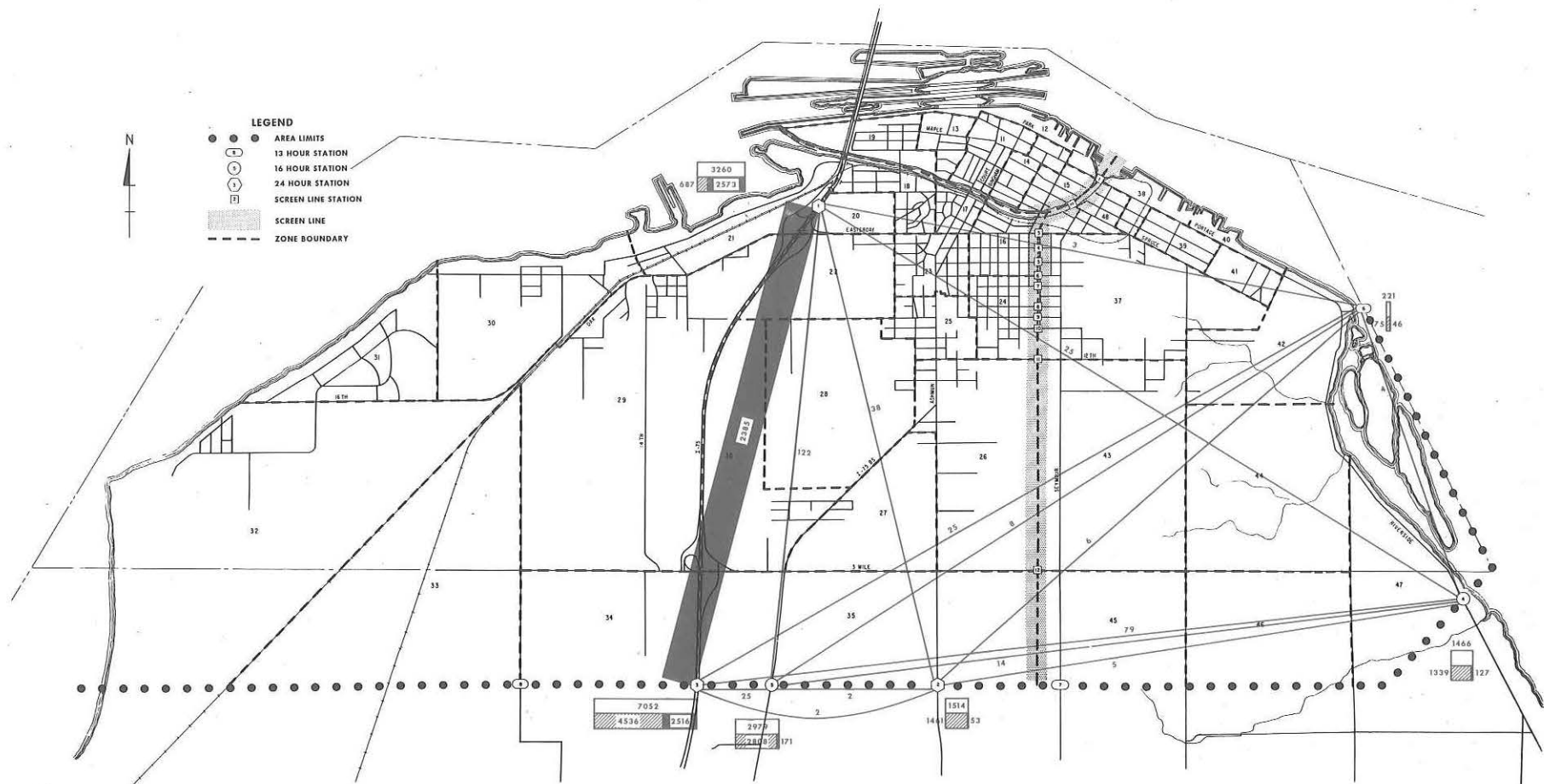
trips with terminals in the principal traffic generating origin-destination zones. Past experience has demonstrated that a definite pattern of major generators will be established if data from the most significant traffic attraction zones are plotted. These zones account for approximately 50 percent of the terminal traffic from each station. The remaining 50 percent of the terminal trips will be scattered throughout the balance of the area.

Certain zones appear as the principal traffic generators on both of the diagrams illustrating terminal trips. These diagrams help guide the determination of areas to be served by State Trunk Lines. Through their use it is possible to lay out a tentative State Trunk Line system to be integrated with the major local street system. System selection and system testing by traffic assignment for Sault Ste. Marie will be presented in a subsequent report covering analysis and projections for the entire study area.

# THROUGH TRAFFIC INTERCHANGE BETWEEN TWO (2) INTERSTATE, ONE (1) STATE AND THREE (3) MAJOR COUNTY ROADS

WEEKDAY JULY-AUGUST 1964

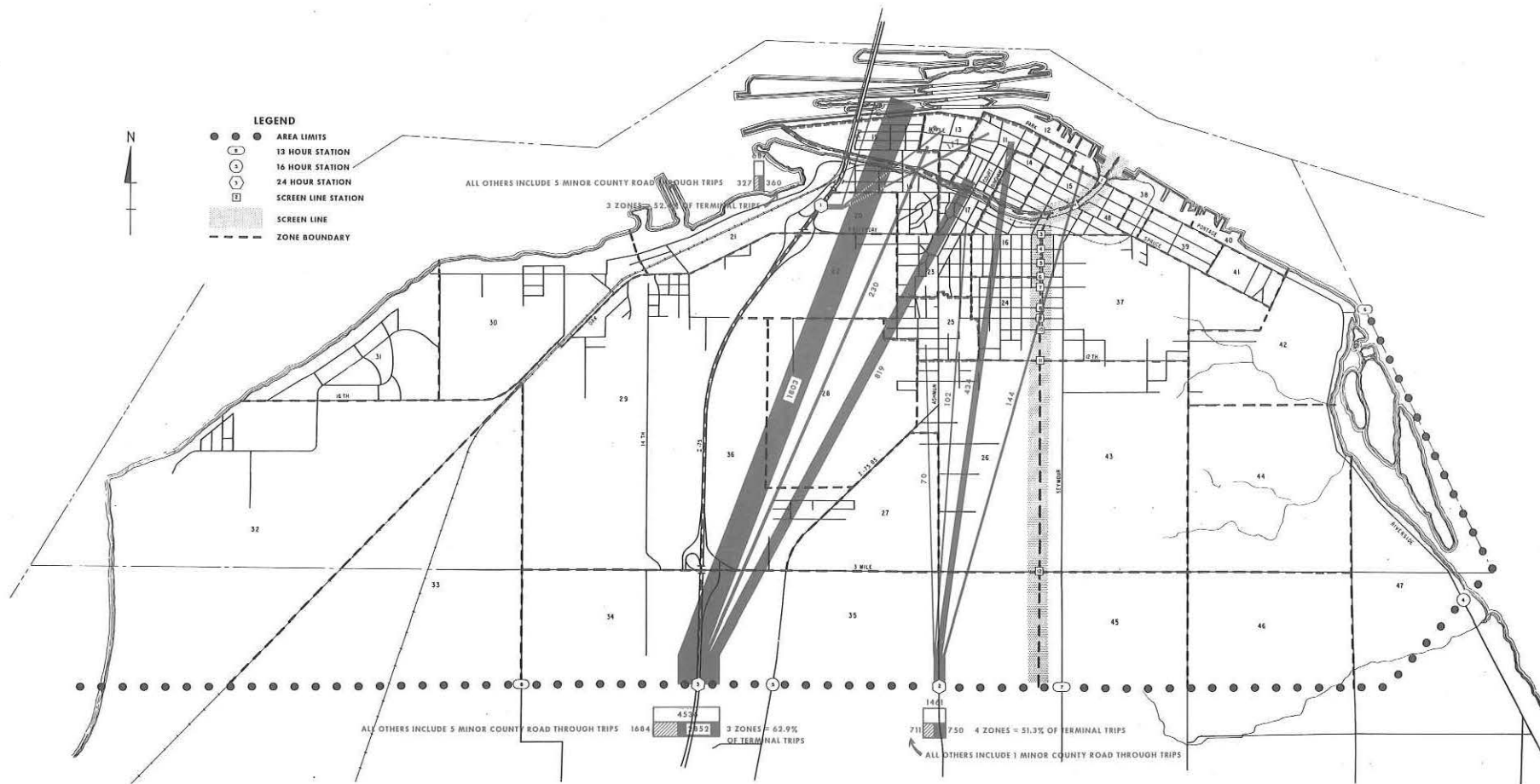
## SAULT STE. MARIE AREA TRAFFIC STUDY



# TRAFFIC BETWEEN I-75 NORTH, I-75 SOUTH, M-129 SOUTH AND THE PRINCIPAL ZONES OF ATTRACTION

WEEKDAY JULY–AUGUST 1964

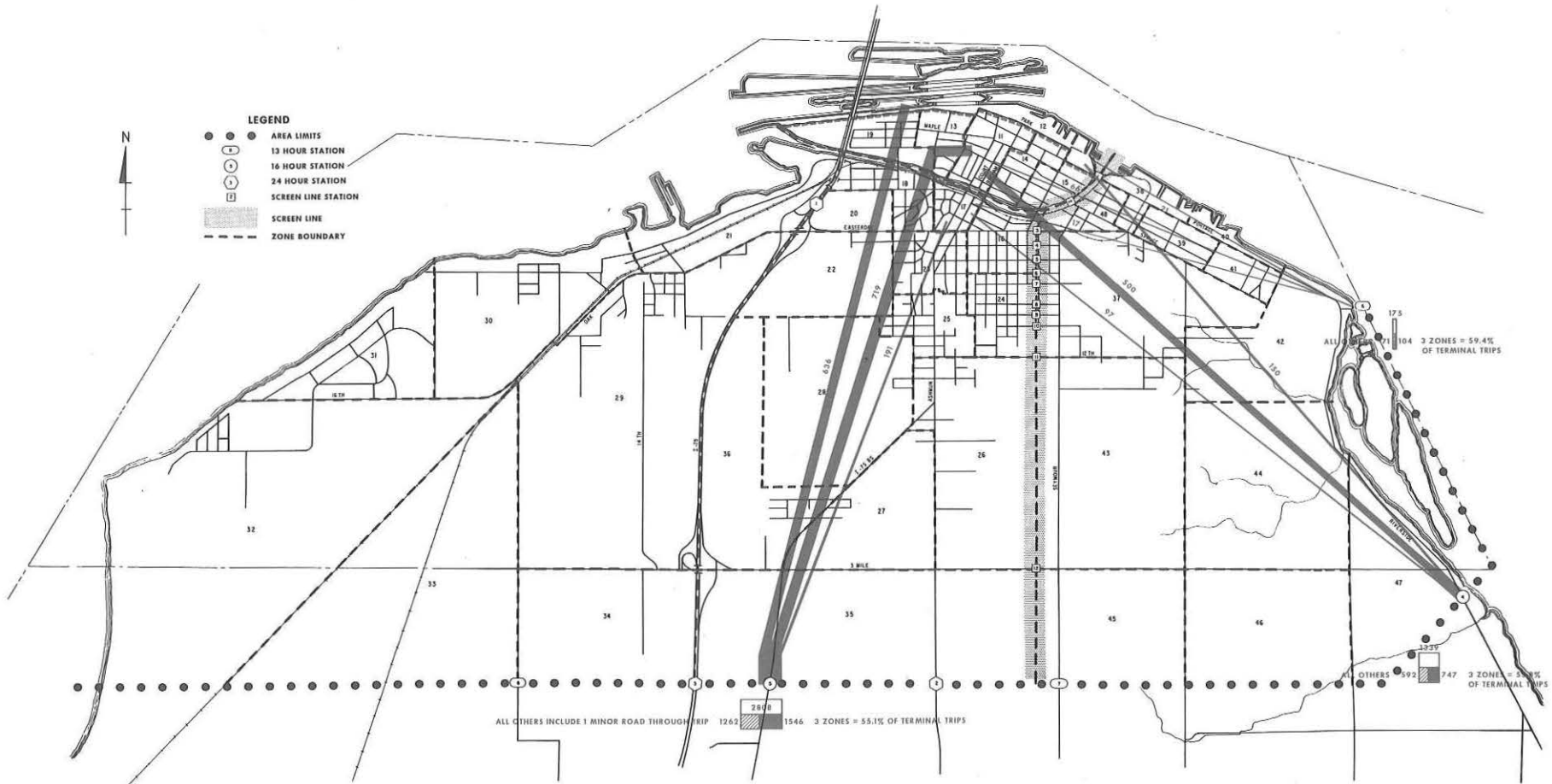
## SAULT STE. MARIE AREA TRAFFIC STUDY



# TRAFFIC BETWEEN RIVERSIDE ROAD SOUTHEAST, OLD U.S. 2 SOUTH, FERRY TO SUGAR ISLAND EAST AND THE PRINCIPAL ZONES OF ATTRACTION

WEEKDAY JULY-AUGUST 1964

## SAULT STE. MARIE AREA TRAFFIC STUDY



## INTERNAL DESIRE LINES

These two diagrams graphically present data collected on the Home Interview phase of the study. They show the internal trips by weighted lines interchanging between certain preselected zones of importance. Because these are desire lines only they should not be construed as reflecting a street pattern of any kind.

These preselected zones were chosen on the basis of traffic volumes, land use and importance to the community. Each diagram is labeled as to its predominant activity, e.g., central business district and commercial-residential.

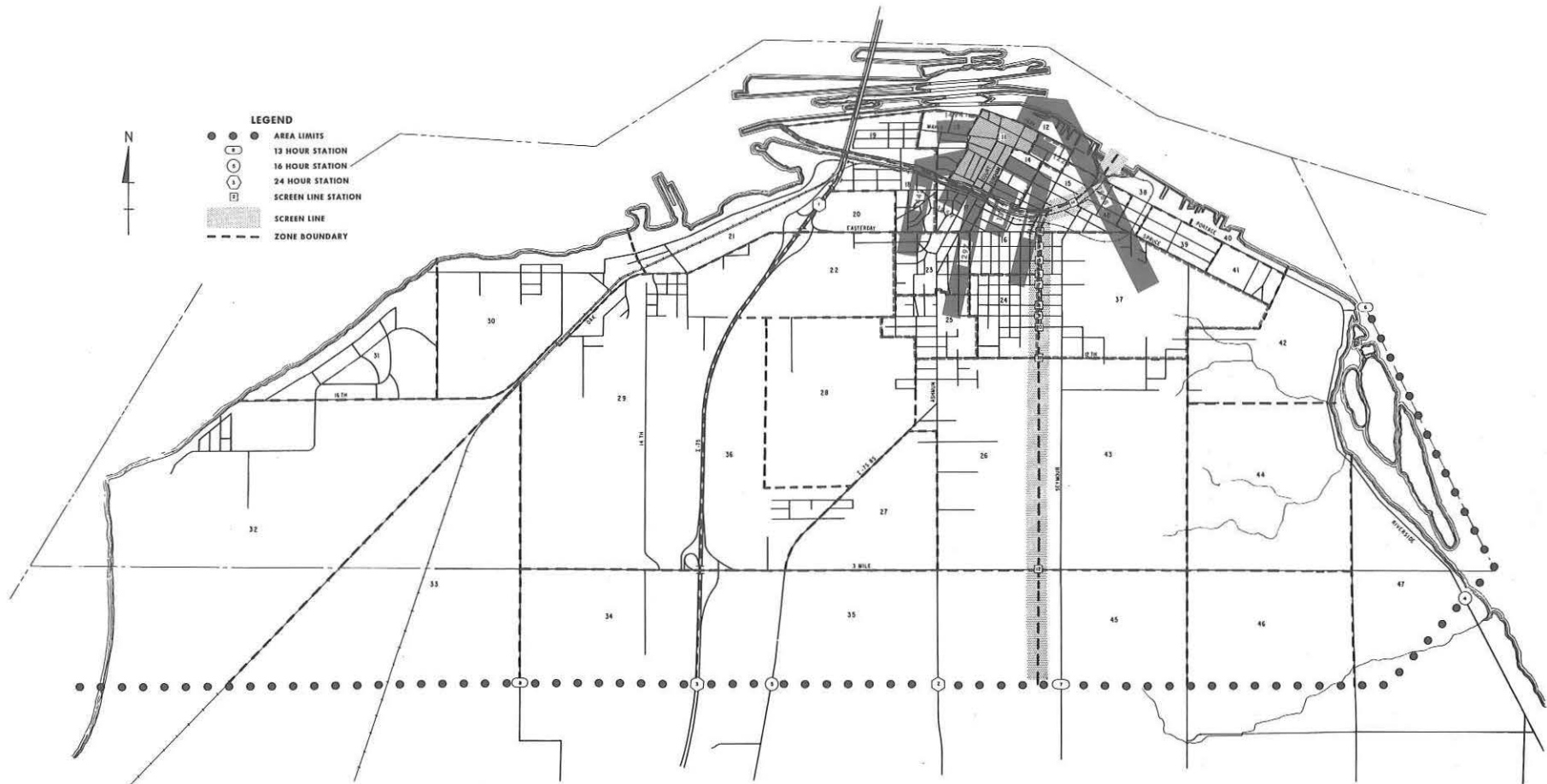
Experience has proven that plotting 50 percent of a particular zone's internal traffic is sufficient to establish a pattern of generators for that zone. The remaining 50 percent will be scattered throughout the remainder of the study area. Certain zones appear as principal generators on both of the internal traffic diagrams. By studying the interrelationship of all the diagrams, the traffic patterns of the study area can be discerned. Using the internal diagrams in conjunction with the external diagrams, a tentative arterial street system can be intelligently determined.

# DISTRIBUTION OF INTERNAL TRIPS BETWEEN ZONE 11 AND OTHER ZONES BY ORDER OF IMPORTANCE

WEEKDAY JULY—AUGUST 1964  
ZONE 11—C.B.D.

OUT OF 20,751 INTERNAL TRIPS WITH A TERMINAL IN ZONE 11, 8 ZONES ACCOUNTED FOR 11,372 TRIPS (54.8%)

## SAULT STE. MARIE AREA TRAFFIC STUDY

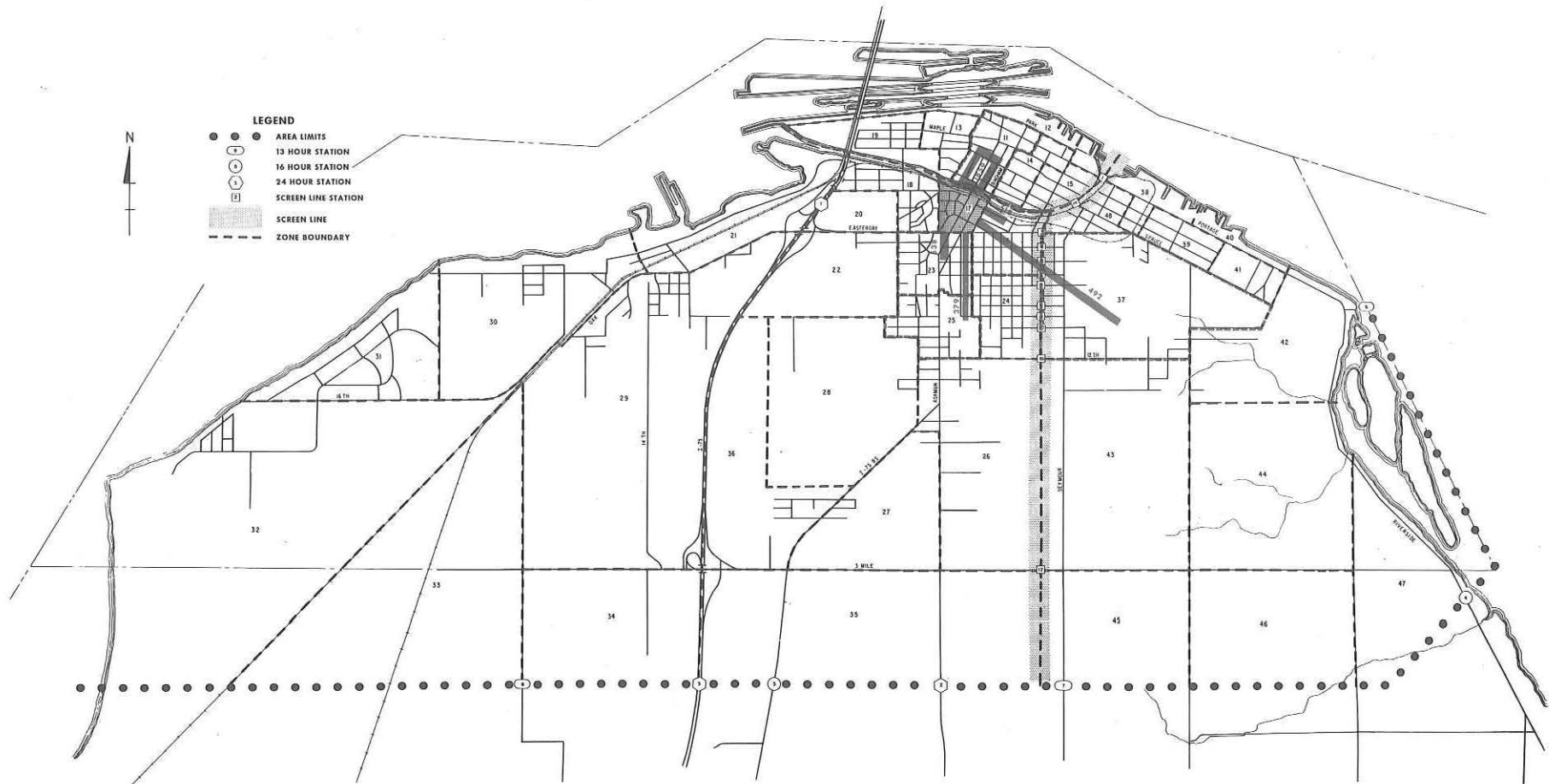


# DISTRIBUTION OF INTERNAL TRIPS BETWEEN ZONE 17 AND OTHER ZONES BY ORDER OF IMPORTANCE

WEEKDAY JULY–AUGUST 1964  
ZONE 17 COMMERCIAL–RESIDENTIAL

OUT OF 6,812 INTERNAL TRIPS WITH A TERMINAL IN ZONE 17, 5 ZONES ACCOUNTED FOR 3,786 TRIPS (55.6%)

## SAULT STE. MARIE AREA TRAFFIC STUDY



### **DRIVING TIME AND DISTANCE FROM CENTRAL BUSINESS DISTRICT**

Average travel time for vehicles to and from the Central Business District of Sault Ste. Marie to all other parts of the survey area is graphically illustrated in Exhibit 1 on page 25. Time contours are shown in two minute intervals. The approximate center of the Central Business District has been assumed to be on Church Street between Maple and Spruce Streets.

Travel time to all points in the survey area was computed by averaging the elapsed times obtained from time runs made during the peak and off-peak hours.

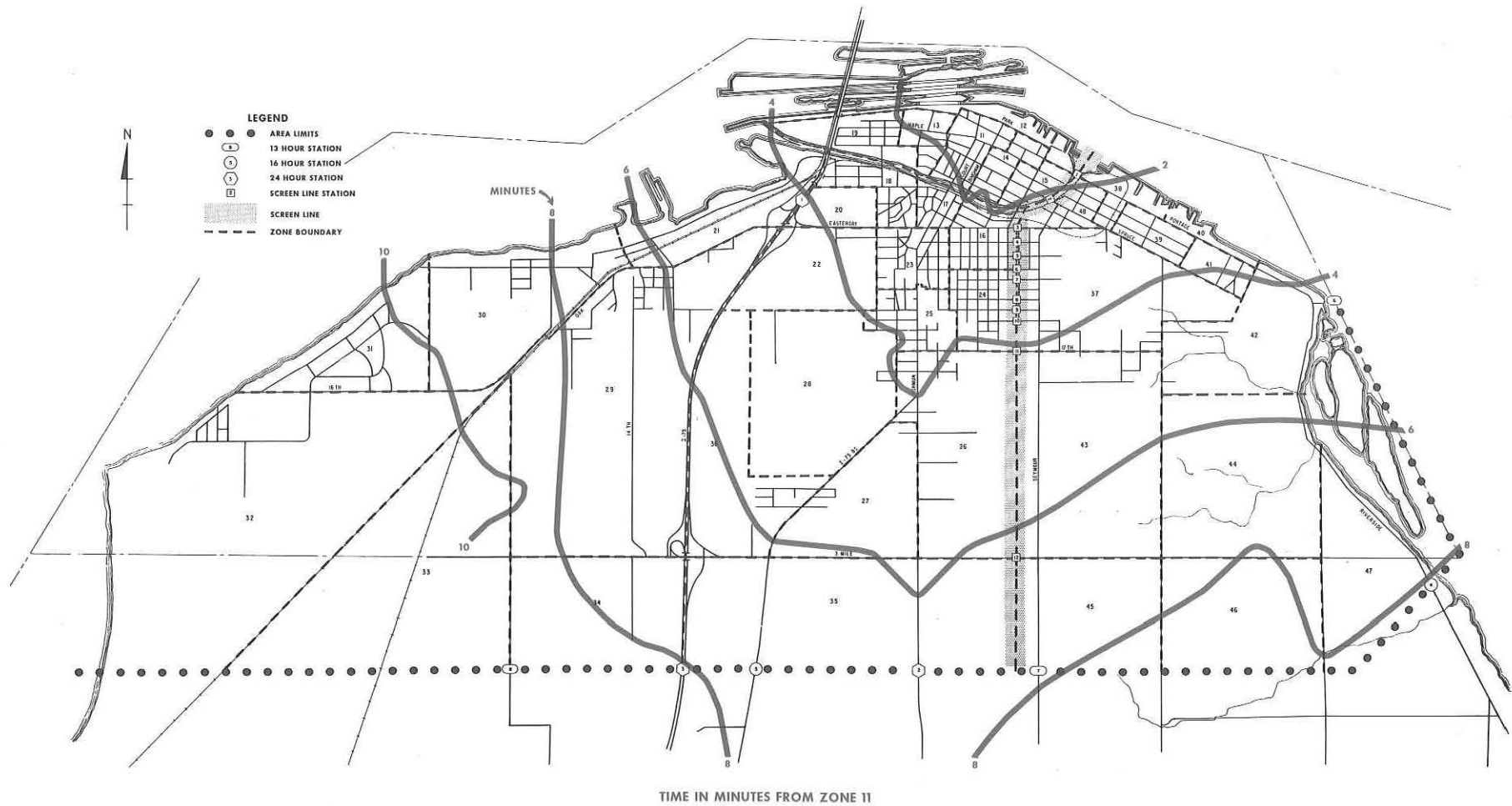
This exhibit indicates that virtually all parts of the survey area are within a maximum of thirteen minutes driving time from the Central Business District. Trips to the southern part of the area have a slight time advantage due to faster speeds and shorter distances of travel.



# DISTANCE FROM ZONE 11 TRAVELED IN TIME SHOWN

## SAULT STE. MARIE AREA TRAFFIC STUDY

Exhibit 1



# **APPENDIX A**

## **STATISTICS OF OPERATION**

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## STATISTICS OF OPERATIONS

### Appendix A

For control of the survey operations and recording of data, the survey area was divided into 417 numbered blocks. These blocks were combined into 38 origin-destination zones, based on the predominant land use as shown on the zone map on page XI. The land use division of the study area and the size of the resulting zones are shown in the following tabulation:

Zone	Blocks	Acreage
11 Central Business District	20	86
12 Industrial-Public Land	2	65
13 Residential	9	58
14 Residential	11	61
15 Residential	10	56
16 Residential	28	103
17 Residential-Non Manuf.	14	41
18 Residential	23	92
19 Residential	14	112
20 Public Space	3	75
21 Non Manufacturing	8	229
22 Public and Vacant	4	246
23 Residential	28	101
24 Residential.	32	124
25 Residential	22	106
26 Residential-Public	15	520
27 Residential-Commercial	4	283
28 Public	3	485
29 Residential and Rural	28	1157
30 Residential	14	444
31 Residential-Vacant	11	281
32 Residential-Vacant	10	1333
33 Rural	4	1043
34 Non Manufacturing-Public	2	496
35 Residential-Rural	4	955
36 Residential	9	475
37 Residential-Public	33	463
38 Manufacturing	8	63

39 Residential	6	59
40 Manufacturing	1	25
41 Residential	4	53
42 Residential-Public	6	322
43 Residential-Open	7	670
44 Rural	2	581
45 Rural	1	407
46 Rural	1	459
47 Residential-Rural	4	362
48 Residential	<u>12</u>	<u>62</u>
38	417	12,553

The external cordon line around the study area connected 9 external stations where the traffic was stopped and the drivers interviewed.

#### Summary of operation: External

External Stations	Hours of Operation	Total Interviews	Percent of Traffic Interviewed
3	24	8617	73.9%
1	18	219	96.5%
2	16	3356	73.1%
3	13	<u>342</u>	<u>66.7%</u>
Total External		12,534	73.8%

These nine external stations were operated on all main highways and important secondary roads crossing the cordon line. These stations accounted for ninety-nine percent of all trips entering and leaving the study area.

#### Summary of operations: Internal

Type of Interview	No. of Units Interviewed	Size of Sample
Dwelling Units	1133	19.2%
Trucks	268	50.0%
Taxis	18	100.0%

# **APPENDIX B**

## **INTERVIEW FORMS**

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Form 1599  
O-D2  
(Rev. 4/64)

MICHIGAN STATE HIGHWAY DEPARTMENT  
OFFICE OF DESIGN - TRAFFIC DIVISION

INTERVIEW ADDRESS SUMMARY

METROPOLITAN AREA TRAFFIC STUDY

CITY \_\_\_\_\_

ZONE NO. \_\_\_\_\_

BLOCK NO. \_\_\_\_\_

INTERVIEW ADDRESS:

TYPE OF STRUCTURE: { 1 SINGLE 4 INSTITUTION 7 MOTEL  
2 DOUBLE 5 ROOMING 8 TRAILER  
3 MULTIPLE 6 HOTEL 9 DORMITORY

SAMPLE NO. \_\_\_\_\_  
TYPE OF STRUCTURE \_\_\_\_\_

DATE OF TRAVEL: \_\_\_\_\_

A. NUMBER OF PASSENGER CARS \_\_\_\_\_ CAR MILEAGE PER YEAR D, E, F, G.

B. NUMBER OF PERSONS LIVING AT THIS ADDRESS \_\_\_\_\_

C. NUMBER OF PERSONS 5 YEARS OF AGE OR OVER \_\_\_\_\_

D. DATA FOR PERSONS 5 YEARS OF AGE OR OVER:

PERSON NO.	SEX & RACE	PERSON IDENTIFICATION	CODE	INDUSTRY AND OCCUPATION	MADE TRIPS		
					YES	NO	NOT KNOWN
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							

E. TOTAL NUMBER OF TRIPS REPORTED AT THIS ADDRESS: \_\_\_\_\_

1. NUMBER OF PERSONS (5 YRS OF AGE OR OVER) MAKING TRIPS \_\_\_\_\_

2. NUMBER OF PERSONS (5 YRS OF AGE OR OVER) MAKING NO TRIPS \_\_\_\_\_

3. NUMBER OF PERSONS (5 YRS OF AGE OR OVER) WITH TRIPS UNKNOWN \_\_\_\_\_

SPECIAL \_\_\_\_\_ A, B, C, D, E, F, G.

F. COMMENTS AND REASONS IF COMPLETE INFORMATION WAS NOT OBTAINED \_\_\_\_\_

1-2
3-5
6-8
9-10
11
12
13-14
15-16

ADMINISTRATIVE RECORD

INTERVIEWER: \_\_\_\_\_

	DATE	CALLS	TIME
(1)	_____	_____	_____
(2)	_____	_____	_____
(3)	_____	_____	_____
(4)	_____	_____	_____

REPORT SUBMITTED INCOMPLETE

DATE: \_\_\_\_\_

REASON: \_\_\_\_\_

HOUSEHOLD INCOME A, B, C, D, E.

SUPERVISOR'S COMMENT: \_\_\_\_\_

REMARKS \_\_\_\_\_

REPORT COMPLETED (DATE) (INITIAL)

INTERVIEW CHECKED (INITIAL)

CODED BY (INITIAL)

CODING CHECKED BY (INITIAL)

PHONE NUMBER \_\_\_\_\_

17-18
19-20
21-22
23-24
25
59
2

Special

FORM NUMBER

INTERVIEW ADDRESS SUMMARY



Form 1599  
O-D-2  
(Rev. 5/64)

MICHIGAN STATE HIGHWAY DEPARTMENT  
JOHN C. MACKIE, COMMISSIONER  
OFFICE OF DESIGN - TRAFFIC DIVISION

METROPOLITAN AREA TRAFFIC STUDY  
EXTERNAL INTERVIEW

City Number		Station		Date	Day of Travel	Hour Period ( ) AM or ( ) PM		Hour Period Ending		Inbound 1-White Outbound 2-Blue		Code Box 61																																								
1	2	3	4	5	6	7	8	9	10	11	12	13	14																																							
Interview Number	State of Registration	Vehicle Type	No. in Vehicle	Where did this trip begin? Origin	Where will this trip end? Destination	Trip Purpose	Land Use	Where is this vehicle garaged?	Screen	Route of Exit or Ent.	Stops in area	Intermediate Stop	Code Box 61																																							
	1 Michigan 2 Other							5 Other 6			1 Yes 2 No X Not Stated	Purpose Location																																								
	(write in)																																																			
	1 Michigan 2 Other							5 Other 6			1 Yes 2 No X Not Stated																																									
	(write in)																																																			
	1 Michigan 2 Other							5 Other 6			1 Yes 2 No X Not Stated																																									
	(write in)																																																			
	1 Michigan 2 Other							5 Other 6			1 Yes 2 No X Not Stated																																									
	(write in)																																																			
	1 Michigan 2 Other							5 Other 6			1 Yes 2 No X Not Stated																																									
	(write in)																																																			
9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61

- 1. Passenger Car
- 2. Single Unit-Single Rear Tire
- 3. Single Unit-Dual Rear Tire
- 4. Single Unit-3 Axle
- 5. TT-ST Combination
- 6. TT-ST-TR or TK-TR
- 7. Bus Not C.C.
- 8. Taxi

DAY OF TRAVEL

- ( ) 1 Sun. ( ) 4 Wed.
- ( ) 2 Mon. ( ) 5 Thur.
- ( ) 3 Tue. ( ) 6 Fri.
- ( ) 7 Sat.

- 1. Work
- 2. Pers. Business
- 3. Shopping
- 4. Vacation
- 5. Other Soc. or Rec.
- 6. All Other

HOUR ENDING

- ( ) 1 ( ) 2 ( ) 3
- ( ) 4 ( ) 5 ( ) 6
- ( ) 7 ( ) 8 ( ) 9
- ( ) 10 ( ) 11 ( ) 12

- 1. Course of Work
- 2. Transport Business
- 3. Social-Recreation
- 4. Eating
- 5. Gas-Oil Service
- 6. Serve Passenger
- 7. Secure Lodging
- 8. Shopping

4  
59  
FORM NUMBER

EXTERNAL INTERVIEW







# **APPENDIX C**

## **TRIP TABLES**



SAULTE STE MARIE  
METROPOLITAN AREA TRAFFIC STUDY

TABLE S-1

TOTAL TRIPS BY PASSENGER CAR, TRUCK AND TAXI DRIVERS FOR A 24-HOUR WEEKDAY IN JULY AND AUGUST OF 1964

DESTINATIONS

ORIGIN	1	2	3	4	5	6	7	8	9	SUR-TOT
1		17	1158	11	72	2		3	1	1264
2	21		1	1	1	2		1		27
3	1227	1		47	16	16		2	2	1311
4	14	4	32		8					59
5	50	1	9	6		3				69
6	1	4	9	3	5					22
7										
8	1		1							2
9					1					1
SUB-TOT	1314	27	1210	68	103	24		6	3	2755
11	105	226	420	241	354	33	6	24	24	1433
12	33	53	637	64	356	8		16	6	1173
13	44	26	110	35	64	4	3	6	1	293
14	17	20	54	15	54	3		6		169
15	8	12	23	5	18	3		6		75
16	7	32	41	28	47	2	4	1	3	165
17	7	58	66	36	91	10	1	7		276
18	8	11	28	10	22	2		7	1	89
19	10	17	21	9	16	1		6		80
20	5	10	12	3	11	1		3		45
21		7	13		11			1		32
22	2	1	9	1	12					25
23	9	39	37	30	63	2		12		192
24	6	16	27	14	32	2		1	1	99
25	14	39	98	16	65			1	2	235
26	7	22	37	10	33	1		3		113
27	6	6	9	1	27	2		1		52
28	3	13	9	2	15	1				43
29	3	10	36	16	11	1		14		91
30		5	20	6	6			8		45
31	3	3	12		5			1		24
32	1		5		9			1	1	17
33			1		1			6		8
34		8	34	1	14			29	5	91
35		11	15	2	24			2		54
36	3	7	19	3	11	2		3		48
37	3	12	30	19	36		8	4		112
38	5	12	20	13	10	1	2		3	66
39	4	11	16	20	16	5		2	3	77
40	1	2	11	3	1					18
41	7	3	29	15	17	2		4		77
42	4	2	10	4	17					37
43		3	2	4	6		1			16
44	3	2	5	5	2					17
45		1		3	2					6
46				2	1				3	6
47	2	5	9	13	11		1	1		42
48	6	15	26	13	17			3	2	82
SUB-TOT	336	720	1951	662	1508	86	26	179	55	5523
FIN-TOT	1650	747	3161	730	1611	110	26	185	58	8278

SAULTE STE MARTE  
METROPOLITAN AREA TRAFFIC STUDY

TABLE S-1

TOTAL TRIPS BY PASSENGER CAR, TRUCK AND TAXI DRIVERS FOR A 24-HOUR WEEKDAY IN JULY AND AUGUST OF 1964

DESTINATIONS

ORIGIN	11	12	13	14	15	16	17	18	19	20
1	72	61	45	15	1	8	9	16	5	3
2	208	91	35	23	15	30	44	12	17	10
3	399	1166	120	76	39	44	73	30	16	43
4	259	86	22	12	4	23	61	12	17	4
5	365	280	54	38	32	42	100	18	20	11
6	33	13	5	1		4	7		2	
7	5		7				5			
8	13	6	11	4		3	16	5	3	2
9	20	8			2		2			
SUB-TOT	1374	1711	299	169	93	154	317	93	80	73
11	3139	121	754	663	394	726	893	515	221	66
12	212	14	26	52	73	200	27	65	24	
13	740	41	337	111	43	150	244	153	69	
14	561	31	125	135	94	66	174	9	40	12
15	419	33	54	63	118	75	52	11	23	16
16	596	139	182	56	128	177	191	108	28	2
17	966	31	99	130	61	327	172	113	5	1
18	399	27	83	10	5	119	70	84	61	
19	316	24	78	97	12	53	57	21	58	25
20	48			2	26				20	38
21	131	25	32	11	43	31	49	12	6	
22	75		26	5		26		36	17	
23	695	68	125	17	35	88	248	39	40	
24	564	42	79	71	6	130	130	26	12	11
25	681	52	91	47	104	124	119	85	17	22
26	239	10	27	34		43	140	57	17	12
27	114	12	19				34		31	
28	89		15	12	35	14	17	20	26	
29	289		50	5	60		83	23	39	
30	180	20	71	10		16	60	11	5	5
31	179	25	55	47		48	9	28	10	
32	58	5	6	5	6	9	5		6	
33	5						5			
34	91	25	25	11	31		49		12	
35	150	13	38	12	6	27	28	26	38	
36	107	25		21	9	18	44	38		24
37	702	37	72	113	49	161	289	70	61	11
38	161		6	47	26	84	18			
39	343	33	59	55	33	21	47	19	82	
40	75		24		16	21		13		
41	91		12	38	11			19	1	
42	121	22	10	77	25	67	27	55	60	36
43	68	11		12		5	41	21	6	
44	53			59		12				
45	15			12			11			
46	19	5								
47	125	26	50		9	31	37	23	36	
48	284	32	53	65	43	9	63	6	18	5
SUB-TOT	13100	949	2683	2105	1501	2880	3433	1706	1089	286
FIN-TOT	14474	2660	2982	2274	1594	3034	3750	1799	1169	359

SAILTIF STF MARTE  
METROPOLITAN AREA TRAFFIC STUDY

TABLE S-1

TOTAL TRIPS BY PASSENGER CAR, TRUCK AND TAXI DRIVERS FOR A 24-HOUR WEEKDAY IN JULY AND AUGUST OF 1964

ORIGIN	21	22	23	24	25	26	27	28	29	30
1		2	10	4	32	2	4	1	2	
2	4	6	16	31	31	23	13	5	12	9
3	11	4	54	41	184	30	8	12	23	15
4	2	3	27	6	12	3	4	7	5	2
5	2	2	36	28	56	25	18	9	12	4
6			5		1	2	1	2	2	
7										
8	3		10		2	2			2	
9			1		5	2	2		2	2
SUB-TOT	22	17	159	110	323	89	50	36	60	32
11	213	89	747	582	616	320	78	97	301	231
12	63	10	91	74	111		6			45
13	39	40	127	89	67	48	29	23	46	98
14	9	10	32	52	37	30		1	23	21
15	16		53	33	82	12		26	5	
16	11	26	114	188	82	31	6	14	6	10
17	31	23	290	97	260	127	11	34	87	87
18	16	23	30	48	90	55		16	37	5
19	6	21	30		36	20	9	10	34	16
20				20	28		9			25
21	50		31	37	56				142	117
22	21		28	26	42	20			5	12
23	6	42	114	62	90	33	1	70	68	30
24	27	11	95	305	94	10	15	6	6	
25	37	53	70	73	269	183	70	20	106	34
26	6	19	40	32	134	28	16		10	10
27			6	15	41					
28			72		24				20	
29	106		50	6	71	24		11	97	26
30	43	10	30		45	19	12		10	53
31	27			51	30	21		10	22	47
32	25	6	6		30			5	35	23
33										
34	10	15	50	9	5	10	9		42	6
35	12		38	9	27	38		5	22	10
36			103	35	43	5	11		16	
37	22	1	84	159	130	33	43	20	53	9
38			1	37	1	10				
39	1	12	34	32	31	27	24			
40			6	18	2		38			
41			17	45	17	12				
42	12		62	6	24	12			31	
43			16	26	5				12	
44					6					
45					15					
46				12						
47		12	20	17	43	34				15
48		10	86	75	22	1				
SUB-TOT	809	433	2573	2270	2706	1163	387	368	1236	930
FIN-TOT	831	450	2732	2380	3029	1252	437	404	1296	962

SAINTE STE MARIE  
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TABLE S-1

TOTAL TRIPS BY PASSENGER CAR, TRUCK AND TAXI DRIVERS FOR A 24-HOUR WEEKDAY IN JULY AND AUGUST OF 1964

DESTINATIONS

ORIGIN	31	32	33	34	35	36	37	38	39	40
1	2	1			4	1	5	5	5	3
2	3	1		15	14	5	22	7	10	3
3	4	12		25	9	10	25	14	18	1
4	1			1	5	3	9	12	6	3
5	5	5	2	5	27	14	20	3	16	2
6				1	2	2		1	3	
7										
8		4	3	40	1	2	2		3	
9			2	3	2			3	2	
SUB-TOT	15	23	7	90	64	37	83	45	63	12
11	135	46	20	117	225	133	886	148	385	13
12	27	25		54	25	34	49	7	57	9
13	85	11			31	35	48	6	75	15
14	44	9		5	12	29	100	34	40	43
15	11			16		46	40	12	41	6
16	56				17		196	31	40	11
17	35	28	10	60	63	64	203	6	46	12
18	25			12	11	21	57		12	11
19	22	35			49		69		46	
20		15		6	27	15	15	9		
21	16	52		9	10		34			18
22		9					1		10	
23	11	6		16	30	36	76	33	29	7
24	33			5	12	11	103	5	18	11
25	39	10		18	5	46	91	1	48	5
26	10	11			12	22	27	34	6	
27	12			20		9	10		10	16
28	19	10					34		10	
29	21	27		28	21		36		1	
30	38	29			10		5	11		
31	11	73		17	10		77	10	9	1
32	64	58		9	5		9		16	
33									15	
34	10	10		38	100	26	10			
35	26	5		112	61	33	40		17	
36				23	18	30	11		12	6
37	74			21	75		389	29	86	5
38	10						41	6	70	
39	10				12	11	106	63	143	24
40		6				6		6	35	
41	12				12	26	26		10	6
42	12						106		41	
43					35	10	39	5	11	
44	9									
45					37		15		17	
46										
47	6				5	11	10	11	11	37
48	9	9			15		84	23	57	
SUB-TOT	892	484	30	586	945	654	3043	490	1424	256
FIN-TOT	907	507	37	676	1009	691	3126	535	1487	268

SAINTE STE MARIE  
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TABLE S-1

TOTAL TRIPS BY PASSENGER CAR, TRUCK AND TAXI DRIVERS FOR A 24-HOUR WEEKDAY IN JULY AND AUGUST OF 1964

DESTINATIONS

ORIGIN	41	42	43	44	45	46	47	48	SUB-TOT	FIN-TOT
1	6	3	2	3	2		4	8	346	1610
2	2	6	3	2		3	3	6	740	767
3	11	20	12	1		3	3	24	2580	3891
4	12	3	3	9	3		25	11	477	736
5	9	13					4	22	1299	1368
6	1							1	89	111
7	2								19	19
8		4							141	143
9			2	4					64	65
SUB-TOT	43	49	22	19	5	6	39	72	5955	8710
11	162	127	111	70	5	24	163	393	13929	15362
12		20	10	11		9	16	21	1467	2640
13	29	36					63	29	2957	3250
14	49	91	12	26	22			69	2047	2216
15	6	16	6	1				51	1343	1418
16	35	57					42	33	2613	2778
17	20	83	46	11			50	34	3723	3999
18	20	67	30		6		32	9	1491	1580
19		71					41	47	1303	1383
20		9						10	322	367
21	1								913	945
22							12	12	383	408
23	5	88	1				11	60	2280	2472
24	25	15	12			11	15	58	1974	2073
25	14	16	9	12	24		38	1	2634	2869
26		17	9	12			12	10	1056	1169
27								6	355	407
28							21	14	452	495
29		11	19				10		1114	1205
30			1						694	739
31	10	21					6	9	863	887
32		18					6	19	434	451
33									25	33
34		12							606	697
35			40		26		11		872	926
36	26		10						635	683
37	5	67	60	1	20		6	67	3024	3136
38							22	15	564	630
39	6	1	1				21	66	1333	1410
40				9			33		308	326
41	10						19	21	405	482
42			23	16			16	33	894	931
43		3						6	454	470
44		6		6			6		169	186
45			103					10	235	241
46									36	42
47	42	21	6				120		758	800
48		23			5		10	31	1038	1120
SUB-TOT	445	916	534	175	222	44	802	1134	55703	61226
FIN-TOT	508	965	556	194	227	50	841	1206	61658	69936



SAULTE STE MARIE  
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TABLE S-2

TOTAL TRIPS BY COMBINATION TRUCK DRIVERS FOR A 24-HOUR WEEKDAY IN JULY AND AUGUST OF 1964

DESTINATIONS

ORIGIN	1	2	3	4	5	6	7	8	9	SUB-TOT
1			9		1					10
2										
3	11							2		13
4										
5			1							1
6										
7										
8										
9										
SUB-TOT	11		10		1			2		24
11	2	1	5		2					10
12			2							2
13					1					1
14		1			3					4
15			2							2
16										
17			1		3					4
18			1							1
19		1	4							5
20										
21										
22										
23										
24										
25			2							2
26			2							2
27										
28										
29			2							2
30										
31										
32										
33										
34										
35										
36										
37										
38			1							1
39	1		1		1					3
40										
41										
42										
43										
44										
45										
46										
47										
48										
SUB-TOT	3	3	23		10					39
FIN-TOT	14	3	33		11			2		63

SAULTE STE MARIE  
METROPOLITAN AREA TRAFFIC STUDY

TABLE S-2

TOTAL TRIPS BY COMBINATION TRUCK DRIVERS FOR A 24-HOUR WEEKDAY IN JULY AND AUGUST OF 1964

DESTINATIONS

ORIGIN	11	12	13	14	15	16	17	18	19	20
1							3			
2									1	
3	6	1		3			2	1	8	1
4										
5	1			2	1	1	2			
6										
7										
8										
9										
SUB-TOT	7	1		5	1	1	7	1	9	1
11	213									
12										
13										
14	15									
15										
16										
17	15						15			
18										
19										
20										
21										
22										
23										
24										
25	30									
26				15						
27							15			
28										
29	15									
30										
31										
32										
33										
34										
35										
36										
37										
38	15									
39										
40										
41										
42										
43										
44										
45										
46										
47										
48										
SUB-TOT	303			15			30			
FIN-TOT	310	1		20	1	1	37	1	9	1

SAULTE STE MARIE  
METROPOLITAN AREA TRAFFIC STUDY

TABLE S-2

TOTAL TRIPS BY COMBINATION TRUCK DRIVERS FOR A 24-HOUR WEEKDAY IN JULY AND AUGUST OF 1964

DESTINATIONS

ORIGIN	21	22	23	24	25	26	27	28	29	30
1										
2										
3										
4			1						7	
5										
6										
7										
8										
9										
SUB-TOT			1						7	
11					30	15				30
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25						15				
26										
27										
28										
29										
30										
31										
32										
33										
34										
35										
36										
37										
38										
39						15				
40										
41										
42										
43										
44										
45										
46										
47										
48										
SUB-TOT					30	45			30	
FIN-TOT			1		30	45			37	

SAULTE STE MARIE  
METROPOLITAN AREA TRAFFIC STUDY

TABLE S-2

TOTAL TRIPS BY COMBINATION TRUCK DRIVERS FOR A 24-HOUR WEEKDAY IN JULY AND AUGUST OF 1964

DESTINATIONS

ORIGIN	31	32	33	34	35	36	37	38	39	40
1								2		
2						1				
3				1				1		
4										
5									1	
6										
7										
8										
9										
SUB-TOT				1		1		3	1	
11										15
12										
13										
14										
15										
16										
17										
18										
19							15			
20										
21										
22										
23										
24										
25										
26								15		
27										
28										
29										
30										
31										
32										
33										
34										
35										
36										
37										
38										
39										
40										
41										
42										
43										
44										
45										
46										
47										
48										
SUB-TOT							15	15	15	
FIN-TOT						1	15	18	16	

SAULTE STE MARIE  
METROPOLITAN AREA TRAFFIC STUDY

TABLE S-2

TOTAL TRIPS BY COMBINATION TRUCK DRIVERS FOR A 24-HOUR WEEKDAY IN JULY AND AUGUST OF 1964

DESTINATIONS

ORIGIN	41	42	43	44	45	46	47	48	SUB-TOT	FIN-TOT
1									5	15
2									2	2
3								2	34	47
4										
5									8	9
6										
7										
8										
9										
SUB-TOT								2	49	73
11									303	313
12										2
13										1
14									15	19
15										2
16										
17									30	34
18										1
19									15	20
20										
21										
22										
23										
24										
25									45	47
26									45	47
27										
28										
29									15	17
30										
31										
32										
33										
34										
35										
36										
37										
38										
39									15	16
									15	18
40										
41										
42										
43										
44										
45										
46										
47										
48										
SUB-TOT									498	537
FIN-TOT								2	547	610

SAULTE STE MARIE  
METROPOLITAN AREA TRAFFIC STUDY

TABLE S-3

TOTAL TRIPS BY SINGLE-UNIT TRUCK DRIVERS FOR A 24-HOUR WEEKDAY IN JULY AND AUGUST OF 1964

DESTINATIONS

ORIGIN	1	2	3	4	5	6	7	8	9	SUB-TOT
1		1	59		3					63
2	2					1				3
3	40			3	1	3				47
4		1	4		2					7
5	2		1	1						4
6		1	3		1					5
7										
8	1									1
9										
SUB-TOT	45	3	67	4	7	4				130
11	5	25	47	19	25	7		1	2	131
12	1	3	8	9	21			1		43
13		4	6	4	18				1	33
14		3		1	6			1		11
15	3			1						4
16		7	5	2	4					18
17		11	13	8	23	3		1		59
18		2			2			3		7
19	4	9	5	2	9	1		1		31
20		1	3	2				1		7
21										
22			5	1						6
23		3		4	7			3		17
24		2	1	2	1	1				7
25		9	4		8				1	22
26	1	3	1		4					9
27					11					11
28	2	1		1	1					5
29				2	1	1		4		8
30				1				2		3
31	1				4					5
32									1	1
33										
34		1	4		2			7	5	19
35		4	5		5					14
36		2			5	1		2		10
37	1	1		1	3		2	1		9
38		2	3	3	3		2		1	14
39	1	2		8	3	1				15
40			1							1
41	1	1			4					6
42					6					6
43				1						1
44										
45				2						2
46										
47			2	1	1		1			5
48	3	3		2						8
SUB-TOT	23	99	113	77	177	15	5	28	11	548
FIN-TOT	68	102	180	81	184	19	5	28	11	678

SAULTE STE MARIE  
METROPOLITAN AREA TRAFFIC STUDY

TABLE S-3

TOTAL TRIPS BY SINGLE-UNIT TRUCK DRIVERS FOR A 24-HOUR WEEKDAY IN JULY AND AUGUST OF 1964

DESTINATIONS

ORIGIN	11	12	13	14	15	16	17	18	19	20
1	5	2	2			1			2	2
2	20	9	6	1	1	4	10	3	3	
3	30	26	3	4	2	5	24	3		3
4	22	7	1	4	1	3	8	2	4	
5	39	16	4	2	3	2	22		8	2
6	1	3							1	
7							3			
8	2		1				2	2		1
9	3									
SUB-TOT	122	63	17	11	7	15	69	10	18	8
11	855	12	114	48	30	114	96	42	102	6
12	30				6	12				
13	96	6	36	6	12	24	48	18	24	
14	60	6		24	36	18	6		6	6
15	42		12	24	18	42			18	
16	96	18	30	24	48	66	30	12	6	
17	108	6	12	6	6	60	48	12		
18	48		12			12		18	6	
19	96	12	18	6	12	6	6	6	18	
20	12				6					
21	12			6					6	
22	12		6						12	
23	96		12		12	18	30	18	24	
24	60		12	12	6	30	12			
25	108			6		6		12	6	6
26	60		6	6			30	6	6	
27	12						18		6	
28	6								6	
29	42				18		12		6	
30	6					6				
31				6						
32	6		6		6				6	
33										
34	6									
35	6		6		6	12				
36										6
37	36		6	6	6	30	36	12		6
38	42		6		6	18	18			
39	60	18	6	18	12	12		6	6	
40	30		12		6	12				
41	12		6							
42	6						6			
43	12	6							6	
44	6									
45							6			
46										
47	30						6			
48	18			18	6		12	6	12	
SUB-TOT	2127	84	318	216	258	498	420	168	276	30
FIN-TOT	2249	147	335	227	265	513	489	178	294	38

TABLE S-3

SAULTE STE MARIE  
METROPOLITAN AREA TRAFFIC STUDY

TABLE S-3

TOTAL TRIPS BY SINGLE-UNIT TRUCK DRIVERS FOR A 24-HOUR WEEKDAY IN JULY AND AUGUST OF 1964

DESTINATIONS

ORIGIN	21	22	23	24	25	26	27	28	29	30
1										
2			1	4	6	1	1		1	
3			7		7				5	
4	2		2	2	1			1		1
5			5	1	8	6	2		2	
6			3		1	1			1	
7										
8			5			1			2	
9			1		2				2	2
SUB-TOT	2		24	7	25	9	3	1	13	3
11	6	12	78	48	84	102		6	36	6
12							6			
13		6	6	6	6					6
14				12		6				
15			6	6		12				
16	6		12	30	6		6		6	
17			24	12	24	24	6		12	6
18	6		24		18	6				
19	6	12	12		24	6				
20					12					
21	6								18	6
22	6		6							
23		6	60	6	30			6	24	
24	6		12	36	6				6	
25			24		30	18	18		36	
26	6		12	12	12	18	6			
27			6		6					
28			6							
29	18		30	6	12	6			18	
30							12			
31				6						
32		6	6							
33										
34			6							6
35			6						12	
36			24		6					
37	6		6	18	6	6			12	
38										
39			18	12		12	12			
40			6							
41			6	6						
42				6						
43										
44					6					
45										
46										
47				6						
48			36	12	6					
SUB-TOT	72	42	432	240	294	216	66	12	180	30
FIN-TOT	74	42	456	247	319	225	69	13	193	33



METROPOLITAN AREA TRAFFIC STUDY

TABLE S-3

TOTAL TRIPS BY SINGLE-UNIT TRUCK DRIVERS FOR A 24-HOUR WEEKDAY IN JULY AND AUGUST OF 1964

DESTINATIONS

ORIGIN	31	32	33	34	35	36	37	38	39	40
1								2	3	
2				3	1	1	1	3		
3	1	5		1	1		5	2	5	
4				1			1	4	2	1
5	1			1	10	1	2	1	2	
6				1	1					
7										
8		1		6		1				
9								3		
SUB-TOT	2	6		13	13	3	9	15	12	1
11	6	18			30		54	42	72	12
12								6	18	
13					6			6		6
14						6		18	6	6
15							12	12		6
16					12		36	6	30	6
17		6			6		24	6	6	12
18							6			
19							6		6	
20				6			6			
21	6	6					12			
22										
23		6			6	6	6		12	6
24						6	12		18	
25				6		6			6	
26						12	6		6	
27										6
28										
29		6		6						
30		6						6		
31										
32									6	
33										
34				12		6				
35				6	12				6	
36										6
37					6		18		6	
38							12	6	30	
39							12	18	18	6
40		6				6		6		
41						12				6
42							6			
43										
44										
45									12	
46										
47	6									
48								12	6	
SUB-TOT	18	54		36	78	60	228	144	264	78
FIN-TOT	20	60		49	91	63	237	159	276	79

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TABLE S-3

TOTAL TRIPS BY SINGLE-UNIT TRUCK DRIVERS FOR A 24-HOUR WEEKDAY IN JULY AND AUGUST OF 1964

DESTINATIONS

ORIGIN	41	42	43	44	45	46	47	48	SUB-TOT	FIN-TOT
1					1				20	83
2			1			1		1	83	86
3		2							141	188
4				2			1		73	80
5		4					3	5	152	156
6									13	18
7	2								5	5
8		3							27	28
9				2					15	15
SUB-TOT	2	9	1	4	1	1	4	6	529	659
11			6				24	30	2091	2222
12							6		84	127
13		6						6	330	363
14								6	222	233
15	6	6	6					24	252	256
16	12							6	504	522
17			6						432	491
18					6				162	169
19								24	276	307
20									42	49
21									78	78
22									42	48
23		6						36	426	443
24		6							240	247
25		6		12					306	328
26				12					216	225
27								6	60	71
28									12	17
29									180	188
30									36	39
31							6		18	23
32							6		48	49
33										
34									36	55
35									72	86
36	12								54	64
37							6	6	234	243
38							6		144	158
39	6		6						258	273
40									84	85
41							6		54	60
42				6			6		36	42
43								6	30	31
44		6		6	12		6		42	42
45									18	20
46										
47			6				6		60	65
48									144	152
SUB-TOT	36	36	30	36	18		78	150	7323	7871
FIN-TOT	38	45	31	40	19	1	82	156	7852	8530

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TABLE S-4

TOTAL TRIPS BY PASSENGER CAR AND TAXI DRIVERS FOR A 24-HOUR WEEKDAY IN JULY AND AUGUST OF 1964

DESTINATIONS

ORIGIN	1	2	3	4	5	6	7	8	9	SUB-TOT
1		16	1090	11	68	2		3	1	1191
2	18		1	1	1	1		1		23
3	1176	1		44	15	13		1	2	1252
4	14	3	28		6	1				52
5	48	1	8	5		3				65
6	1	3	6	3	4					17
7										
8	1		1							2
9					1					1
SUB-TOT	1258	24	1134	64	95	20		5	3	2603
11	98	200	369	221	327	26	6	23	22	1292
12	32	50	626	56	336	8		15	6	1129
13	44	22	104	31	45	4	3	6		259
14	17	16	54	13	45	3		5		153
15	5	12	21	4	18	3		6		69
16	7	25	36	26	43	2	4	1	3	147
17	7	47	52	28	65	7	1	6		213
18	8	9	27	10	20	2		4	1	81
19	6	7	12	7	7			5		44
20	5	9	9	1	11	1		1		37
21		7	13		11			1		32
22	2	1	4		12					19
23	9	36	37	26	56	2		10		176
24	6	14	26	12	31	1		1	1	92
25	14	30	92	16	58			1	1	212
26	6	19	33	10	29	1		3		101
27	6	6	9	1	15	2		1		40
28	1	12	9	1	14	1				38
29	3	10	34	14	10			10		81
30		5	20	5	6			6		42
31	2	3	12		1			1		19
32	1		5		9			1		16
33			1		1			6		8
34		7	30	1	12			22		72
35		7	10	2	18			2		39
36	3	5	19	3	6	1		1		38
37	2	11	30	18	33		6	3		103
38	5	10	15	10	7	1			2	50
39	2	9	15	12	11	4		2	3	58
40	1	2	10	3	1					17
41	6	2	29	15	13	2		4		71
42	4	2	10	4	11					31
43		3	2	3	6		1			15
44	3	2	5	5	2					17
45		1		1	2					4
46				2	1				3	6
47	2	5	8	12	10			1		38
48	3	12	26	11	17			3	2	74
SUB-TOT	310	618	1814	584	1320	71	21	151	44	4933
FIN-TOT	1568	642	2948	648	1415	91	21	156	47	7536

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TABLE S-4

TOTAL TRIPS BY PASSENGER CAR AND TAXI DRIVERS FOR A 24-HOUR WEEKDAY IN JULY AND AUGUST OF 1964

DESTINATIONS

ORIGIN	11	12	13	14	15	16	17	18	19	20
1	67	59	44	15	1	7	6	16	3	1
2	188	82	29	22	14	27	35	8	12	10
3	363	1139	118	69	38	38	47	26	9	39
4	237	80	21	8	3	20	54	10	13	4
5	325	263	50	34	27	39	76	18	12	9
6	32	10	5	1		4	7		1	
7	5		7				2			
8	12	6	10	4		3	14	3	3	1
9	17	8			2		2			
SUB-TOT	1246	1647	284	153	85	138	243	81	53	64
11	2071	109	640	615	364	612	797	473	119	60
12	182	14	26	52	67	188	27	65	24	
13	644	35	301	105	31	126	196	135	45	
14	486	25	125	111	58	48	168	9	34	6
15	377	33	42	39	100	33	52	11	5	16
16	500	121	152	32	80	111	161	96	22	2
17	843	25	87	125	55	267	109	102	5	1
18	351	27	71	10	5	107	70	86	55	
19	221	12	60	91		47	51	15	40	25
20	36			2	20				20	38
21	119	25	32	5	43	31	49	12		
22	63		20	5		26		36	5	
23	600	68	113	17	23	70	218	21	16	
24	504	42	67	59		100	118	26	12	11
25	543	52	91	41	104	118	119	73	11	16
26	179	10	21	13		43	95	51	11	12
27	102	12	19				16		25	
28	83		15	12	35	14	17	20	26	
29	232		50	5	42		71	23	33	
30	174	20	71	10		10	60	11	5	5
31	179	25	55	41		48	9	28	10	
32	52	5		5		9		5		
33	5							5		
34	85	25	25	11	31		49		12	
35	144	13	32	12		17	28	26	38	
36	107	25		21	9	18	44	38		18
37	666	37	66	107	43	131	253	59	61	5
38	104			47	20	66				
39	283	16	53	37	21	9	47	13	76	
40	45		12		10	9		13		
41	79		6	38	11			19	1	
42	115	22	10	77	25	67	21	55	60	36
43	56	5		12		5	41	21		
44	47			59		12				
45	15			12			5			
46	19	5								
47	95	26	50		9	31	31	23	36	
48	266	32	53	47	37	9	51		6	5
SUB-TOT	10672	866	2365	1875	1243	2382	2983	1540	813	256
FIN-TOT	11918	2513	2649	2028	1328	2520	3226	1621	866	320

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TABLE S-4

TOTAL TRIPS BY PASSENGER CAR AND TAXI DRIVERS FOR A 24-HOUR WEEKDAY IN JULY AND AUGUST OF 1964

DESTINATIONS

ORIGIN	21	22	23	24	25	26	27	28	29	30
1		2	10	4	32	2	4	1	2	
2	4	6	15	27	25	21	12	5	11	9
3	11	4	45	41	177	30	8	12	12	15
4		3	25	4	11	3	4	6	5	1
5	2	2	31	27	48	19	16	9	10	4
6			2			1	1	2	1	
7										
8	3		5		2	1				
9					3	2	2			
SUB-TOT	20	17	133	103	298	79	47	35	41	29
11	207	77	669	534	502	203	78	91	234	225
12	63	10	91	74	111					45
13	39	34	121	83	61	48	29	23	46	92
14	9	10	32	40	37	24		1	23	21
15	16		47	27	82			26	5	
16	5	26	102	158	76	31		14		10
17	31	23	266	85	236	103	5	34	75	81
18	10	23	6	48	73	49		16	37	5
19		9	18		12	14	9	10	34	16
20				20	16		9			25
21	44		31	37	56				124	111
22	15		22	26	42	20			5	12
23	6	36	54	56	61	33	1	64	44	30
24	21	11	83	269	88	10	15	6		
25	37	53	47	73	239	150	52	20	70	34
26		19	28	20	122	10	10		10	10
27				15	35					
28			66		24				20	
29	88		20		59	19		11	79	26
30	43	10	30		45	19			10	53
31	27			45	30	21		10	22	47
32	25				30			5	35	23
33										
34	10	15	44	9	5	10	9		42	
35	12		32	9	27	38		5	10	10
36			79	35	37	5	11		16	
37	16	1	78	141	124	27	43	20	41	9
38			1	37	1	10				
39	1	12	16	20	31		12			
40				18	2		38			
41			11	39	17	12				
42	12		62		24	12			31	
43			16	26	5				12	
44										
45					15					
46				12						
47		12	20	11	43	34				15
48		10	50	63	16	1				
SUB-TOT	737	391	2142	2030	2384	903	321	356	1025	900
FIN-TOT	757	408	2275	2133	2682	982	368	391	1066	929

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TABLE S-4

TOTAL TRIPS BY PASSENGER CAR AND TAXI DRIVERS FOR A 24-HOUR WEEKDAY IN JULY AND AUGUST OF 1964

DESTINATIONS

ORIGIN	31	32	33	34	35	36	37	38	39	40
1	2	1			4	1	5	1	2	3
2	3	1		12	13	3	21	4	10	3
3	3	7		22	7	10	21	12	12	1
4	1				5	3	8	8	4	2
5	3	5	2	4	17	13	17	1	13	2
6					1	2		1	3	
7										
8		3	3	34	1	1	2		3	1
9			2	3	2				2	
SUB-TOT	12	17	7	75	50	33	74	27	49	11
11	129	28	20	117	195	133	833	106	298	1
12	27	25		54	25	34	49	1	39	9
13	85	11			25	35	48		75	9
14	44	9		5	12	23	100	16	34	37
15	11			16		46	28		41	
16	56				5		160	25	10	5
17	35	22	10	60	57	64	179		41	
18	25			12	11	21	51		12	11
19	22	35			49		48		40	
20		15			27	15	9	9		
21	10	46		9	10		22			18
22		9					1		10	
23	11			16	24	30	70	33	17	1
24	33			5	12	5	91	5		11
25	39	10		12	5	40	91	1	42	5
26	10	11			12	10	21	19		
27	12			20		9	10		10	10
28	19	10					34		10	
29	21	21		22	21		36		1	
30	38	23			10		5	5		
31	11	73		17	10		77	10	9	1
32	64	58		9	5		9		10	
33									15	
34	10	10		26	100	21	10			
35	26	5		106	49	33	40		12	
36				23	18	30	11		12	
37	74			21	69		371	29	80	5
38	10						29		40	
39	10				12	11	94	45	125	18
40									35	
41	12				12	14	26		10	
42	12						100		41	
43					35	10	39	5	11	
44	9									
45					37		15		5	
46										
47					5	11	10	11	11	37
48	9	9			15		84	11	51	
SUB-TOT	874	430	30	550	867	595	2801	331	1147	178
FIN-TOT	886	447	37	625	917	628	2875	358	1196	189

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TABLE S-4

TOTAL TRIPS BY PASSENGER CAR AND TAXI DRIVERS FOR A 24-HOUR WEEKDAY IN JULY AND AUGUST OF 1964

ORIGIN	DESTINATIONS								SUB-TOT	FIN-TOT
	41	42	43	44	45	46	47	48		
1	6	3	2	3	1		4	8	322	1513
2	2	6	2	2		2	3	5	654	677
3	11	19	12	1		3	3	22	2407	3659
4	12	3	3	7	3		24	11	606	658
5	9	9					1	17	1134	1199
6	1							1	76	93
7									14	14
8		1							115	117
9			2	2					49	50
SUB-TOT	41	41	21	15	4	5	35	64	5377	7980
11	162	127	105	70	5	24	139	363	11535	12827
12		20	10	11		9	10	21	1383	2512
13	29	30					63	23	2627	2886
14	49	91	12	26	22			63	1810	1963
15		10		1				27	1091	1160
16	23	57					42	27	2109	2256
17	20	83	41	11			50	34	3265	3478
18	20	67	30				32	9	1330	1411
19		71					41	23	1013	1057
20		9						10	280	317
21	1								835	867
22							12	12	341	360
23	5	82	1				11	25	1857	2033
24	25	9	12			11	15	58	1734	1826
25	14	10	9		24		38	1	2284	2496
26		17	9				12	10	795	896
27									295	335
28							21	14	440	478
29		11	19				10		920	1001
30			1						658	700
31	10	21						9	845	864
32		18						19	386	402
33									25	33
34		12							571	643
35			40		26		11		801	840
36	14		10						581	619
37	5	67	60	1	20			61	2791	2894
38			9				16	15	405	455
39		1	11				21	66	1061	1119
40				9			33		224	241
41	10						13	21	351	422
42			23	10			10	33	858	889
43		23			102				424	439
44									127	144
45			103					10	217	221
46									36	42
47	42	21					114		698	736
48		23			5		10	31	894	968
SUB-TOT	429	880	505	139	204	44	724	985	47897	52830
FIN-TOT	470	921	526	154	208	49	759	1049	53274	60810

TABLE S-4