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WALPENA AREA TRAFFIC STUDY

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Factual Data and Trip Tables

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ALPENA AREA TRAFFIC STUDY

1962

Factual Data
and
Trip Tables

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Cooperating Agencies:

City of Alpena

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

October 1969

FOREWORD

Since the fall of 1945, comprehensive traffic studies have been conducted in various important Michigan cities. The purpose of these studies is to obtain factual highway transportation data, that will serve as a basis for the solution of the traffic problems that exist in and around many of the state's urbanized areas. Known as Area Traffic Studies they are initiated and conducted by the Michigan Department of State Highways in cooperation with the United States Department of Commerce, Bureau of Public Roads and those local government units directly involved.

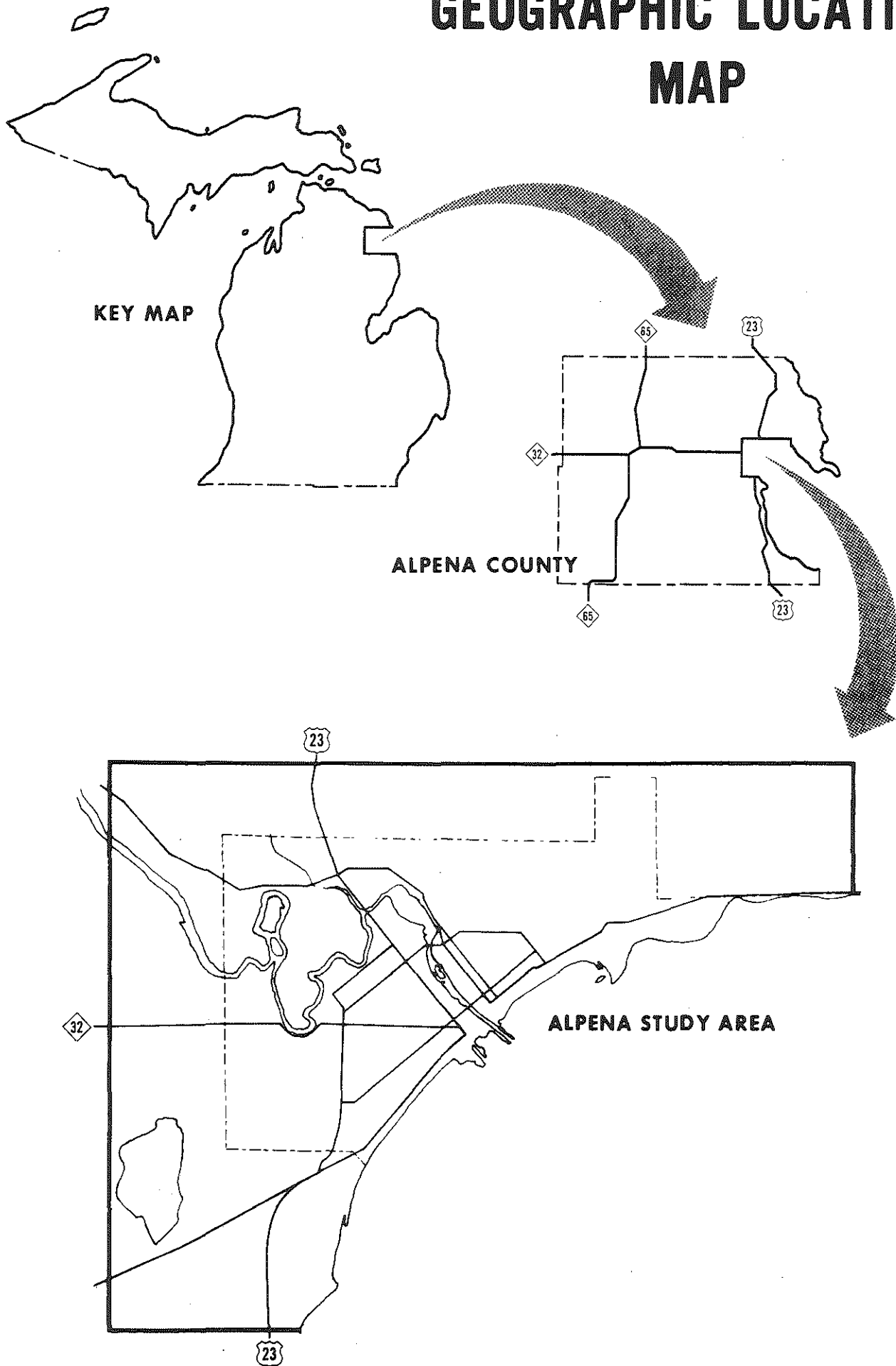
Because the methods used, and the broad scope of the study requires accumulation of factual data in large quantities, sampling techniques developed by the Bureau of Public Roads and the United States Bureau of the Census are employed. The compiled data, when arranged and tabulated by the Transportation Planning Division of the Michigan Department of State Highways, are used to analyze and investigate each specific phase of the local traffic situation.

"Factual Data and Trip Tables" is the first of the reports made to present the results of the Alpena Area Traffic Study. This report contains the basic data used by the Highway Department and local officials in their study of traffic conditions. Subsequent reports will then analyze and evaluate the merits of suggested solutions.

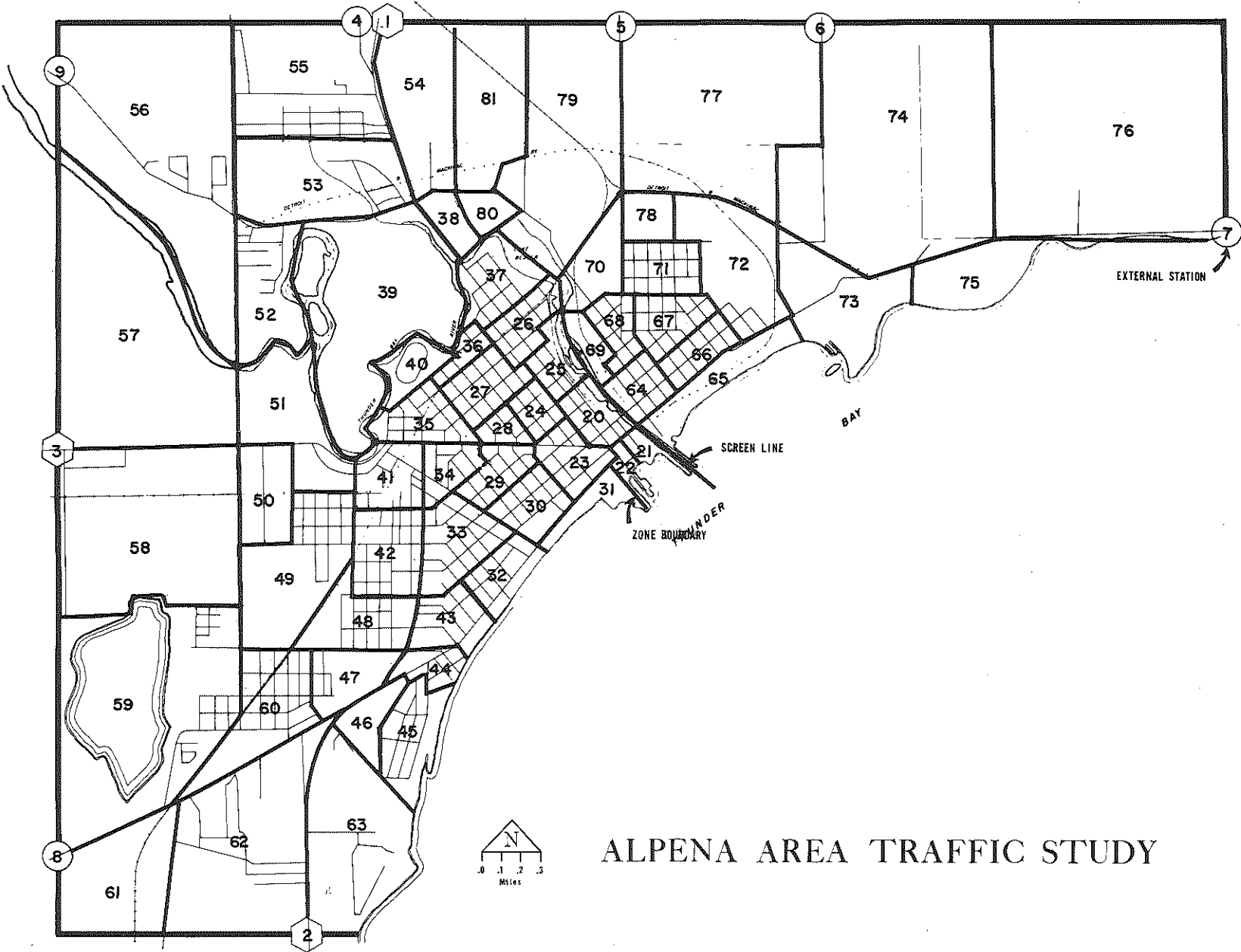
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ALPENA GEOGRAPHIC LOCATION MAP



AREA BASE MAP



ALPENA AREA TRAFFIC STUDY

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 HISTORY

The City of Alpena had its origin similar to those of many other northern Michigan communities. Alpena was originally settled because of the stock of lumber in the area, but has since become much less dependent upon lumbering.

The area on Thunder Bay where Alpena now stands was originally surveyed in 1839, and offered to anyone in the surveying party as his summer wages. The area, however, was nothing but desolate cedar swamp and no one wanted it. Fourteen years later a portion of the area was again surveyed and a village platted. In 1854, Daniel Carter, Alpena's first white settler, arrived with his wife and daughter. Five years later, in 1859, the first steam sawmill in the county was opened in Alpena. The city prospered on lumbering in the late 1800s. At one time twenty lumber and shingle mills, a flour mill, two tanneries and an excelsior plant were operating in Alpena.

The turn of the century brought with it new industry to Alpena. In 1903, limestone quarrying began. Quarrying and the manufacture of cement are the chief industries of Alpena today. The world's largest open-pit limestone quarry is located in Alpena and the Huron Portland Cement Company in Alpena operates the largest single unit cement mill in the world. While today the city is dependent to a large extent on cement and limestone, these are not its sole industries. The city also manufactures paper, concrete block machinery, garments, automotive equipment, fencing, lumber products and steel fabricating.

All necessary public facilities are provided in Alpena. Education is provided by seven public schools, four parochial schools and a community college. There is adequate police and fire protection, a publicly owned water system, six public parks, six childrens' playgrounds and a county airport serving all types of aircraft. Railroad service is provided by the Detroit and Mackinac Railroad. US-23 provides the north-south access to the city. Westerly access is provided by M-32.

Alpena is a growing city with a population of 14,682. This figure represents an increase of 11.8 percent above the 1950 population. Increasing population is matched with the increasing attraction of tourists who are converging on the area for its fine hunting and fishing. Adequate transportation planning to accommodate this growth would appear to be essential to the future of the Alpena urban area.

FIELD PROCEDURE

The field work on the Alpena Area Traffic Study was conducted during the summer of 1962. The purpose was to collect and record necessary data on the movement of people and goods via motor vehicle entering, within, and leaving the study area.

To insure a systematic procedure in conducting the field survey, the study was divided into two general phases, the internal operations, and the external operations.

1. INTERNAL

Based on the size of the study area and the density of the population a recommended 20 percent internal sample (every fifth dwelling unit) was taken on a block to block basis, insuring that the sample would be consistent throughout the area. To achieve sample uniformity a daily comparison with the most recent census statistics was made for each block. This resulted in 957 sample dwelling units.

Home interviews provided travel information for each occupant over five years of age in each sample dwelling unit. The interviews were accomplished by survey personnel calling in person

at sample addresses and recording the answers to the questions on the Interview Address Summary Form O-D 2, and the Internal Trip Report Form O-D 3. Any number of O-D 3s may be filled out to record all trips, depending upon the number of trips made by residents of the dwelling unit interviewed, but only one O-D 2 is necessary for each sample address. See Appendix "B" for sample copies of each of these forms.

Information on travel by trucks and taxis was secured by first obtaining a list of all trucks and taxis registered and garaged in the study area. From the list of registered trucks, a 25 percent sample was ascertained to be sufficiently representative for interview purposes. All taxis registered and garaged in the area were used for a 100 percent interview sample. The information on truck and taxi trips was recorded on Form O-D 7, which shows all trips performed by each vehicle for a 24-hour day. Form O-D 7 is shown in Appendix "B".

2. EXTERNAL

The area enclosed by the cordon line contains about thirteen square miles. Data for the study of external trips (trips with one or both terminals outside of the study area) was obtained at pre-determined interview stations established on routes intersecting the cordon line. In addition to the three trunk lines, nine county routes serve as entry and exit points to the study area. Cordon line interview stations were operated on each of the three trunk lines, and on six of the nine county roads. Vehicles entering and leaving the study area through these nine stations were stopped and the drivers were interrogated concerning the origin, destination and purpose of their trips.

The three state trunk line interview stations were each operated for three separate 8 hour periods representing a 24 hour day. Only one eight-hour interview period per station fell within a single 24-hour span, however. This method permitted sampling for a given station to more accurately represent an average 24 hour total.

The traffic volume on these three routes was 13,623 vehicles or 74 percent of the total volume crossing the cordon line. This represents the combined totals of both inbound and outbound traffic.

Interview stations were operated for 16 hours on five county roads intersecting the cordon line. Interviewing was divided into two 8 hour periods, with each period undertaken on a different day. In addition to the three 24 hour stations and the five 16 hour stations, Station Number Five was designated as a 13 hour station. Operating hours for all external stations totaled 165.

Manual counts were taken at all external interview stations and conducted for a total of 24 hours per station. At the 24 hour stations, the manual counting was done concurrently with interview operations. This dual method of operation (interviewing and manual counting) was also used at the 16 hour stations. Here, however, an additional eight hours of manual counting was taken following the 16 hours of counting secured during interview operations to obtain the 24 hour total. All manual counting as well as interviewing included inbound as well as outbound traffic. Tabulations were made showing the total volume, direction of travel and the vehicle type (classification) e.g., passenger car and taxis, single unit and three axle trucks, trailer combinations and busses.

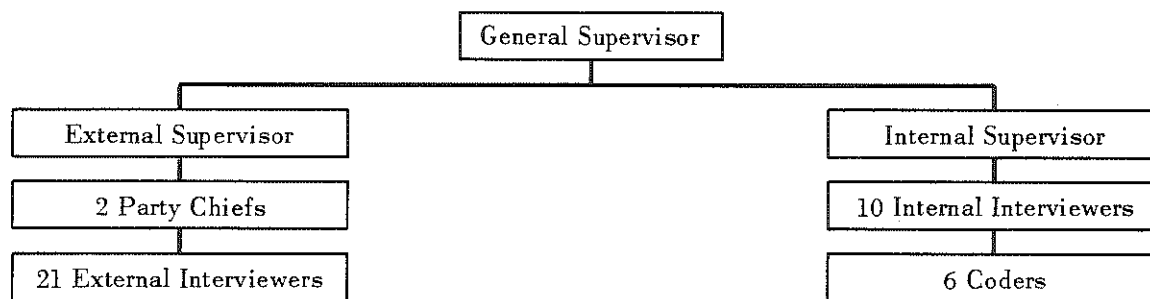
Form O-D 4 was used for recording information derived from interviewing motorists at the external stations. See Appendix "B" for sample copy of the interview form used and the various data listed thereon.

External Interview Stations One, Two and Three (state trunk lines) were 24 hour stations, conducting interviews and manual counts according to the following time schedule. The first eight hour period commenced at 6:00 AM and ended at 2:00 PM of the same day. The second eight hour

period, (scheduled on a different day) began at 2:00 PM and ran continuously through to 10:00 PM. The final eight hour period of operations (scheduled on a day different from the first two periods of operation) began at 10:00 PM and ran continuously, terminating at 6:00 AM the following morning. The 16 hour stations were operative starting at 6:00 AM and ending at 2:00 PM, constituting the first eight hour period. The second eight hour period began at 2:00 PM (on a different day) and concluded at 10:00 PM. At External Station Number Five, the only 13 hour station, interviewing began at 7:00 AM and was terminated at 8:00 PM. As stated previously, all stations had manual vehicle classification counts for 24 hour periods. Eleven hours of manual counting was undertaken at Station Five to supplement the 13 hours of tabulation secured during interview operations.

The Thunder Bay River, a natural dividing line, served as the screenline within the area. Vehicle classification counts were taken for 24 hour periods at each of the three established screenline stations. Because all information was recorded by hourly periods, the screenline counts were as a statistical control to test the validity of travel data obtained through interviews. Screenline volumes determined from the expanded external and internal interview data were compared with actual traffic counts obtained at the screenline on an hour by hour basis.

Operational field work was conducted by the Transportation Survey & Analysis Section of the Transportation Planning Division. Field personnel involved in the survey operations are shown on the chart below:



In summarizing the sequence of events involved in conducting the field operations of the Alpena Study, the initial steps were the beginning of internal sample selection in February of 1962, followed by the truck sample selection the first week in April. All other phases of the study were underway by the end of June, 1962, including training of interviewers, start of internal interviewing, taxi sample selection, interviewing of truck and taxi samples selected, beginning of classification counts at screenline points and the start of external station operations.

As information was collected in the field it was sent to the Transportation Planning's Lansing office. Coded information was recorded directly on the interview forms in the appropriate coding boxes. When coding of each survey section was completed, the data was sent to the Data Processing Section for keypunching.

All field operations and transmittals of data were completed by January of 1963. Coded data was sent to the Data Processing Section for keypunching. The following survey materials were then transmitted to the Planning Division: All interview forms; hourly traffic volumes at the external and screenline stations; sample selection and land use maps; procedure manual; and master coding supplement.

OFFICE PROCEDURE

Field Survey Data, coded and grouped by tract and block, was submitted to the Transportation Analysis Section for further processing. To facilitate the determination of travel habits and routes of travel, the study area was divided into 62 analysis areas known as origin-destination (O-D) zones. These zones were established on the basis of principal land use. Appendix "A" shows the complete breakdown of the zones by number of blocks.

To expedite tabulation and analysis, coded data from the interview forms was recorded on International Business Machine tabulating cards. This was accomplished by keypunching the IBM cards so that the coded data was arranged according to a predetermined system. The O-D zone and expansion factor codes were gangpunched on the IBM cards; thus each card contained complete information for a single trip. It was then possible to use high-speed electronic machines for sorting and tabulating the traffic data.

Each of the four interview forms required a separate card format. A different colored card identified each format. The cards and their corresponding interview forms are:

Card #1 Interview Address Summary (red)	Form 1599 O-D 2
Card #2 Internal Trip Report (green)	Form 1599 O-D 3
Card #3 External Interview (blue)	Form 1599 O-D 4
Card #4 Trip Report for Truck and Taxi (brown)	Form 1599 O-D 7 & 8

Samples of the above cards are in Appendix "B".

After the keypunching had been verified for accuracy, the coding was machine checked. During the process, coded cards were passed through machines which compared and checked the coding according to a predetermined series of operations.

Machine checking was designed to detect the following classes of coding errors:

1. Impossible code for a single item. This resulted when an interview item was assigned a nonexistent code which had no meaning. These errors occur in the coding of origin, destination or other geographic locations.

Example:

When a tract or block was coded incorrectly, the resulting combination code had no valid location in the study area.

2. Impossible combinations of codes for two or more items.

Examples:

(a) In the Interview Address Summary cards: The total number of persons age five and over must equal the number of persons five years and above making trips, plus those whose number of trips were unknown; also, the residence code must be the same as the residence code in the corresponding Internal Trip cards.

(b) In the External cards: A through trip must be coded to show that it passed through two external stations (entrance and exit); a terminal trip can show only one external station; the codes for a trip's origin, station of entrance and/or exit, direction of travel and destination are interrelated and must form a coherent sequence.

As keypunching and verifying were completed, machine checking proceeded on a continuous basis.

To obtain logical tabulations and full utilization of study data, coding errors must be corrected. When such errors were detected, printouts of the faulty codes were sent to the Transportation

Analysis Section for review and correction. After determining the type of error, corrected codes were returned to the machine room. New cards were punched and then sorted back into their proper order. When all machine checks and code corrections were complete, then cards were ready for tabulation. A total of 28,130 cards were punched for this study. The numbers of card types punched were:

Tabulating Cards	Number Punched
Interview Address Summary	1,055
Internal Trip Report	9,011
External Trip Report	18,393
Truck and Taxi Trip Report	231

EXPANSION AND ADJUSTMENT OF TRIP DATA

Nearly all of the major origin-destination traffic studies have been adjusted to the screenline counts. In the Alpena study, the results of the comparison were found to vary too widely to be realistic.

A field check was made to determine the reason for the unreported crossings at the screenline. The primary cause of the heavy volume of traffic was the Post Office located adjacent to the Second Avenue Bridge on the north side of the river. It appeared that many people who worked in the Central Business District or its fringe areas and lived on that side of the river, would drive across the bridge to the Post Office and return to their major destination. These trips were probably not reported since they were only an intermediate stop to the Post Office parking lot or to the drop box at the curb. However, these automobile crossings of the bridge were counted as two screenline crossings. Between the time period from 7:30AM-9:00AM, approximately one hundred automobiles were observed that either crossed the bridge to go to the Post Office and returned to the south side of the river, or were fleet cars that crossed the bridge and would not have been interviewed on the internal part of the survey. These fleet cars belonged to the telephone company, Consumers Power Co., Police Department, Fire Department, U.S. Air Force, U.S. Army, and the U.S. Coast Guard. In a large city, these fleet vehicles would be insignificant, but the ratio of interviewed to non-interviewed trips made the adjustment to the screenline counts impossible in Alpena.

Since the trips out of the survey area by residents reported on the internal part of the survey were in close agreement with the same or similar trips on the external part of the survey, no adjustment was determined to be necessary.

The agreement on the 24 hour total was 91.7 percent. On the 16 hour total, it was 89.5 percent. In both cases, the internal data was under-reported. One adjustment was made to bring the internal data up to the external control. This was on the single unit trucks which were brought up to 97.8 percent of the external data. No adjustments were necessary on the trailer combinations.

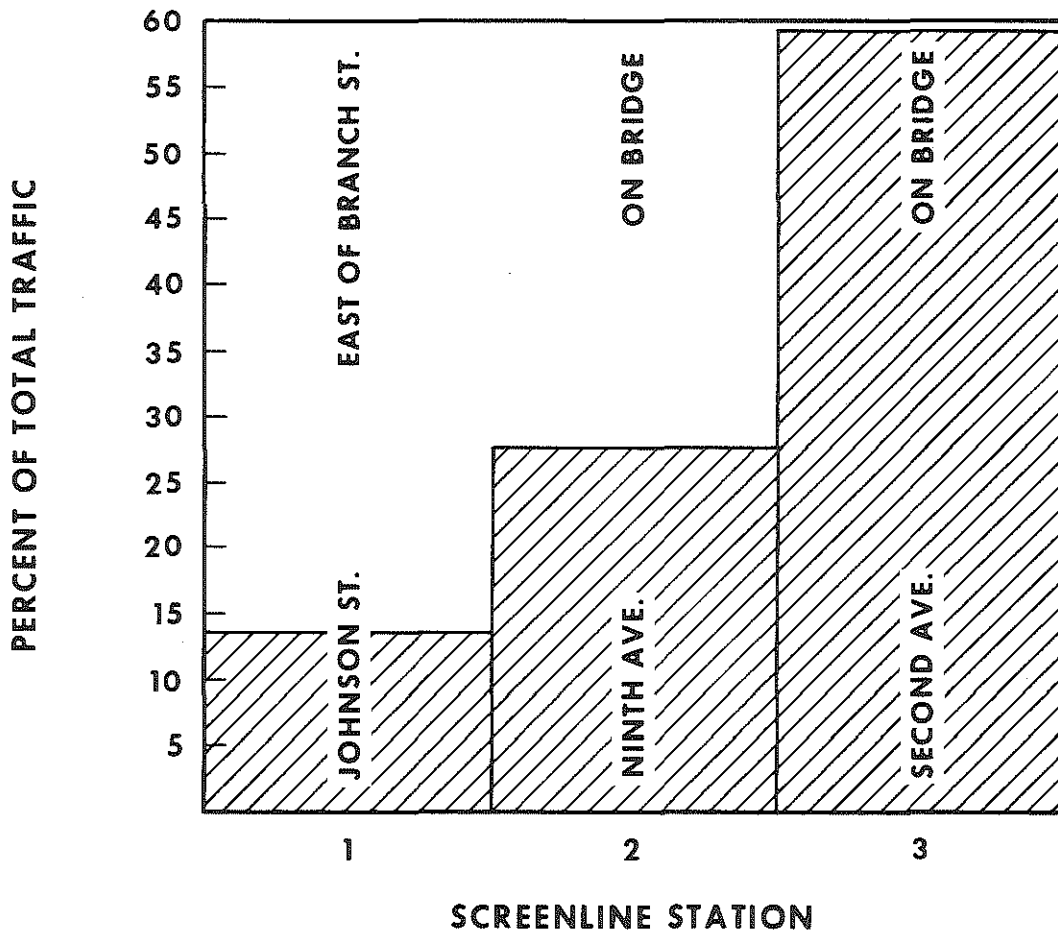
TABULATION OF DATA

The data accumulated during this survey can be summarized in many different ways for analyzing specific problems inherent in the improvement of state trunk lines and arterial street systems. Tabulation cards and magnetic tapes will be available at all times and special tabulations will be prepared when needed. The purpose of this report is to develop and present basic tabulations which are essential to an understanding of the basic data and are used in the preliminary stages

of analysis. All tabulations of trip tables, objective trips, and dwelling unit data were made on the Origin-Destination zone basis. It should be remembered that the data presented herein were calculated by expanding a sample that represents weekday travel in the summer of 1962. This data establishes general patterns of travel which are reliable within the limits of error of the sampling procedure. Seasonal variations and anticipated future increases in traffic volumes may be estimated by applying appropriate multipliers to the basic data.

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	Per Cent
1	2,200	11.5	352	1.9	77	0.4	0	0.0	2,629	13.8
2	4,417	23.2	709	3.7	20	0.1	0	0.0	5,146	27.0
3	9,998	52.4	1,186	6.2	66	0.4	0	0.0	11,250	59.2
Totals	16,615	87.3	2,247	11.8	163	0.9	0	0.0	19,025	100

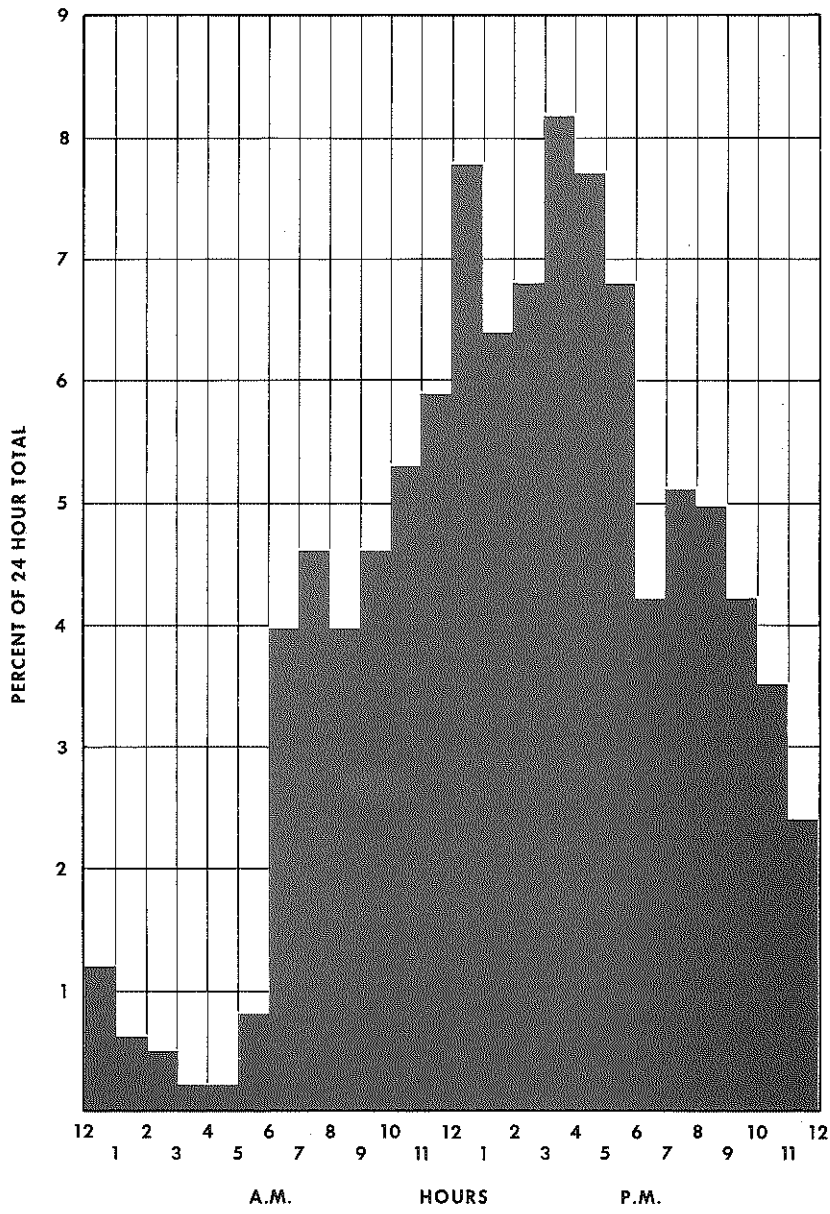


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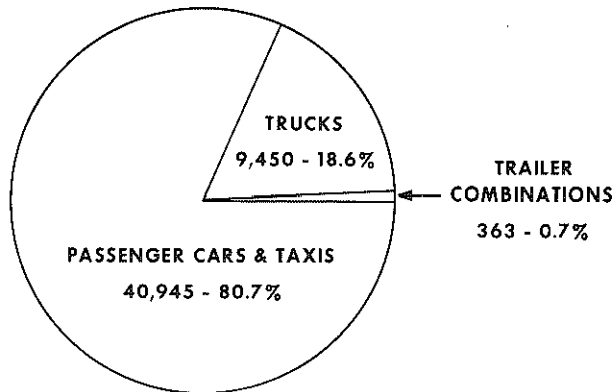
SCREENLINE SUMMARY
TOTAL OF ALL 3 SCREEN POINTS BY HOUR
BY VEHICLE TYPE

Hour Period	Pass. Cars & Taxi	Single Unit & 3-Axle Trucks	Trailer Comb.	Busses	Total	24-Hour Per Cent
12-1A	214	9	1	0	224	1.2
1-2	105	4	1	0	110	0.6
2-3	84	6	1	0	91	0.5
3-4	33	3	1	0	37	0.2
4-5	27	5	2	0	34	0.2
5-6	132	27	2	0	161	0.8
6-7	658	96	5	0	759	4.0
7-8	765	111	8	0	884	4.6
8-9	597	162	12	0	771	4.0
9-10	686	184	14	0	884	4.6
10-11	822	167	12	0	1,001	5.3
11-12N	924	178	13	0	1,115	5.9
12-1P	1,321	150	15	0	1,486	7.8
1-2	1,035	171	15	0	1,221	6.4
2-3	1,080	201	14	0	1,295	6.8
3-4	1,318	220	17	0	1,555	8.2
4-5	1,254	209	11	0	1,474	7.7
5-6	1,163	120	7	0	1,290	6.8
6-7	752	50	3	0	805	4.2
7-8	923	39	2	0	964	5.1
8-9	918	32	2	0	952	5.0
9-10	757	35	2	0	794	4.2
10-11	624	40	2	0	666	3.5
11-12M	423	28	1	0	452	2.4
TOTAL	16,615	2,247	163	0	19,025	100.0

HOURLY PERCENT OF TOTAL SCREENLINE TRAFFIC

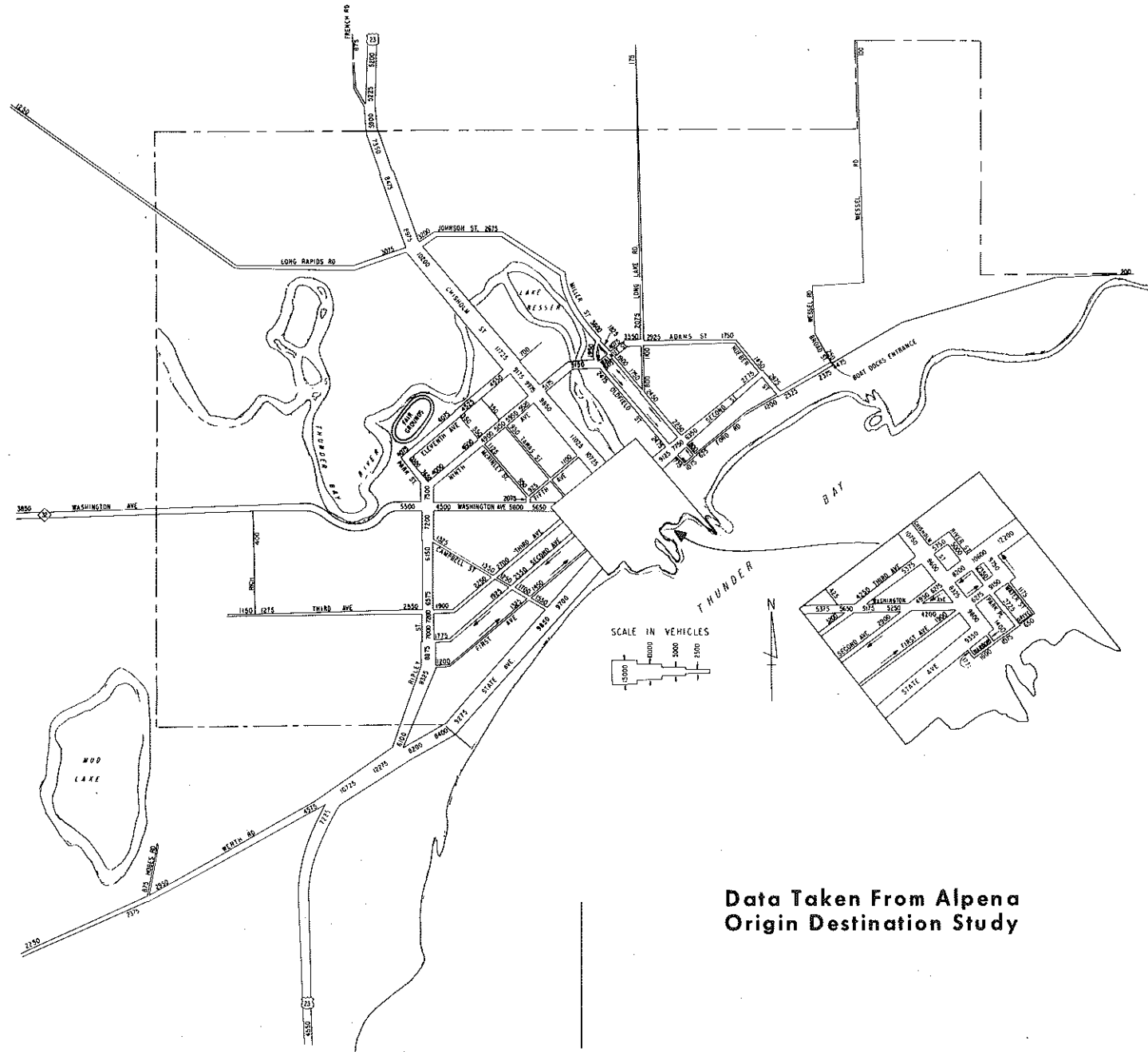


TOTAL TRIPS BY VEHICLE TYPE-1962

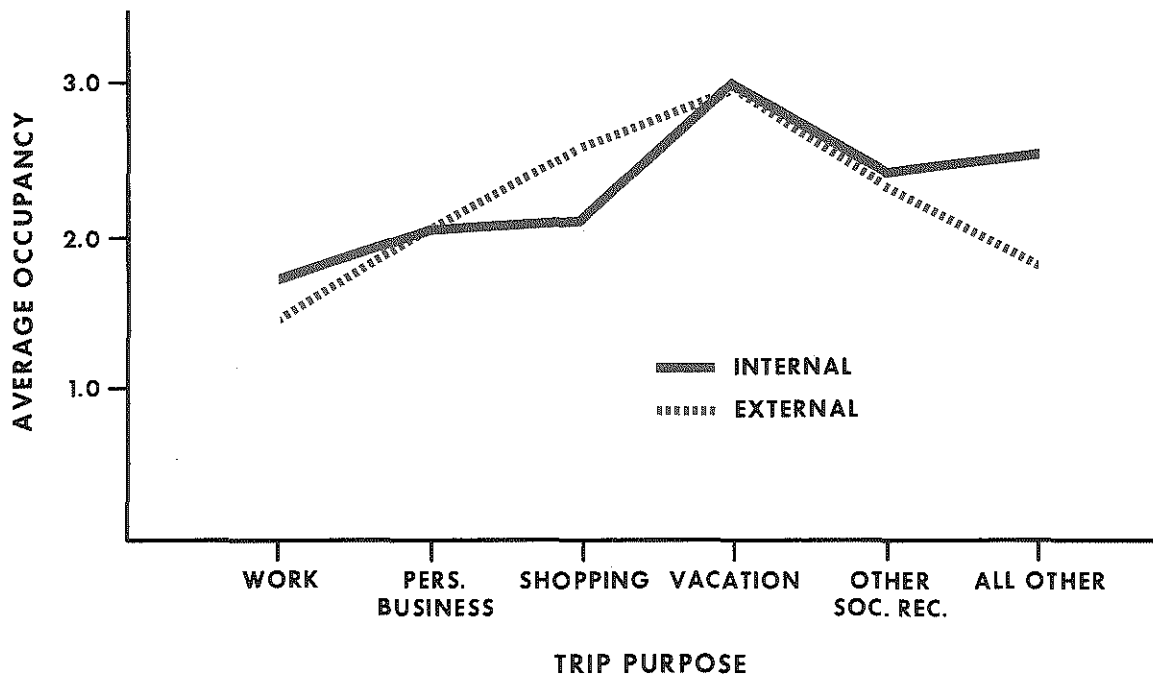
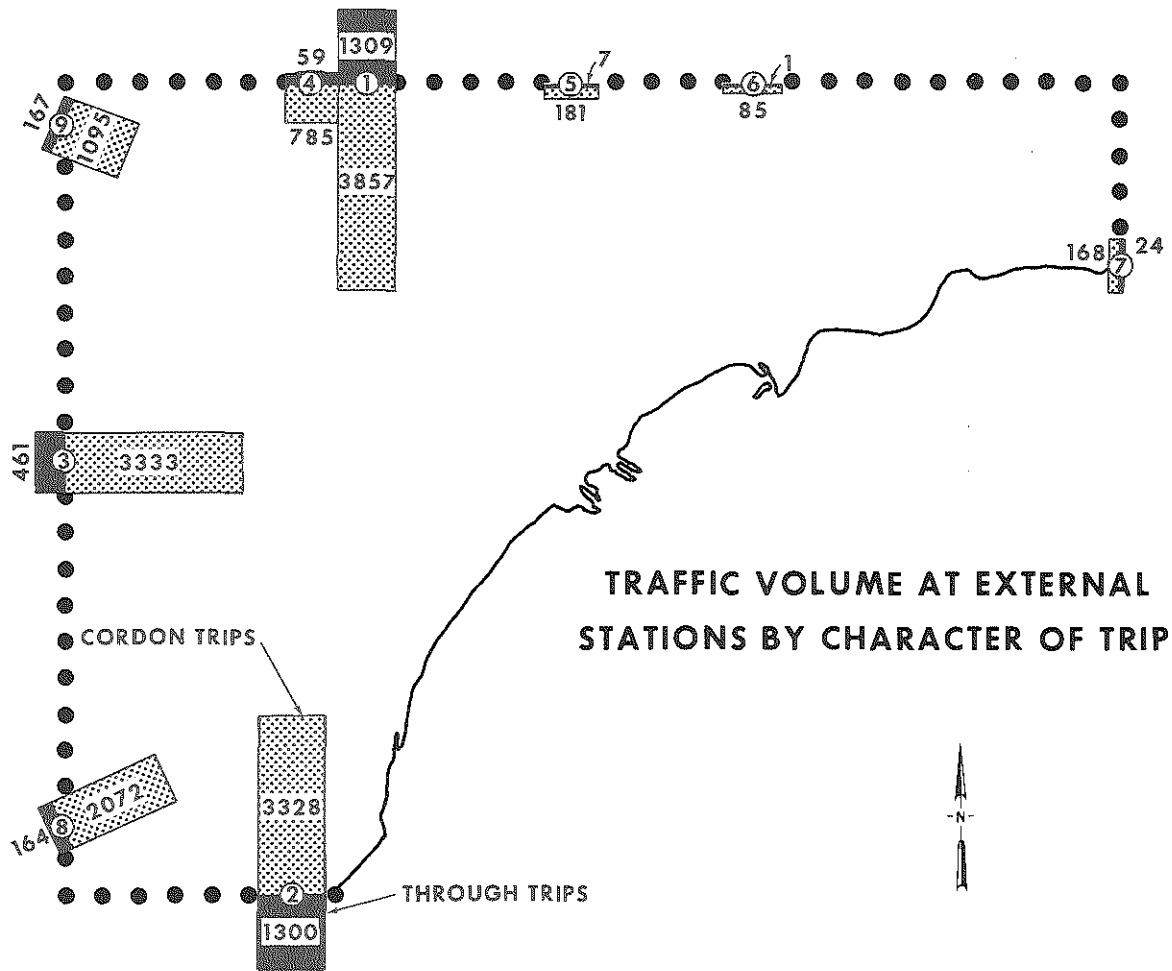


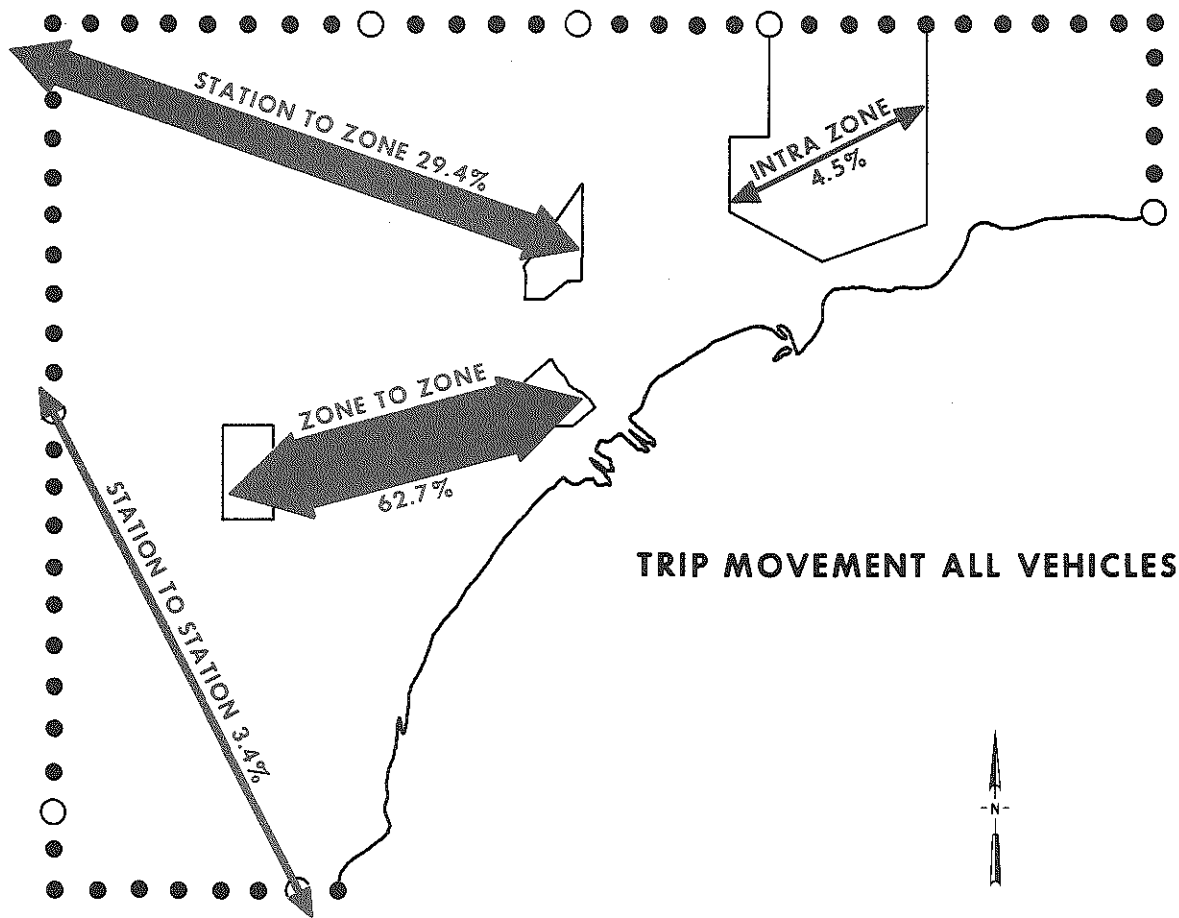
TRAFFIC FLOW ON SELECTED STREETS IN ALPENA

24 HOUR WEEKDAY IN JULY 1962



Data Taken From Alpena
Origin Destination Study





TRIP MOVEMENT ALL VEHICLES

SUMMARY OF ADJUSTED DWELLING UNIT DATA

Compiled dwelling unit data gathered from the internal part of the Origin-Destination Survey indicates the population, dwelling units, passenger cars and other pertinent data by zone for the entire survey area. This dwelling unit data can be used for a comparison with the Bureau of the Census Tract data, if it is available, to show completeness of the internal sampling. It will be used as a basis for the projection of the survey data to a future year.

There are several zones in the Table B-1 that did not have any dwelling unit samples, consequently these zones are blank in the table. Zone 21 is made up entirely of public buildings. Zones 38, 39, and 40 are park, fairgrounds and a wild life area on the Thunder Bay River. Zone 50 was a vacant parcel of land that will eventually be used for public schools. The balance of zones without dwelling unit data are industrial areas and vacant land on the periphery of the survey area.

The Bureau of the Census data for 1960 was used to estimate the population and number of dwelling units in the Alpena survey area. Since the survey encompassed an area greater than the city and did not follow township boundaries, the dwellings in the townships were estimated from aerial photographs. Some error was introduced here since many of the dwellings in the townships near Alpena are vacation homes. In the Alpena Prospectus, the estimate was for a population of 17,000 and a dwelling unit estimate of 5,000.

Upon completion of the survey there were 5,281 dwelling units with a population of 17,239 people. These figures were derived from the 20 percent sample of dwelling units. This shows the estimates for population and dwelling units to vary from the observed by 1.4 percent and 5.6 percent respectively.

ALPENA AREA TRAFFIC STUDY
TABLE B-1
SUMMARY OF ADJUSTED DWELLING UNIT DATA

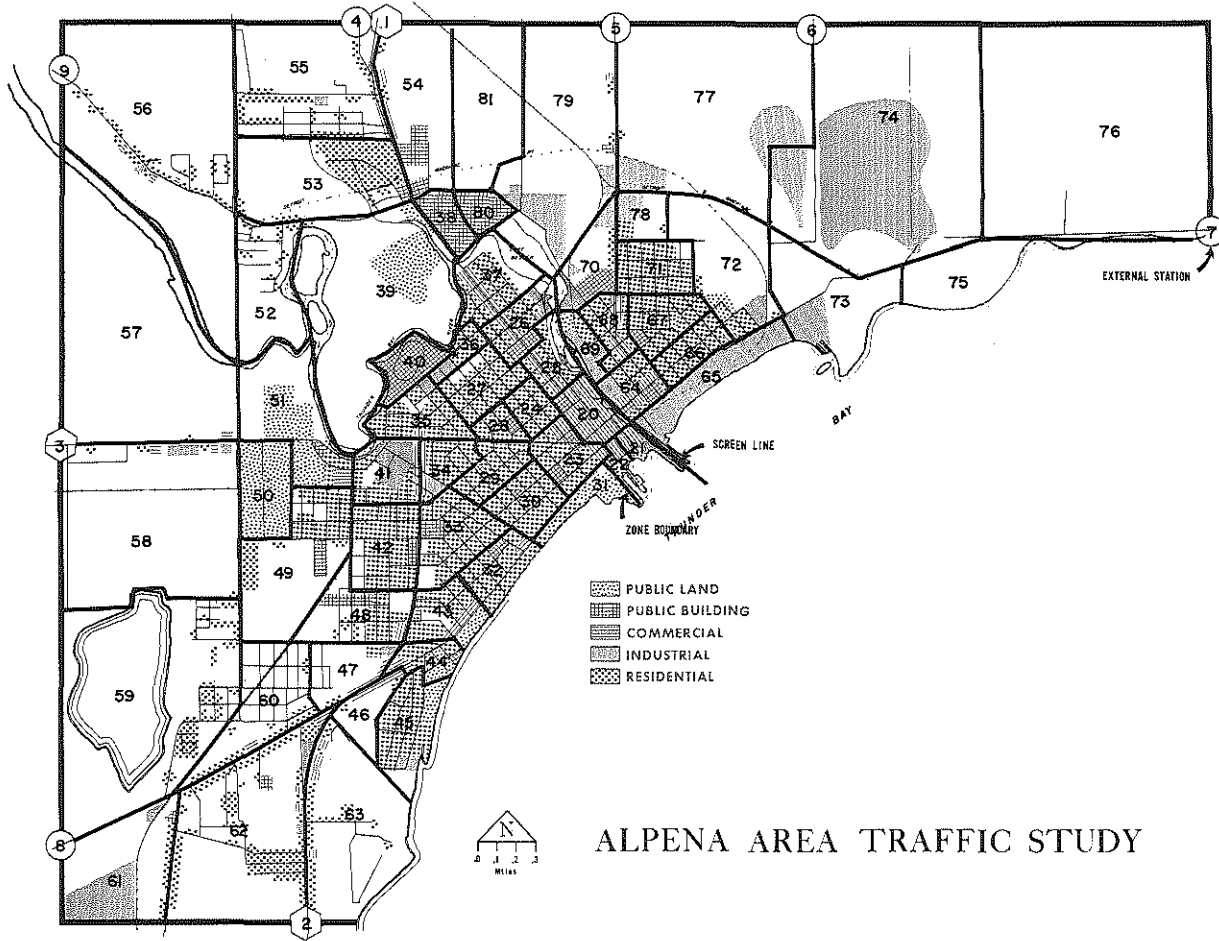
O-D Zone	Dwelling Units	Passenger Cars	Total Persons	Pass. Cars Per D.U.	Persons Per D.U.	Persons Per Car	Passenger Car Trips ^{1/}	Passenger Trips	Vehicle Trips Per D.U.	Total Trips Per D.U. ^{2/}
20	53	63	126	1.19	2.38	2.00	348	251	6.57	11.30
21										
22	5	11	11	2.22	2.22	1.00	86		17.20	17.20 ^{3/}
23	168	163	467	0.97	2.78	2.87	690	385	4.11	6.40
24	195	225	715	1.15	3.67	3.18	1010	645	5.18	6.49
25	107	102	291	0.95	2.72	2.85	429	212	4.01	5.99
26	163	179	525	1.10	3.22	2.93	657	548	4.03	7.39
27	275	250	710	0.91	2.58	2.84	1096	527	3.99	5.90
28	97	107	281	1.10	2.90	2.62	547	291	5.64	8.64
29	188	158	475	0.84	2.53	3.01	1053	281	5.60	7.10
30	215	257	718	1.20	3.34	2.79	1011	539	4.70	7.21
31	30	35	115	1.17	3.83	3.29	335	100	11.17	14.50
32	165	210	495	1.27	3.00	2.36	1050	815	6.36	11.30
33	240	280	805	1.17	3.35	2.88	1385	1050	5.77	10.15
34	155	210	455	1.35	2.94	2.17	1045	275	6.74	8.52
35	210	267	817	1.27	3.89	3.06	1013	617	4.82	7.76
36	30	20	60	0.67	2.00	3.00	55	30	1.83	2.83
37	195	250	610	1.28	3.13	2.44	1040	585	5.33	8.33
38										
39										
40										
41	95	132	296	1.39	3.12	2.24	487	212	5.13	7.36
42	200	270	730	1.35	3.65	2.70	1555	889	7.78	12.22
43	83	98	268	1.18	3.23	2.73	387	108	4.67	5.96
44	15	21	52	1.40	3.47	2.48	57	46	3.80	6.87
45	77	88	222	1.14	2.88	2.52	263	108	3.42	4.82
46	15	30	55	2.00	3.66	1.83	111	40	7.40	10.07
47	60	85	210	1.41	3.50	2.47	373	156	6.22	8.82
48	60	95	240	1.58	4.00	2.53	297	126	4.95	7.05
49	100	130	360	1.30	3.60	2.77	590	413	5.90	10.03
50										
51	10	10	26	1.00	2.60	2.60	47	10	4.70	5.70
52	31	47	162	1.52	5.23	3.45	183	173	5.90	11.48
53	26	47	131	1.81	5.04	2.79	121	100	4.65	8.50
54	16	31	47	1.94	2.94	1.52	47	16	2.94	3.94
55	157	252	749	1.60	4.77	2.97	1410	980	8.96	15.22
56	103	176	398	1.71	3.86	2.26	662	217	6.43	8.53
57										
58	52	72	160	1.38	3.08	2.22	238	41	4.58	5.37
59	170	200	610	1.18	3.59	3.05	803	677	4.72	8.71
60	57	98	223	1.72	3.91	2.28	323	255	5.67	10.14
61	36	31	83	0.86	2.31	2.68	109	78	3.03	5.19
62	207	295	741	1.43	3.58	2.51	964	735	4.66	8.21
63	97	97	109	1.00	1.95	1.95	302	200	3.11	5.18
64	153	169	430	1.10	2.81	2.54	563	251	3.68	5.32
65	56	77	138	1.38	2.46	1.79	185	106	3.30	5.20
66	194	194	593	1.00	3.06	3.06	639	327	3.29	4.98
67	210	252	817	1.20	3.89	3.24	850	596	4.05	6.89
68	210	150	620	0.90	2.95	3.26	660	488	3.14	5.47
69	10	15	20	1.50	2.00	1.33	76	36	7.60	11.20
70	35	30	80	0.85	2.28	2.67	112	46	3.20	4.51
71	163	150	587	0.97	3.60	3.72	938	571	5.75	9.26
72	61	87	214	1.43	3.51	2.46	301	128	4.93	7.03
73										
74										
75										
76										
77										
78	26	36	107	1.36	4.12	2.97	240	199	9.23	16.88
79	5	5	5	1.00	1.00	1.00	26		5.20	5.20
80										
81										
Total	5281	6305	17239	1.19	3.26	2.73	26769	15479	5.07	6.00

^{1/} The Passenger Car Trips are the same as the Passenger Car Driver Trips.

^{2/} Total trips per Dwelling Unit is the number of Dwelling Units divided by the number of Passenger Car Driver Trips plus the number of Passenger Car Passenger Trips.

^{3/} Where there is only one or two samples in an O-D Zone, there are greater chances of inaccuracies in these zonal statistics. This is the case in Zone 22.

EXISTING LAND USE



PASSENGER CAR OCCUPANCY BY PURPOSE OF TRIP

INTERNAL

This table is compiled from expanded dwelling unit data to show the average passenger car occupancy by trip purpose. All of these trips were made within the area by residents of the area on an average weekday in the summer of 1962.

This table shows the number of vehicles and total number of passengers for each trip purpose as well as the percentage of vehicles and the average occupancy for each purpose. The driver of each vehicle is included in the count of the occupants, and the trip purpose of the driver is used for tabulation.

PASSENGER CAR OCCUPANCY

BY PURPOSE OF TRIP

INTERNAL

Purpose of Trip (To)	Number of Vehicles	Percent of Vehicles	Number of Occupants	Average Occupancy
Work	5237	31.6	5772	1.10
Business	910	5.5	1205	1.32
Shopping	3815	23.0	6453	1.69
School	21	.1	57	2.71
Social-Recreation	4115	24.8	8292	2.02
Change Mode of Travel	15	.1	20	1.33
Eat Meal	655	3.9	876	1.34
Medical-Dental	102	0.6	216	2.12
Serve Passenger	1717	10.4	4339	2.53
All Purposes	16587	100%	27230	1.64

PASSENGER CAR OCCUPANCY BY PURPOSE OF TRIP

EXTERNAL

Both of these tables were derived from data obtained from the external survey. The first table shows the passenger car occupancy of vehicles owned by residents of the area making trips either inbound or outbound across the cordon line. The second table shows the same data for vehicles owned by nonresidents and garaged outside of the study area. In both tables, the data presented covers an average 1962 summer weekday.

Both of the tables show the number of vehicles and total number of passengers for each trip purpose as well as the percentage of vehicles and the average occupancy for each purpose. The driver of each vehicle is included in the count of the occupants.

In these tables it must be noted that the trip purpose, as recorded on the interview form in the field, is for the driver and not for the other passengers.

PASSENGER CAR OCCUPANCY BY PURPOSE OF TRIP

EXTERNAL

VEHICLES OWNED INSIDE THE AREA

Purpose of Trip "To"	Number of Vehicles	Percent of Vehicles	Number of Occupants	Average Occupancy
Work	794	18.4	1377	1.73
Business (Personal)	373	8.6	759	2.03
Shopping	102	2.4	215	2.11
Vacation	36	0.8	108	3.00
Other Social or Recreation	2990	69.3	7326	2.45
All Other	22	0.5	56	2.55
All Purposes	4317	100.0	9841	2.28

PASSENGER CAR OCCUPANCY BY PURPOSE OF TRIP

EXTERNAL

VEHICLES OWNED OUTSIDE THE AREA

Purpose of Trip "To"	Number of Vehicles	Percent of Vehicles	Number of Occupants	Average Occupancy
Work	2457	29.1	3584	1.46
Business (Personal)	795	9.4	1631	2.05
Shopping	1904	22.6	4982	2.61
Vacation	233	2.8	698	2.99
Other Social or Recreation	3022	35.9	7096	2.35
All Other	17	.2	31	1.82
All Purposes	8428	100.0	18022	2.14

TRAFFIC VOLUME SUMMARIES

Traffic volumes, which were compiled from data collected at the nine external cordon line stations, are summarized in the following graphs and tables.

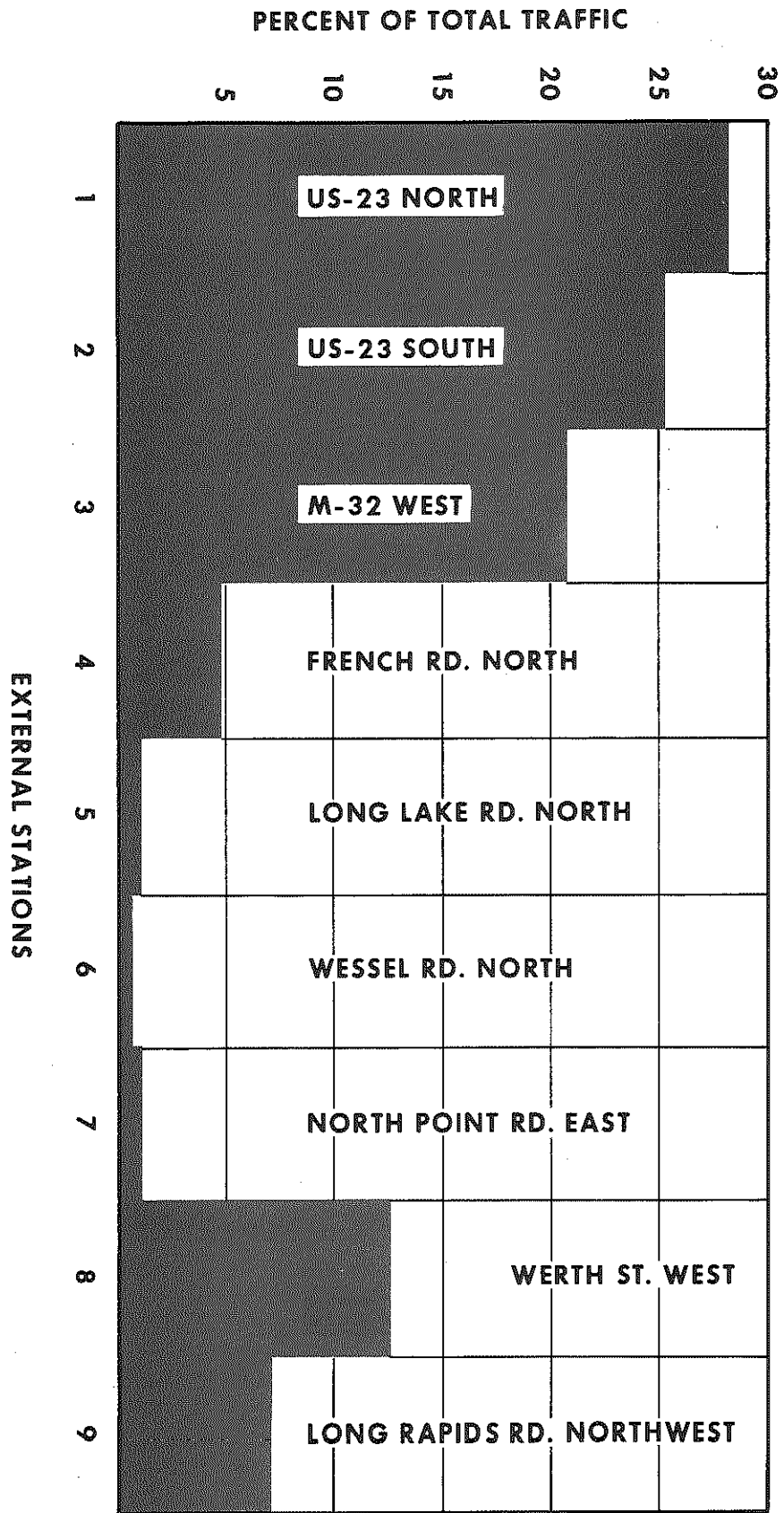
The graph shows the percent of total external traffic (through plus cordon trips) recorded at each station.

The first table classifies 24-hour traffic volumes at all external stations by vehicle type, by hour period.

The second table is a summary of the high one-hour, two-hour and three-hour traffic volumes. For each period, the table shows: traffic volume, its percentage of the station total, and time of occurrence.

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PERCENT OF TOTAL TRAFFIC AT EACH EXTERNAL STATION



Classified Twenty-Four Hour Traffic Volumes
At All External Stations by Vehicle Type

External Station	Pass. Car & Taxi	S.U. Trucks & 3 Axles	Trailer Comb.	Busses	Total	Percent
1	4,555	586	64	3	5,208	28.2
2	3,933	461	161	2	4,557	24.7
3	3,239	544	69	6	3,858	20.8
4	783	99			882	4.8
5	147	24			171	.9
6	45	42	2		89	.3
7	170	28			198	1.1
8	1,920	333	9		2,262	12.2
9	1,078	173	3		1,254	6.8
Total	15,870	2,290	308	11	18,479	100.0%
Percent	85.8	12.4	1.7	0.1		

Classified Twenty-Four Hour Traffic Volumes
At All External Stations by Vehicle Type by Hour Period

Hour Period	Pass. Car & Taxis	S.U. Trucks & 3 Axle	Trailer Comb.	Busses	Total	Percent
12-1 AM	274	10	4		288	1.6
1-2	132	2	4		138	.7
2-3	97	7	6		110	.6
3-4	53	3	2		58	.3
4-5	51	8	7		66	.4
5-6	181	29	6	1	217	1.2
6-7	521	96	15		632	3.4
7-8	763	172	11		946	5.1
8-9	643	146	15		804	4.4
9-10	816	160	32		1,008	5.5
10-11	909	130	20		1,059	5.7
11-12	977	140	18		1,135	6.1
12-1 PM	949	124	25		1,098	5.9
1-2	948	140	20	2	1,110	6.0
2-3	944	185	24	1	1,154	6.2
3-4	990	189	24	1	1,204	6.5
4-5	1,123	227	19		1,369	7.4
5-6	1,202	171	13	2	1,388	7.6
6-7	913	96	14	2	1,025	5.5
7-8	910	86	7		1,003	5.4
8-9	859	59	7		925	5.0
9-10	704	43	7	1	755	4.1
10-11	544	42	3		589	3.2
11-12	367	25	5	1	398	2.2
Total	15,870	2,290	308	11	18,479	100.0
Percent	85.8	12.4	1.7	0.1	100.0	

Traffic Volumes and Percentages of Total Traffic
For High One-Hour, Two-Hour and Three-Hour Periods
At Each External Station

External Station	One-Hour			Two-Hour			Three-Hour		
	Time	Vol.	Per cent	Time	Vol.	Per cent	Time	Vol.	Per cent
1	5-6 PM	376	7.2	4-6 PM	749	14.3	4-7 PM	1,057	20.2
2	5-6 PM	372	8.2	4-6 PM	743	16.3	3-6 PM	1,066	23.4
3	3-4 PM	304	7.9	3-5 PM	559	14.5	3-6 PM	801	20.8
4	8-9 PM	65	7.4	4-6 PM	125	14.2	4-7 PM	185	21.0
5	4-5 PM	21	12.3	3-5 PM	31	18.1	2-5 PM	44	25.7
6	10-11 AM	9	10.1	10-12N	15	16.8	9-12N	20	22.4
7	1-2 PM	20	10.1	1-3 PM	33	16.7	1-4 PM	47	23.8
8	5-6 PM	219	9.7	4-6 PM	373	16.5	3-6 PM	498	22.0
9	4-5 PM	110	8.8	4-6 PM	197	15.7	4-7 PM	284	22.6

DESTINATIONS OF OBJECTIVE TRIPS

One of the most significant and revealing features of the analysis of urban travel is the study of the destinations and distribution of the objective trips. Objective trips are trips to specific destinations for specific purposes. This definition excludes the return trips "home" from specific objectives.

Home trips are the converse of objective trips and their destinations (the origins of objective trips) are indicated by the distribution of population and passenger car ownership.

Three tables were compiled showing the destinations and trip purposes of objective trips with destinations in the study area. They are presented under the following headings:

Destinations of Objective Trips by Auto Drivers Living in the Area.

Destinations of Objective Trips by Auto, Taxi, and Truck Passengers Living in the Area.

Destinations of Objective Trips by Auto Drivers Living Outside of the Area.

Destinations of Objective Trips by Auto Drivers Living in the Area

Zone	Trip Purpose "To"						Total	Zone	Trip Purpose "To"						Total
	Work	Business	Shopping	Soc.-Rec.	All Other				Work	Business	Shopping	Soc.-Rec.	All Other		
20	1,048	268	1,364	268	354	3,302	52	10			5		15		
21	112	20	10	97	20	259	53	46			57	21	124		
22	87	5	626	133	88	939	54	21	5		20		46		
23	199	25	124	140	129	617	55	98	15	108	179	83	483		
24	10		26	87	81	204	56	15			10	5	30		
25	189	25	56	112	66	448	57								
26	225	67	186	108	52	638	58	20	10	26	10	15	81		
27	46	15	20	98	67	246	59	5	5		87	15	112		
28	16	5	21	98	46	186	60	21	5	10	36	15	87		
29	26		5	72	82	185	61	36			10	5	51		
30	61	21	51	92	103	328	62	108	10	51	137	52	358		
31				61	41	102	63	67		25	72		164		
32	67	5	93	97	62	324	64	307	175	169	180	51	882		
33	67	21		82	122	292	65	237	5		41	87	370		
34	72	10	67	51	81	281	66	108	26	42	62	26	264		
35	72	5	93	62	51	283	67	15		10	98	41	164		
36	45	5	5	21	10	86	68	26	15	16	72	31	160		
37	87	5	51	87	76	306	69	124		5	15	21	165		
38	196	10		179	15	400	70	46		21	51	5	123		
39	15		41	31		87	71			10	103	41	154		
40	20		5	61	5	91	72	10			62	15	87		
41	72	15	77	46	40	250	73	462	10		10	56	538		
42	5	26	21	135	31	218	74	5					5		
43	46	10	72	199	94	421	75				5		5		
44	26	5	46	25	10	112	76								
45	10	5		51		66	77	5					5		
46	31	5	15	46	45	142	78				5		5		
47	72	35	231	41	25	404	79	481	5	5		66	557		
48	5		10	36	5	56	80	26			5		31		
49	5			46	30	81	81				25		25		
50	5	5		5	11	26									
51				88	16	104	Total	5,236	904	3,814	4,112	2,509	16,575		

Destinations of Objective Trips
by Auto, Taxi and Truck Passengers Living in the Area

Zone	Trip Purpose "To"					Total	Zone	Trip Purpose "To"					Total
	Work	Business	Shopping	Soc.-Rec.	All Other			Work	Business	Shopping	Soc.-Rec.	All Other	
20	230	41	684	337	62	1,354	52				26		26
21	21	10		46		77	53	5			61	15	81
22	31		303	159	16	509	54				26		26
23	31		47	104	31	213	55	21		21	160	11	213
24	10		5	41	5	61	56				20		20
25	31		36	143	10	220	57						
26	47		72	88	21	228	58	5		16	25		46
27	5	5		98		108	59				82		82
28			5	62	5	72	60			5	71		76
29	10		26	31		67	61	10			16		26
30	10	5	36	51	21	123	62	16			203		219
31	5			107		112	63	10		5	41		56
32	15		41	99	16	171	64	25	15	61	179		280
33	25			114	31	170	65	46			58	10	114
34	35		16	57		108	66	10	5		57		72
35	10		5	76		91	67			5	36		41
36	5					5	68	5			36		41
37	10	5	21	76		112	69	5		5	31	5	46
38	26			98	10	134	70	15		10	52	5	82
39	5		5	31		41	71	5		5	62		72
40	5			82		87	72				46		46
41	20		21	61	5	107	73	164			26	10	200
42			16	82	5	103	74						
43	5	15	62	159	78	319	75				5		5
44			36	31	5	72	76				5		5
45	5			118		123	77	5					5
46	5	5	31	31	30	102	78						
47			82	88		170	79	81			15	15	111
48				10		10	80						
49				87		87	81				10		10
50				10		10							
51				103		103	Total	1,030	106	1,683	4,029	422	7,270

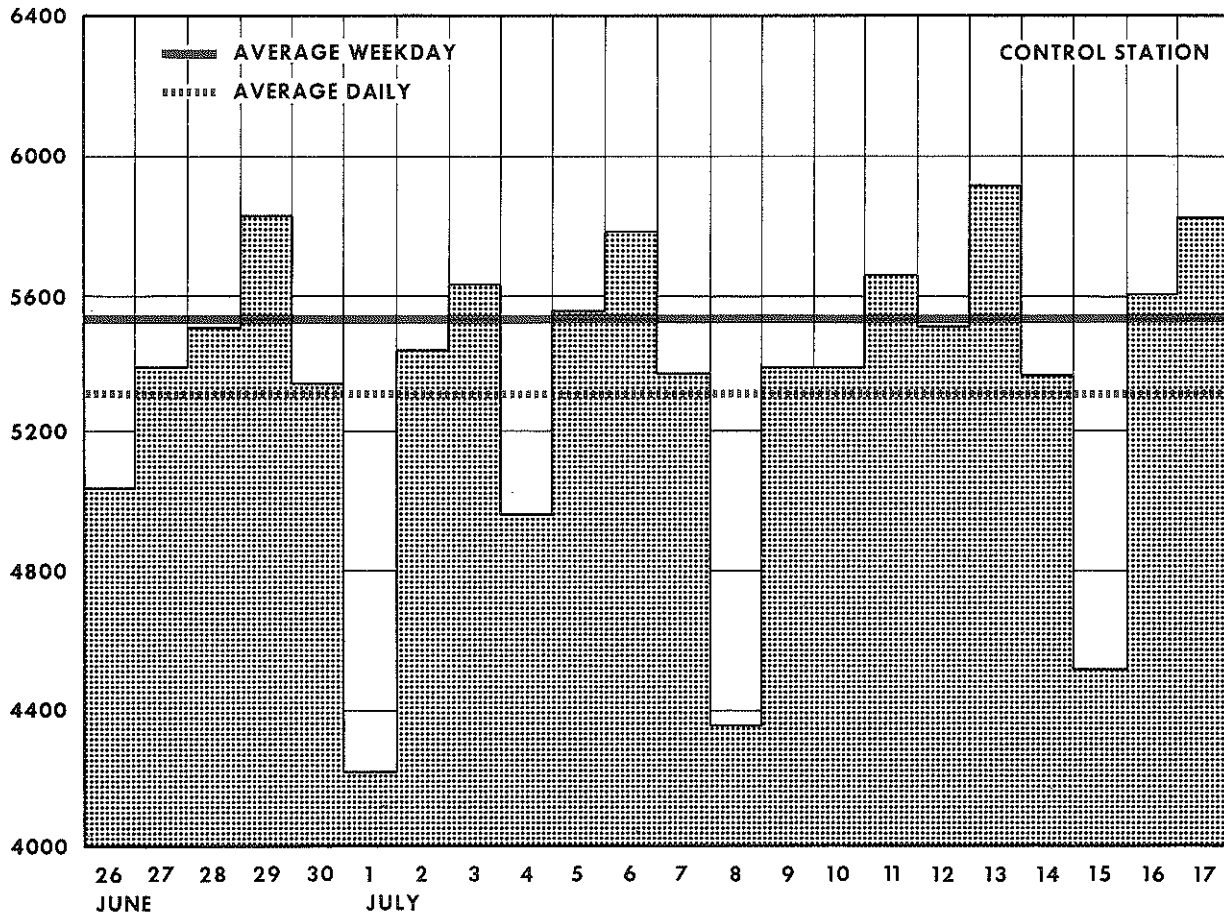
Destinations of Objective Trips by Auto Drivers Living Outside of the Area

Zone	Work	Business	Trip Purpose "To"			Total	Zone	Work	Business	Trip Purpose "To"			Total
			Shopping	Soc.-Rec.	All Other					Shopping	Soc.-Rec.	All Other	
20	210	168	279	107	5	769	52				4	4	
21	11	5	1	9		26	53	19	11	1	29	60	
22	38	41	736	47	1	863	54	3	1	1	9	14	
23	61	30	44	46	2	183	55	27	14	22	60	124	
24	3	5	1	14	1	24	56	1			4	5	
25	78	5	1	19		103	57	2				2	
26	32	25	12	40		109	58	3		2	5	10	
27	11	1		16		28	59	3	3	1	11	18	
28	1	1	1	4		7	60		1	5	3	9	
29	4	1		17		22	61	4	2		6	12	
30	7	1		9		17	62	43	9	4	36	92	
31	1	4		20		25	63	22	5	7	13	47	
32	11	5	8	24		48	64	54	27	22	28	131	
33	7	6	1	22	1	37	65	133	5		13	151	
34	16	4	2	11		33	66	8	3	1	18	30	
35	17	10	13	16		56	67	3			12	15	
36	23	4	6	2		35	68	14	1	2	16	33	
37	17	7	5	18		47	69	16			2	19	
38	64	45	1	51	1	162	70	7	2	1	8	18	
39			2	4		6	71	1	1	1	12	15	
40	2	3		10		15	72	2	1		3	6	
41	27	9	7	17		60	73	185	11	1	11	208	
42	2	13	2	17	1	35	74						
43	33	5	5	67		110	75						
44	27	18	1	46		92	76				1	1	
45	1			6		7	77				1	1	
46	14	8	4	17		43	78						
47	6	7	19	14		46	79	175	9		8	192	
48	12	2		12		26	80	7	4		7	18	
49				3		3	81	1	2		1	4	
50	3	1				4	Total	1472	546	1222	1029	14	4283

CONTROL STATION DATA

The control station, located on M-32 west of Ripley Street, is graphically portrayed below. Counts were taken on a portable traffic recorder from June 17, 1962, to July 17, 1962. Average weekly traffic amounted to 37,216 vehicles and shows an average daily traffic of 5,317 vehicles. The average weekday traffic is about 200 vehicles per day higher than the average daily traffic. At this time it is calculated to be 5,523 vehicles per day. Sunday traffic is consistently lower than any other day of the week and the heaviest traffic volumes are recorded on Fridays.

M-32, WEST OF RIPLEY STREET



1962

Appendix A

ZONE AND BLOCK STATISTICS

ZONE AND BLOCK STATISTICS

O-D Zone Number	Land Use	Number of Blocks	Area in Acres
20	Central Business District	11	47.81
21	Public Buildings	2	17.57
22	Shopping Center	4	13.54
23	Commercial	13	58.32
24	Residential	9	34.56
25	Commercial-Industrial	7	48.53
26	Residential-Public	14	60.34
27	Residential	16	62.06
28	Residential	6	25.34
29	Residential	13	51.26
30	Residential	12	59.04
31	Recreational Park	1	35.86
32	Residential	11	61.63
33	Residential	18	93.74
34	Residential	9	47.95
35	Residential	16	70.13
36	Industrial-Commercial	6	25.06
37	Residential	11	85.82
38	Public-Hospital-Jail	1	36.72
39	Recreational-Rural	4	427.10
40	Fair Grounds	1	46.51
41	Residential	10	67.25
42	Residential	22	96.48
43	Commercial	8	64.80
44	Commercial-Recreation		34.27
45	Residential	10	90.43
46	Commercial (Strip)	1	50.54
47	Commercial-Residential	4	100.22
48	Residential	14	203.47
49	Suburban	17	88.99
50	School (Future)	2	172.80
51	Cemetery	3	174.10
52	Suburban	5	140.69
53	Rural-Suburban	5	223.63
54	Industrial-Strip Commercial	3	181.73

O-D Zone Number	Land Use	Number of Blocks	Area in Acres
55	Recreational-Residential	17	281.38
56	Rural	6	644.98
57	Rural	1	598.32
58	Rural	5	486.29
59	Suburban	14	586.08
60	Residential	25	144.00
61	Industrial-Rural	1	203.04
62	Suburban	8	393.12
63	Suburban-Trailer Ct.	3	267.70
64	Commercial	11	49.39
65	Industrial	1	82.66
66	Residential	12	47.52
67	Residential	17	61.20
68	Residential	14	44.21
69	Industrial	1	31.25
70	Industrial-Public	2	70.99
71	Residential	17	67.82
72	Suburban	4	172.22
73	Industrial	3	168.77
74	Industrial	2	736.42
75	Rural	1	105.41
76	Rural	2	819.07
77	Rural	1	537.41
78	Suburban	1	45.22
79	Industrial	3	371.38
80	College	1	32.83
81	Recreational-Rural	1	185.62
	Total	472	10,332.59

Desire Line Diagrams

DESIRE LINE DIAGRAMS

Desiregrams are visual presentations of data obtained from an urban area Origin and Destination Study. They show by means of straight weighted lines, the principal traffic movements between state trunk lines, between state trunk lines and internal zones, and between internal zones. Without reference to a street network they indicate general corridors and magnitudes of traffic flow, that can be used in determining needed highway improvements to best serve an area's traffic needs.

For an analysis of the travel patterns of a community, desiregrams are the best tool to be used by highway planners and local officials, short of a complete traffic assignment.

The following three types of desiregrams are contained within this report:

- | | |
|----------|---|
| Through | 1. Through traffic interchange between state trunk lines. |
| Terminal | 2. Traffic between state trunk lines and principal zones of attraction. |
| Internal | 3. Traffic between 5 principal zones and other zones of importance. |

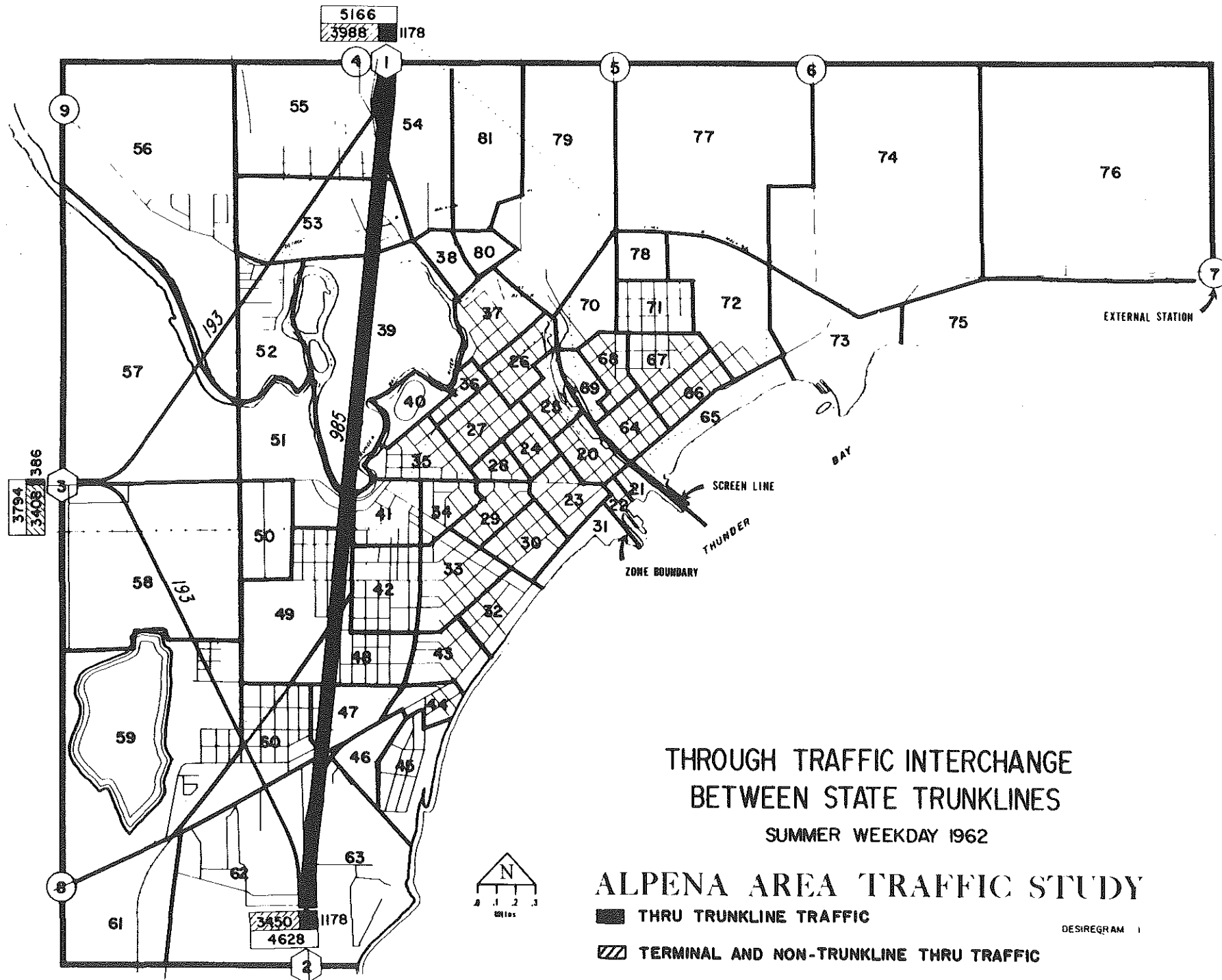
THROUGH TRAFFIC DIAGRAM

Desiregram Number 1, depict the through traffic interchange between state trunk line locations at the periphery of the Alpena study area. In these diagrams, the total traffic recorded at each trunk line location is indicated, with the through trip interchange being illustrated. The remaining volumes are those of terminal trips or non-trunk line through trips.

THROUGH TRAFFIC DESIREGRAM, 1962

Desiregram No. 1 shows the through trip interchange between US-23 north, US-23 south, and M-32 west. US-23 north to US-23 south has the largest through trip interchange with 985 trips between the two locations. US-23 north and US-23 south to M-32 west, both have 193 through trip interchanges.

Analyzing the individual location statistics it is found that at US-23 north there were 5,166 total trips with 22.8 percent or 1,178 as through trips. The remaining 77.2 percent or 3,988 are terminal trips. At US-23 south 25.5 percent of the 4,628 total trips are through trips, the remaining 3,450 are terminal trips. Due to the termination of M-32 within the city of Alpena, M-32 west has only 10.2 percent of its total involved in through movements.



THROUGH TRAFFIC INTERCHANGE
 BETWEEN STATE TRUNKLINES
 SUMMER WEEKDAY 1962

ALPENA AREA TRAFFIC STUDY
 ■ THRU TRUNKLINE TRAFFIC
 ▨ TERMINAL AND NON-TRUNKLINE THRU TRAFFIC
 DESIREGRAM 1

TERMINAL TRAFFIC DESIREGRAM

Desiregram Number 2 depict terminal trunk line traffic between state trunk lines and the five principal attractors in the study area. The zones of attraction are the following:

Zone 20 – The Central Business District

Zone 22 – The Alpena Shopping Center

Zone 65 – Abitibi Corporation

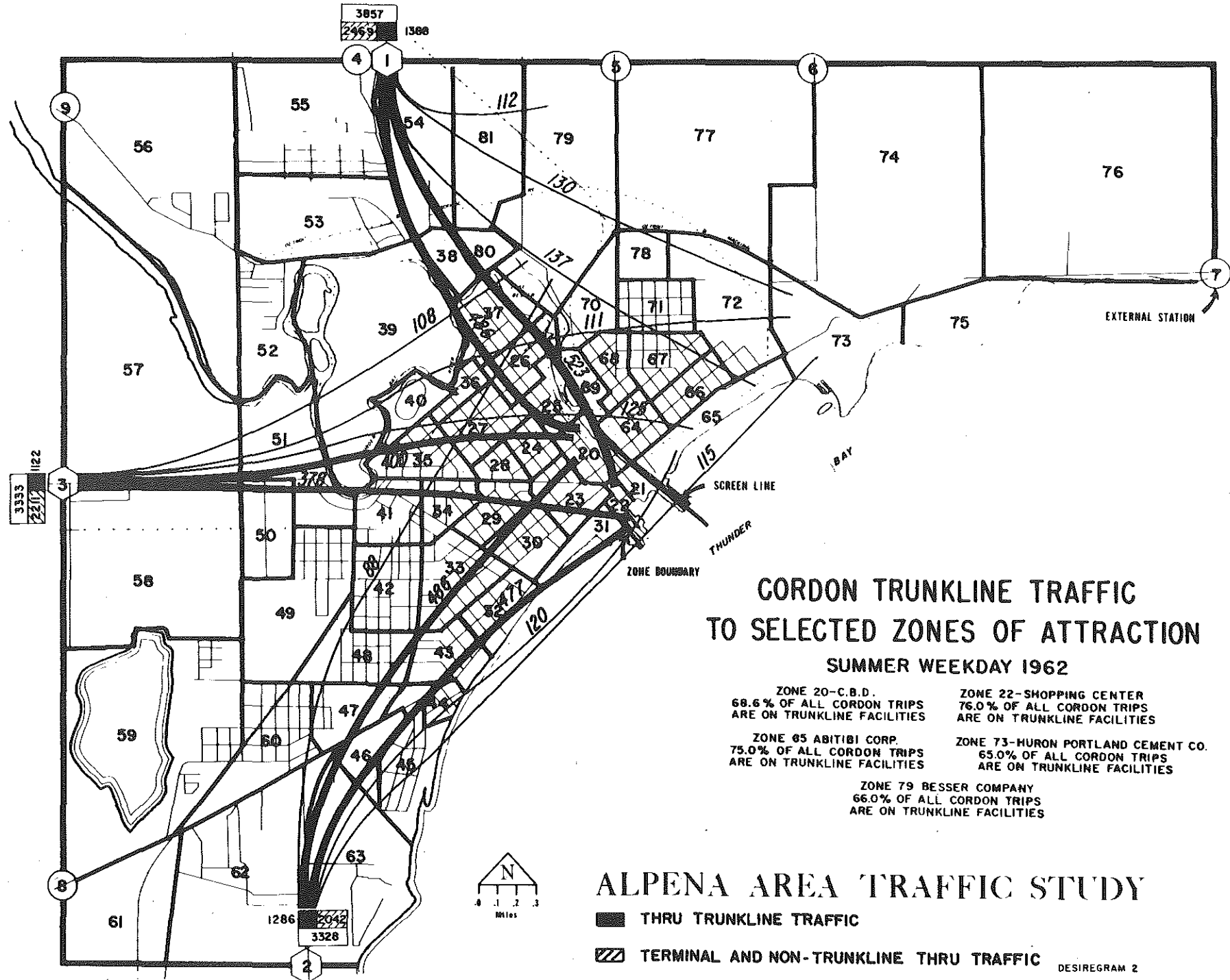
Zone 73 – Huron Portland Cement Company

Zone 79 – Besser Company

TERMINAL TRAFFIC DESIREGRAM 1962

Desiregram No. 2 depicts terminal traffic between the five principal attractors in the study area. The zones of attraction are: the Central Business District (Zone 20), the Alpena Shopping Center (Zone 22), Abitibi Corporation (Zone 65), Huron Portland Cement Company (Zone 73) and the Besser Company (Zone 89).

An analysis of the desiregram reveals that the CBD and the Shopping Center are the major attractors in the study area. Seventy-two percent or 2,750 trips of the total 3,796 terminal trips plotted from the three trunk line locations are to these two particular zones. The three other zones shown have an attraction on a much smaller scale. Such a situation results from the manufacturing land use of the zones which offers trip attraction to a limited segment of total traffic, i.e., employees and commercial vehicles.



TERMINAL TRAFFIC DESIREGRAM

Desiregram Number 3 depicts terminal trunk line traffic between state trunk lines and principal zones of attraction. In these diagrams, depicting zonal attraction of both terminal and internal traffic, 50 percent of the total traffic has been plotted. It has been found that in most cases a few zones account for the first 50 percent of the trip terminals and the remaining 50 percent results in a scatteration to most of the remaining zones.

TERMINAL TRAFFIC DESIREGRAM, 1962

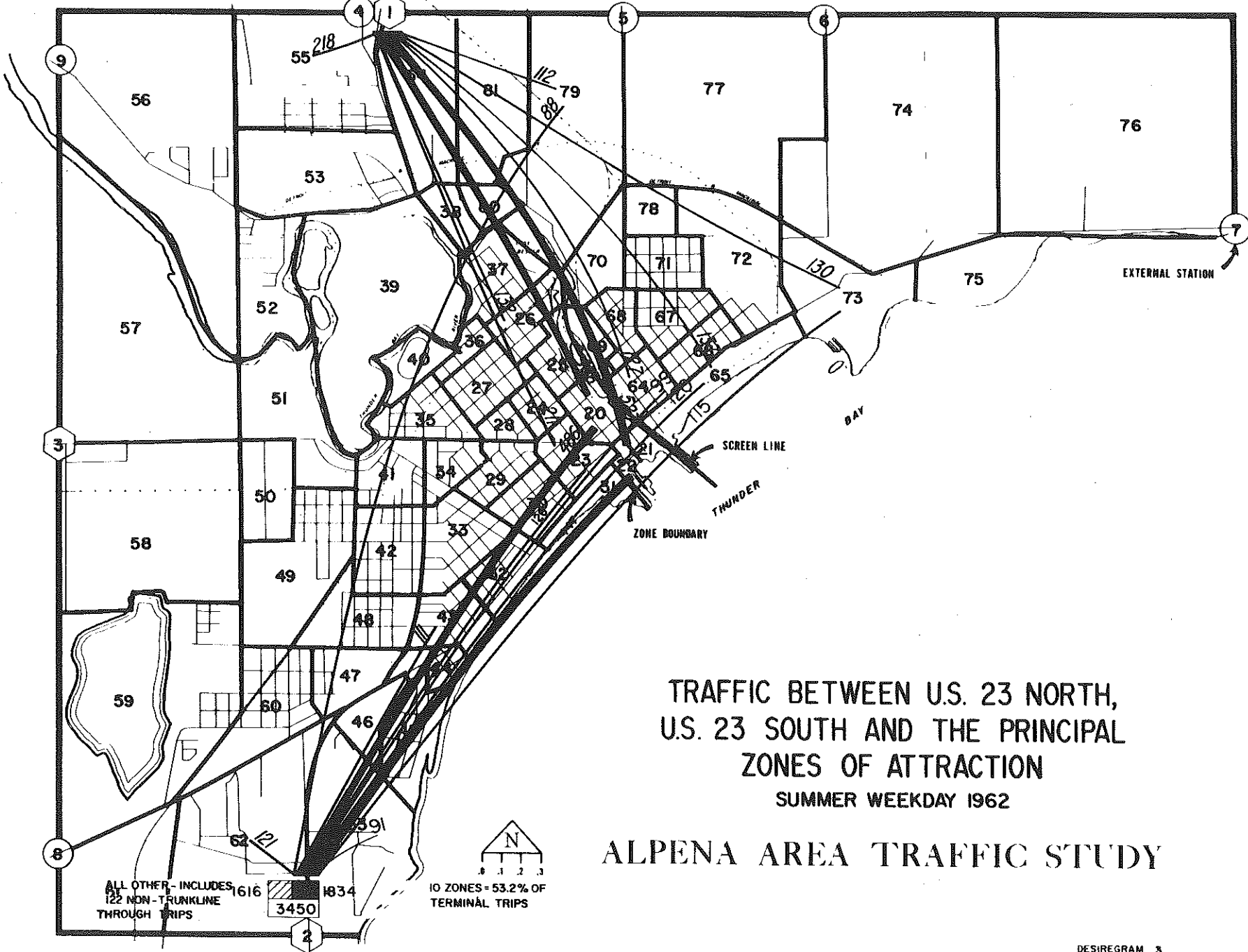
Desiregram No. 3 depicts terminal traffic between US-23 north and US-23 south, and their principal zones of attraction. Of the 3,988 terminal trips at US-23 north, nine zones account for 2,076 trips or 52.1 percent. The principal zone of attraction for these terminal trips is the Alpena Shopping Center (Zone 22) located immediately southeast of the Central Business District. The CBD is the second largest attractor. Between them, these two zones account for almost half of the total terminal trips plotted. The remaining seven zones plotted are of varied land uses ranging from residential zones to manufacturing and commercial warehouse zones.

At US-23 south, ten zones account for 53.2 percent of total terminal trips. At this location, the CBD and Alpena Shopping Center are the principal attractors that account for over 50 percent of the terminal trips plotted. In this instance, however, their order is reversed with the CBD as the principal attractor and the Shopping Center secondary. The balance of trips is distributed in a pattern quite similar to that of US-23 north.

ALL OTHER INCLUDES
131 NON-TRUNKLINE
THROUGH TRIPS

1912 3988 2076

9 ZONES = 52.1% OF
TERMINAL TRIPS



TRAFFIC BETWEEN U.S. 23 NORTH,
U.S. 23 SOUTH AND THE PRINCIPAL
ZONES OF ATTRACTION
SUMMER WEEKDAY 1962

ALPENA AREA TRAFFIC STUDY

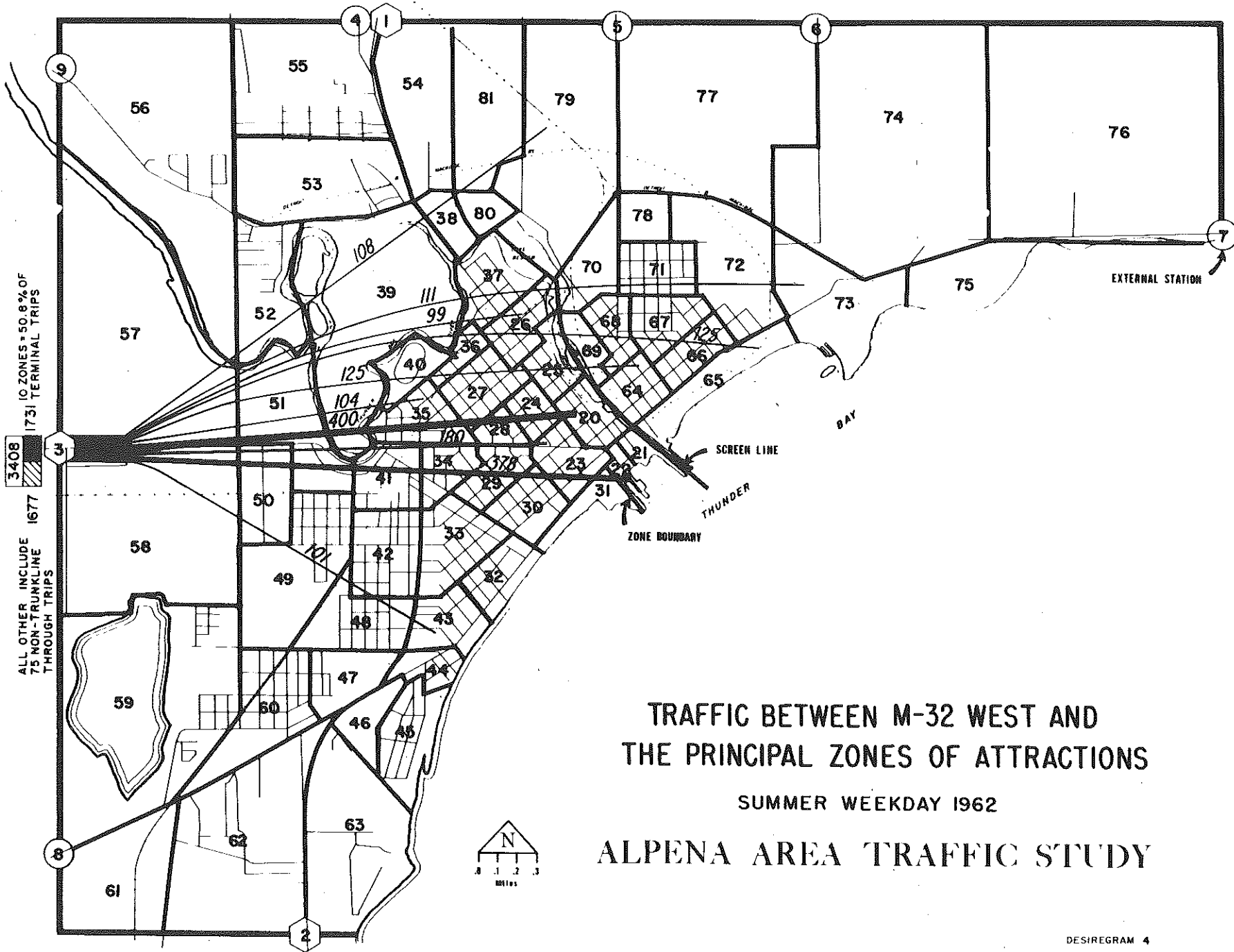
ALL OTHER - INCLUDES
122 NON-TRUNKLINE
THROUGH TRIPS

1616 3450 1834

10 ZONES = 53.2% OF
TERMINAL TRIPS

TERMINAL TRAFFIC DESIREGRAM, 1962

Desiregram No. 4 represents similar information for M-32 west as the previous desiregrams for US-23. Of the 3,408 cordon trips found at this location, ten zones account for 1,731 trips or 50.8 percent. Here again the CBD and Alpena Shopping Center show up as the principal attractors, with zone 23, which is immediately southwest of the CBD, as the third largest attractor. These three zones account for over 50 percent of the terminal trips plotted. The remaining seven zones are residential, manufacturing and commercial in nature.

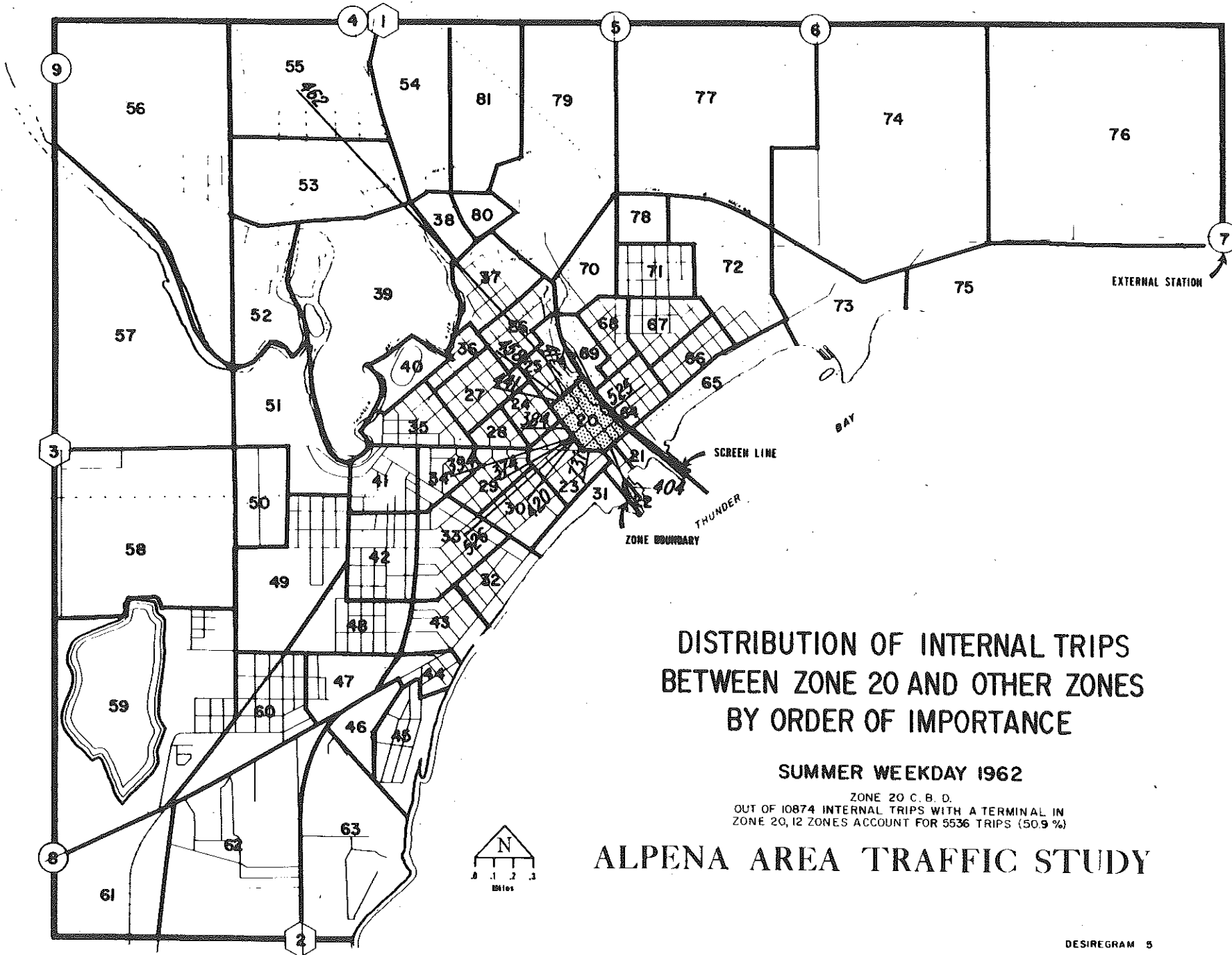


INTERNAL TRAFFIC DESIREGRAMS, 1962

Desiregram No. 5 depicts the distribution of 50.9 percent of the 10,874 internal trips with a terminal in Zone 20 (CBD). The predominate interchange is with residential zones. Nine of the zones are of residential character, two are mixed residential and commercial, while the remaining zone is strictly commercial (Zone 22-Shopping Center). Trip distribution is to the zones which are located close to the CBD, with the exception of 462 trips to Zone 55.

INTERNAL TRAFFIC DESIREGRAMS

Desiregram Numbers 5-9 represent internal traffic between the five principal traffic attractors in the Alpena Study Area. As with the terminal desiregrams, 50 percent of the total traffic interchange between these zones and others within the study area has been plotted. The remaining 50 percent is widely dispersed. Concurrent with the fact that these five zones were the greatest attractors of terminal trips, is that they are also the greatest attractors of internal trips. The zones are, in order of trip attraction, Central Business District (Zone 20), Alpena Shopping District (Zone 22), Besser Company (Zone 79), Huron Portland Cement Company (Zone 73), and Abitibi Corporation (Zone 65).



**DISTRIBUTION OF INTERNAL TRIPS
BETWEEN ZONE 20 AND OTHER ZONES
BY ORDER OF IMPORTANCE**

SUMMER WEEKDAY 1962

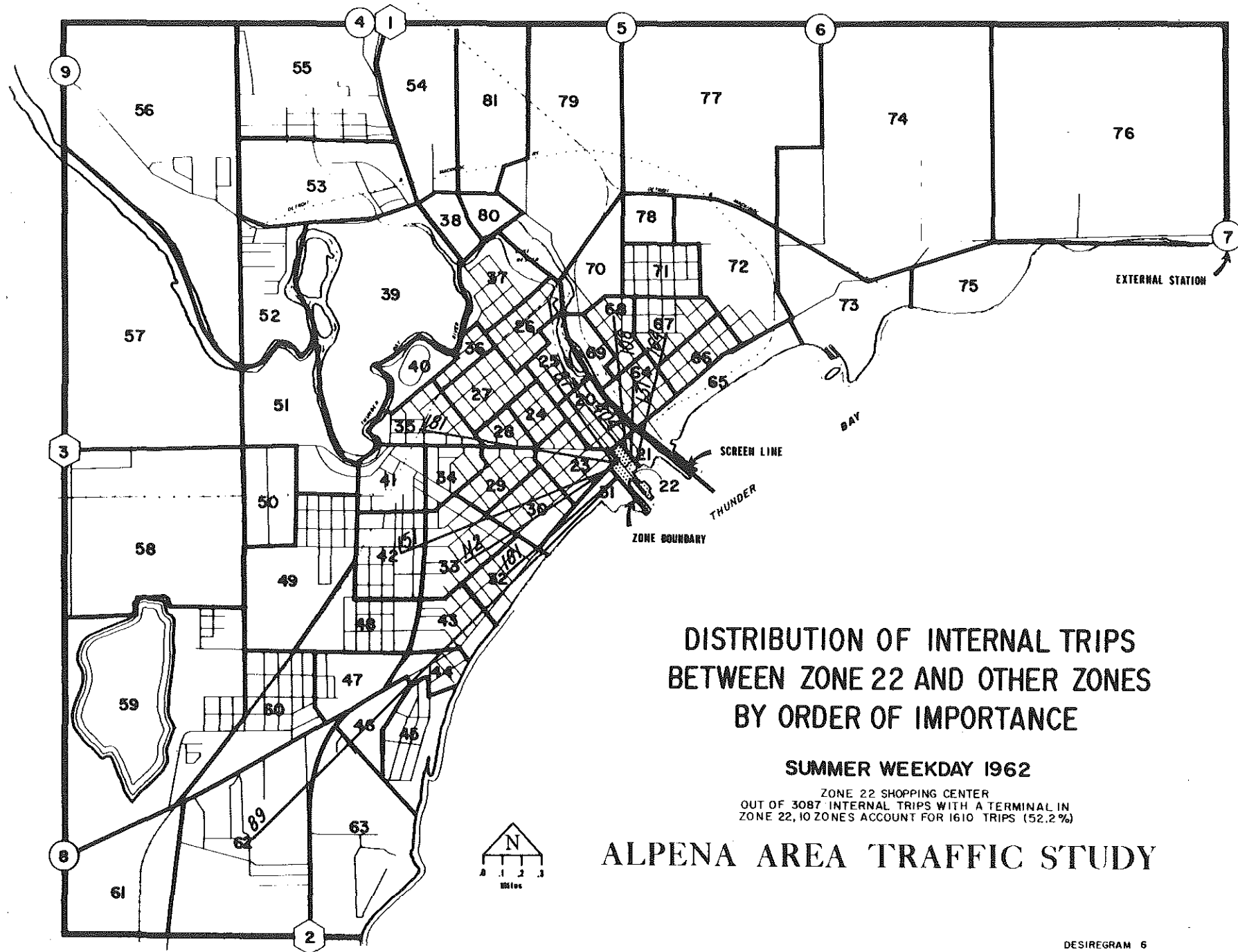
ZONE 20 C. B. D.
OUT OF 10874 INTERNAL TRIPS WITH A TERMINAL IN
ZONE 20, 12 ZONES ACCOUNT FOR 5536 TRIPS (50.9%)

ALPENA AREA TRAFFIC STUDY

LIBRARY department of
michigan state highways
LANSDOWN

INTERNAL TRAFFIC DESIREGRAM, 1962

Desiregram No. 6 shows the trip distribution for Zone 22 (Shopping Center) is similar to Zone 20. Its primary attractor, however, is not a residential zone, but the CBD itself. This seems to indicate a good deal of interaction between the shopping facilities of the CBD and the Alpena Shopping Center. As the diagram shows, 10 zones accounted for 52.2 percent of the internal trips terminating in Zone 22. Of the 1,610 trips plotted, the CBD alone accounted for 25.1 percent.



**DISTRIBUTION OF INTERNAL TRIPS
BETWEEN ZONE 22 AND OTHER ZONES
BY ORDER OF IMPORTANCE**

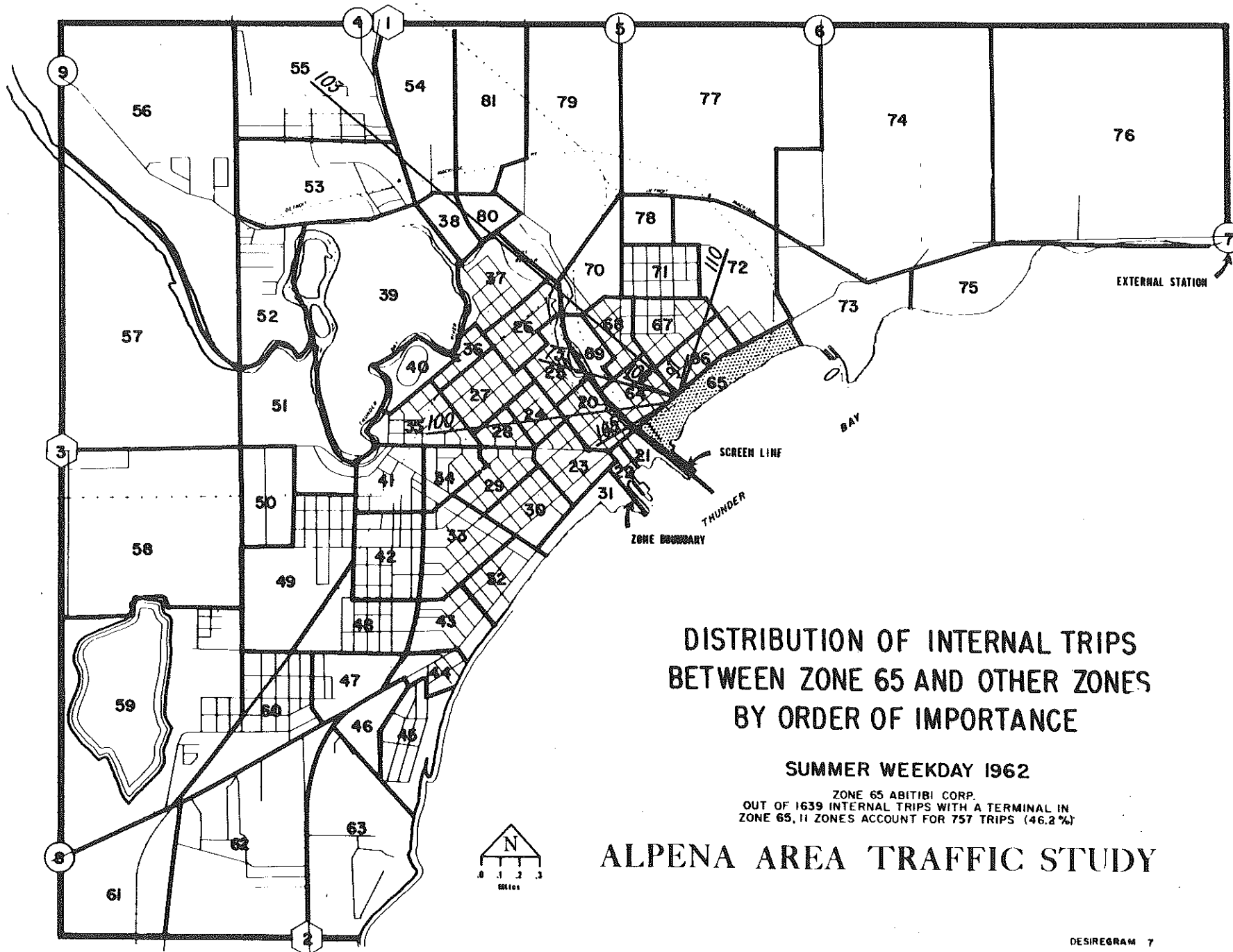
SUMMER WEEKDAY 1962

ZONE 22 SHOPPING CENTER
OUT OF 3087 INTERNAL TRIPS WITH A TERMINAL IN
ZONE 22, 10 ZONES ACCOUNT FOR 1610 TRIPS (52.2%)

ALPENA AREA TRAFFIC STUDY

INTERNAL TRAFFIC DESIREGRAM, 1962

Desiregram No. 7 represents the traffic patterns for Zone 65, Abitibi Corporation. Of 1,639 internal trips with a terminal in Zone 65, 11 zones account for 757 trips or 46.2 percent. Accounting for 165 trips, the CBD shows up as the major traffic attractor. The remaining ten zones are predominately residential.



**DISTRIBUTION OF INTERNAL TRIPS
BETWEEN ZONE 65 AND OTHER ZONES
BY ORDER OF IMPORTANCE**

SUMMER WEEKDAY 1962

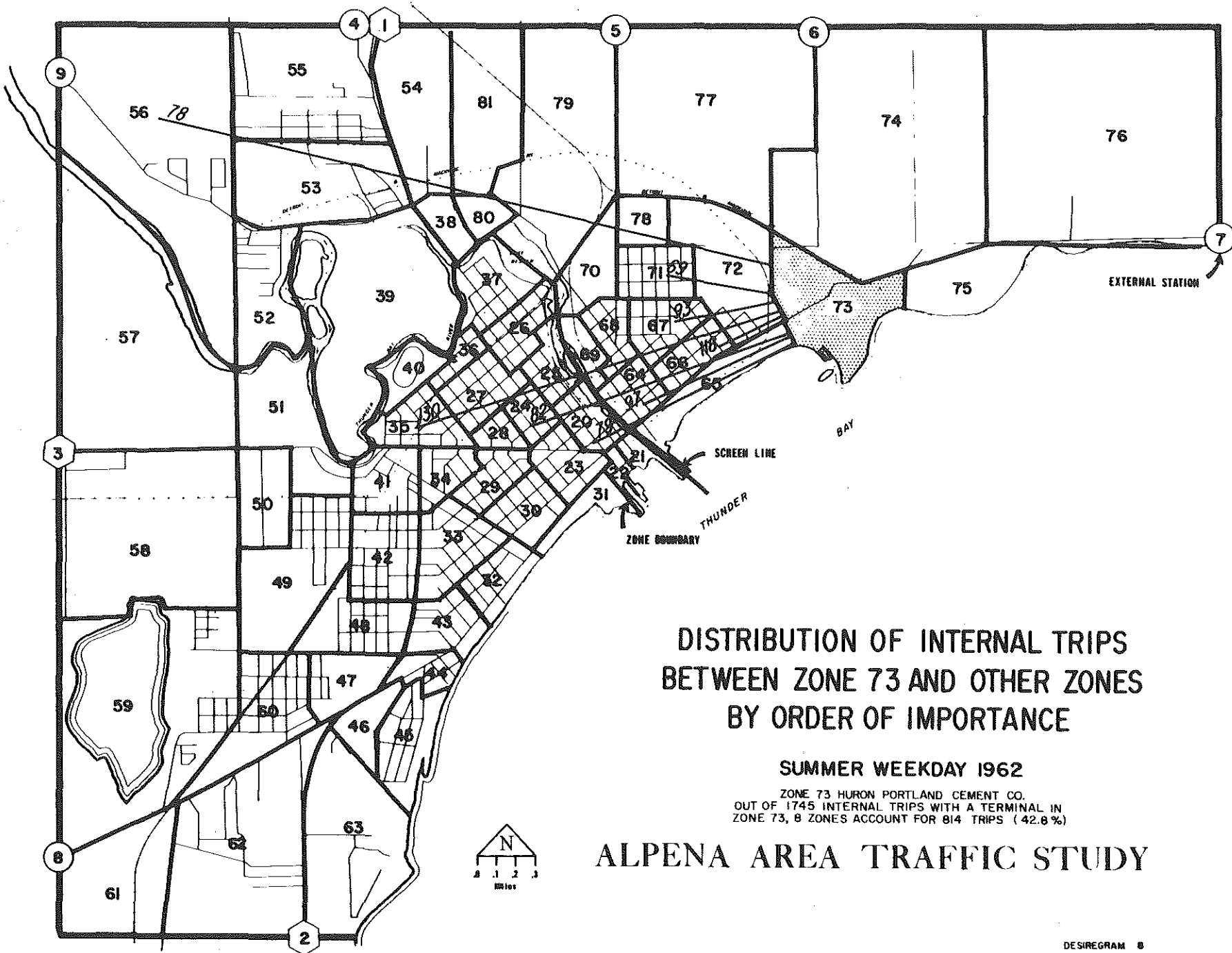
ZONE 65 ABITIBI CORP.
OUT OF 1639 INTERNAL TRIPS WITH A TERMINAL IN
ZONE 65, 11 ZONES ACCOUNT FOR 757 TRIPS (46.2%)

ALPENA AREA TRAFFIC STUDY

DESIREGRAM 7

INTERNAL TRAFFIC DESIREGRAM, 1962

Desiregram No. 8 depicts the internal traffic pattern for Zone 73, the Huron Portland Cement Company. Of the 1,745 internal trips with a terminal in Zone 73, eight zones account for 814 trips or 42.8 percent. In this instance the largest single attractor is a residential zone. While not one of the top attractors, the CBD, nevertheless, does show up as one of the zones comprising the 42.8 percent.



**DISTRIBUTION OF INTERNAL TRIPS
BETWEEN ZONE 73 AND OTHER ZONES
BY ORDER OF IMPORTANCE**

SUMMER WEEKDAY 1962

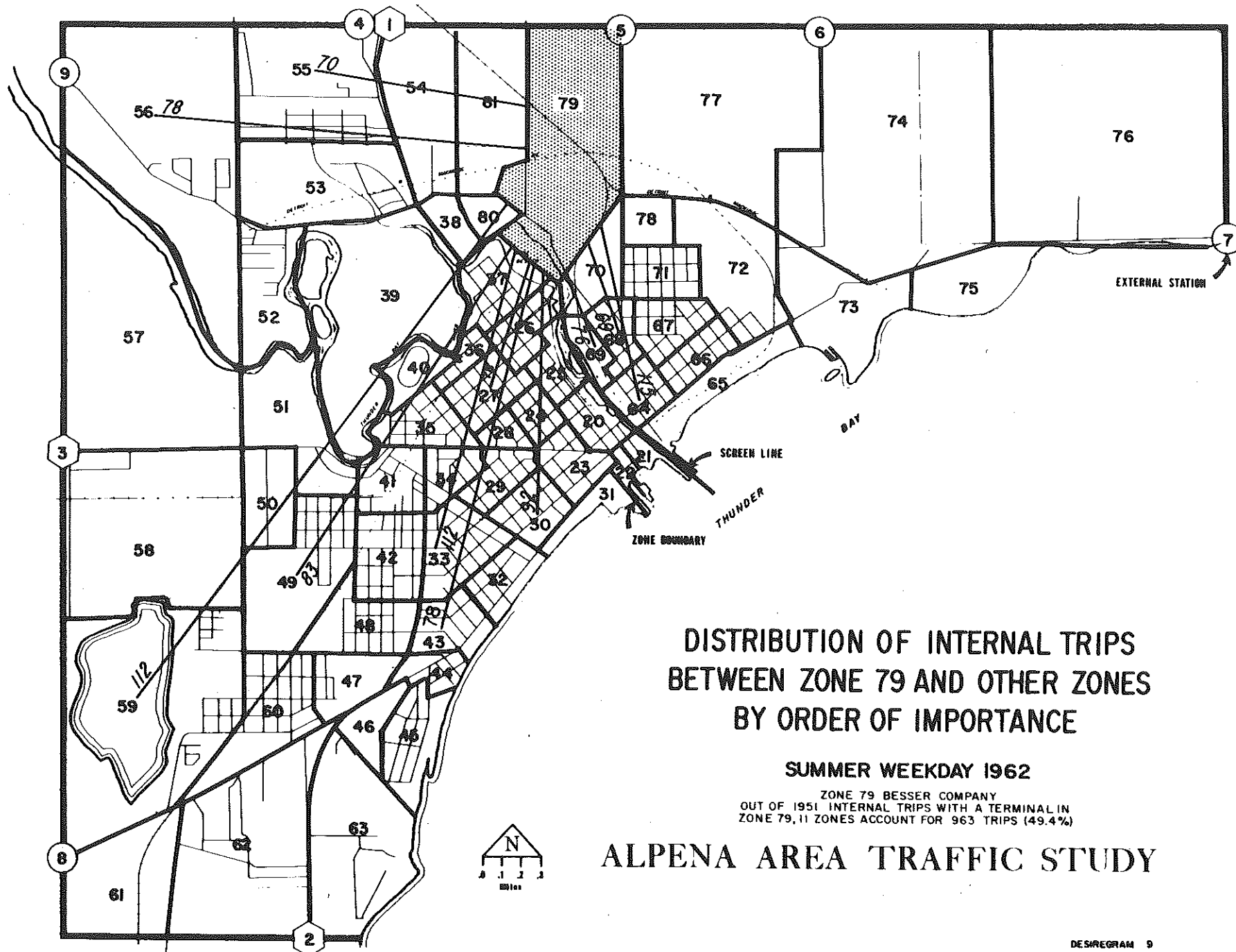
ZONE 73 HURON PORTLAND CEMENT CO.
OUT OF 1745 INTERNAL TRIPS WITH A TERMINAL IN
ZONE 73, 8 ZONES ACCOUNT FOR 814 TRIPS (42.8%)

ALPENA AREA TRAFFIC STUDY

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INTERNAL TRAFFIC DESIREGRAM, 1962

Desiregram No. 9 depicts the distribution of internal trips having a terminal in Zone 79, the Besser Company. The internal distribution pattern for this zone is unique among the industrial zones being considered. Of 1,951 internal trips terminating in Zone 79, eleven zones account for 963 trips or 49.4 percent. The distribution of these eleven zones is widely scattered, but with more even distribution than those of the two other industrial zones. This indicates a wide scattered pattern of employee residence.



**DISTRIBUTION OF INTERNAL TRIPS
BETWEEN ZONE 79 AND OTHER ZONES
BY ORDER OF IMPORTANCE**

SUMMER WEEKDAY 1962

ZONE 79 BESSER COMPANY
OUT OF 1951 INTERNAL TRIPS WITH A TERMINAL IN
ZONE 79, 11 ZONES ACCOUNT FOR 963 TRIPS (49.4%)

ALPENA AREA TRAFFIC STUDY

DES/REGRAM 9

Appendix B

INTERVIEW FORMS

LIBRARY
michigan department of
state highways
LANSING

City _____		Tract or Word _____				Block _____	
Carry Over	House Number	Street Name	Type of Structure			Sample Number	
			S	D	M		

Form No. 1599 R
(OD-1)

Listed By _____ Date _____

CENSUS DWELLING UNIT COUNT _____

SURVEY DWELLING UNIT COUNT _____

Remarks _____

MICHIGAN STATE HIGHWAY DEPARTMENT
OFFICE OF ENGINEERING - TRAFFIC DIVISION

INTERVIEW ADDRESS SUMMARY

METROPOLITAN AREA TRAFFIC STUDY

CITY _____

IDENTIFICATION _____

ZONE NO. _____

BLOCK NO _____

INTERVIEW ADDRESS: _____

DESCRIPTION: _____

TYPE OF STRUCTURE: 1 SINGLE 3 MULTIPLE 4 INSTITUTION 2 DOUBLE
TYPE OF STRUCTURE

DATE OF TRAVEL: _____

A. NUMBER OF PASSENGER CARS _____ CAR MILEAGE PER YEAR A. B. C. 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: _____

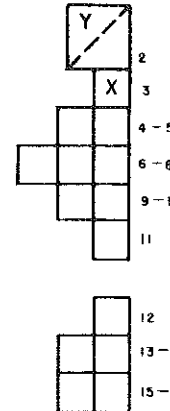
1. NUMBER OF PERSONS (5 YRS OF AGE OR OVER) MAKING TRIPS _____

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. Special

F. COMMENTS AND REASONS IF COMPLETE INFORMATION WAS NOT OBTAINED _____



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 _____

INTERNAL TRIP REPORT

CITY Y
/

IDENTIFICATION X ZONE

BLOCK SAMPLE NUMBER

DAY OF TRAVEL

1. Sunday	4. Wednesday
2. Monday	5. Thursday
3. Tuesday	6. Friday
	7. Saturday

1		2		3		4		5					6					7		8					9		10		11		12		13		14	
INDUSTRY AND OCCUPATION		SEX AND RACE		PERSON NUMBER		TRIP NUMBER		WHERE DID THIS TRIP BEGIN? (ORIGIN)					WHERE DID THIS TRIP END? (DESTINATION)					MODE OF TRAVEL		TIME OF					TRIP PURPOSE		FOR DRIVERS ONLY		LAND USE		CAR POOL					

EXTERNAL INTERVIEW

Date Hour Period _____ to _____		A.M. P.M.		City	Station	Day of Travel	Hour Period Ending		Inbound	1 - White	Direction of Travel		8																										
1		2		3		4		5		6		7		8																									
Interview Number	State of Registration	Vehicle Type	No. in Vehicle	Where did this trip begin? Origin		Where will this trip end? Destination		Trip Purpose	Where is this vehicle garaged?		Screen	Route of Exit or Ent.	Stops in area	Intermediate Stop Purpose	Location																								
	1 Michigan 2 Other (write in)								5 Other 6				1 Yes 2 No X Not Stated																										
	1 Michigan 2 Other (write in)							X					1 Yes 2 No X Not Stated																										
	1 Michigan 2 Other (write in)							X					1 Yes 2 No X Not Stated																										
	1 Michigan 2 Other (write in)							X					1 Yes 2 No X Not Stated																										
	1 Michigan 2 Other (write in)							X					1 Yes 2 No X Not Stated																										
	1 Michigan 2 Other (write in)							X					1 Yes 2 No X Not Stated																										
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	61

54

- | | | | |
|---------------------------------|----------------------|-----------------------|--------------------|
| 1. Passenger Car | 6. TT-ST-TR or TK-TR | 1. Work | 5. Gas-Oil Service |
| 2. Single Unit-Single Rear Tire | 7. Bus Not C.C. | 2. Pers. Business | 6. Serve Passenger |
| 3. Single Unit-Dual Rear Tire | 8. Taxi | 3. Shopping | 7. Secure Lodging |
| 4. Single Unit-3 Axle | | 4. Vacation | 8. Shopping |
| 5. TT-ST Combination | | 5. Other Soc. or Rec. | |
| | | 6. All Other | |

MICHIGAN STATE HIGHWAY DEPARTMENT
John C. Mackie, Commissioner
OFFICE OF ENGINEERING - TRAFFIC DIVISION

TRIP REPORT FOR TRUCKS FOR TAXIS SAMPLE NO. _____

City of _____	*	OWNER _____
Interview Serial No. _____	*	ADDRESS _____
Garaged at _____		LICENSE NO. _____
Industry & Business _____		MAKE _____ YEAR _____
Vehicle Type (Single Rear) (Single Dual) (Single 3 Axle) (TT-ST Comb.) (Other Comb.) (Taxi)		DATE OF TRAVEL _____
Rated Capacity _____		TRIPS FOR 24 HOURS STARTING AT 6:00 AM
Day of the Week _____		

Enter here the address of the beginning of the first trip. (First sheet only) Trip No.	Time of Leaving	Time of Arrival	For office use only #	
			XXXX	
Enter below each stop in the order made:				
1	XXXX			
Same		XXXX		
2	XXXX			
Same		XXXX		
3	XXXX			
Same		XXXX		
4	XXXX			
Same		XXXX		
5	XXXX			
Same		XXXX		
6	XXXX			
Same		XXXX		
7	XXXX			
Same		XXXX		
8	XXXX			
Same		XXXX		
9	XXXX			
Same		XXXX		
10	XXXX			
Same		XXXX		
11	XXXX			
Same		XXXX		
12	XXXX			
Same		XXXX		
	XXXX			

Use as many sheets as necessary, and enter the last address on the next sheet

INTERVIEWER _____

Appendix C

TRIP TABLES

ALPENA METROPOPITAN AREA TRAFFIC STUDY

TABLE 5-1

TOTAL TRIPS BY PASSENGER CAR, TRUCK AND TAXI DRIVERS
FOR A 24 HOUR WEEKDAY IN JULY AND AUG, 1962

ORIGIN	DESTINATIONS					INTERNAL ZONES				
	20	21	22	23	24	25	26	27	28	29
20	516	6	141	258	126	149	155	132	93	115
21	31			10	15		10	10	12	
22	128	5	71	17	20	32	21	26		32
23	229	5	26	180	45	23	72	1	29	35
24	130	5	30	22	30	46	10	90	21	11
25	129	5	26	25	56	19	50	40	6	21
26	151	10	31	68	20	32	62	34	21	41
27	142	22	20		26	25	43	46	21	5
28	94	19	5	22	26	12	15	10	92	20
29	135	10	32	22	16	11	37	11	20	52
30	145		21	17	21	11	21	5	6	32
31	21		5	22	31	5	5			10
32	108	20	55	70	16	36	10	15	10	16
33	166	10	35	61	11	21	15	15		27
34	131	15	25	25	15	34	21		10	40
35	99	10	58	21	6		22	16	5	6
36	36	5	10	19			37	17		6
37	114	5	16	43	10	62	31	62	10	36
38	21		21	11	5		10	5		
39	10				5	10		10		
40	5				5		5	5		
41	54		16	17		11	16	6		6
42	111	21	48	42		10	27	5	16	17
43	72	5	10	40	15		45	32	5	26
44	21	5		5			5	11		
45	26	15	5	5		10	5			
46	26			16		5				5
47	26		15	27	10	10		10	5	10
48	10		5		5	10	5	5		
49	71	6	15	21		5	5		5	5
50	5					5		5		
51				16	5		16		5	
52	10		5		5					
53	26		16	17			11	5		
54	5		11	11			10	5		5
55	161	10	32	45	16	40	53	16	5	5
56	36		16	22			5	21		10
57										
58	47								10	10
59	40	5	15	26		15		10	10	5
60	52		5	5	5	5	5	10	5	
61	11		5		5	10	11	5		
62	112	17	23	6	5	11	11	6	10	10
63	22		15	16	15	16	16	5		5
64	173	20	47	35	40	43	33	52	11	36
65	66	5	16	23		30	1	10		
66	92	16	11	16		10	26	10	5	27
67	99	5	57	10		16	22	6		
68	52	5	46	5	10	21	26	6		
69	21	5		6	5				15	
70	20				5	11	26	11		
71	31	25	10	10	10	26	25		5	5
72	31		10			16	15	20		5
73	22	6		15	30	25	11	1		
74										
75										
76										
77										
78	20		15				15			
79	16			25	15	10	10	26		5
80	1						5	5		
81	10					5				
SUB TOTAL	4139	318	1097	1395	706	904	1113	834	468	702
01	237	5	295	92	30	34	60	38	14	29
02	235	9	239	62	22	22	36	23	14	28
03	220	8	166	101	18	26	51	32	7	26
04	64	2	52	12	3	6	13	5	2	2
05	6		5	1		7	7	3	1	
06	1							1		
07	10		4	1	3		2	2		1
08	144	12	100	42	16	36	17	20	5	9
09	106	7	76	19	5	19	14	5	1	7
SUB TOTAL	1023	43	937	330	97	150	200	129	44	102
TOTAL	5162	361	2034	1725	803	1054	1313	963	512	804

ALPENA METROPOPITAN AREA TRAFFIC STUDY

TABLE S-1

TOTAL TRIPS BY PASSENGER CAR, TRUCK AND TAXI DRIVERS
FOR A 24 HOUR WEEKDAY IN JULY AND AUG, 1962

ORIGIN	DESTINATIONS INTERNAL ZONES									
	30	31	32	33	34	35	36	37	38	39
20	135	15	135	185	132	91	24	107	42	11
21	5		15	10	10	11		10		
22	15	5	66	40	25	63	16	20	16	
23	22	15	65	63	20	27	30	43	11	
24	10	30	5		15	10		16	10	10
25	16		25	15	27			50	5	5
26	21		47	15	25	36	31	39	22	6
27	11		6	16	22	16	24	58	15	5
28	6		10	10	5			10		
29	40	11	22	11	34	24		41		
30	58	12	35	52	20	37	11		15	5
31	17	17		5	11	5		5	15	
32	47	12	47	47	15	5	5		5	
33	68	5	26	71	34	11	16	10	5	
34	10	5	21	27	51	57	15	5	10	
35	37	11	5	6	39	120	10	11	21	6
36	5		5	10	15	10	6	10		
37				15		10	10	68	20	10
38	21	30	5	5	5	15		25		5
39	6					6		5		
40	5	5		15	5	10	12	5		
41	11		11	26	26	38	16	6	11	
42	32	12	45	21	32	21		6	16	
43	10	11	32	16	11	15		30	5	11
44			10		11	6			10	
45	5			5					10	
46	12	5	44	27		15		15		
47			15	20	20	15		15	10	
48					5	21	16	15	5	
49	10	10	10	11		5		6	5	
50										
51					5	5				
52		10			10			5	10	5
53		5	5	6	6			10	5	
54			6		5					
55	16		10	21	30	16	11	30	16	5
56	6				10		5	5	10	5
57										
58	5		15	11	5	10	5	5		
59	10			21	15	5	11	5	15	
60	11				5	10			5	
61	16				5	12		5		
62	16		27	35	5	21		31		5
63	25	5	16	11	6	10				
64	22	5	31	47	30	15	6	20	15	5
65	11		5	20		31	6	10	11	
66	32	5	10	6	21	16		22	5	
67					10	6	5	5	10	
68	21	10	5	6	5	6		16	30	5
69	21			5	5	12		5		
70				5		9		10		
71	5	5	20	6	5	31		5		5
72	11		15			10		6		
73	5	19	25	15	10	46		10	1	
74										
75								5		
76										
77										
78				5						
79	31		20	35	20	21		5	6	
80	10			6		6				
81					5			5		
SUB TOTAL	892	275	917	1005	828	1003	291	851	423	109
01	32	12	33	32	27	37	27	51	34	1
02	18	6	25	26	15	34	13	23	46	1
03	33	21	36	35	24	50	10	28	54	3
04	2	1	4	13	9	6		5	12	
05							1	1		
06			1		1					
07	2			2	1	1	1	1		1
08	15	4	9	24	9	16	10	11	18	
09	5	2	9	5	5	16	7	6	14	4
SUB TOTAL	107	46	117	137	91	160	74	144	178	10
TOTAL	999	321	1034	1142	919	1163	365	995	601	119

ALPENA METROPOLITAN AREA TRAFFIC STUDY

TABLE 5-1

TOTAL TRIPS BY PASSENGER CAR, TRUCK AND TAXI DRIVERS
FOR A 24 HOUR WEEKDAY IN JULY AND AUG, 1962

ORIGIN	DESTINATIONS									
	40	41	42	43	44	45	46	47	48	49
20		70	96	58	15	31	20	73	15	66
21		5	27		5	21				6
22		32	33	16	5	5	5	20	15	10
23		17	42	38	5		11	22		15
24				25				15		
25		11	10	15		10		26		5
26		16	43	26	10	5	11	10	5	5
27	11	5	10	26	11			10	10	
28	5		16	5						5
29		11	17	10	5		10	5		
30		11	37	27	5	10	6	22	6	21
31		5	6	11		5	5			10
32		17	22	41	11		32	20		10
33	25	26	42	10			20	10		11
34		36	27	6		5		20	11	
35	15	35	26	15			15	15	27	32
36	12	10		6					16	
37	10	10	5	20	5		10	10	5	
38		11	5	21	10	15	5	5	5	10
39										
40				6				5		5
41	5	61	27	5	6		6	5	5	15
42		16	77	26	11	5	6	17	5	
43	5	5	43	17	12		6	16	5	5
44				16				27	5	
45			5	5		11	6	5		5
46		12			17		6	21		
47	5	10	17	24	16	5	27	16	5	5
48		5	5		5			6		16
49	5	16	16			15		5	16	10
50			5							
51		5	10							
52										
53		16	5	1			5			
54		6							5	
55		5	31	36			5	10	15	
56		5		10	10				10	
57		6	19							
58		5	10	5				6		
59		21	41	5		10		5		10
60		5						11		
61		6	123			12	12			
62			35	37	5	5	28	52	11	
63		17	16	11	6		6	32	10	
64		10	17	37		15	5	26	5	
65		5	16			10		16	5	5
66			5	11	5			5		10
67	5	17	11	5	5			10		
68		6	5	15		10		10		
69		11	5	15			5			
70			11					15		
71				16	10		5	10	5	5
72		5		10						
73		5	11			6		10		10
74		19								
75										
76										
77										
78										
79	5	23	16	26			6	16		31
80		12					6			
81				6						
SUB TOTAL	108	663	1066	721	195	216	300	640	222	338
01	4	33	33	35	22	7	4	4	13	8
02	1	23	21	54	42	10	23	28	19	8
03	9	23	24	62	31	10	19	8	17	4
04	2	10	3	15	1	3	4	4	3	2
05		3			1			1	1	
06		1				1				
07		1			2					
08	2	23	17	28	14	13	24	23	24	4
09	8	9	2	4	4	2	5	5	3	2
SUB TOTAL	26	126	100	198	117	46	79	73	80	28
TOTAL	134	789	1166	919	312	262	379	713	302	366

ALPENA METROPOPITAN AREA TRAFFIC STUDY

TABLE S-1

TOTAL TRIPS BY PASSENGER CAR, TRUCK AND TAXI DRIVERS
FOR A 24 HOUR WEEKDAY IN JULY AND AUG, 1962

ORIGIN	DESTINATIONS									
	50	51	52	53	54	55	56	57	58	59
20	5	5	5	16		147	26		59	52
21	6				5	10	5			5
22			5	16	6	5	16		5	10
23		17		40	16	51	22			10
24		5	5			15				
25	5					27	5		6	15
26	5	5		10	10	48	10			
27	5			10	5	21	21		5	
28		5				11			11	10
29					5	10	6		5	
30		10		1		16				15
31			5							5
32						5			15	
33				6		10			5	10
34			10			25	10		5	5
35				6		16	5			5
36						11	5			12
37						45	5	6	5	5
38				11		32	10		5	20
39			5			10	5			
40										
41		10	6	26	12	15	5	6	5	21
42	5	15		5		26		12	10	42
43					5	36	10		5	10
44		5					5			
45										10
46				5		5			10	5
47						31	5		16	15
48						15	5			
49									5	
50						5				6
51					5	10				
52						5				5
53						10			5	5
54		5				5				
55		5	5	10		69				15
56						5	5			5
57									6	5
58			5	5		5	5		5	31
59				5		10			5	15
60				6		5			5	15
61			5	5		10			5	25
62				5		5	16		5	10
63				10		5	10		5	20
64		5			5	10	10		5	
65				5	6	43	10		5	
66						37				5
67						21	6			
68		10				21				5
69						22	6			
70			5			5	12			
71		5		5		20	20			5
72			5							
73			5	6		21	26		5	10
74						5				
75										
76			12							
77										
78						15				
79		16	10	17	5	26	26			35
80										
81										
SUB TOTAL	31	123	104	226	84	1023	328	24	218	484
01	1	3	2	20	7	97	6	3	5	19
02	1	1	1	31	2	34	6	1	7	23
03	7	6	1	17	11	36	4	1	21	17
04				1	3	24	1			3
05										
06										
07			1	1		1	1			1
08	2	5	2	8		9	2	1	6	20
09	1	3	9	6	1	8	12		1	8
SUB TOTAL	12	18	16	84	24	209	32	6	40	91
TOTAL	43	141	120	310	108	1232	360	30	258	575

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ALPENA METROPOPITAN AREA TRAFFIC STUDY

TABLE S-1

TOTAL TRIPS BY PASSENGER CAR, TRUCK AND TAXI DRIVERS
FOR A 24 HOUR WEEKDAY IN JULY AND AUG, 1962

ORIGIN	DESTINATIONS					INTERNAL ZONES				
	60	61	62	63	64	65	66	67	68	69
20	52	16	100	16	177	44	63	99	89	11
21				6	16	5	5	11	5	5
22	5	5	37	10	41	27	23	52	26	
23			11	10	17	21	10	10	16	11
24		5	5	15	51	6		6	5	11
25	5	5	11	16	52	20	21	22	16	
26			5	22	26	3		26	16	
27	5				38	16	10	1	5	
28	5		15		11					15
29			5	5	20		20			
30	5	21	12	15	21	15	15	6	12	21
31			6	5			5	5	5	
32			57	10	41	5	16	5		6
33			40	6	15	21	5	11		
34		5	10		35		16	5	5	5
35	10	6	21	16	15	36	27	6	10	12
36		6			11	5		5		
37			27		25	5	10	5	10	5
38	5			5	26	11	6		20	
39			5		6		5	11	5	
40								5	5	
41			11	17	21	10		10		11
42		115	34	32	10	16	5	11	5	5
43			32	5	21		10	10	10	21
44			10	12	12					
45		12	5		36	10	11		10	
46		12	16	12	5				5	
47	22	5	76	42	31	10	5	15	17	5
48			16	10	5	10				
49	5					15	5	5		
50		5		5	5		5		10	
51		19								
52					16	1				
53	5		5	5	5					
54					5					
55	10			5	21	26	32	31	21	16
56			10	5	5			6		24
57										
58	5		11		10					
59	15	12	30	5	15	5	5			6
60	16		16	6						6
61			5							6
62	11	5	135	51	31	11	22	17	5	
63	16		34	12	34					
64			33	5	140	38	74	83	54	27
65	5		10	5	34	11	33	10		
66			10		47	32	63	11	24	11
67			5		108	21	10	17	55	15
68				6	60	5	19	28	37	5
69	16	6			20	6	16	10	5	
70						5	25	5		12
71					27	21	11	16	31	15
72			6	6	11	37	27	12	10	5
73	10	10	17	10	32	16	37	36	15	
74										6
75										
76										
77			5							12
78					5					
79	5		10	15	41	10	5	5	20	16
80					35					
81			11	6						
SUB TOTAL	233	270	920	434	1487	561	677	629	584	326
01	3	5	28	16	55	64	35	25	29	6
02	6	4	61	43	55	62	19	18	10	10
03	11	5	33	26	67	59	27	17	18	7
04	3		7	3	15	2	2	4	3	3
05					4	4	3	1	9	
06			1		1		5	1	3	
07			3		7		7	8	2	
08	12	21	70	14	17	43	12	7	11	3
09	-1		8	9	13	15	5	5	8	3
SUR TOTAL	36	35	211	111	234	249	115	86	93	32
TOTAL	269	305	1131	545	1721	810	792	715	677	358

ALPENA METROPOLITAN AREA TRAFFIC STUDY

TABLE S-1

TOTAL TRIPS BY PASSENGER CAR, TRUCK AND TAXI DRIVERS
FOR A 24 HOUR WEEKDAY IN JULY AND AUG. 1962

ORIGIN	DESTINATIONS INTERNAL ZONES									
	70	71	72	73	74	75	76	77	78	79
20	20	42	20	31					15	11
21	5	15	5							
22	5	10	10						10	6
23		10		6						12
24	10	15		25						15
25	11	10	22	18						4
26	10	21	10	14					15	21
27		5	21	5						26
28		5								
29		10	5							5
30	6		10	5						31
31				19						5
32	5	20	15	21						20
33	10	5	6	15						40
34		10		15						25
35	16	20	15	41						16
36				11						
37	15	5	10	21		5			5	10
38										
39		5								
40										5
41	10			5	19					17
42	11			11						16
43		15		5						26
44		15								
45										
46		5		10						6
47	5	10		5						16
48		5								
49			6	10						25
50										
51		5								10
52	5		5	5			6			5
53				5						24
54										5
55	5	31		21	5				26	21
56	5	15		26						26
57										
58			6	5						
59	5	16	5	10						40
60				5						5
61				16			6	6		
62				16				5		21
63				15						15
64		36	17	33						36
65	5	21	37	15						10
66	20	5	11	42					5	5
67		17	11	26					5	5
68		26	5	20						26
69	25		11					6		35
70		5			6				10	
71		40	10	20					5	
72		5	6	15					5	15
73	5	26	15							
74										
75										
76										
77			6							
78	10	5	5							
79			15					6		
80										
81										
SUB TOTAL	224	511	320	588	30	5	12	23	101	662
01	9	20	3	78	1			2	1	54
02	5	17	3	65				1		54
03	8	16	4	58				4	2	53
04	9	3	1	19						3
05	1	9	1	4				6	1	2
06		1	1	20						
07		7	1	2			1			3
08	4	15	7	21			2	1		39
09	1	5		26	1			2		32
SUB TOTAL	37	93	21	293	2		3	16	4	240
TOTAL	261	604	341	881	32	5	15	39	105	902

ALPENA METROPOLITAN AREA TRAFFIC STUDY
 TABLE S-1
 TOTAL TRIPS BY PASSENGER CAR, TRUCK AND TAXI DRIVERS
 FOR A 24 HOUR WEEKDAY IN JULY AND AUG, 1962

ORIGIN	DESTINATIONS INTERNAL ZONES		SUB TOTAL
	80	81	
20		5	4158
21			322
22			1109
23			1381
24			695
25			888
26	5		1125
27	5		810
28			475
29		11	694
30	10		916
31			259
32			933
33	19		975
34		5	813
35			988
36			301
37		5	826
38			422
39			109
40			108
41	12		660
42			1031
43		6	732
44			191
45			217
46			322
47			669
48		6	217
49			343
50			31
51			127
52			115
53			220
54			94
55	6		1021
56			328
57			25
58			207
59			515
60			228
61			283
62		5	920
63			427
64	30		1472
65			567
66			699
67			626
68			589
69			320
70			213
71			531
72			325
73			589
74			30
75			5
76			12
77			23
78			95
79			651
80			86
81			48
SUB TOTAL	87	43	34111
01	12	1	1893
02	2	2	1670
03	2	1	1695
04	6	3	401
05			83
06			39
07		1	82
08	2		1045
09	2		561
SUB TOTAL	26	8	7469
TOTAL	113	51	41580

ALPENA METROPOLITAN AREA TRAFFIC STUDY

TABLE S-1

TOTAL TRIPS BY PASSENGER CAR, TRUCK AND TAXI DRIVERS
FOR A 24 HOUR WEEKDAY IN JULY AND AUG, 1962

ORIGIN	DESTINATIONS EXTERNAL STATIONS								
	01	02	03	04	05	06	07	08	09
20	249	251	180	62	3	1	5	136	91
21	3	10	12					8	
22	228	238	212	50	1		2	84	60
23	119	64	79	12		3	2	44	17
24	35	26	17	8	5		1	9	8
25	27	29	26	11	6			29	13
26	72	40	48	10	8			27	17
27	42	23	38	3			4	17	6
28	13	18	10	2		1		12	2
29	27	27	19	1			2	6	6
30	28	22	28	3				27	6
31	10	4	20	1				2	
32	30	31	37	3		1	1	16	7
33	32	30	38	10			2	29	7
34	26	14	29	3	2		1	16	6
35	38	39	54	7			7	14	15
36	25	20	14	5			2	7	4
37	51	24	26	18	1		4	19	8
38	32	40	38	6	1		1	16	12
39	3	2	1				1		5
40	9	4	5	2				3	5
41	24	26	30	6		1	1	11	11
42	35	22	19	4	1			19	10
43	50	57	39	8			1	27	13
44	26	26	36	2			2	20	8
45	6	12	10	6		1		11	1
46	12	25	14	3				22	4
47	13	40	15	3	3			30	
48	18	9	12	1				12	2
49	8	7	12	2				5	1
50	2		8					4	1
51	8	3	7					5	1
52	4	1	2	2				2	17
53	22	10	22	3			1	4	5
54	6	4	5	2			2	1	2
55	121	33	26	19			1	7	12
56	4	2	6	2				5	10
57	3		3				1	2	
58	8	12	18	1				2	3
59	21	21	20				1	33	6
60	4	7	7	2	1			14	6
61	1	4	8	4				13	1
62	38	60	34	16	1	1	1	74	13
63	22	48	19	7				24	5
64	72	44	58	13	10		9	8	8
65	73	58	66	8	4	1		32	18
66	36	17	16	2	8	7		18	3
67	30	23	14	3	2	1	13	6	5
68	22	10	25	3	13		5	10	10
69	5	3	5	3	5		1		3
70	8	7	4	1	2		1	1	
71	34	17	24	2	13	3	3	13	5
72	8	8	6	4		2	1	2	
73	52	50	53	19	3	23	5	23	29
74		1	1						
75									
76									
77	3	1	6		3			1	1
78	2		2	1				1	
79	58	34	55	7	2		2	46	23
80	2			4					2
81	4	5		1					
SUR TOTAL	1964	1658	1638	381	98	46	86	1027	534
01		423	87	3			2	29	26
02	562		103	12	2		3	26	26
03	106	90		9			2	10	17
04	2	8	7				1	7	3
05		1	1					1	
06									
07	4	2	3	1				1	1
08	33	19	10	4	2	1	2	9	10
09	32	23	16	2			2		
SUR TOTAL	739	566	227	31	4	1	12	83	83
TOTAL	2703	2224	1865	412	102	47	98	1110	617

ALPENA METROPOPITAN AREA TRAFFIC STUDY

TABLE S-1

TOTAL TRIPS BY PASSENGER CAR, TRUCK AND TAXI DRIVERS
FOR A 24 HOUR WEEKDAY IN JULY AND AUG, 1962

ORIGIN	DESTINATIONS EXTERNAL STATIONS		SUB TOTAL	TOTAL
20			976	5134
21			33	355
22			875	1984
23			340	1721
24			109	804
25			141	1029
26			222	1347
27			133	943
28			58	533
29			83	777
30			114	1030
31			37	296
32			126	1059
33			148	1123
34			97	910
35			174	1162
36			77	378
37			151	977
38			146	568
39			12	121
40			28	136
41			110	770
42			110	1141
43			195	927
44			120	311
45			47	264
46			80	402
47			104	773
48			54	271
49			35	378
50			15	46
51			24	151
52			28	143
53			67	287
54			22	116
55			219	1240
56			29	357
57			9	34
58			44	251
59			102	617
60			41	269
61			31	314
62			238	1158
63			125	552
64			222	1694
65			260	827
66			107	806
67			97	723
68			98	687
69			25	345
70			24	237
71			114	645
72			31	356
73			257	846
74			2	32
75				5
76				12
77			15	38
78			6	101
79			227	878
80			8	94
81			10	58
SUB TOTAL			7432	41543
01			570	2463
02			734	2404
03			234	1929
04			28	429
05			3	86
06				39
07			12	94
08			81	1126
09			84	645
SUB TOTAL			1746	9217
TOTAL			9178	50758

ALPENA METROPOLITAN AREA TRAFFIC STUDY

TABLE S-2

TOTAL TRIPS BY TRAILER COMBINATION DRIVERS
FOR A 24 HOUR WEEKDAY IN JULY AND AUG, 1962

ORIGIN	DESTINATIONS INTERNAL ZONES									
	20	21	22	23	24	25	26	27	28	29
20			5							
21										
22										
23						4				
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										
62										
63										
64										
65						4				
66										
67										
68						4				
69										
70										
71										
72										
73				4		4				
74										
75										
76										
77										
78										
79						4				
80										
81										
SUB TOTAL				4		20				
01	3			2						
02	18		2	3				1	1	
03	7									
04										
05										
06										
07										
08								1		
09										
SUB TOTAL	28		2	5			2		1	
TOTAL	28		2	9		20	2		1	

ALPENA METROPOPITAN AREA TRAFFIC STUDY

TABLE S-2

TOTAL TRIPS BY TRAILER COMBINATION DRIVERS
FOR A 24 HOUR WEEKDAY IN JULY AND AUG. 1962

ORIGIN	DESTINATIONS INTERNAL ZONES									
	30	31	32	33	34	35	36	37	38	39
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										
31										
32										
33										
34										
35							4			
36										
37										
38										
39										
40										
41										
42								4		
43										
44										
45										
46										
47										
48										
49										
50										
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59										
60										
61										
62										
63										
64										
65										
66										
67										
68										
69										
70							4			
71										
72										
73										
74										
75										
76										
77										
78										
79										
80										
81										
SUB TOTAL						8		8		
01								1		
02					1	5		1	1	
03									1	
04										1
05										
06										
07										
08										
09										
SUB TOTAL					1	5		2	2	1
TOTAL					1	13		10	2	1

ALPENA METROPOPITAN AREA TRAFFIC STUDY

TABLE S-2

TOTAL TRIPS BY TRAILER COMBINATION DRIVERS
FOR A 24 HOUR WEEKDAY IN JULY AND AUG, 1962

ORIGIN	DESTINATIONS INTERNAL ZONES									
	40	41	42	43	44	45	46	47	48	49
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										
31										
32										
33										
34										
35										
36		4								
37										
38										
39										
40										
41										
42										
43										
44										
45										
46										
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77										
78										
79										
80		12								
81										
SUB TOTAL		16								
01										
02										
03		1					3			
04										
05										
06										
07										
08										
09										
SUB TOTAL		1					3			
TOTAL		17					3			

ALPENA METROPOPITAN AREA TRAFFIC STUDY

TABLE S-2

TOTAL TRIPS BY TRAILER COMBINATION DRIVERS
FOR A 24 HOUR WEEKDAY IN JULY AND AUG. 1962

ORIGIN	DESTINATIONS					INTERNAL ZONES				
	50	51	52	53	54	55	56	57	58	59
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										
31										
32										
33										
34										
35										
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68										
69										
70										
71										
72										
73										
74										
75										
76										
77										
78										
79										
80										
81										
SUB TOTAL										
01										
02						1		1		
03										1
04										
05										
06										
07										
08										
09										
SUB TOTAL						1		1		1
TOTAL						1		1		1

ALPENA METROPOPITAN AREA TRAFFIC STUDY
 TABLE S-2
 TOTAL TRIPS BY TRAILER COMBINATION DRIVERS
 FOR A 24 HOUR WEEKDAY IN JULY AND AUG. 1962

ORIGIN	DESTINATIONS INTERNAL ZONES									
	60	61	62	63	64	65	66	67	68	69
20										
21										
22										
23										
24										
25					4	4				
26										
27										
28										
29										
30										
31										
32										
33										
34										
35										
36										
37										
38										
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62										
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64										
65										
66										
67										
68										
69										
70										
71										
72										
73										
74										
75										
76										
77										
78										
79										
80										
81										
SUB TOTAL					4	4				4
01					1	6				
02				3	2	11				
03			2		2	10				
04										
05										
06										
07										
08			2							
09								1		
SUB TOTAL		4		3	5	27		1		
TOTAL		4		3	9	31		1		4

ALPENA METROPOLITAN AREA TRAFFIC STUDY

TABLE S-2

TOTAL TRIPS BY TRAILER COMBINATION DRIVERS
FOR A 24 HOUR WEEKDAY IN JULY AND AUG, 1962

ORIGIN	DESTINATIONS					INTERNAL ZONES				
	70	71	72	73	74	75	76	77	78	79
20										
21										
22										
23										
24										
25				8						4
26										
27										
28										
29										
30										
31										
32										
33										
34										
35										
36										
37										
38										
39										
40										
41	4									
42										
43										
44										
45										
46										
47										
48										
49										
50										
51										
52										
53										
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57										
58										
59										
60										
61										
62										
63										
64										
65										
66										
67										
68										
69										
70										
71										
72										
73										
74										
75										
76										
77										
78										
79										
80										
81										
SUB TOTAL	4			8						4
01				2					1	1
02			1	3						1
03				1				2		
04										
05										
06										
07										
08										
09										
SUB TOTAL			1	6				2	1	2
TOTAL	4		1	14				2	1	6

ALPENA METROPOLITAN AREA TRAFFIC STUDY

TABLE S-2

TOTAL TRIPS BY TRAILER COMBINATION DRIVERS
FOR A 24 HOUR WEEKDAY IN JULY AND AUG, 1962

ORIGIN	DESTINATIONS		INTERNAL ZONES	SUB TOTAL
	80	81		
20				
21				
22				
23				4
24				
25				20
26				
27				
28				
29				
30				
31				
32				
33				
34				
35				4
36				8
37				
38				
39				
40				
41	12			20
42				
43				
44				
45				
46				
47				
48				
49				
50				
51				
52				
53				
54				
55				
56				
57				
58				
59				
60				
61				
62				
63				
64				4
65				4
66				
67				
68				4
69				
70				4
71				
72				
73				8
74				
75				
76				
77				
78				
79				4
80				12
81				
SUB TOTAL	12			96
01		1		18
02				60
03				27
04				
05				
06				
07				
08				3
09				1
SUB TOTAL		1		109
TOTAL	13			205

ALPENA METROPOPITAN AREA TRAFFIC STUDY

TABLE S-2

TOTAL TRIPS BY TRAILER COMBINATION DRIVERS
FOR A 24 HOUR WEEKDAY IN JULY AND AUG, 1962

ORIGIN	DESTINATIONS					EXTERNAL STATIONS			
	01	02	03	04	05	06	07	08	09
20	4	20							
21		1							
22		1							
23	2	3	1						
24									
25									
26			1						
27									
28									
29									
30									
31									
32									
33			1						
34									
35		4	2						
36		1							
37	1	3	1						1
38									
39									
40									
41	1	2							
42									
43								1	
44			1					1	
45									
46		2							
47		1							
48									
49									
50									
51									
52									
53	1								
54		2							
55									
56									
57									
58		2							
59									
60									
61			1						
62								1	
63	2	2							
64									
65	5	18	16						
66									
67		1							
68									
69		1							
70									
71									
72		1							
73		1	1						
74									
75									
76									
77									
78									
79	1	1							
80									
81									
SUB TOTAL	17	67	30					3	1
01		8	2					1	
02	14		7						1
03	2	3							
04									
05									
06									
07									
08	1								
09		1							
SUB TOTAL	17	12	9					1	1
TOTAL	34	79	39					4	2

ALPENA METROPOPITAN AREA TRAFFIC STUDY

TABLE S-2

TOTAL TRIPS BY TRAILER COMBINATION DRIVERS
FOR A 24 HOUR WEEKDAY IN JULY AND AUG, 1962

ORIGIN	DESTINATIONS	EXTERNAL STATIONS	SUB TOTAL	TOTAL
20			29	29
21			1	1
22			1	1
23			6	10
24				
25				20
26			1	1
27				
28				
29				
30				
31				
32				
33			1	1
34				
35			6	10
36			1	9
37			6	6
38				
39				
40				
41			3	23
42				
43			1	1
44			2	2
45				
46			2	2
47			1	1
48				
49				
50				
51				
52				
53			1	1
54			2	2
55				
56				
57				
58			2	2
59				
60				
61			1	1
62			1	1
63			4	4
64				4
65			39	43
66				
67			1	1
68				4
69			1	1
70				4
71				
72			1	1
73			2	10
74				
75				
76				
77				
78				
79			2	6
80				12
81				
SUB TOTAL			118	214
01			11	29
02			22	82
03			5	32
04				
05				
06				
07				
08			1	4
09			1	2
SUB TOTAL			40	149
TOTAL			158	363

ALPENA METROPOPITAN AREA TRAFFIC STUDY

TABLE S-3

TOTAL TRIPS BY SINGLE UNIT TRUCK DRIVERS
FOR A 24 HOUR WEEKDAY IN JULY AND AUG, 1962

ORIGIN	DESTINATIONS									
	20	21	22	23	24	25	26	27	28	29
20	174	6	89	68	25	56	37	12		6
21									12	
22	31		19	12			6			6
23	81			105	25	19	25		19	25
24	19			12				19		6
25	62			25		19	19	19	6	6
26	37			31		6	31	19	6	
27	12	12			6		12		6	
28	6	19		12		12				
29	12		6	6	6	6		6		37
30	12				6	6			6	12
31	6			12	6					
32	12			19	6					6
33	19			31	6	6				6
34	6					19	6			25
35	6		12	6	6		6	6		6
36	31			19			37	12		6
37	12		6	12		12	6	12		6
38				6						
39										
40										
41	6			12			6	6		6
42										6
43	19			19			19	6		6
44								6		
45										
46	6			6						
47				6						
48		6								
49	6			6						
50										
51				6						
52										
53				12						
54			6							
55			6	19	6	19		6		
56				6						
57										
58	6									
59										
60										
61	6						6			
62	12	12		6		6		6		
63	6			6		6	6			
64	68		6	19		12	12	6	6	
65	12									
66	12			6						12
67	6					6		6		
68	6					12				
69				6						
70										
71						6		6		
72						6				
73		6								
74										
75										
76										
77										
78										
79	6			25		6				
80										
81										
SUB TOTAL	715	61	129	536	98	240	234	153	61	177
01	28		16	7		1	11	4		
02	26		8	10		3	2	1	1	1
03	30	2	11	20	2	5	5	1		2
04	7		1	3	1		2	2		1
05			1			1				
06										
07	3		2							
08	10	5	1	7	3	8	3	3		1
09	10	1	1	3	2	3	1			2
SUB TOTAL	114	8	41	50	8	21	24	11	1	7
TOTAL	829	69	170	586	106	261	258	164	62	184

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ALPENA METROPOLITAN AREA TRAFFIC STUDY

TABLE S-3

TOTAL TRIPS BY SINGLE UNIT TRUCK DRIVERS
FOR A 24 HOUR WEEKDAY IN JULY AND AUG, 1962

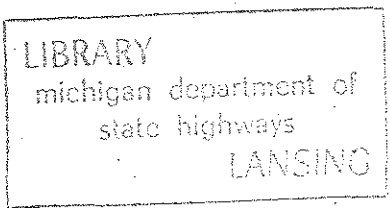
ORIGIN	DESTINATIONS INTERNAL ZONES									
	30	31	32	33	34	35	36	37	38	39
20	6		19	19	12	19	19	12	6	6
21						6				
22						12	6			
23	12		19	31		6	25	12		
24								6		
25					12					
26							31	19	6	6
27	6				12	6	19	12		
28	6									
29	19	6	6	6	19	19				
30	31	12	25	6		6	6			
31		12			6					
32	12	12	12	6						
33	12		6	31	19	6	6			
34			6	12	31	37				
35	6	6		6	19	99	6		6	6
36						6	6			
37								43		
38										
39	6					6				
40							12			
41	6		6	6	6	12	12	6		
42	6	12	19		12			6		
43		6	6	6	6					6
44					6	6				
45										
46	12		19	12						
47										
48						6	6			
49				6				6		
50										
51										
52										
53				6	6	6				
54			6							
55	6					6	6			
56	6									
57										
58				6						
59				6				6		
60										
61						12				
62			12							
63			6	6	6					
64	6		6	12			6			
65							6			
66	12			6		6		12		
67						6				
68	6			6				6		
69						12				
70										
71				6						
72	6							6		
73		19								
74										
75										
76										
77										
78										
79						6			6	
80				6		6				
81										
SUB TOTAL	182	85	173	207	172	306	178	146	24	24
01	3	1	4	2	2	9	13	12	2	
02	1	1	6	2	2	7	2	3	1	
03	3	2	2	3	4	11	6	9	2	
04				1		1	1	2		
05										
06					1					
07										
08	3	1	1	4	3	4	1	4		
09					2	1	2	1		
SUB TOTAL	10	5	13	12	14	33	25	31	5	
TOTAL	192	90	186	219	186	339	203	177	29	24

ALPENA METROPOLITAN AREA TRAFFIC STUDY

TABLE S-3

TOTAL TRIPS BY SINGLE UNIT TRUCK DRIVERS
FOR A 24 HOUR WEEKDAY IN JULY AND AUG, 1962

ORIGIN	DESTINATIONS INTERNAL ZONES									
	40	41	42	43	44	45	46	47	48	49
20		12		6				6		
21			6							6
22		6								
23		6		12			6	6		
24										
25								6		
26		6	6				6			
27	6				6					
28										
29		6	6							
30				12			6	6	6	6
31			6	6						
32		12	6	25	6		12			
33		6	6							6
34		6	12	6					6	
35			19						12	12
36	12	6		6					6	
37										
38										
39										
40				6						
41		19	6		6		6			
42			19		6		6	6		
43			6	12	12		6	6		
44				6				12		
45						6	6			
46		12			12		6	6		
47			6	19	6		12	6		
48								6		6
49		6							6	
50										
51										
52										
53										
54		6								
55										
56										
57		6	19							
58										
59		6	31							
60								6		
61		6	112			12	12			
62			19	6			12	6	6	
63		12		6	6		6	12		
64				6						
65								6		
66										
67		6								
68		6								
69		6								
70										
71				6						
72						6				
73										
74		19								
75										
76										
77										
78										
79		12					6	6		6
80							6			
81				6						
SUB TOTAL	18	207	266	146	60	24	114	102	42	42
01		13	2	1	1	2	1	1	4	1
02		5	2	7	5		3	1	4	
03	1	6	1	13		2	2	1	1	
04	1			6			2	1		
05										
06										
07					1					
08		5	1	6	5		12	1	5	
09	2	2			2					
SUB TOTAL	4	31	6	33	14	4	20	5	14	1
TOTAL	22	238	272	179	74	28	134	107	56	43



ALPENA METROPOPITAN AREA TRAFFIC STUDY

TABLE 5-3

TOTAL TRIPS BY SINGLE UNIT TRUCK DRIVERS
FOR A 24 HOUR WEEKDAY IN JULY AND AUG. 1962

ORIGIN	DESTINATIONS					INTERNAL ZONES				
	50	51	52	53	54	55	56	57	58	59
20									12	6
21	6					6				
22										
23		6		25		25	6			
24										
25						12			6	
26						6				
27						6				
28									6	
29							6			
30										
31										
32										
33				6						
34										
35				6		6				
36						6				12
37						19		6		
38				6		6				
39										
40										
41			6		12			6		6
42								12		37
43										
44										
45										
46										
47									6	
48										
49										
50										6
51										
52										
53										
54										
55						6				
56										
57										
58									6	
59										6
60										
61			6							
62										
63										
64										
65						6				
66										
67							6			
68										
69						6	6			
70								12		
71										
72										
73										
74										
75										
76			12							
77										
78										
79				12						
80										
81										
SUB TOTAL	6	6	24	55	18	104	36	24	36	73
01				1		10	3		2	2
02						5	1		1	2
03	1	2		3	6	4	1		4	2
04						3				
05										
06										
07										
08		2				1		1		
09		1	1	1		2	1			2
SUB TOTAL	1	5	1	5	6	25	6	1	7	8
TOTAL	7	11	25	60	24	129	42	25	43	81

ALPENA METROPOPITAN AREA TRAFFIC STUDY

TABLE S-3

TOTAL TRIPS BY SINGLE UNIT TRUCK DRIVERS
FOR A 24 HOUR WEEKDAY IN JULY AND AUG, 1962

ORIGIN	DESTIMATIONS					INTERNAL ZONES				
	60	61	62	63	64	65	66	67	68	69
20		6	12	6	56	12			12	
21				6	6			6		
22							12		6	
23					12				6	6
24					6	6		6		6
25			6	6	12			12	6	
26				6	6				6	
27					6					
28					6					
29										
30			6		6			6	6	
31			6							
32			25				6			6
33				6				6		
34							6			
35		6		6			6	6		12
36		6			6					
37			6							
38					6					
39					6			6		
40										
41				12						6
42		99	12	6						
43			6							
44				12	12					
45		12								
46		12		12						
47	6		19	6					12	
48			6							
49										
50										
51										
52		19								
53										
54										
55										6
56								6		19
57										
58			6							
59		12								6
60	6			6						6
61										6
62			31	25			12	12		6
63	6		19	12	19					
64			12		74	12	37		19	12
65					12		12			
66					31	6	31	6	19	
67					25	6		12	19	
68				6	19		19	12	37	
69	6	6				6				
70										12
71					6	6	6	6		
72			6	6	6	37	12	12		
73						6				
74										6
75										
76										
77										12
78										
79										6
80					25					
81			6	6						
SUB TOTAL	24	178	184	145	363	97	159	114	148	127
01	2		3	5	7	17	4	2	1	
02	1		10	14	9	10	3	3		1
03	5	1	5	6	15	20	5	2		1
04	1			1	1	1				
05										
06							1	1		
07					1		3	1		
08	4	3	19	2		7		1	2	1
09			1	6	1	1		1	2	2
SUB TOTAL	13	4	38	34	34	56	16	11	5	5
TOTAL	37	182	222	179	397	153	175	125	153	132

ALPENA METROPOPITAN AREA TRAFFIC STUDY

TABLE 5-3

TOTAL TRIPS BY SINGLE UNIT TRUCK DRIVERS
FOR A 24 HOUR WEEKDAY IN JULY AND AUG, 1962

ORIGIN	DESTINATIONS					INTERNAL ZONES				
	70	71	72	73	74	75	76	77	78	79
20		6								6
21										6
22										12
23										
24										
25	6		6							
26										
27			6							
28										
29										
30	6									
31				19						
32										
33			6							
34										
35	6									6
36				6						
37				6						
38										
39										
40										
41	6				19					6
42										
43										
44										
45										6
46										6
47										
48										
49			6							
50										
51										
52							6			
53										19
54										
55										
56										
57										
58			6							
59		6								
60										
61							6	6		
62										
63										
64			12	6						
65		6	37							
66			6							
67		12	6							
68		6								6
69	25		6					6		25
70					6					
71		25								
72			6							
73										
74										
75										
76			6							
77										
78										
79								6		
80										
81										
SUB TOTAL	49	61	109	37	25		12	18		98
01	1	4		12				2		6
02	3	2	1	7				1		4
03	3	1	1	11				2	1	6
04				2						1
05	1	3		3						1
06				17						
07		1	1							2
08				6			2	1		7
09				9	1			2		6
SUB TOTAL	8	11	3	67	1		2	8	1	33
TOTAL	57	72	112	104	26		14	26	1	131

ALPENA METROPOPITAN AREA TRAFFIC STUDY

TABLE S-3

TOTAL TRIPS BY SINGLE UNIT TRUCK DRIVERS
FOR A 24 HOUR WEEKDAY IN JULY AND AUG, 1962

ORIGIN	DESTINATIONS		SUB TOTAL
	80	81	
20			728
21			54
22			128
23			532
24			86
25			246
26			234
27			133
28			67
29		6	178
30			194
31			79
32			183
33	19		209
34			178
35			305
36			183
37			140
38			24
39			24
40			18
41			206
42			264
43		6	153
44			60
45			24
46			121
47			110
48		6	42
49			42
50			6
51			6
52			25
53			43
54			18
55	6		92
56			37
57			25
58			30
59			79
60			24
61			190
62			183
63			140
64	19		368
65			97
66			165
67			116
68			147
69			116
70			42
71			61
72			109
73			31
74			25
75			
76			12
77			18
78			
79			103
80			43
81			18
SUB TOTAL	44	18	7314
01	4		229
02			182
03			255
04	1	1	44
05			10
06			20
07			15
08			156
09			75
SUB TOTAL	5	1	986
TOTAL	49	19	8300

ALPENA METROPOPITAN AREA TRAFFIC STUDY

TABLE 5-3

TOTAL TRIPS BY SINGLE UNIT TRUCK DRIVERS
FOR A 24 HOUR WEEKDAY IN JULY AND AUG, 1962

ORIGIN	DESTINATIONS					EXTERNAL STATIONS			
	01	02	03	04	05	06	07	08	09
20	31	30		8		1	1	11	10
21		2	1					2	
22	8	5	14	1				1	3
23	14	11	13	3			1	10	2
24	1	2	2	1				1	
25	3	2	2	1				5	
26	12	2	5	3				3	
27	2	2	6				1	6	2
28								5	
29	5	3	2					1	1
30	1	1	1					5	
31			1					1	
32	3	2	2					2	1
33	2	2	2	1				5	1
34	2	1	6					6	2
35	9	11	12	1				2	2
36	16	4	7	1				1	1
37	11	2	4	1				5	
38	4		2					1	
39									
40	1								2
41	8	4	10					3	2
42	1			1				3	2
43	9	11	5	4			1	5	1
44	1	2	4				1	6	3
45	2	1						1	
46	1	2	3					8	
47	6	5	1	1				3	
48	2	5	1					2	
49	1		1						
50								2	
51		1	3					2	1
52				1					
53	3		5	1					
54	1		1					1	
55	12	7	1	3				1	
56	1		2						2
57									
58	3	2	4						
59	1	6	1					1	
60	2		3					5	2
61			4					1	1
62	8	10	2	1	1			18	3
63	6	13	5	1				7	3
64	8	8	16	1	3		1	1	1
65	19	6	23			1		2	1
66	3	4	4		1	4		1	2
67	4	3	1				1		1
68			2		1			1	
69			2						1
70		1			1				
71	4	3	3		4				
72		1		1					
73	11	7	8	2	3	19	1	7	7
74		1							
75									
76									
77	2	1	2					1	
78	2								
79	6	4	10		1		1	6	3
80	1			2					
81		1							
SUB TOTAL	253	191	230	40	15	26	9	161	65
01		21	13				1	4	4
02	27		11	3				8	5
03	14	9		1				2	3
04	1	1						2	1
05									
06									
07	1	1	1						
08	3	5	1		1				2
09	5	4	3				1	1	
SUB TOTAL	51	41	29	4	1		2	17	15
TOTAL	304	232	259	44	16	26	11	178	80

ALPENA METROPOPITAN AREA TRAFFIC STUDY

TABLE S-3

TOTAL TRIPS BY SINGLE UNIT TRUCK DRIVERS
FOR A 24 HOUR WEEKDAY IN JULY AND AUG, 1962

ORIGIN	DESTINATIONS	EXTERNAL STATIONS	SUB TOTAL	TOTAL
20			113	841
21			5	59
22			32	160
23			54	586
24			7	93
25			13	259
26			27	261
27			19	152
28			5	72
29			12	190
30			8	202
31			2	81
32			10	193
33			13	222
34			17	195
35			37	342
36			30	213
37			23	163
38			7	31
39				24
40			3	21
41			27	233
42			7	271
43			36	189
44			17	77
45			4	28
46			14	135
47			16	126
48			10	52
49			2	44
50			2	8
51			7	13
52			1	26
53			9	52
54			3	21
55			24	116
56			5	42
57				25
58			9	39
59			9	88
60			12	36
61			6	196
62			43	226
63			35	175
64			39	407
65			52	149
66			19	184
67			10	126
68			4	151
69			3	119
70			2	44
71			14	75
72			3	112
73			65	96
74			1	26
75				12
76				24
77			6	2
78			2	2
79			31	134
80			3	46
81			1	19
SUB TOTAL			990	8304
01			43	272
02			54	236
03			29	284
04			5	49
05				10
06				20
07			3	18
08			12	168
09			14	89
SUB TOTAL			160	1146
TOTAL			1150	9450

ALPENA METROPOPITAN AREA TRAFFIC STUDY

TABLE S-4

TOTAL TRIPS BY PASSENGER CAR AND TAXI DRIVERS
FOR A 24 HOUR WEEKDAY IN JULY AND AUG, 1962

ORIGIN	DESTINATIONS					INTERNAL ZONES				
	20	21	22	23	24	25	26	27	28	29
20	342		227	190	101	93	118	140	93	109
21	31			10	15		10	10		
22	97	5	52	5	20	32	15	26		26
23	148	5	26	75	20		47	1	10	10
24	111	5	30	10	30	46	10	31	21	5
25	67	5	26		56		31	21		15
26	114	10	31	37	20	26	31	15	15	41
27	130	10	20		20	25	31	46	15	5
28	88		5	10	26		15	10	92	20
29	123	10	26	16	10	5	37	5	20	15
30	133		21	17	15	5	21	5		20
31	15		5	10	25	5	5			10
32	96	20	55	51	10	36	10	15	10	10
33	147	10	35	30	5	15	15	15		21
34	125	15	25	25	15	15	15		10	15
35	93	10	46	15			16	10	5	
36	5	5	10					5		
37	102	5	10	31	10	50	25	50	10	36
38	21		21	5	5		10	5		
39	10				5	10		10		
40	5				5		5	5		
41	48		16	5		11	10			
42	111	21	48	42		10	27	5	16	11
43	53	5	10	21	15		26	26	5	20
44	21	5		5			5	5		
45	26	15	5	5		10	5			
46	20			10		5				5
47	26		15	21	10	10		10	5	10
48	10		5		5	10	5	5		
49	65		15	15		5	5		5	5
50	5					5		5		
51				10	5		16		5	
52	10		5		5					
53	26		16	5			11	5		5
54	5		5	11			10	5		
55	161	10	26	26	10	21	53	10	5	5
56	36		16	16			5	21		10
57										
58	41							10	10	10
59	40	5	15	26		15			10	5
60	52		5	5	5	5	5	10	5	
61	5		5		5	10	5	5		
62	100		23		5	5	11		10	10
63	16		15	10	15	10	10	5		5
64	105	20	41	16	40	31	21	46	5	36
65	54	5	16	23		26	1	10		
66	80	16	11	10		10	26	10	5	15
67	93	5	57	10		10	22			
68	46	5	46	5	10	5	26	6		
69	21	5			5				15	
70	20				5	5	26	5		
71	31	25	10	10	10	26	25		5	5
72	31		10			10	15	20		5
73	22			11	30	21	11	1		
74										
75										
76										
77										
78	20		15				15			
79	10				15		10	26		5
80	1						5	5		
81	10					5				
SUB TOTAL	3424	257	968	855	608	644	879	681	407	525
01	206	5	279	83	30	33	49	34	14	29
02	191	9	229	49	22	19	34	21	13	27
03	183	6	155	81	16	21	45	31	7	24
04	57	2	51	9	2	6	11	3	2	1
05	6		4	1		6	7	3	1	
06	1							1		
07	7		2	1	3		2	2		1
08	134	7	99	35	13	28	13	17	5	8
09	96	6	75	16	3	16	13	5	1	5
SUB TOTAL	881	35	894	275	89	129	174	117	43	95
TOTAL	4305	292	1862	1130	697	773	1053	798	450	620

ALPENA METROPOLITAN AREA TRAFFIC STUDY

TABLE S-4

TOTAL TRIPS BY PASSENGER CAR AND TAXI DRIVERS
FOR A 24 HOUR WEEKDAY IN JULY AND AUG. 1962

ORIGIN	DESTINATIONS INTERNAL ZONES									
	30	31	32	33	34	35	36	37	38	39
20	129	15	116	166	120	72	5	95	36	5
21	5		15	10	10	5		10		
22	15	5	66	40	25	51	10	20	16	
23	10	15	46	32	20	21	5	31	11	
24	10	30	5		15	10		10	10	10
25	16		25	15	15			50	5	5
26	21		47	15	25	36		20	16	
27	5		6	16	10	10	5	46	15	5
28			10	10	5			10		
29	21	5	16	5	15	5		41		
30	27		10	46	20	31	5		15	5
31		5		5	5	5		5	15	
32	35		35	41	15	5	5		5	
33	56	5	20	40	15	5	10	10	5	
34	10	5	15	15	20	20	15	5	10	
35	31	5	5		20	21		11	15	
36	5		5	10	15			10		
37				15		10	10	25	20	10
38	21	30	5	5	5	15		25		5
39								5		
40	5	5		15	5	10		5		
41	5		5	20	20	26			11	
42	26		26	21	20	21			16	
43	10	5	26	10	5	15		30	5	5
44			10		5				10	
45	5			5						
46		5	25	15		15		15	10	
47			15	20	20	15		15	10	
48					5	15	10	15	5	
49	10	10	10	5		5			5	
50										
51					5	5				
52		10			10			5	10	5
53		5	5					10	5	
54					5	5				
55	10		10	21	30	10	5	30	16	5
56					10		5	5	10	5
57										
58	5		15	5	5	10	5	5		
59	10			15	15	5	5	5	15	
60	11				5	10			5	
61	16				5			5		
62	16		15	35	5	21		31		5
63	25	5	10	5		10				
64	16	5	25	35	30	15		20	15	5
65	11		5	20		31		10	11	
66	20	5	10		21	10		10	5	
67					10		5	5	10	
68	15	10	5			6		10	30	5
69	21			5	5			5		
70				5		5		10		
71	5	5	20		5	31		5		5
72	5		15			10				
73	5		25	15	10	46		10	1	
74										
75								5		
76										
77										
78				5						
79	31		20	35	20	15		5		
80	10									
81					5			5		
SUB TOTAL	710	190	744	798	656	689	105	705	399	85
01	29	11	29	30	25	28	13	39	32	1
02	17	5	19	24	12	22	10	19	45	1
03	30	19	34	32	20	39	4	18	51	3
04	2	1	4	12	9	5	4	21	12	
05							1	1		
06			1							
07	2			2	1	1	1	1		1
08	12	3	8	20	6	12	9	7	18	
09	5	2	9	5	3	15	5	5	14	4
SUB TOTAL	97	41	104	125	76	122	47	111	172	10
TOTAL	807	231	848	923	732	811	152	816	571	95

ALPENA METROPOLITAN AREA TRAFFIC STUDY

TABLE S-4

TOTAL TRIPS BY PASSENGER CAR AND TAXI DRIVERS
FOR A 24 HOUR WEEKDAY IN JULY AND AUG, 1962

ORIGIN	DESTINATIONS									
	40	41	42	43	44	45	46	47	48	49
20		58	96	52	15	31	20	67	15	66
21		5	21		5	21				
22		26	53	16	5	5	5	20	15	10
23		11	42	26	5		5	16		15
24				25				15		
25		11	10	15		10		20		5
26		10	37	26	10	5	5	10	5	5
27	5	5	10	26	5			10	10	
28	5		16	5						5
29		5	11	10	5		10	5		
30		11	37	15	5	10		16		15
31		5		5		5	5			10
32		5	16	16	5		20	20		10
33	25	20	36	10			20	10		5
34		30	15			5		20	5	
35	15	16	26	15			15	15	15	20
36									10	
37	10	10	5	20	5		10	10	5	
38		11	5	21	10	15	5	5	5	10
39										
40								5		5
41	5	42	21	5		5		5	5	15
42		16	58	26	5	5		11	5	
43	5	5	37	5				10	5	5
44				10				15	5	
45			5	5		5		5		5
46					5			15		
47	5	10	11	5	10	5	15	10	5	5
48		5	5		5					10
49	5	10	16			15		5	10	10
50			5							
51		5	10							
52										
53		16	5	1			5			
54									5	
55		5	31	36			5	10	15	
56		5		10	10				10	
57										
58		5	10	5				6		
59		15	10	5		10		5		10
60		5						5		
61			11							
62			16	31	5	5	16	46	5	
63		5	16	5				20	10	
64		10	17	31		15	5	26	5	
65		5	16			10		10	5	5
66			5	11	5			5		10
67	5	11	11	5	5			10		
68			5	15		10		10		
69		5	5	15			5			
70			11					15		
71				10	10		5	10	5	5
72				10						
73		5	11				10	10		10
74										
75										
76										
77										
78										
79	5	11	16	26				10		25
80										
81										
SUB TOTAL	90	440	800	575	135	192	186	538	180	296
01	4	20	31	34	21	5	3	3	9	7
02	1	17	19	47	37	10	17	27	15	8
03	8	17	23	49	31	8	17	7	16	4
04	1	10	3	9	1	3	2	3	3	2
05		3			1			1	1	
06		1				1				
07		1			1					
08	2	18	16	22	9	13	12	22	19	4
09	6	7	2	4	2	2	5	5	3	2
SUB TOTAL	22	94	94	165	103	42	56	68	66	27
TOTAL	112	534	894	740	238	234	242	606	246	323

ALPENA METROPOPITAN AREA TRAFFIC STUDY

TABLE 3-4

TOTAL TRIPS BY PASSENGER CAR AND TAXI DRIVERS
FOR A 24 HOUR WEEKDAY IN JULY AND AUG, 1962

ORIGIN	DESTINATIONS INTERNAL ZONES									
	50	51	52	53	54	55	56	57	58	59
20	5	5	5	16		147	26		47	46
21					5	10	5			5
22			5	16		5	16		5	10
23		11		15	16	26	16			10
24		5	5			15				
25	5					15	5			15
26	5	5		10	10	42	10			
27	5			10	5	15	21		5	
28		5				11			5	10
29					5	10			5	
30		10		1		16				15
31			5							5
32						5			15	
33						10			5	10
34			10			25	10		5	5
35						10	5			5
36						5	5			
37						26	5		5	5
38				5		26	10		5	20
39			5			10	5			
40										
41		10		26		15	5		5	15
42	5	15		5		26			10	5
43					5	36	10		5	10
44		5					5			
45										10
46				5		5			10	5
47						31	5		10	15
48						15	5			
49									5	
50						5				
51					5	10				
52						5				5
53						10			5	5
54		5				5				
55		5	5	10		63				15
56						5	5			5
57										
58									5	5
59			5	5		5	5		5	25
60				5		10			5	15
61										
62			5	5		10	16		5	25
63				5		5	5			10
64		5		10	5	10	10		5	20
65			5	6		37	10		5	
66					5	37				5
67						21				
68		10				21				5
69						16				
70			5			5				
71		5		5		20	20			5
72			5							
73			5	6		21	26		5	10
74						5				
75										
76										
77										
78						15				
79		16	10	5	5	26	26			35
80										
81										
SUB TOTAL	25	117	80	171	66	919	292		182	411
01	1	3	2	19	7	87	3	3	3	17
02	1	1	1	31	1	28	5	1	5	21
03	6	4	1	14	5	32	3	1	17	15
04				1	3	21	1			3
05										
06										
07			1	1		1	1			1
08	2	3	2	8		8	2		6	20
09	1	2	8	5	1	6	11		1	6
SUB TOTAL	11	13	15	79	17	183	26	5	32	83
TOTAL	36	130	95	250	83	1102	318	5	214	494

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state highways
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ALPENA METROPOPITAN AREA TRAFFIC STUDY

TABLE S-4

TOTAL TRIPS BY PASSENGER CAR AND TAXI DRIVERS

FOR A 24 HOUR WEEKDAY IN JULY AND AUG, 1962

ORIGIN	DESTINATIONS					INTERNAL ZONES				
	60	61	62	63	64	65	66	67	68	69
20	52	10	88	10	121	32	63	99	77	11
21					10	5	5	5	5	5
22	5	5	37	10	41	27	11	52	20	
23			11	10	5	21	10	10	10	5
24		5	5	15	45				5	5
25	5	5	5	10	36	16	21	10	10	
26			5	16	20	3		26	10	
27	5				32	16	10	1	5	
28	5		15		5					15
29			5	5	20		20			
30	5	21	6	15	15	15	15		6	21
31				5			5	5	5	
32			32	10	41	5	10	5		
33			40		15	21	5	5		
34		5	10		35		10	5	5	5
35	10		21	10	15	36	21		10	
36					5	5		5		
37			21		25	5	10	5	10	5
38	5			5	20	11	6	5	20	
39			5				5	5	5	
40								5	5	
41			11	5	21	10		10		5
42		16	22	26	10	16	5	11	5	5
43			26	5	21		10	10	10	21
44			10							
45			5		36	10	11		10	
46			16		5				5	
47	16	5	57	36	31	10	5	15	5	5
48			10	10	5	10				
49	5					15	5	5		
50										
51		5		5	5		5		10	
52										
53	5		5	5	16	1				
54					5					
55	10			5	21	26	32	31	21	10
56			10	5	5	5				5
57										
58	5		5		10					
59	15		30	5	15	5	5			
60	10		16							
61			5							
62	11	5	104	26	31	11	10	5	5	
63	10		15		15					
64			21	5	66	26	37	83	31	15
65	5		10	5	22	11	21	10		
66			10		16	26	32	5	5	11
67			5		83	15	10	5	36	15
68					41	5		16		5
69	10				20		16	10	5	
70						5	25	5		
71					21	15	5	10	31	15
72					5		15		10	5
73	10	10	17	10	32	10	37	36	15	
74										
75										
76										
77			5							
78					5					
79	5		10	15	41	10	5	5	20	10
80										
81			5		10					
SUB TOTAL	209	92	736	289	1120	460	518	515	432	199
01	1	5	25	11	47	41	31	23	28	6
02	5	4	51	26	44	41	16	15	10	9
03	6	2	28	20	50	29	22	15	18	6
04	2		7	2	14	1	2	4	3	3
05					4	4	3	1	9	
06			1		1		4		3	
07			3		6		4	7	2	
08	8	16	51	12	17	36	12	6	9	2
09	1		7	3	12	14	5	3	6	1
SUB TOTAL	23	27	173	74	195	166	99	74	88	27
TOTAL	232	119	909	363	1315	626	617	589	520	226

ALPENA METROPOLITAN AREA TRAFFIC STUDY

TABLE S-4

TOTAL TRIPS BY PASSENGER CAR AND TAXI DRIVERS
FOR A 24 HOUR WEEKDAY IN JULY AND AUG, 1962

ORIGIN	DESTINATIONS INTERNAL ZONES									
	70	71	72	73	74	75	76	77	78	79
20	20	36	20	31					15	5
21	5	15	5							
22	5	10	10						10	
23		10		6						
24	10	15		25						15
25	5	10	16	10						
26	10	21	10	14					15	21
27		5	15	5						26
28		5								
29		10	5							5
30			10	5						31
31										5
32		20	15	21						20
33	10	5		15						40
34		10		15						25
35	10	20	15	41						10
36				5						
37	15	5	10	15		5			5	10
38										
39		5								
40										5
41				5						11
42	11			11						16
43		15		5						26
44		15								
45										
46		5		10						
47	5	10		5						10
48		5								
49				10						25
50										
51		5								10
52	5		5	5						5
53				5						5
54										5
55	5	31		21	5				26	21
56	5	15		26						26
57										
58				5						
59	5	10	5	10						40
60				5						5
61				16						
62				16				5		21
63				15						15
64		36	5	27						36
65	5	15		15						10
66	20	5	5	42					5	5
67		5	5	26					5	5
68		20	5	20						20
69			5							10
70		5							10	
71		15	10	20					5	
72		5		15					5	15
73	5	26	15							
74										
75										
76										
77										
78	10	5	5							
79			15							
80										
81										
SUB TOTAL	171	450	211	543	5	5		5	101	560
01	8	16	3	64	1					47
02	2	15	1	55						49
03	5	15	3	46					1	47
04	9	3	1	17						2
05		6	1	1				6	1	1
06		1	1	3						
07		6		2			1			1
08	4	15	7	15						32
09	1	5		17						26
SUB TOTAL	29	82	17	220	1		1	6	2	205
TOTAL	200	532	228	763	6	5	1	11	103	765

ALPENA METROPOLITAN AREA TRAFFIC STUDY

TABLE S-4

TOTAL TRIPS BY PASSENGER CAR AND TAXI DRIVERS
FOR A 24 HOUR WEEKDAY IN JULY AND AUG, 1962

ORIGIN	DESTINATIONS		INTERNAL ZONES	SUB TOTAL
	80	81		
20				3430
21		5		268
22				981
23				845
24				609
25				622
26	5			891
27	5			677
28				408
29		5		516
30	10			722
31				180
32				790
33				766
34		5		635
35				679
36				110
37		5		686
38				398
39				85
40				90
41				434
42				767
43				579
44				131
45				193
46				201
47				559
48				175
49				301
50				25
51				121
52				90
53				177
54				76
55				929
56				291
57				
58				177
59				436
60				204
61				93
62		5		737
63				287
64	11			1100
65				466
66				534
67				510
68				438
69				204
70				167
71				470
72				216
73				550
74				5
75				5
76				5
77				5
78				95
79				544
80				31
81				30
SUB TOTAL	31	25		26701
01	7	1		1646
02	2	2		1428
03	2	1		1413
04	5	2		357
05				73
06				19
07		1		67
08	2			886
09	2			485
SUB TOTAL	20	7		6374
TOTAL	51	32		33075

ALPENA METROPOLITAN AREA TRAFFIC STUDY

TABLE S-4

TOTAL TRIPS BY PASSENGER CAR AND TAXI DRIVERS
FOR A 24 HOUR WEEKDAY IN JULY AND AUG. 1962

ORIGIN	DESTINATIONS								
	01	02	03	04	05	06	07	08	09
20	214	201		54	3		4	123	81
21	3	7	11					8	
22	220	232	198	49	1		2	83	57
23	103	50	65	9		3	1	34	15
24	34	24	15	7	5		1	8	8
25	24	27	24	10	6			24	13
26	60	38	42	7	8			24	15
27	40	21	32	3			3	11	4
28	13	18	10	2		1		7	2
29	22	19	17	1			2	5	5
30	27	21	27	3				22	6
31	10	4	19	1				1	
32	27	29	35	3		1	1	14	6
33	30	28	35	9			2	24	6
34	24	13	23	3	2		1	10	4
35	29	24	40	6			7	12	13
36	9	15	7	4			2	6	3
37	39	19	21	17	1		4	14	7
38	28	40	36	6	1		1	15	12
39	3	2	1				1		5
40	8	4	5	2				3	3
41	15	20	20	6		1	1	8	9
42	34	22	19	3	1			16	8
43	41	46	34	4				21	12
44	25	24	31	2			1	13	5
45	4	11	10	6		1		10	1
46	11	21	11	3				14	4
47	7	34	14	2	3			27	
48	16	4	11	1				10	2
49	7	7	11	2				5	1
50	2		8					2	1
51	8	2	4					3	
52	4	1	2	1				2	17
53	18	10	17	2			1	4	5
54	5	2	4	2			2		2
55	109	26	25	16			1	6	12
56	3	2	4	2				5	8
57	3		3				1	2	
58	5	8	14	1				2	3
59	20	15	19				1	32	6
60	2	7	4	2	1			9	4
61	1	4	3	4				12	
62	30	50	32	15		1	1	55	10
63	14	33	14	6				17	2
64	64	36	42	12	7		8	7	7
65	49	34	27	8	4			30	17
66	33	13	12	2	7	3		17	1
67	26	19	13	3	2	1	12	6	4
68	22	10	23	3	12		5	9	10
69	5	2	3	3	5		1		2
70	8	6	4	1	1		1	1	
71	30	14	21	2	9	3	3	13	5
72	8	6	6	3		1	1	2	
73	41	42	44	17		4	4	16	22
74			1						
75									
76									
77	1		4		3				1
78			2	1				1	
79	51	29	45	7	1		1	40	20
80	1			2					2
81	4	4		1					
SUB TOTAL	1694	1400	1378	341	83	20	77	863	468
01		394	72	3			1	24	22
02	521		85	9	2		3	18	20
03	90	78		8			2	8	14
04	1	7	7				1	5	2
05		1	1					1	
06									
07	3	1	2	1				1	1
08	29	14	9	4	1	1	2		8
09	27	18	13	2			1	8	
SUB TOTAL	671	513	189	27	3	1	10	65	67
TOTAL	2365	1913	1567	368	86	21	87	928	535

ALPENA METROPOLITAN AREA TRAFFIC STUDY

TABLE S-4

TOTAL TRIPS BY PASSENGER CAR AND TAXI DRIVERS
FOR A 24 HOUR WEEKDAY IN JULY AND AUG, 1962

ORIGIN	DESTINATIONS	EXTERNAL STATIONS	SUB TOTAL	TOTAL
20			834	4264
21			27	295
22			842	1823
23			280	1125
24			102	711
25			128	750
26			194	1085
27			114	791
28			53	461
29			71	587
30			106	828
31			35	215
32			116	866
33			134	900
34			80	715
35			131	810
36			46	156
37			122	808
38			139	537
39			12	97
40			25	115
41			80	514
42			103	870
43			158	737
44			101	232
45			43	236
46			64	265
47			87	646
48			44	219
49			33	334
50			13	38
51			17	138
52			27	117
53			57	234
54			17	93
55			195	1124
56			24	315
57			9	9
58			33	210
59			93	529
60			29	233
61			24	117
62			194	931
63			86	373
64			183	1283
65			169	635
66			88	622
67			86	596
68			94	532
69			21	225
70			22	189
71			100	570
72			27	243
73			190	740
74			1	6
75				5
76				
77			9	14
78			4	99
79			194	738
80			5	36
81			9	39
SUB TOTAL			6324	33025
01			516	2162
02			658	2086
03			200	1613
04			23	380
05			3	76
06				19
07			9	76
08			68	954
09			69	554
SUB TOTAL			1546	7922
TOTAL			7870	40945