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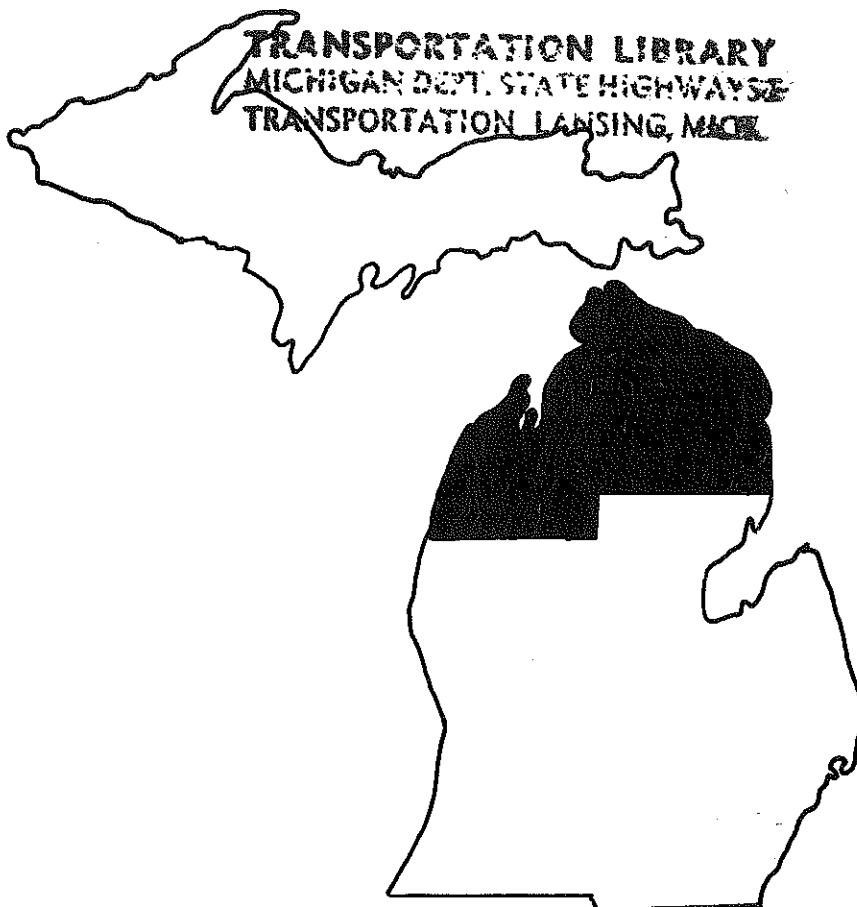
MICHIGAN DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION

CADILLAC AREA

External
Origin and Destination
Survey

Factual Data Report
February 1979

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MICHIGAN DEPARTMENT
OF
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CADILLAC AREA

External
Origin and Destination
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Factual Data Report
February 1979

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POST OFFICE BOX 30050, LANSING, MICHIGAN 48909

JOHN P. WOODFORD, DIRECTOR

February 2, 1979

Mr. S.F. Cryderman
Bureau of Transportation Planning

Dear Mr. Cryderman:

The Multi-Regional Planning Division of the Bureau of Transportation Planning has documented the results of the Cadillac Area External Origin-Destination Survey. The survey was conducted on week-days during June and July in 1977.

The purpose of the survey was two-fold. First, it was necessary in order to determine traffic patterns in the area. This information will serve as a basis for planning an efficient transportation system. Secondly, the data gathered will serve as an important update of an earlier survey conducted in Cadillac in 1961.

The report was prepared by Thomas E. Pickens, Transportation Planner. Editing assistance was provided by J.C. Bard and James Zimmerman. Report typing was done by Naomi Harvey. This combined effort is the responsibility of the North Region Planning Section under the supervision of John B. Ouderkirk.

Sincerely,

A handwritten signature in cursive script, appearing to read "R.J. Lilly".

Richard J. Lilly, Administrator
Multi-Regional Planning Division



PREFACE

The results of the weekday origin and destination survey conducted during late June and early July of 1977 are contained herein. This report is a presentation of the expanded data in tabular form developed from the survey information and does not purport to speculate, hypothesize nor forecast any alternative or master plan. This document is designed, however, to provide a tool whereby those involved in such activities may utilize it in attaining such ends.

Appendix "B" contains tables comparing the data from this study with a similar study conducted in this area in 1961.

In addition to the weekday survey, an experimental weekend survey was also conducted in late June and early July of 1977. Approximately 27,000 postcards were handed out, of which about 11,500 have been returned. The results of this weekend traffic survey are being prepared in a separate report.

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STUDY LOCATION

The City of Cadillac is located in the southeast corner of Wexford County. Cadillac's 1970 population was 9,990. Due to the recreational nature of the area, the population increases during the summer months. This is also true during the height of the winter months with the rapidly growing interest in winter sports.

State trunklines servicing the area are US-131, M-55, and M-115.

TERMINOLOGY AND DEFINITIONS

The following terms may be mentioned in the context of this report. A brief definition of each should provide a better understanding of the processes and concepts involved in this Origin-Destination Study.

Central Business District (CBD) --- The Zone or zones comprising the concentrated commercial and retail business center of a city.

Classification Counts --- A survey of vehicles in which those passing through the study area are placed in categories (passenger cars, single unit trucks, etc.).

Cordon Line --- An imaginary line around the area under study.

Destination --- The place where a trip ends.

External Station --- A point on a route crossing the cordon line at which the drivers of vehicles are interviewed and classification counts are taken.

Origin-Destination Survey --- A survey of vehicles in which those passing through the study area are stopped and drivers interviewed regarding the origin, destination and purpose of the trip.

Origin --- The place where a trip begins.

Origin - Destination Zone --- (Analysis Zone) a basic subdivision of the study area having a single or dominant land use, designed as such for purposes of tabulation and analysis.

Screenline --- A line through the study area on a natural or artificial division such as a river or railroad where all traffic crossing it is counted and classified for comparison with expanded survey data.

Study Area --- The geographical area selected for the origin and destination study.

Terminal Trip --- A trip with one end outside the study area and the other end inside the study area. (Beginning or ending at one of the internal analysis zones).

Through Trip --- A trip passing through the study area. (Both ends of the trip outside the cordon line).

Trip --- One-way travel between an origin and destination.

Trip Ends --- Each trip has two ends; an origin and a destination.

Trip Length-Average --- The value that is determined by summing all of the recorded trip lengths and dividing by the number of trips.

Trip Length-Median --- The value that is determined by dividing the trip length distribution so that an equal number of trips are on either side of it.

PART I
DATA COLLECTION

FIELD PROCEDURE

Field work for the Cadillac Area Origin-Destination Survey was conducted during late June and early July of 1977. The purpose of the study was to collect traffic data interchanging with and passing through the Cadillac area during a typical summer weekday.

A cordon line was drawn around the greater Cadillac area enclosing the area to be studied. Where the cordon line crossed a road, an external station was established. Several of the established stations were not operated since preliminary counts indicated that traffic at these was minimal when compared to the thirteen stations that were operated. A description of the thirteen stations that were operational can be found on page 9.

The study area, having been defined by the cordon line, was then sub-divided into analysis zones for the purpose of tabulating trip data (see map). Various abbreviations were used initially to identify each zone for ease in coding an origin and destination. Zone identification is changed to a numerical designation when field work is completed for ease in tabulation of trip data (see diagram on page 11).

Each of the thirteen interview stations was operated on a fourteen hour interview schedule (6:00 A.M. to 8:00 P.M.). During these hours, vehicles were stopped and drivers interviewed as to the origin, destination and purpose of the trip. These interviews were made of drivers traveling in each direction (inbound and outbound). In addition, manual vehicle classification counts were taken during the interviewing period as well as during the "off" interview hours (8:00 P.M. to 6:00 A.M.) to account

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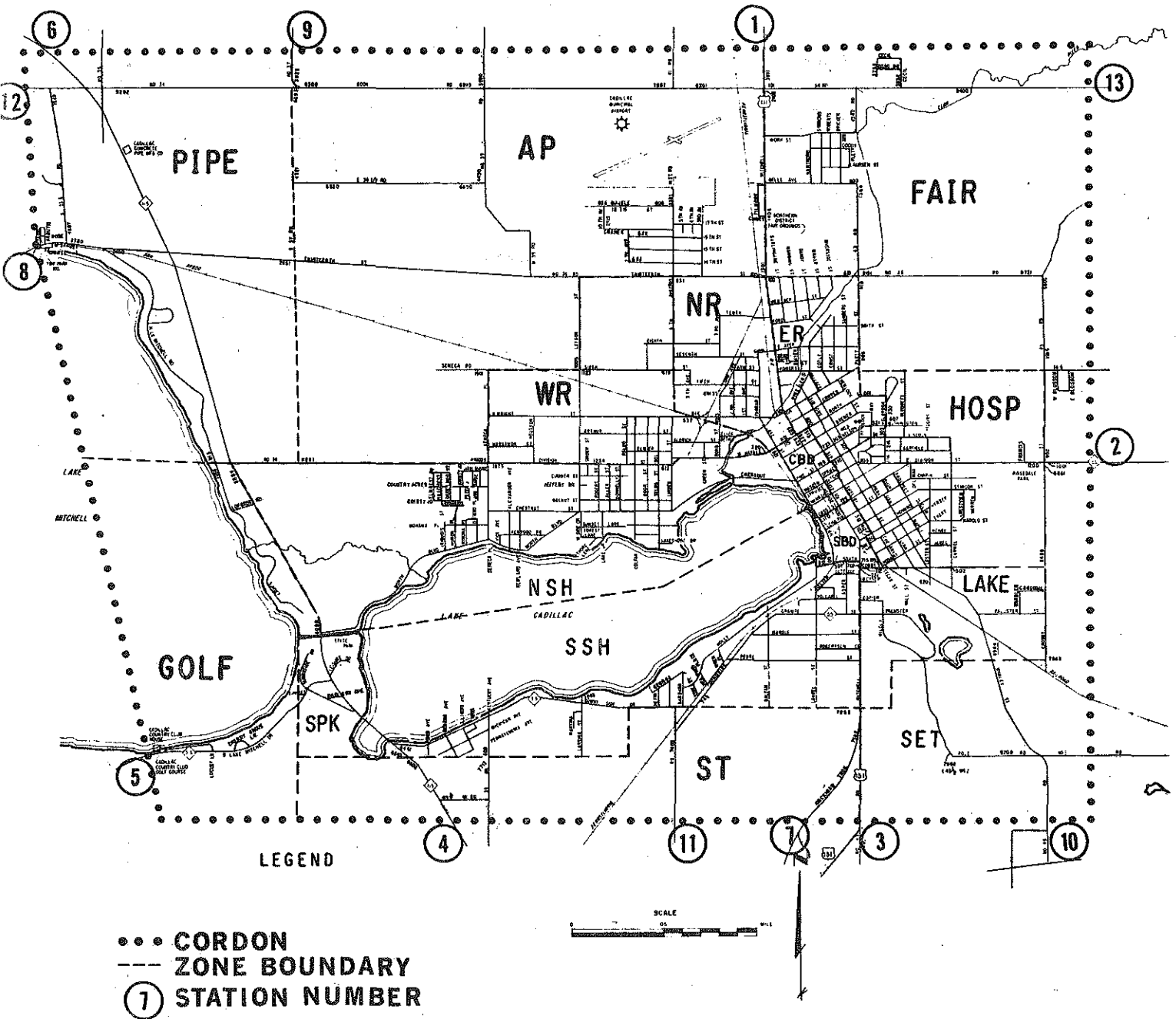
for a 24-hour day. Classifications are the control totals and allow the sample interviews to be expanded to a 24-hour day. Sample interview and vehicle classification forms can be found in Appendix "A".

After the field work was completed all data was edited, expanded and processed according to standard origin-destination procedure. The tabular results follow.

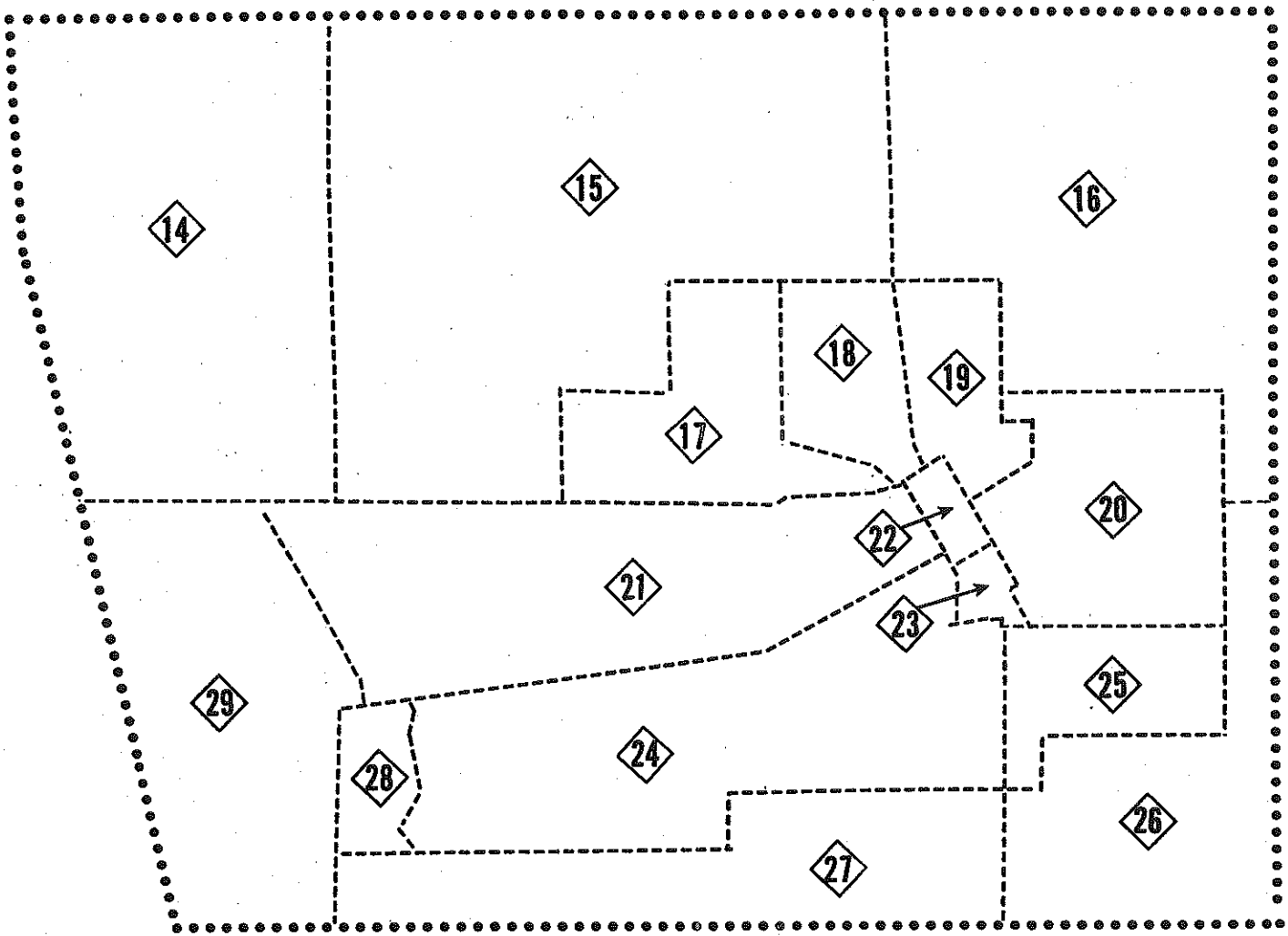
STATION LOCATIONS

<u>STATION NUMBER</u>	<u>ROUTE</u>	<u>LOCATION</u>
1	US-131 North	0.3 miles north of No. 34 Road (Boon)
2	M-55 East	0.1 miles east of Cadillac East City Limit
3	US-131 South	0.2 miles south of Mackinaw Trail
4	M-115 South	0.3 miles southeast of M-55
5	M-55 West	0.8 miles west of northwest Junction M-115
6	M-115 North	0.4 miles northwest of No. 34 Road (Boon)
7	Mackinaw Trail	0.3 miles south of US-131
8	Lake Mitchell Drive	0.1 miles southwest of Ann Arbor Railroad
9	No. 37 Road	0.3 miles north of No. 34 Road (Boon)
10	No. 45 Road	0.3 miles south of No. 40 1/2 Road
11	No. 41 Road	0.5 miles south of M-55
12	No. 34 Road (Boon) West	0.2 miles west of No. 33 1/2 Road
13	No. 34 Road (Boon) East	1.5 miles east of US-131

CADILLAC AREA
EXTERNAL STATIONS
&
INTERNAL ZONES



CADILLAC AREA
INTERNAL ZONES



- LEGEND**
- CORDON LINE
 - - - - ZONE LIMITS
 - ◇ 00 INTERNAL ZONES



TRIP DATA COMPARISON BY STATION
(CLASSIFICATIONS, INTERVIEWS, AND EXPANDED TRIPS)

STATION	24-HOUR VEHICLE CLASSIFICATIONS ^{1/}	14-HOUR INTERVIEWS	PERCENT INTERVIEW	EXPANDED Vehicle TRIPS ^{2/}	EXPANDED DATA AS PERCENT OF 24-HOUR CLASSIFICATIONS
1	5,586	3,181	56.9	5,580	99.9
2	4,912	2,998	61.0	4,912	100.0
3	5,366	3,089	57.6	5,361	99.9
4	4,740	2,962	62.5	4,735	99.9
5	4,274	2,505	58.6	4,272	99.9
6	4,217	2,695	63.9	4,214	99.9
7	2,145	1,490	69.5	2,150	100.2
8	852	615	72.2	852	100.0
9	727	534	73.5	728	100.1
10	822	630	76.6	821	99.9
11	456	339	74.3	456	100.0
12	565	426	75.4	565	100.0
13	<u>1,640</u>	<u>1,208</u>	73.7	<u>1,642</u>	100.1
TOTAL	36,302	22,672	62.5%	36,288	99.96%

^{1/} Motorcycles and bicycles have been removed and appear by station below. These two vehicle types are not interviewed so therefore cannot be expanded and do not appear in expanded vehicle trips.

STATION	1	2	3	4	5	6	7	8	9	10	11	12	13	TOTAL
Motorcycles	51	78	42	40	36	12	13	22	14	11	3	9	15	346
Bicycles	9	15	2	4	38	6	3	22	20	4	11	2	3	139
TOTAL	60	93	44	44	74	18	16	44	34	15	14	11	18	485

^{2/} Due to the convention of certain computer programs, expanded vehicle trips may not correspond exactly with 24-hour classification counts. This results because of truncation and rounding in each cell of the trip matrix following expansion.

EXPANDED VEHICLE TRIPS BY STATION
(THROUGH, TERMINAL, AND TOTAL)

<u>STATION</u>	<u>EXPANDED VEHICLE TRIPS</u>	<u>PERCENT OF TOTAL TRAFFIC</u>	<u>TERMINAL TRIPS</u>	<u>PERCENT TERMINAL</u>	<u>THROUGH TRIPS</u>	<u>PERCENT THROUGH</u>
1	5,580	15.4	3,457	62.0	2,123	38.0
2	4,912	13.5	4,034	82.1	878	17.9
3	5,361	14.8	3,092	57.7	2,269	42.3
4	4,735	13.0	1,236	26.1	3,499	73.9
5	4,272	11.8	3,129	73.2	1,143	26.8
6	4,214	11.6	1,895	45.0	2,319	55.0
7	2,150	5.9	1,869	86.9	281	13.1
8	852	2.3	721	84.6	131	15.4
9	728	2.0	671	92.2	57	7.8
10	821	2.3	769	93.7	52	6.3
11	456	1.3	431	94.5	25	5.5
12	565	1.6	490	86.7	75	13.3
13	<u>1,642</u>	<u>4.5</u>	<u>1,479</u>	90.1	<u>163</u>	9.9
TOTAL VEHICLE TRIPS	36,288	100.0	23,273		13,015	
Adjusted $\frac{1}{2}$ Vehicle Trips	29,781	100.0%	23,273	78.1%	6,508*	21.9%

$\frac{1}{2}$ A through trip is counted both at the station of entrance and exit. To adjust for this double counting it is necessary to half-factor through trips.

* Rounded to nearest whole number after half-factoring.

PART II
STRATIFIED STUDY RESULTS

ALL STATIONS

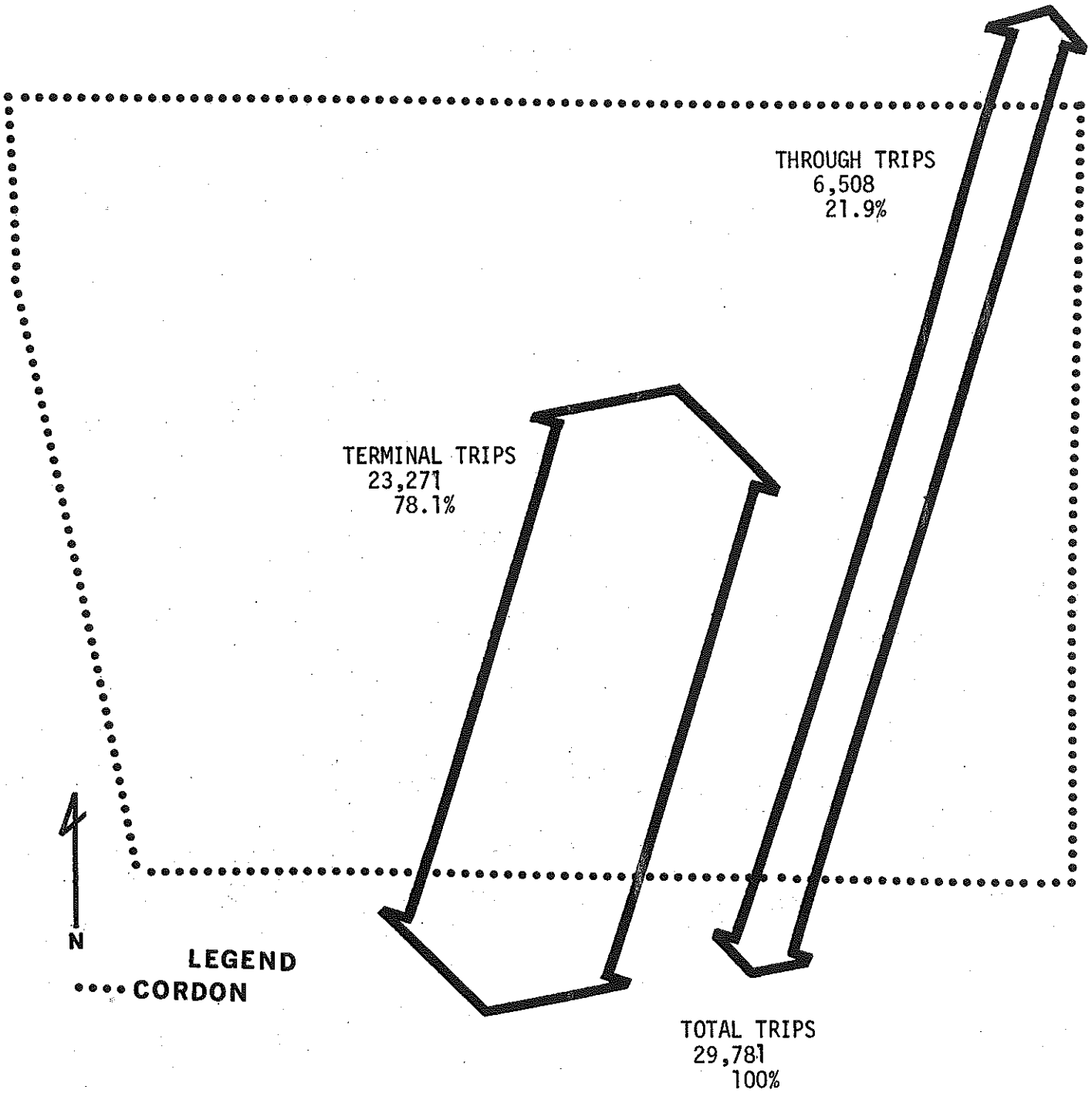
<u>LOCATION:</u>	Thirteen Points on the Cordon Line
<u>CLASSIFICATION:</u>	State Trunklines (6) and County Roads (7)
<u>TOTAL TRIPS:</u>	29,781
<u>MAJOR VEHICLE TYPE:</u>	Passenger car 21,819 (73.3%)
<u>MAJOR TRIP PURPOSE:</u>	Work 12,939 (43.4%)
<u>TRIP DISTRIBUTION:</u>	Terminal 23,273 (78.1%) Through 6,508 (21.9%)
<u>MAJOR TERMINAL TRIP ATTRACTOR:</u>	Zone 22 3,362 (14.4%)
<u>LONGEST TRIP:</u>	16 Hrs. 10 Min.
<u>AVERAGE TRIP LENGTH:</u>	1 Hr. 15 Min.

ALL STATIONS

VEHICLE TYPE AND TRIP PURPOSE

<u>Vehicle Type</u>	<u>Vehicles</u>	<u>% of Total</u>	<u>Terminal</u>	<u>%</u>	<u>Through</u>	<u>%</u>
Passenger Car	21,819	73.3	17,431	79.9	4,388	20.1
Passenger Car with Trailer	446	1.5	215	48.2	231	51.8
Panel or Pickup	5,061	17.0	4,170	82.4	891	17.6
Panel or Pickup with Trailer	248	0.8	127	51.2	121	48.8
Other Single Unit Trucks	1,211	4.1	890	73.5	321	26.5
Combinations and Trucks with Trailers	996	3.3	440	44.2	556	55.8
TOTAL	29,781	100.0	23,273	78.1	6,508	21.9
<u>Trip Purpose</u>	<u>Vehicles</u>	<u>% of Total</u>	<u>Terminal</u>	<u>%</u>	<u>Through</u>	<u>%</u>
Work	12,939	43.4	10,509	81.2	2,430	18.8
Personal Business	2,470	8.3	2,110	85.4	360	14.6
Shopping	4,100	13.8	3,998	97.5	102	2.5
Vacation	2,823	9.5	978	34.6	1,845	65.4
Other Soc. or Rec.	4,224	14.2	3,071	72.7	1,153	27.3
All Other	3,225	10.8	2,607	80.8	618	19.2
TOTAL	29,781	100.0	23,273	78.1	6,508	21.9

ALL STATIONS
TRIP MOVEMENTS

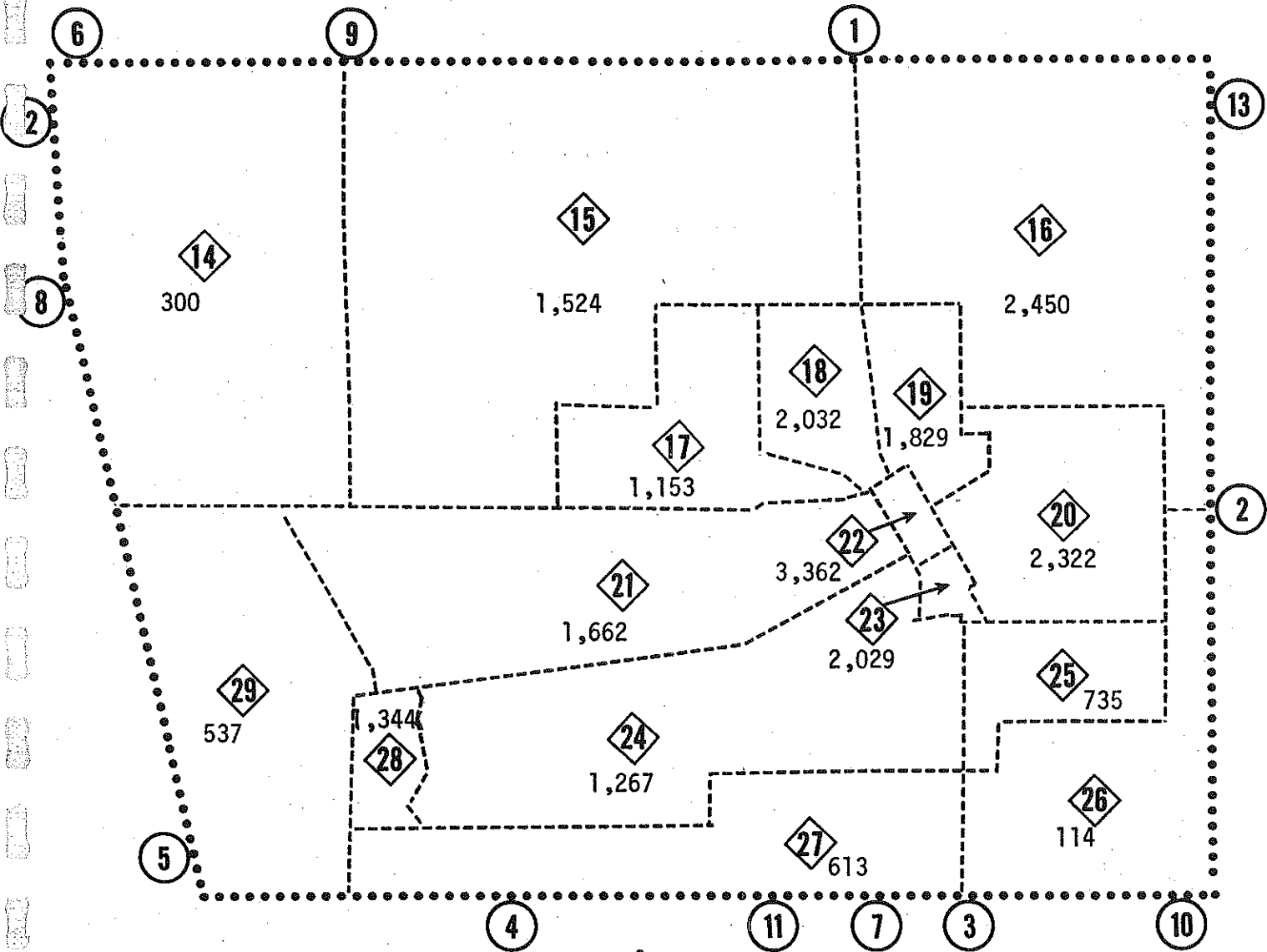


ALL STATIONS

TERMINAL TRIPS INTERCHANGING WITH INTERNAL ZONES

<u>INTERNAL ZONES</u>	<u>VEHICLES</u>	<u>PERCENT OF TOTAL</u>
14	300	1.3
15	1,524	6.6
16	2,450	10.5
17	1,153	5.0
18	2,032	8.7
19	1,829	7.9
20	2,322	10.0
21	1,662	7.1
22	3,362	14.4
23	2,029	8.7
24	1,267	5.4
25	735	3.2
26	114	0.5
27	613	2.6
28	1,344	5.8
29	537	2.3
TOTAL	23,273	100.0

ALL STATION TRAFFIC INTERCHANGING WITH INTERNAL ZONES



LEGEND

- CORDON LINE
- - - - ZONE LIMITS
- ◇ 00 INTERNAL ZONES



<u>ALL STATIONS</u>		
<u>TRIP LENGTHS</u>		
<u>MINUTES</u>	<u>NO. OF TRIPS</u>	<u>PERCENT OF TOTAL</u>
01-10	2,128	7.2
10-20	6,226	20.9
20-30	5,241	17.6
30-40	4,234	14.2
40-50	1,099	3.7
50-60	1,282	4.3
60-80	1,941	6.5
80-100	638	2.1
100-120	594	2.0
120-150	1,270	4.3
150-180	806	2.7
180-300	3,296	11.1
300-420	696	2.3
420-540	184	.6
540-660	86	.3
660-780	41	.1
780-900	18	.1
900-970	1	—
TOTAL	29,781	100.0

* Longest Trip - 16 Hrs. 10 Min.

Average Trip Length - 1 Hr. 15 Min.

* Median Trip Length - 30-40 Min.

* Due to the convention of the computer program, these values can be approximated only in 10 minute intervals.

STATION 1, US-131 NORTH

LOCATION: 0.3 miles north of 34 Road, Wexford County.

CLASSIFICATION: State Trunkline

TOTAL TRIPS: 5,580

MAJOR VEHICLE TYPE: Passenger Car 3,824 (68.5%)

MAJOR TRIP PURPOSE: Work 2,679 (48.0%)

TRIP DISTRIBUTION: Terminal 3,457 (62.0%)
Through 2,123 (38.0%)

MAJOR THROUGH TRIP ATTRACTORS: Station 3, US-131 south 1,761 (82.9%)

MAJOR TERMINAL TRIP ATTRACTORS: Zone 16 522 (15.1%) Zone 22 521 (15.1%)

LONGEST TRIP: 14 Hrs. 10 Min.

AVERAGE TRIP LENGTH: 1 Hr. 50 Min.

STATION 1, US-131 NORTH

VEHICLE TYPE AND TRIP PURPOSE

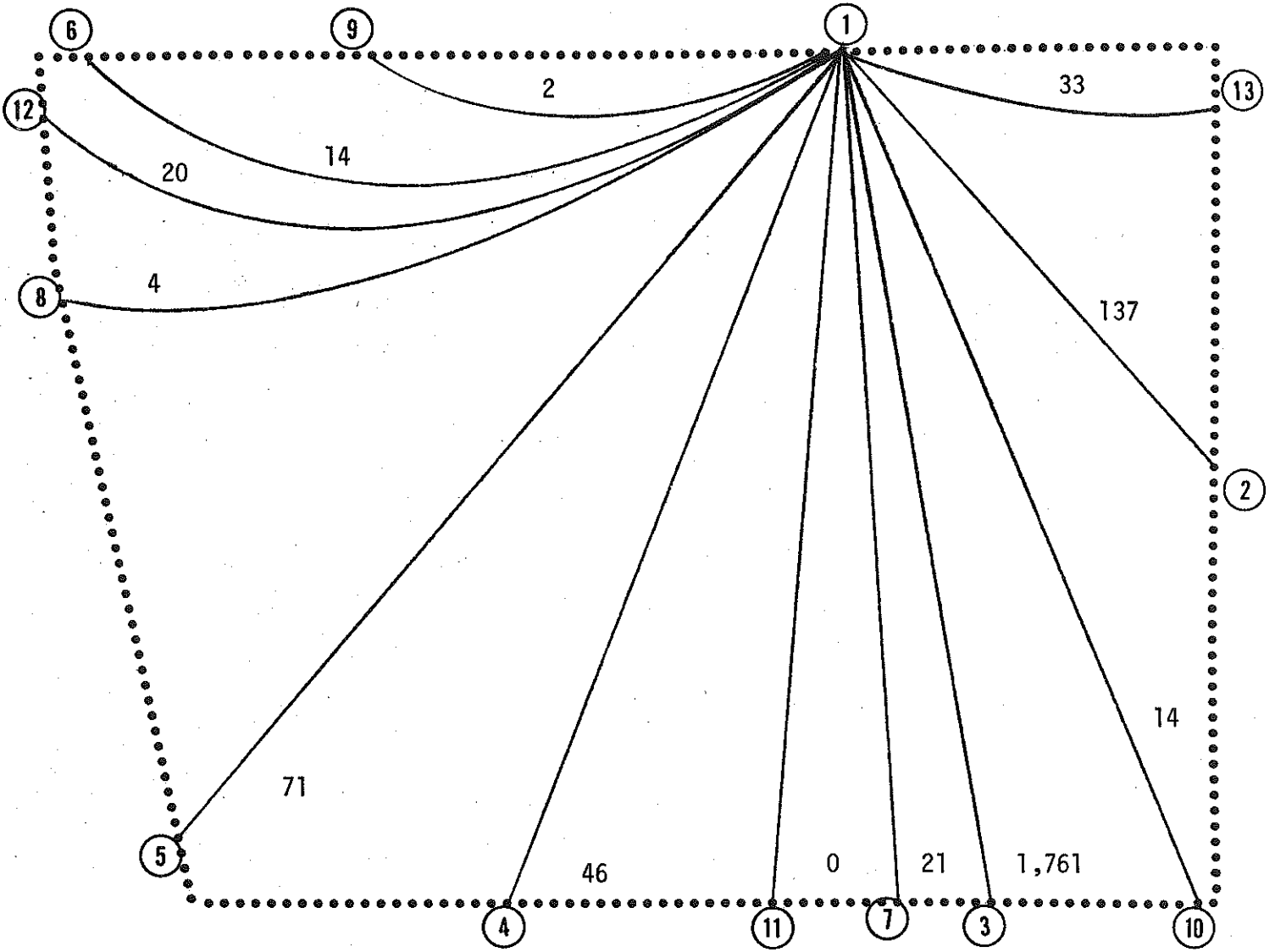
<u>Vehicle Type</u>	<u>Vehicles</u>	<u>% of Total</u>	<u>Terminal</u>	<u>%</u>	<u>Through</u>	<u>%</u>
Passenger Car	3,824	68.5	2,396	62.7	1,428	37.3
Passenger Car with Trailer	91	1.6	40	44.0	51	56.0
Panel or Pickup	1,102	19.8	789	71.6	313	28.4
Panel or Pickup with Trailer	51	0.9	10	19.6	41	80.4
Other Single Unit Trucks	278	5.0	157	56.5	121	43.5
Combinations and Trucks with Trailers	234	4.2	65	27.8	169	72.2
TOTAL	5,580	100.0	3,457	62.0	2,123	38.0
<u>Trip Purpose</u>	<u>Vehicles</u>	<u>% of Total</u>	<u>Terminal</u>	<u>%</u>	<u>Through</u>	<u>%</u>
Work	2,679	48.0	1,791	66.9	888	33.1
Personal Business	475	8.5	360	75.8	115	24.2
Shopping	601	10.8	550	91.5	51	8.5
Vacation	644	11.5	84	13.0	560	87.0
Other Soc. or Rec.	651	11.7	315	48.4	336	51.6
All Other	530	9.5	357	67.4	173	32.6
TOTAL	5,580	100.0	3,457	62.0	2,123	38.0

STATION 1, US-131 NORTH

THRU TRIPS INTERCHANGING WITH EXTERNAL STATIONS

<u>EXTERNAL STATION</u>	<u>VEHICLES</u>	<u>PERCENT OF TOTAL</u>
1 US-131 North		
2 M-55 East	137	6.4
3 US-131 South	1,761	82.9
4 M-115 South	46	2.2
5 M-55 West	71	3.3
6 M-115 North	14	0.7
7 Mackinaw Trail	21	1.0
8 Lake Mitchell Drive	4	0.2
9 No. 37 Road	2	0.1
10 No. 45 Road	14	0.7
11 No. 41 Road	0	0.0
12 No. 34 Road (Boon) West	20	0.9
13 No. 34 Road (Boon) East	33	1.6
TOTAL	2,123	100.0

STATION 1, US-131 NORTH
 TRAFFIC INTERCHANGING WITH EXTERNAL STATIONS



LEGEND
 CORDON
 (7) STATION NUMBER

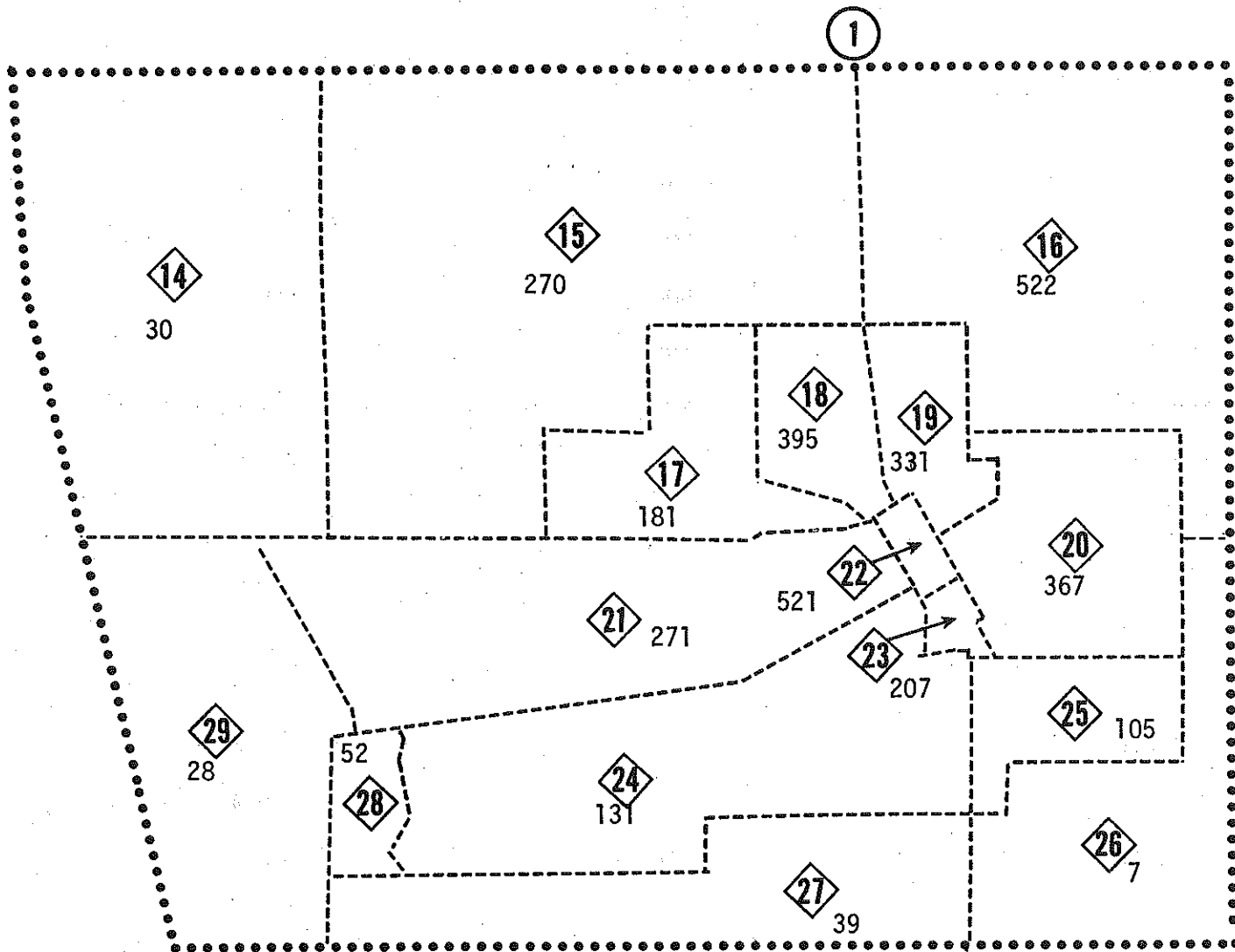


STATION 1, US-131 NORTH

TERMINAL TRIPS INTERCHANGING WITH INTERNAL ZONES

<u>INTERNAL ZONE</u>	<u>VEHICLES</u>	<u>PERCENT OF TOTAL</u>
14	30	0.9
15	270	7.8
16	522	15.1
17	181	5.2
18	395	11.4
19	331	9.6
20	367	10.6
21	271	7.9
22	521	15.1
23	207	6.0
24	131	3.8
25	105	3.0
26	7	0.2
27	39	1.1
28	52	1.5
29	<u>28</u>	<u>0.8</u>
TOTAL	3,457	100.0

STATION 1, US-131 NORTH
TRAFFIC INTERCHANGING WITH INTERNAL ZONES



- LEGEND**
- CORDON LINE
 - - - - ZONE LIMITS
 - ◇ 00 INTERNAL ZONES



STATION 1, US-131 NORTH

<u>MINUTES</u>	<u>NO. OF TRIPS</u>	<u>PERCENT OF TOTAL</u>
01-10	206	3.7
10-20	488	8.7
20-30	1,333	23.9
30-40	634	11.4
40-50	55	1.0
50-60	280	5.0
60-80	506	9.1
80-100	189	3.4
100-120	158	2.8
120-150	199	3.6
150-180	179	3.2
180-300	893	16.0
300-420	257	4.6
420-540	128	2.3
540-660	36	0.6
660-780	23	0.4
780-850	16	0.3
TOTAL	5,580	100.0

* Longest Trip - 14 Hrs. 10 Min.

Average Trip Length - 1 Hr. 50 Min.

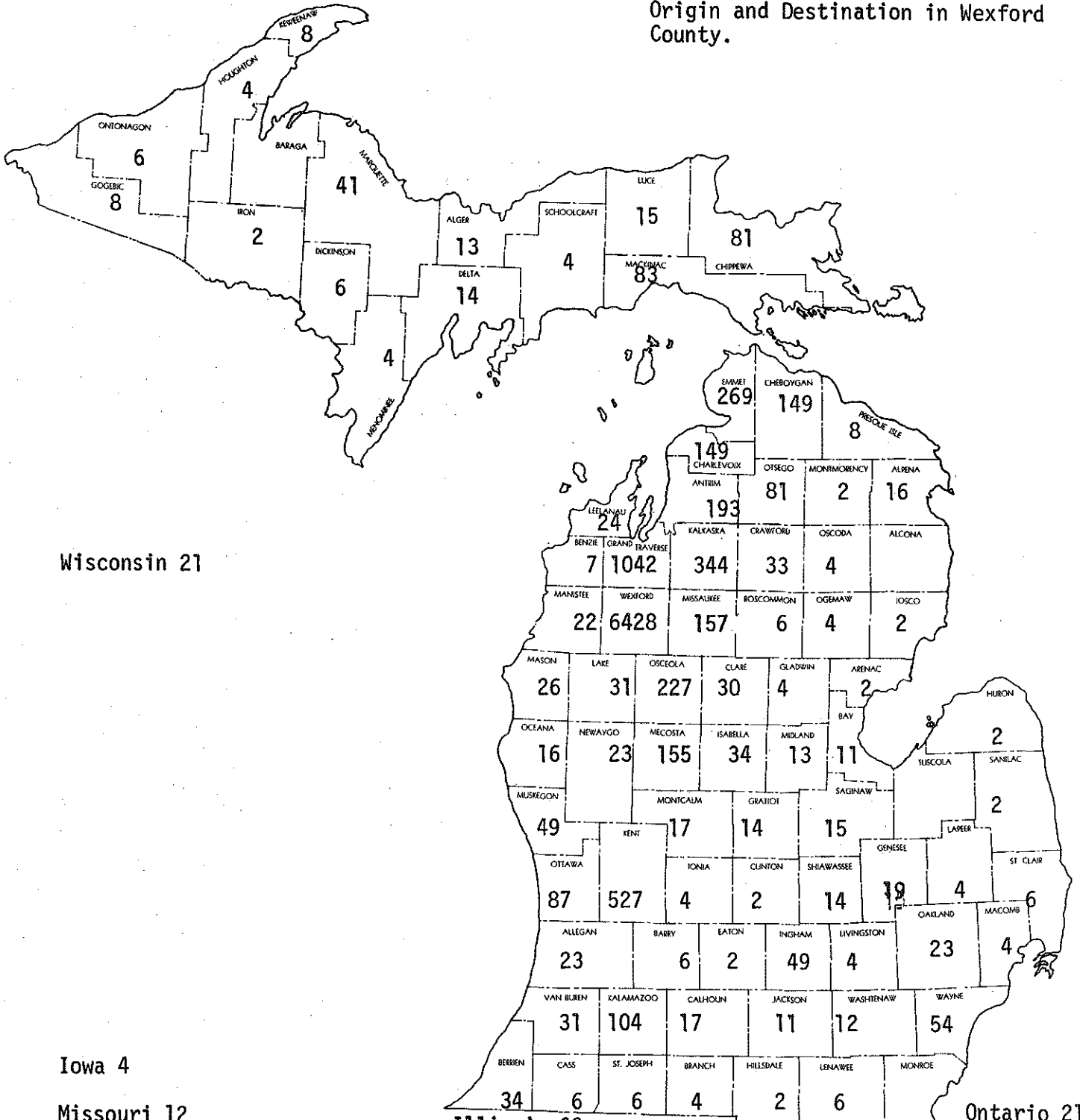
* Median Trip Length - 30-40 Min.

* Due to the convention of the computer program, these values can be approximated only in 10 minute intervals.

STATION 1, US-131 NORTH
TRIP END SUMMARY

Total: 5,580 trips = 11,160 trip ends. 2,545 trips had both Origin and Destination in Wexford County.

Minnesota 6



Wisconsin 21

Iowa 4

Missouri 12

Illinois 68 Indiana 51 Ohio 10 Ontario 21
Kentucky 2 Pennsylvania 4

STATION 2, M-55 EAST

LOCATION:

0.1 mile east of Cadillac East City
Limit, Wexford County.

CLASSIFICATION:

State Trunkline

TOTAL TRIPS:

4,912

MAJOR VEHICLE TYPE:

Passenger Car 3,722 (75.8%)

MAJOR TRIP PURPOSE:

Work 2,029 (41.3%)

TRIP DISTRIBUTION:

Terminal 4,034 (82.1%)
Through 878 (17.9%)

MAJOR THROUGH TRIP ATTRACTORS:

Station 3, US-131 south 334 (38.0%)

MAJOR TERMINAL TRIP ATTRACTORS:

Zone 22 669' (16.6%)

LONGEST TRIP:

12 Hrs. 50 Min.

AVERAGE TRIP LENGTH:

52 Min.

STATION 2, M-55 EAST
VEHICLE TYPE AND TRIP PURPOSE

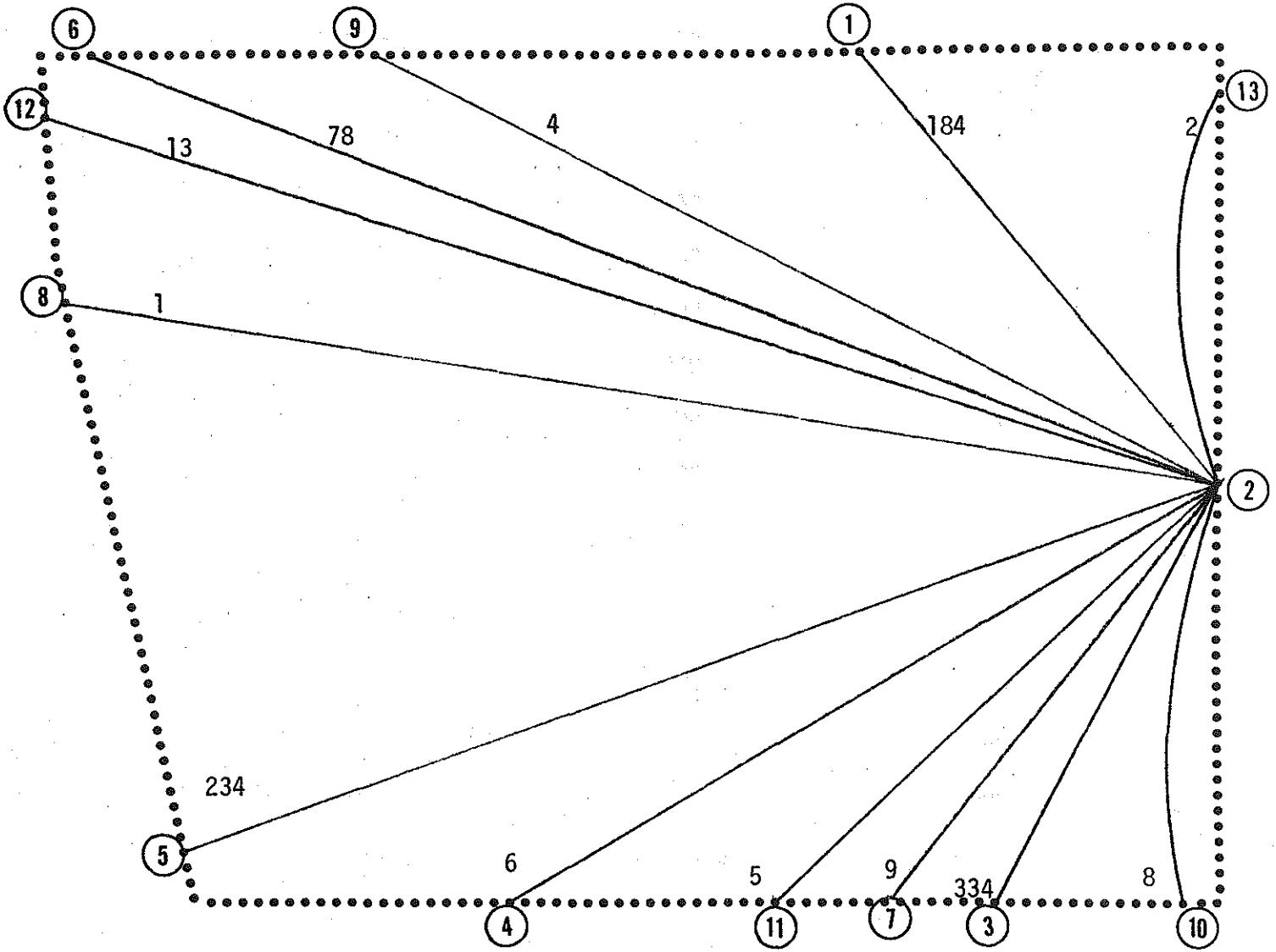
<u>Vehicle Type</u>	<u>Vehicles</u>	<u>% of Total</u>	<u>Terminal</u>	<u>%</u>	<u>Through</u>	<u>%</u>
Passenger Car	3,722	75.8	3,166	85.1	556	14.9
Passenger Car with Trailer	48	1.0	26	54.2	22	45.8
Panel or Pickup	835	17.0	672	80.5	163	19.5
Panel or Pickup with Trailer	26	0.5	14	53.8	12	46.2
Other Single Unit Trucks	164	3.3	110	67.1	54	32.9
Combinations and Trucks with Trailers	117	2.4	46	39.3	71	60.7
TOTAL	4,912	100.0	4,034	82.1	878	17.9
<u>Trip Purpose</u>	<u>Vehicles</u>	<u>% of Total</u>	<u>Terminal</u>	<u>%</u>	<u>Through</u>	<u>%</u>
Work	2,029	41.3	1,691	83.3	338	16.7
Personal Business	385	7.8	328	85.2	57	14.8
Shopping	746	15.2	726	97.3	20	2.7
Vacation	260	5.3	96	36.9	164	63.1
Other Soc. or Rec.	841	17.1	645	76.7	196	23.3
All Other	651	13.3	548	84.2	103	15.8
TOTAL	4,912	100.0	4,034	82.1	878	17.9

STATION 2, M-55 EAST

THRU TRIPS INTERCHANGING WITH EXTERNAL STATIONS

<u>EXTERNAL STATION</u>	<u>VEHICLES</u>	<u>PERCENT OF TOTAL</u>
1 US-131 North	184	21.0
2 M-55 East	_____	_____
3 US-131 South	334	38.0
4 M-115 South	6	0.7
5 M-55 West	234	26.6
6 M-115 North	78	8.9
7 Mackinaw Trail	9	1.0
8 Lake Mitchell Drive	1	0.1
9 No. 37 Road	4	0.5
10 No. 45 Road	8	0.9
11 No. 41 Road	5	0.6
12 No. 34 Road (Boon) West	13	1.5
13 No. 34 Road (Boon) East	2	0.2
	_____	_____
TOTAL	878	100.0

STATION 2, M-55 WEST
 TRAFFIC INTERCHANGING WITH EXTERNAL STATIONS



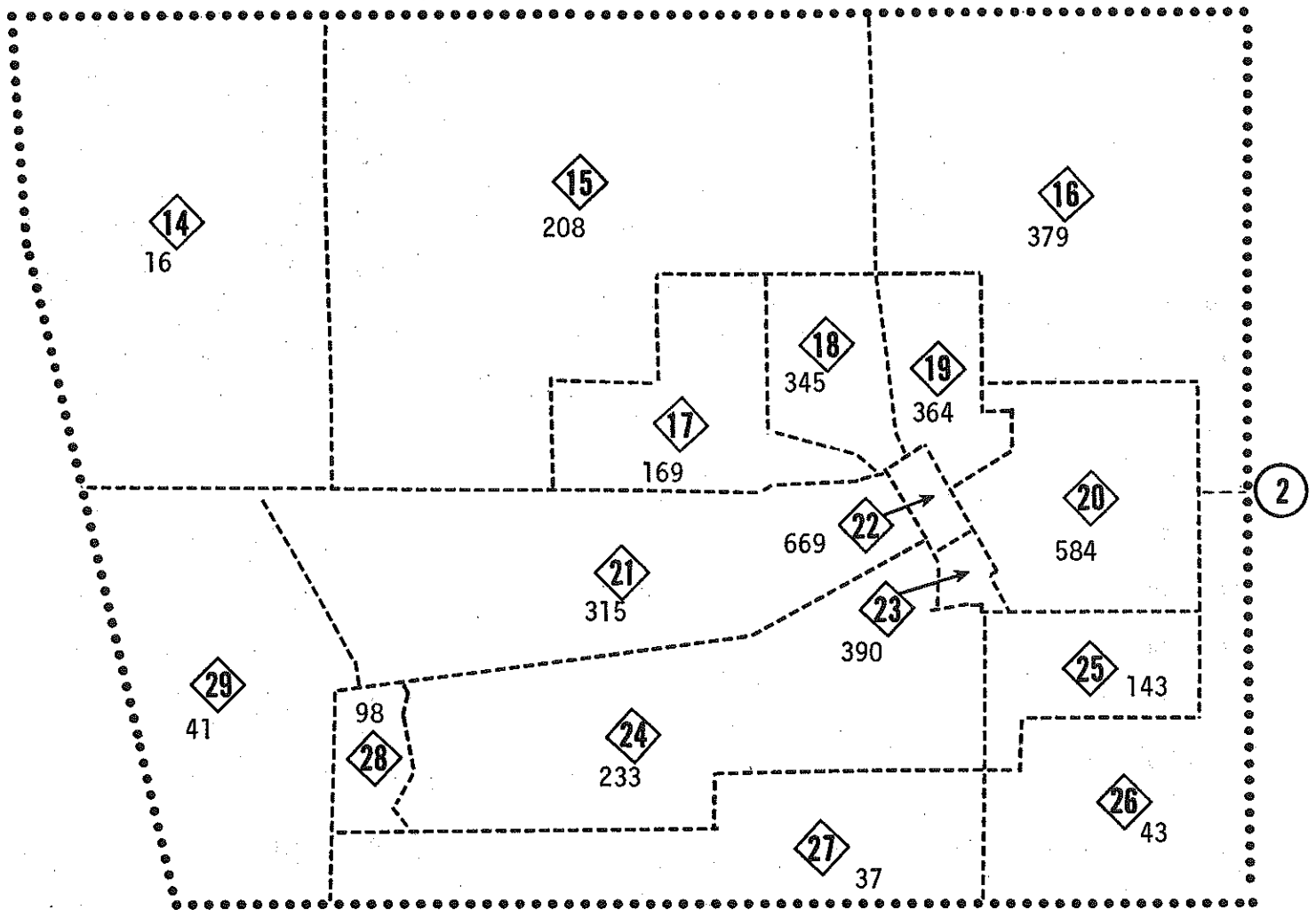
LEGEND
 CORDON
 (7) STATION NUMBER



STATION 2, M-55 EAST
TERMINAL TRIPS INTERCHANGING WITH INTERNAL ZONES

<u>INTERNAL ZONE</u>	<u>VEHICLES</u>	<u>PERCENT OF TOTAL</u>
14	16	0.4
15	208	5.2
16	379	9.4
17	169	4.2
18	345	8.5
19	364	9.0
20	584	14.5
21	315	7.8
22	669	16.6
23	390	9.7
24	233	5.8
25	143	3.5
26	43	1.1
27	37	0.9
28	98	2.4
29	<u>41</u>	<u>1.0</u>
TOTAL	4,034	100.0

STATION 2, M-55 EAST
 TRAFFIC INTERCHANGING WITH INTERNAL ZONES



- LEGEND**
- CORDON LINE
 - - - - ZONE LIMITS
 - ◇ 00 INTERNAL ZONES



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STATION 2, M-55 EAST

<u>MINUTES</u>	<u>TRIP LENGTHS</u>	
	<u>NO. OF TRIPS</u>	<u>PERCENT OF TOTAL</u>
01-10	166	3.4
10-20	481	9.8
20-30	2,205	44.9
30-40	601	12.2
40-50	299	6.1
50-60	260	5.3
60-80	187	3.8
80-100	135	2.7
100-120	58	1.2
120-150	124	2.5
150-180	85	1.7
180-300	205	4.2
300-420	53	1.1
420-540	30	0.6
540-660	15	0.3
660-770	8	0.2
	<hr/>	<hr/>
TOTAL	4,912	100.0

* Longest Trip - 12 Hrs. 50 Min.

Average Trip Length - 52 Min.

* Median Trip Length - 20-30 Min.

* Due to the convention of the computer program, these values can be approximated only in 10 minute intervals.

STATION 3, US-131 SOUTH

LOCATION: 0.2 miles south of Mackinaw Trail,
Wexford County.

CLASSIFICATION: State Trunkline

TOTAL TRIPS: 5,361

MAJOR VEHICLE TYPE: Passenger Car 3,784 (70.6%)

MAJOR TRIP PURPOSE: Work 2,524 (47.1%)

TRIP DISTRIBUTION: Terminal 3,092 (57.7%)
Through 2,269 (42.3%)

MAJOR THROUGH TRIP ATTRACTORS: Station 1, US-131 north 1,800 (79.4%)

MAJOR TERMINAL TRIP ATTRACTORS: Zone 22 460 (14.9%)

LONGEST TRIP: 16 Hrs. 10 Min.

AVERAGE TRIP LENGTH: 2 Hrs. 20 Min.

STATION 3, US-131 SOUTH

VEHICLE TYPE AND TRIP PURPOSE

<u>Vehicle Type</u>	<u>Vehicles</u>	<u>% of Total</u>	<u>Terminal</u>	<u>%</u>	<u>Through</u>	<u>%</u>
Passenger Car	3,784	70.6	2,258	59.7	1,526	40.3
Passenger Car with Trailer	97	1.8	12	12.4	85	87.6
Panel or Pickup	752	14.0	513	68.2	239	31.8
Panel or Pickup with Trailer	65	1.2	12	18.5	53	81.5
Other Single Unit Trucks	277	5.2	154	55.6	123	44.4
Combinations and Trucks with Trailers	386	7.2	143	37.0	243	63.0
TOTAL	5,361	100.0	3,092	57.7	2,269	42.3

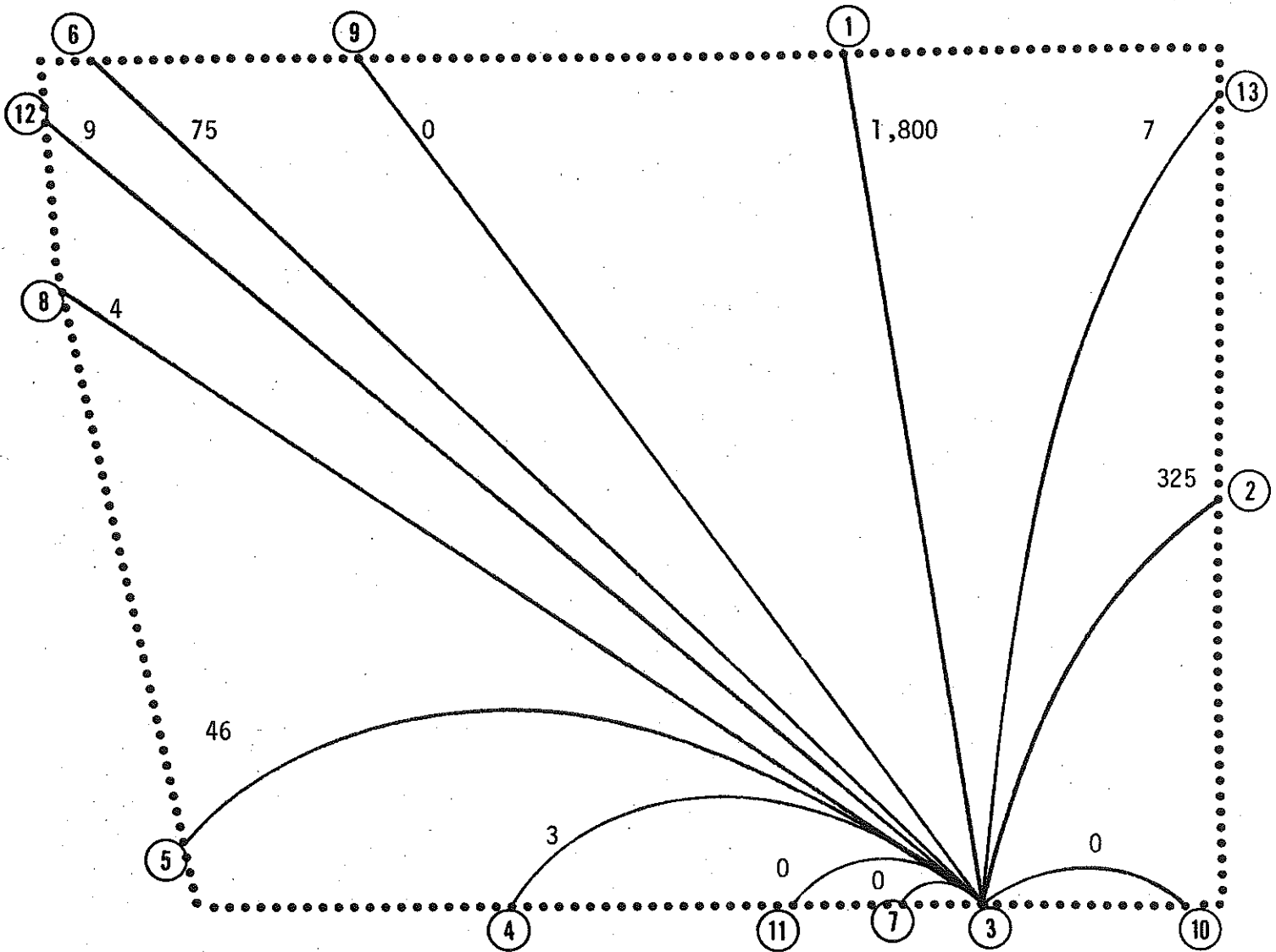
<u>Trip Purpose</u>	<u>Vehicles</u>	<u>% of Total</u>	<u>Terminal</u>	<u>%</u>	<u>Through</u>	<u>%</u>
Work	2,524	47.1	1,652	65.5	872	34.5
Personal Business	383	7.1	260	67.9	123	32.1
Shopping	522	9.7	485	92.9	37	7.1
Vacation	873	16.3	138	15.8	735	84.2
Other Soc. or Rec.	560	10.5	234	41.8	326	58.2
All Other	499	9.3	323	64.7	176	35.3
TOTAL	5,361	100.0	3,092	57.7	2,269	42.3

STATION 3, US-131 SOUTH

THRU TRIPS INTERCHANGING WITH EXTERNAL STATIONS

<u>EXTERNAL STATION</u>	<u>VEHICLES</u>	<u>PERCENT OF TOTAL</u>
1 US-131 North	1,800	79.4
2 M-55 East	325	14.3
3 US-131 South		
4 M-115 South	3	0.1
5 M-55 West	46	2.0
6 M-115 North	75	3.3
7 Mackinaw Trail	0	0.0
8 Lake Mitchell Drive	4	0.2
9 No. 37 Road	0	0.0
10 No. 45 Road	0	0.0
11 No. 41 Road	0	0.0
12 No. 34 Road (Boon) West	9	0.4
13 No. 34 Road (Boon) East	7	0.3
TOTAL	2,269	100.0

STATION 3, US-131 SOUTH
 TRAFFIC INTERCHANGING WITH EXTERNAL STATIONS



LEGEND
 CORDON
 (7) STATION NUMBER

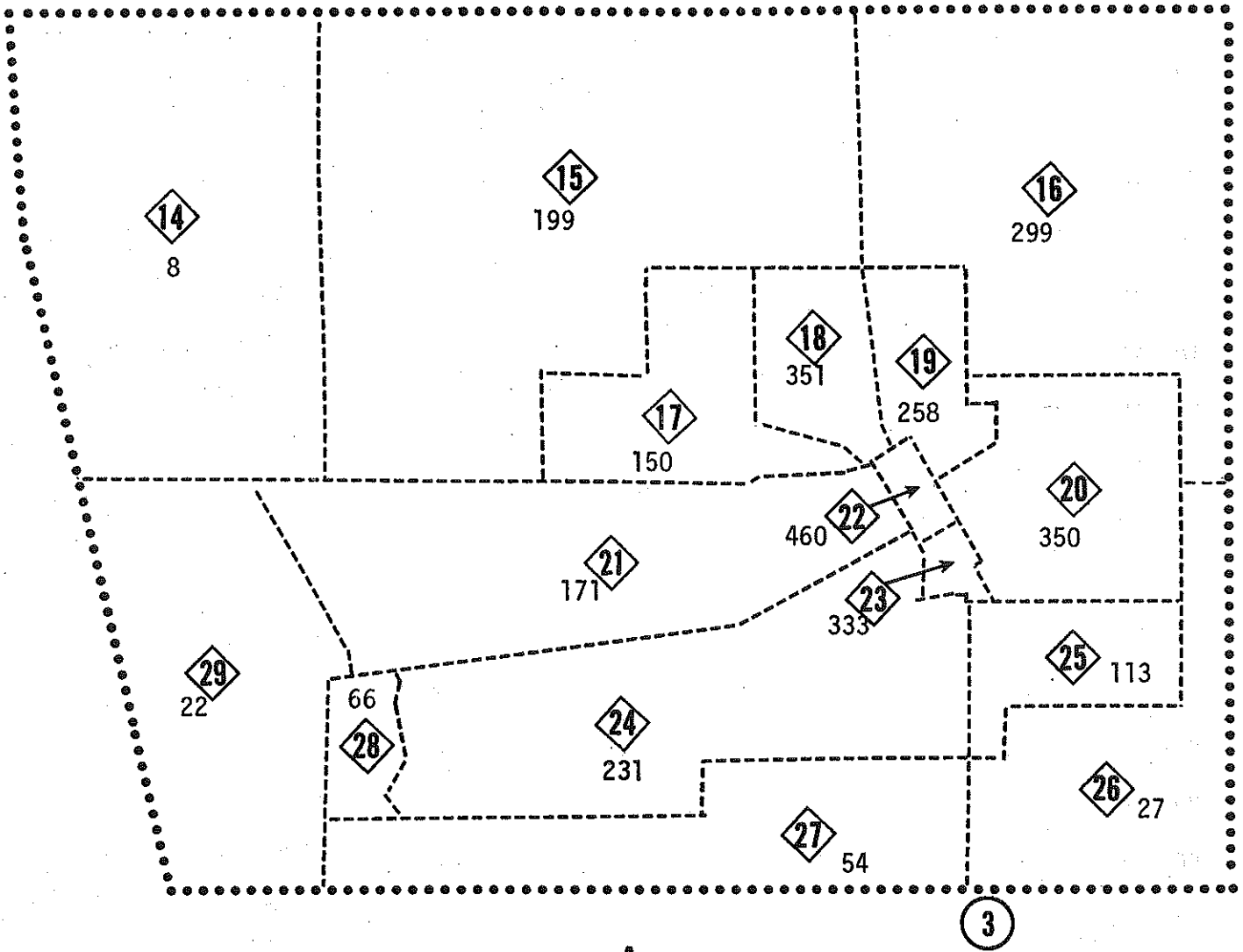


STATION 3, US-131 SOUTH

TERMINAL TRIPS INTERCHANGING WITH INTERNAL ZONES

<u>INTERNAL ZONE</u>	<u>VEHICLES</u>	<u>PERCENT OF TOTAL</u>
14	8	0.3
15	199	6.4
16	299	9.7
17	150	4.9
18	351	11.4
19	258	8.3
20	350	11.3
21	171	5.5
22	460	14.9
23	333	10.8
24	231	7.5
25	113	3.6
26	27	0.9
27	54	1.7
28	66	2.1
29	<u>22</u>	<u>0.7</u>
TOTAL	3,092	100.0

STATION 3, US-131 SOUTH
TRAFFIC INTERCHANGING WITH INTERNAL ZONES



- LEGEND**
- CORDON LINE
 - - - - ZONE LIMITS
 - ◇ 00 INTERNAL ZONES



STATION 3, US-131 SOUTH

<u>MINUTES</u>	<u>NO. OF TRIPS</u>	<u>PERCENT OF TOTAL</u>
01-10	58	1.1
10-20	323	6.0
20-30	282	5.3
30-40	839	15.7
40-50	473	8.8
50-60	331	6.2
60-80	219	4.1
80-100	142	2.6
100-120	166	3.1
120-150	505	9.4
150-180	311	5.8
180-300	1,167	21.8
300-420	323	6.0
420-540	133	2.5
540-660	43	0.8
660-780	33	0.6
780-900	11	0.2
900-970	2	—
	<hr/>	<hr/>
TOTAL	5,361	100.0

* Longest Trip - 16 Hrs. 10 Min.

Average Trip Length - 2 Hrs. 20 Min.

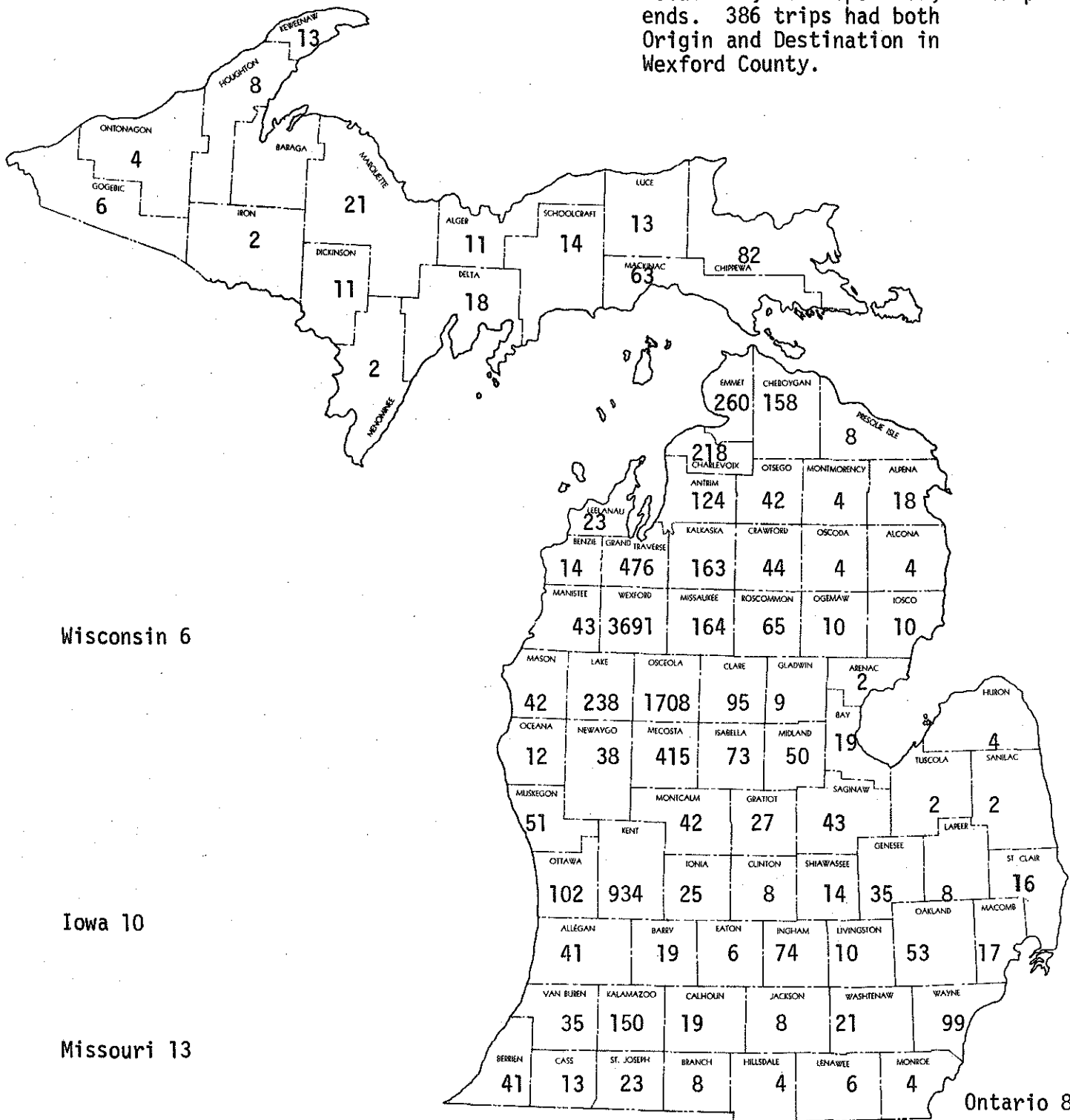
* Median Trip Length - 1 Hr. 40 Min-1 Hr. 50 Min.

* Due to the convention of the computer program, these values can be approximated only in 10 minute intervals.

STATION 3, US-131 SOUTH
TRIP END SUMMARY

Minnesota 6

Total: 5,361 trips = 10,722 trip ends. 386 trips had both Origin and Destination in Wexford County.



Wisconsin 6

Iowa 10

Missouri 13

Illinois 95 Indiana 68

Ohio 22

Kentucky 8

New York 2

Pennsylvania 6

West Virginia 2

Ontario 8

STATION 4, M-115 SOUTH

LOCATION: 0.3 miles southeast of M-55,
Wexford County.

CLASSIFICATION: State Trunkline

TOTAL TRIPS: 4,735

MAJOR VEHICLE TYPE: Passenger Car 3,318 (70.1%)

MAJOR TRIP PURPOSE: Work 1,500 (31.7%)

TRIP DISTRIBUTION: Terminal 1,236 (26.1%)
Through 3,499 (73.9%)

MAJOR THROUGH TRIP ATTRACTORS: Station 6, M-115 north 2,875 (82.2%)

MAJOR TERMINAL TRIP ATTRACTORS: Zone 28 510 (41.3%)

LONGEST TRIP: 13 Hrs. 10 Min.

AVERAGE TRIP LENGTH: 3 Hrs. 1 Min.

STATION 4, M-115 SOUTH

VEHICLE TYPE AND TRIP PURPOSE

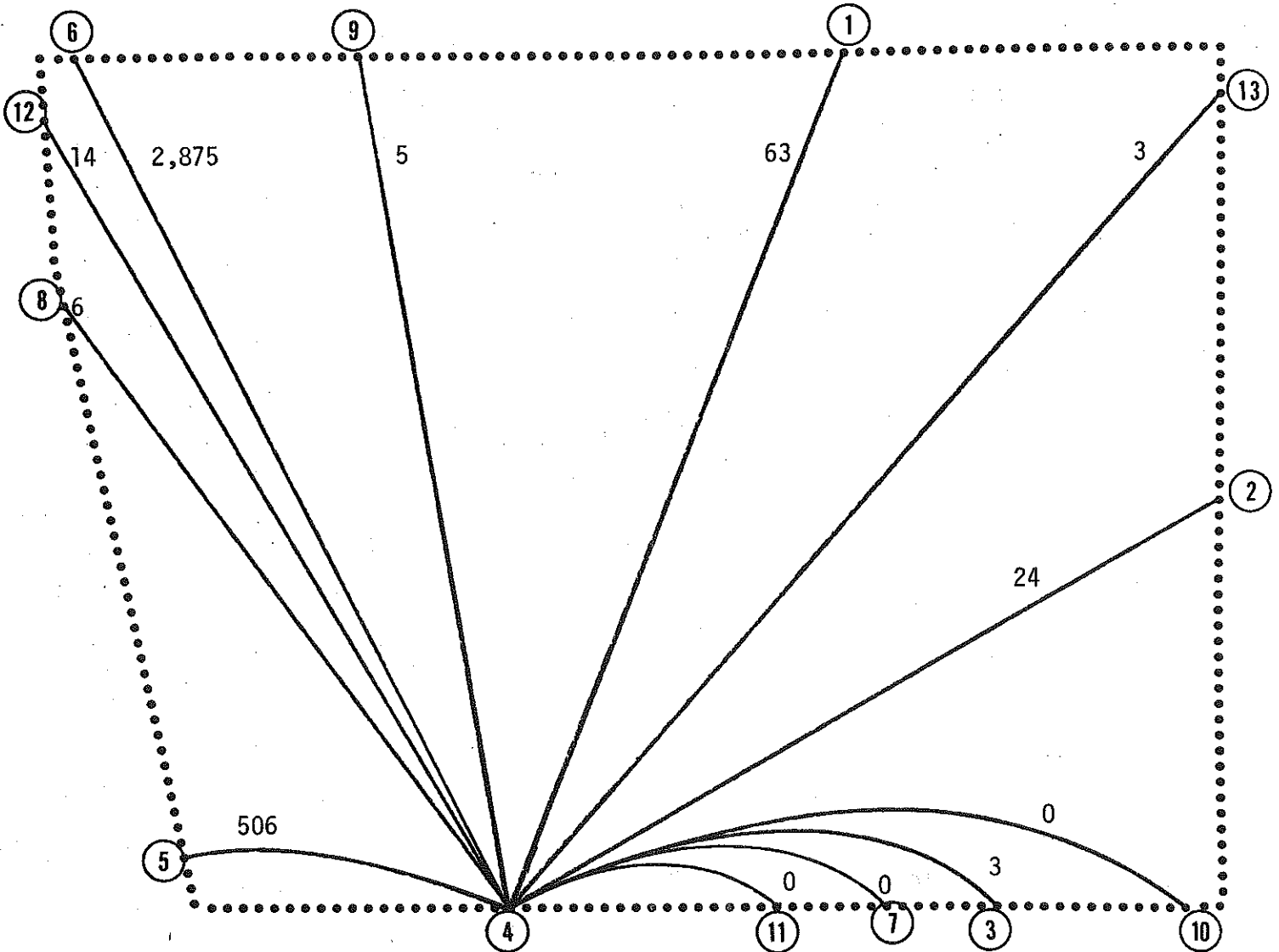
<u>Vehicle Type</u>	<u>Vehicles</u>	<u>% of Total</u>	<u>Terminal</u>	<u>%</u>	<u>Through</u>	<u>%</u>
Passenger Car	3,318	70.1	843	25.4	2,475	74.6
Passenger Car with Trailer	230	4.8	75	32.6	155	67.4
Panel or Pickup	596	12.6	181	30.4	415	69.6
Panel or Pickup with Trailer	80	1.7	30	37.5	50	62.5
Other Single Unit Trucks	238	5.0	72	30.3	166	69.7
Combinations and Trucks with Trailers	273	5.8	35	12.8	238	87.2
TOTAL	4,735	100.0	1,236	26.1	3,499	73.9
<u>Trip Purpose</u>	<u>Vehicles</u>	<u>% of Total</u>	<u>Terminal</u>	<u>%</u>	<u>Through</u>	<u>%</u>
Work	1,500	31.7	461	30.7	1,039	69.3
Personal Business	225	4.7	57	25.3	168	74.7
Shopping	88	1.9	70	79.5	18	20.5
Vacation	1,369	28.9	258	18.8	1,111	81.2
Other Soc. or Rec.	994	21.0	249	25.1	745	74.9
All Other	559	11.8	141	25.2	418	74.8
TOTAL	4,735	100.0	1,236	26.1	3,499	73.9

STATION 4, M-115 SOUTH

THRU TRIPS INTERCHANGING WITH EXTERNAL STATIONS

<u>EXTERNAL STATION</u>	<u>VEHICLES</u>	<u>PERCENT OF TOTAL</u>
1 US-131 North	63	1.8
2 M-55 East	24	0.7
3 US-131 South	3	0.1
4 M-115 South		
5 M-55 West	506	14.4
6 M-115 North	2,875	82.2
7 Mackinaw Trail	0	0.0
8 Lake Mitchell Drive	6	0.2
9 No. 37 Road	5	0.1
10 No. 45 Road	0	0.0
11 No. 41 Road	0	0.0
12 No. 34 Road (Boon) West	14	0.4
13 No. 34 Road (Boon) East	3	0.1
TOTAL	3,499	100.0

STATION 4, M-115 SOUTH
 TRAFFIC INTERCHANGING WITH EXTERNAL STATIONS



LEGEND
 CORDON
 (7) STATION NUMBER

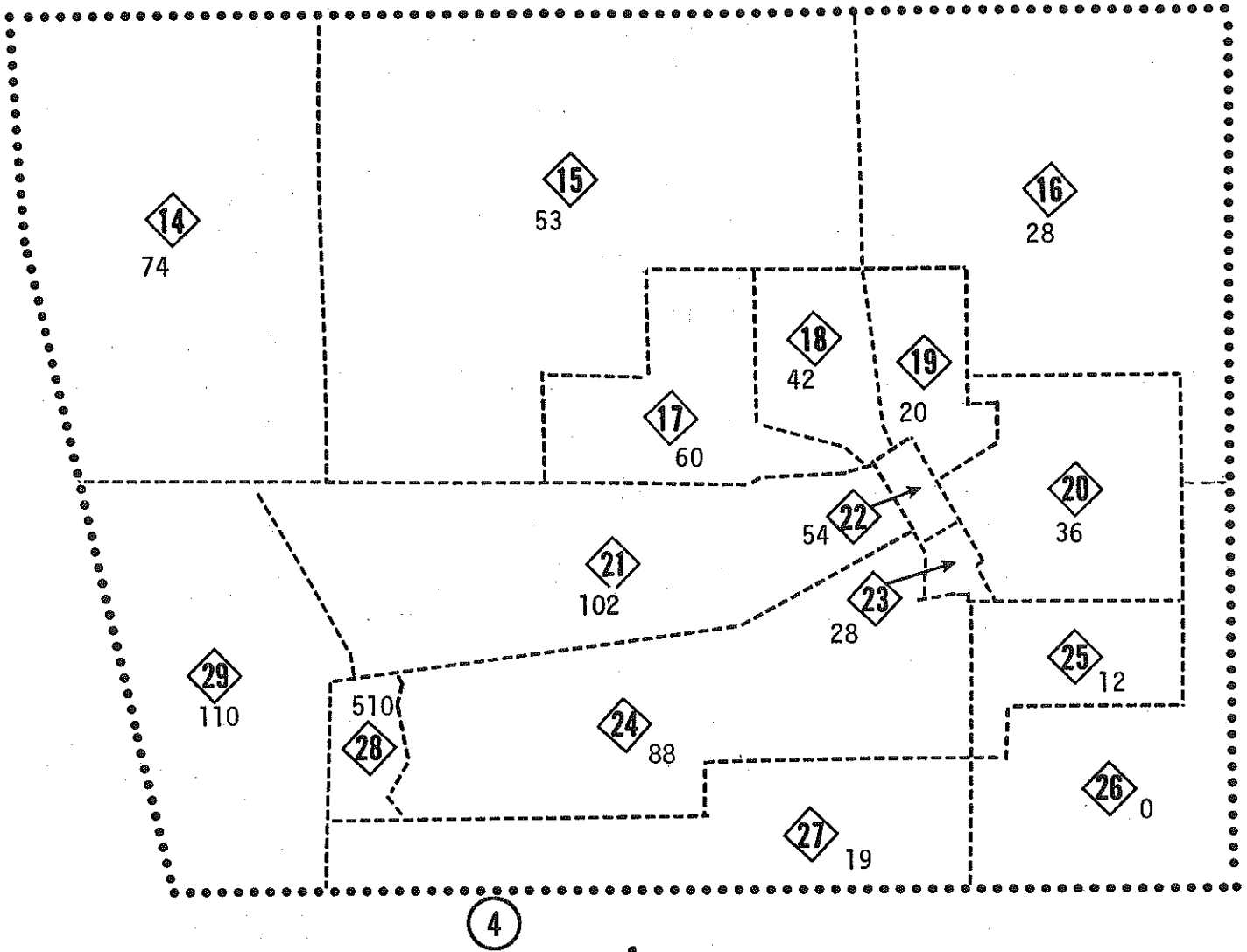


STATION 4, M-115 SOUTH

TERMINAL TRIPS INTERCHANGING WITH INTERNAL ZONES

<u>INTERNAL_ZONE</u>	<u>VEHICLES</u>	<u>PERCENT OF TOTAL</u>
14	74	6.0
15	53	4.3
16	28	2.3
17	60	4.8
18	42	3.4
19	20	1.6
20	36	2.9
21	102	8.2
22	54	4.4
23	28	2.3
24	88	7.1
25	12	1.0
26	0	0.0
27	19	1.5
28	510	41.3
29	<u>110</u>	<u>8.9</u>
TOTAL	1,236	100.0

STATION 4, M-115 SOUTH
 TRAFFIC INTERCHANGING WITH INTERNAL ZONES



- LEGEND**
- CORDON LINE
 - ZONE LIMITS
 - ◇ INTERNAL ZONES

STATION 4, M-115 SOUTH

<u>MINUTES</u>	<u>TRIP LENGTHS</u> <u>NO. OF TRIPS</u>	<u>PERCENT OF TOTAL</u>
01-10	172	3.6
10-20	260	5.5
20-30	111	2.3
30-40	192	4.1
40-50	66	1.4
50-60	135	2.9
60-80	141	3.0
80-100	139	2.9
100-120	172	3.6
120-150	479	10.1
150-180	341	7.2
180-300	2,086	44.1
300-420	374	7.9
420-540	28	0.6
540-660	31	0.7
660-780	6	0.1
780-790	2	—
	<hr/>	<hr/>
TOTAL	4,735	100.0

* Longest Trip - 13 Hrs. 10 Min.

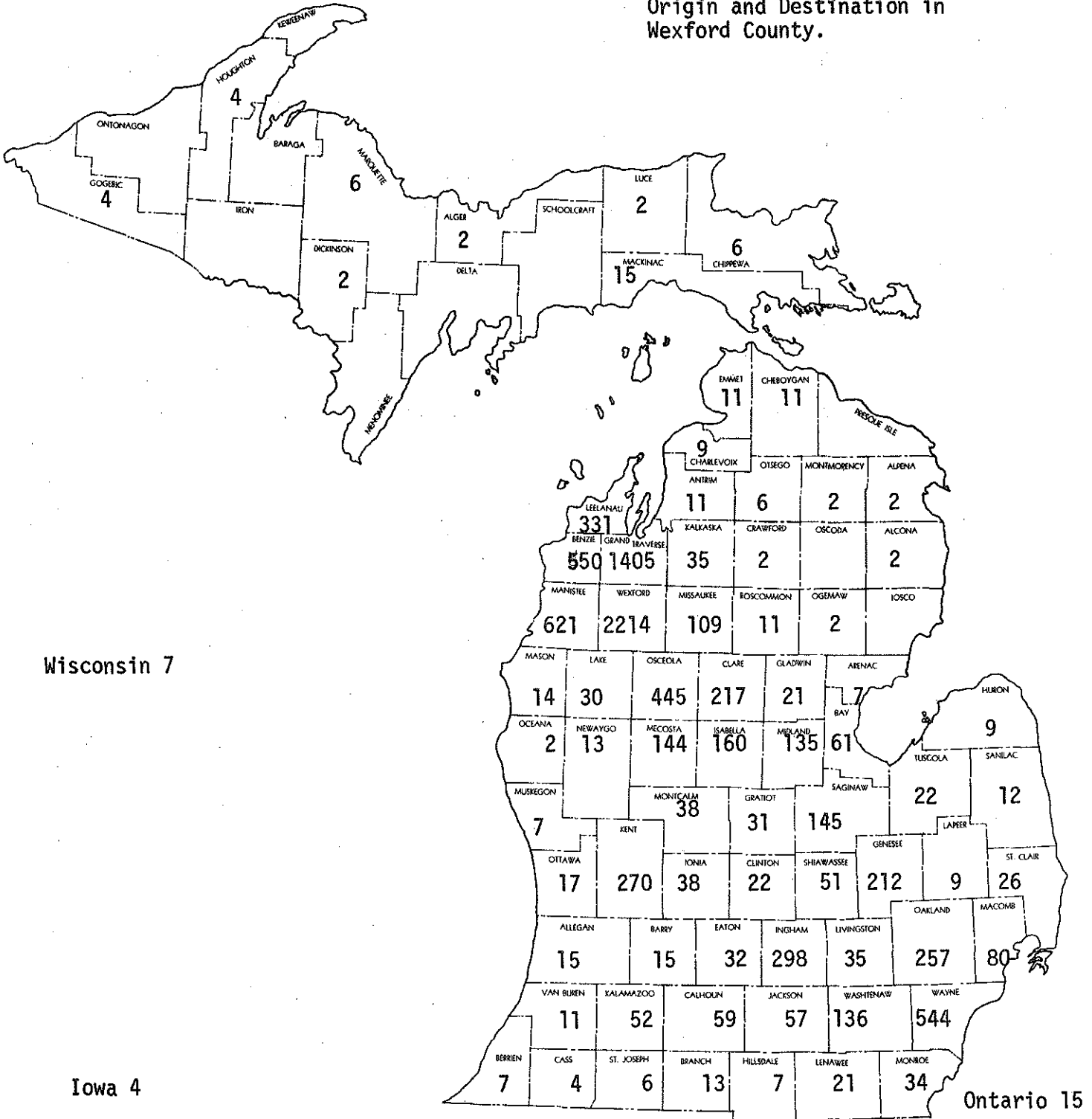
Average Trip Length - 3 Hrs. 1 Min.

* Median Trip Length - 3 Hrs. - 3 Hrs. 10 Min.

* Due to the convention of the computer program, these values can be approximated only in 10 minute intervals.

STATION 4, M-115 SOUTH
TRIP END SUMMARY

Total: 4,735 trips = 9,470 trip ends. 457 trips had both Origin and Destination in Wexford County.



Wisconsin 7

Iowa 4

Missouri 6

Illinois 9 Indiana 44

Kentucky 7

Ohio 145

New York 6

Pennsylvania 9

West Virginia 2

Ontario 15

STATION 5, M-55 WEST

LOCATION: 0.8 miles west of northwest junction
of M-115, Wexford County.

CLASSIFICATION: State Trunkline

TOTAL TRIPS: 4,272

MAJOR VEHICLE TYPE: Passenger Car 3,137 (73.4%)

MAJOR TRIP PURPOSE: Work 1,991 (46.6%)

TRIP DISTRIBUTION: Terminal 3,129 (73.2%)
Through 1,143 (26.8%)

MAJOR THROUGH TRIP ATTRACTORS: Station 4, M-115 north 510 (44.6%)

MAJOR TERMINAL TRIP ATTRACTORS: Zone 22 468 (14.9%)

LONGEST TRIP: 13 Hrs. 20 Min.

AVERAGE TRIP LENGTH: 1 Hr. 2 Min.

STATION 5, M-55 WEST

VEHICLE TYPE AND TRIP PURPOSE

<u>Vehicle Type</u>	<u>Vehicles</u>	<u>% of Total</u>	<u>Terminal</u>	<u>%</u>	<u>Through</u>	<u>%</u>
Passenger Car	3,137	73.4	2,427	77.4	710	22.6
Passenger Car with Trailer	45	1.1	15	33.3	30	66.7
Panel or Pickup	704	16.5	499	70.9	205	29.1
Panel or Pickup with Trailer	36	0.8	13	36.1	23	63.9
Other Single Unit Trucks	175	4.1	122	69.7	53	30.3
Combinations and Trucks with Trailers	175	4.1	53	30.3	122	69.7
TOTAL	4,272	100.0	3,129	73.2	1,143	26.8

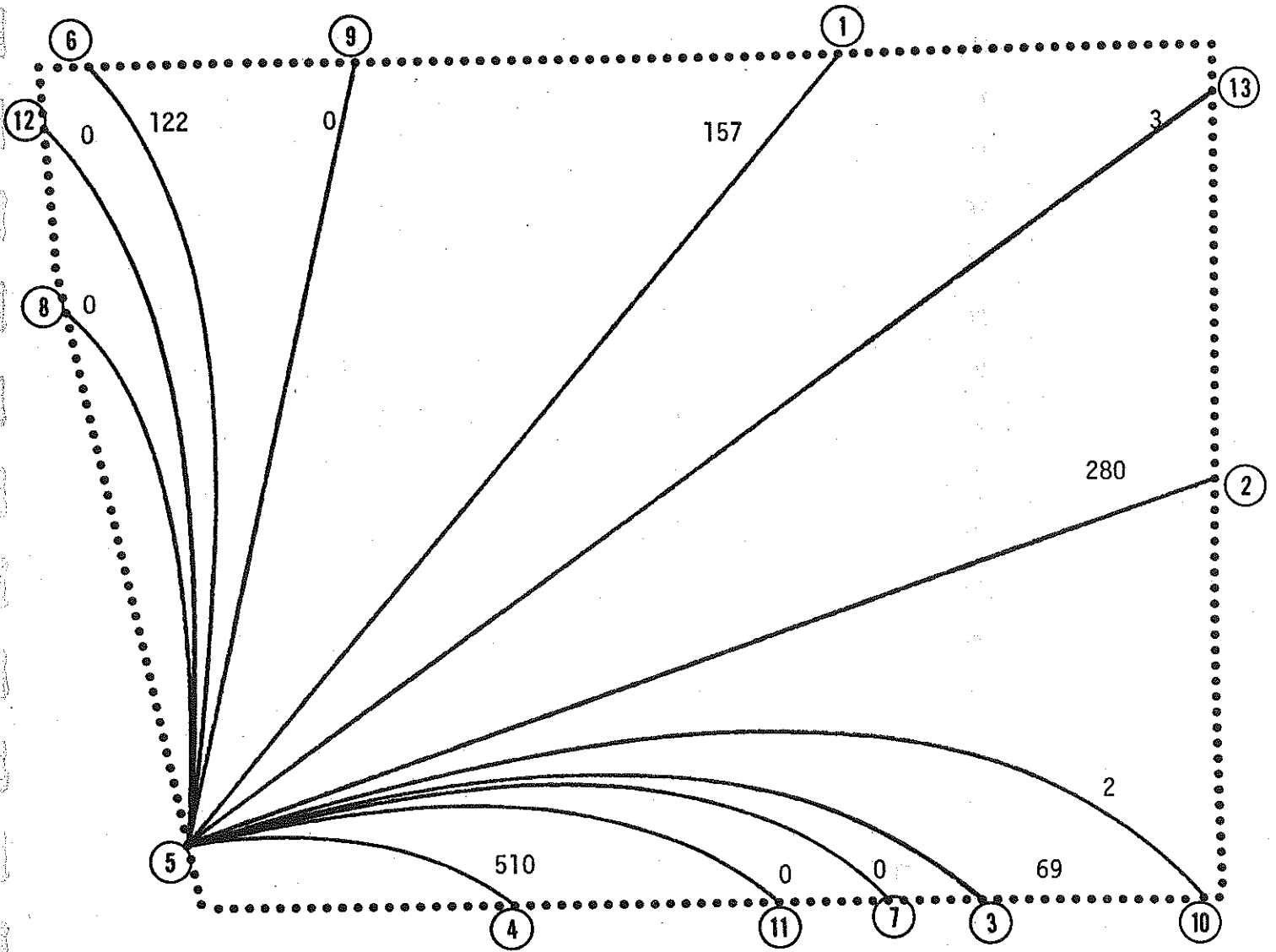
<u>Trip Purpose</u>	<u>Vehicles</u>	<u>% of Total</u>	<u>Terminal</u>	<u>%</u>	<u>Through</u>	<u>%</u>
Work	1,991	46.6	1,440	72.3	551	27.7
Personal Business	278	6.5	211	75.9	67	24.1
Shopping	495	11.6	483	97.6	12	2.4
Vacation	374	8.7	139	37.2	235	62.8
Other Soc. or Rec.	682	16.0	501	73.5	181	26.5
All Other	452	10.6	355	78.5	97	21.5
TOTAL	4,272	100.0	3,129	73.2	1,143	26.8

STATION 5, M-55 WEST

THRU TRIPS INTERCHANGING WITH EXTERNAL STATIONS

<u>EXTERNAL STATION</u>	<u>VEHICLES</u>	<u>PERCENT OF TOTAL</u>
1 US-131 North	157	13.7
2 M-55 East	280	24.5
3 US-131 South	69	6.0
4 M-115 South	510	44.6
5 M-55 West		
6 M-115 North	122	10.7
7 Mackinaw Trail	0	0.0
8 Lake Mitchell Drive	0	0.0
9 No. 37 Road	0	0.0
10 No. 45 Road	2	0.2
11 No. 41 Road	0	0.0
12 No. 34 Road (Boon) West	0	0.0
13 No. 34 Road (Boon) East	3	0.3
TOTAL	1,143	100.0

STATION 5, M-55 WEST
 TRAFFIC INTERCHANGING WITH EXTERNAL STATIONS



LEGEND
 CORDON
 (7) STATION NUMBER

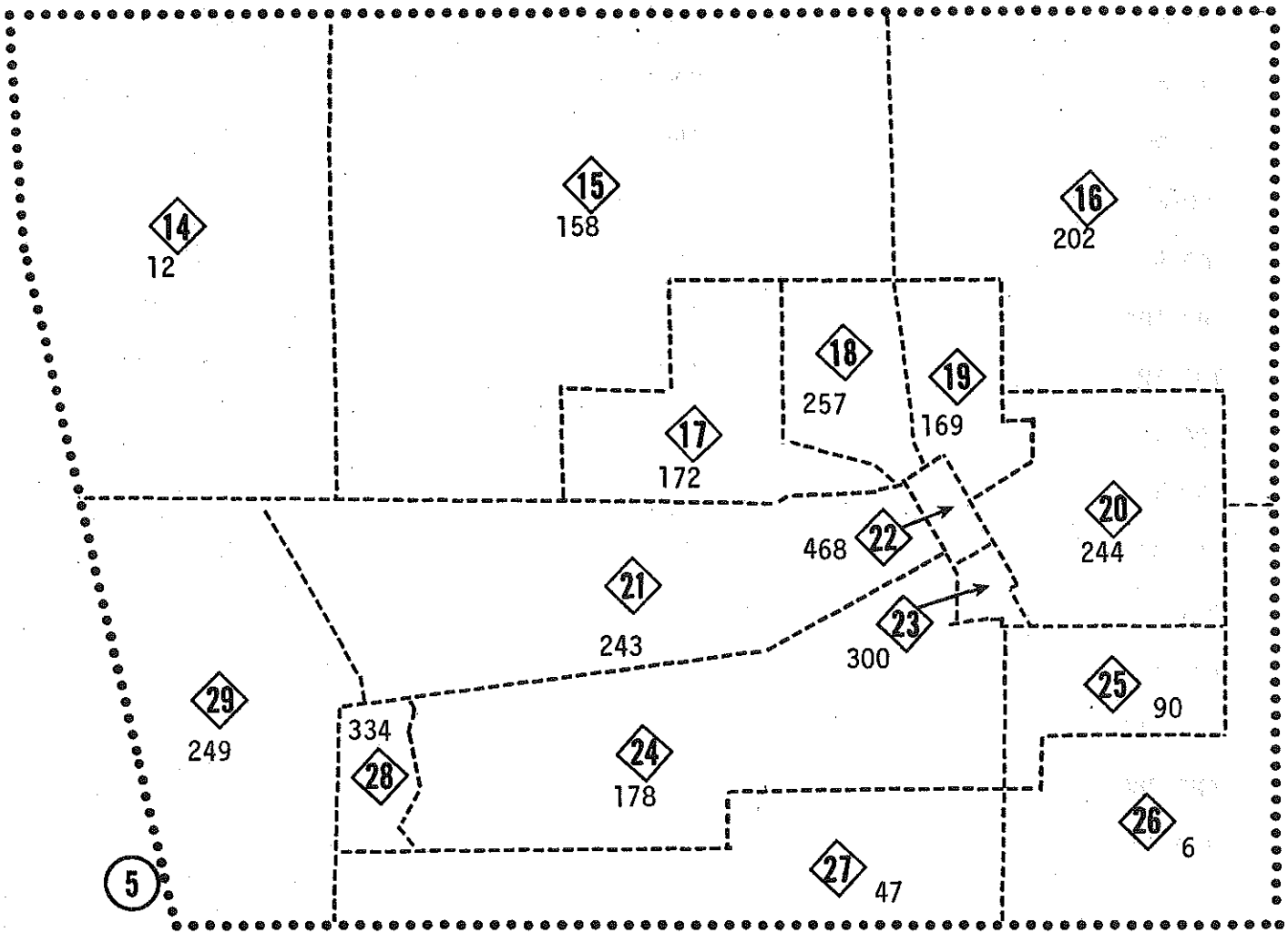


STATION 5, M-55 WEST

TERMINAL TRIPS INTERCHANGING WITH INTERNAL ZONES

<u>INTERNAL ZONE</u>	<u>VEHICLES</u>	<u>PERCENT OF TOTAL</u>
14	12	0.4
15	158	5.0
16	202	6.4
17	172	5.5
18	257	8.2
19	169	5.4
20	244	7.8
21	243	7.8
22	468	14.9
23	300	9.6
24	178	5.7
25	90	2.9
26	6	0.2
27	47	1.5
28	334	10.7
29	<u>249</u>	<u>8.0</u>
TOTAL	3,129	100.0

STATION 5, M-55 WEST
TRAFFIC INTERCHANGING WITH INTERNAL ZONES



- LEGEND**
- CORDON LINE
 - - - - ZONE LIMITS
 - ◇ 00 INTERNAL ZONES



STATION 5, M-55 WEST

<u>MINUTES</u>	<u>TRIP LENGTHS</u>	<u>NO. OF TRIPS</u>	<u>PERCENT OF TOTAL</u>
01-10		554	13.0
10-20		1,796	42.0
20-30		19	0.4
30-40		296	6.9
40-50		154	3.6
50-60		113	2.7
60-80		295	6.9
80-100		145	3.4
100-120		129	3.0
120-150		190	4.5
150-180		136	3.2
180-300		362	8.5
300-420		60	1.4
420-540		12	0.3
540-660		6	0.1
660-780		2	—
780-800		3	0.1
		<hr/>	<hr/>
	TOTAL	4,272	100.0

* Longest Trip - 13 Hrs. 20 Min.

Average Trip Length - 1 Hr. 2 Min.

* Median Trip Length - 10-20 Min.

* Due to the convention of the computer program, these values can be approximated only in 10 minute intervals.

STATION 6, M-115 NORTH

LOCATION: 0.4 miles northwest of No. 34 Road,
Wexford County.

CLASSIFICATION: State Trunkline

TOTAL TRIPS: 4,214

MAJOR VEHICLE TYPE: Passenger Car 2,847 (67.6%)

MAJOR TRIP PURPOSE: Work 1,813 (43.0%)

TRIP DISTRIBUTION: Terminal 1,895 (45.0%)
Through 2,319 (55.0%)

MAJOR THROUGH TRIP ATTRACTORS: Station 4, M-115 south 2,061 (88.9%)

MAJOR TERMINAL TRIP ATTRACTORS: Zone 22 291 (15.4%)

LONGEST TRIP: 13 Hrs. 20 Min.

AVERAGE TRIP LENGTH: 2 Hrs. 9 Min.

STATION 6, M-115 NORTH

VEHICLE TYPE AND TRIP PURPOSE

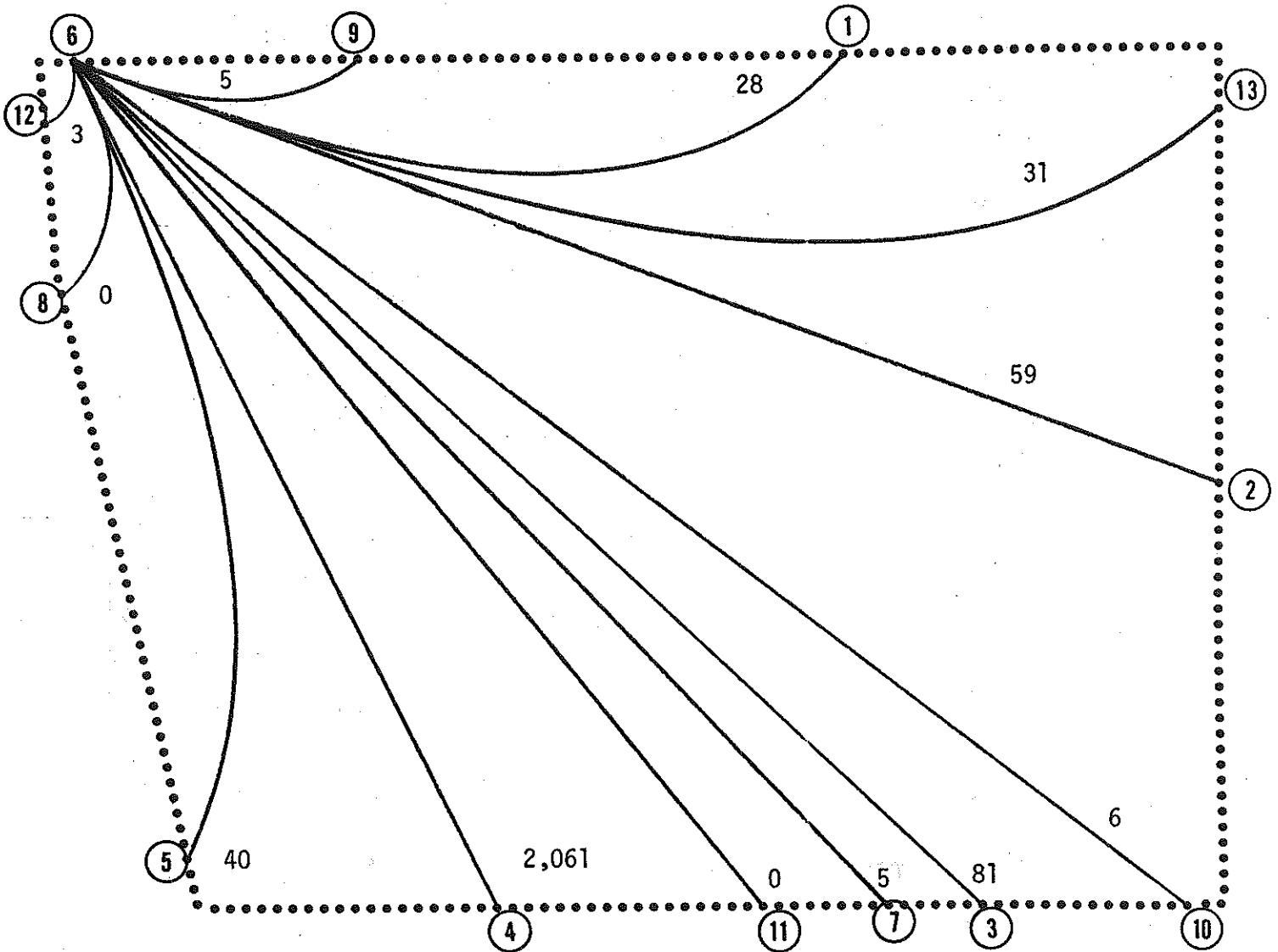
<u>Vehicle Type</u>	<u>Vehicles</u>	<u>% of Total</u>	<u>Terminal</u>	<u>%</u>	<u>Through</u>	<u>%</u>
Passenger Car	2,847	67.6	1,292	45.4	1,555	54.6
Passenger Car with Trailer	122	2.9	29	23.8	93	76.2
Panel or Pickup	698	16.6	406	58.2	292	41.8
Panel or Pickup with Trailer	57	1.3	10	17.5	47	82.5
Other Single Unit Trucks	192	4.5	95	49.5	97	50.5
Combinations and Trucks with Trailers	298	7.1	63	21.1	235	78.9
TOTAL	4,214	100.0	1,895	45.0	2,319	55.0
<u>Trip Purpose</u>	<u>Vehicles</u>	<u>% of Total</u>	<u>Terminal</u>	<u>%</u>	<u>Through</u>	<u>%</u>
Work	1,813	43.0	961	53.0	852	47.0
Personal Business	242	5.7	140	57.9	102	42.1
Shopping	348	8.3	306	87.9	42	12.1
Vacation	894	21.2	126	14.1	768	85.9
Other Soc. or Rec.	518	12.3	156	30.1	362	69.9
All Other	399	9.5	206	51.6	193	48.4
TOTAL	4,214	100.0	1,895	45.0	2,319	55.0

STATION 6, M-115 NORTH

THRU TRIPS INTERCHANGING WITH EXTERNAL STATIONS

<u>EXTERNAL STATION</u>	<u>VEHICLES</u>	<u>PERCENT OF TOTAL</u>
1 US-131 North	28	1.2
2 M-55 East	59	2.6
3 US-131 South	81	3.5
4 M-115 South	2,061	88.9
5 M-55 West	40	1.7
6 M-115 North		
7 Mackinaw Trail	5	0.2
8 Lake Mitchell Drive	0	0.0
9 No. 37 Road	5	0.2
10 No. 45 Road	6	0.3
11 No. 41 Road	0	0.0
12 No. 34 Road (Boon) West	3	0.1
13 No. 34 Road (Boon) East	31	1.3
TOTAL	2,319	100.0

STATION 6, M-115 NORTH
 TRAFFIC INTERCHANGING WITH EXTERNAL STATIONS



LEGEND
 CORDON
 (7) STATION NUMBER

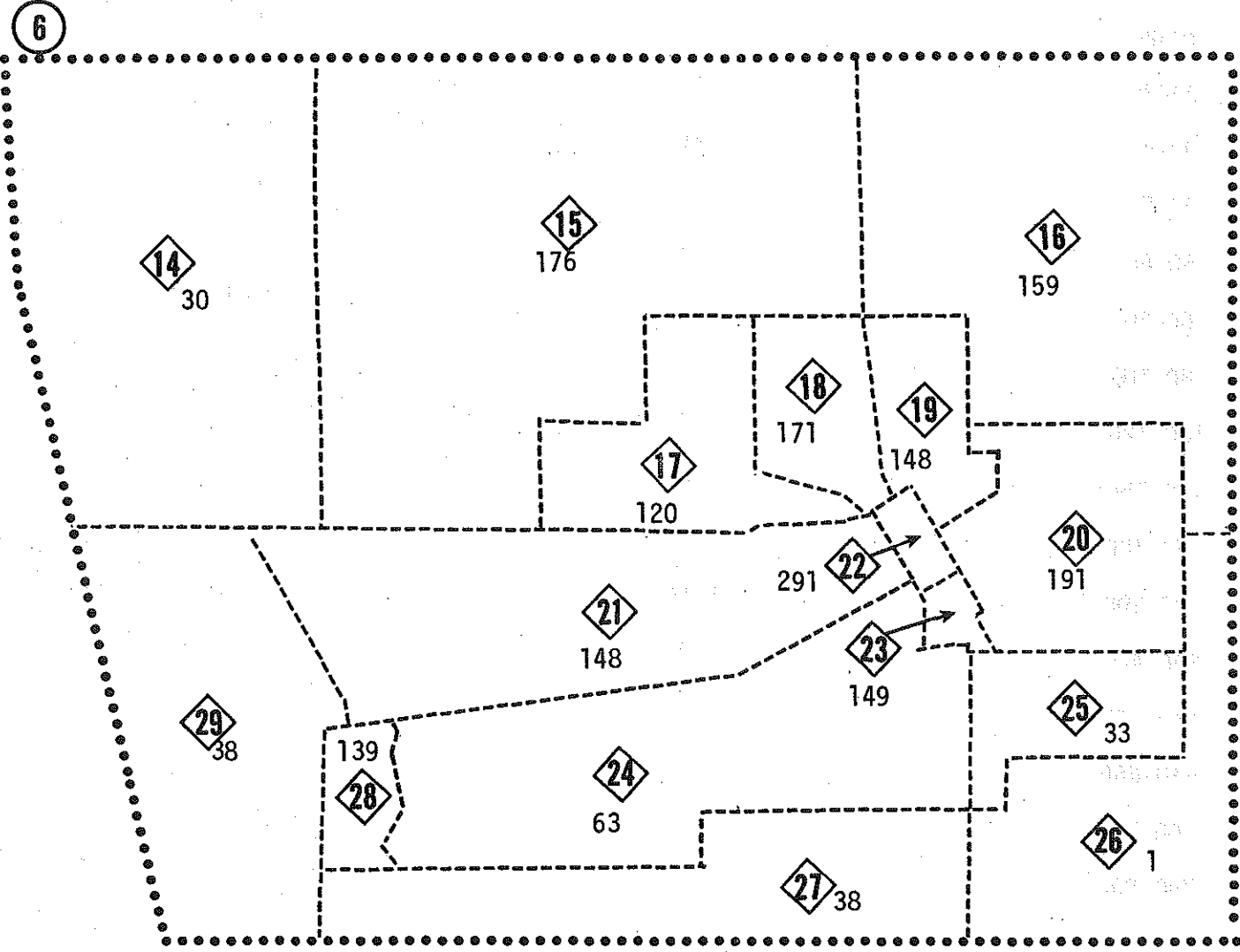


STATION 6, M-115 NORTH

TERMINAL TRIPS INTERCHANGING WITH INTERNAL ZONES

<u>INTERNAL ZONE</u>	<u>VEHICLES</u>	<u>PERCENT OF TOTAL</u>
14	30	1.6
15	176	9.3
16	159	8.4
17	120	6.3
18	171	9.0
19	148	7.8
20	191	10.1
21	148	7.8
22	291	15.4
23	149	7.9
24	63	3.3
25	33	1.7
26	1	0.1
27	38	2.0
28	139	7.3
29	<u>38</u>	<u>2.0</u>
TOTAL	1,895	100.0

STATION 6, M-115 NORTH
 TRAFFIC INTERCHANGING WITH INTERNAL ZONES



- LEGEND**
- CORDON LINE
 - - - - ZONE LIMITS
 - ◇ 00 INTERNAL ZONES



STATION 6, M-115 NORTH

<u>MINUTES</u>	<u>NO. OF TRIPS</u>	<u>PERCENT OF TOTAL</u>
01-10	121	2.9
10-20	288	6.8
20-30	353	8.4
30-40	604	14.3
40-50	12	0.3
50-60	88	2.1
60-80	624	14.8
80-100	124	3.0
100-120	98	2.3
120-150	326	7.7
150-180	187	4.5
180-300	1,141	27.1
300-420	208	4.9
420-540	12	0.3
540-660	25	0.6
660-780	2	—
780-800	1	—
	<hr/>	<hr/>
TOTAL	4,214	100.0

* Longest Trip - 13 Hrs. 20 Min.

Average Trip Length - 2 Hrs. 9 Min.

* Median Trip Length - 1 Hr. 20 - 1 Hr. 30 Min.

* Due to the convention of the computer program, these values can be approximated only in 10 minute intervals.

STATION 7, MACKINAW TRAIL

LOCATION: 0.3 miles south of US-131, Wexford County.

CLASSIFICATION: County Road

TOTAL TRIPS: 2,150

MAJOR VEHICLE TYPE: Passenger Car 1,732 (80.6%)

MAJOR TRIP PURPOSE: Work 720 (33.5%)

TRIP DISTRIBUTION: Terminal 1,869 (86.9%)
Through 281 (13.1%)

MAJOR THROUGH TRIP ATTRACTORS: Station 1, US-131 north 178 (63.3%)

MAJOR TERMINAL TRIP ATTRACTORS: Zone 27 329 (17.6%)

LONGEST TRIP: 11 Hrs. 20 Min.

AVERAGE TRIP LENGTH: 50 Min.

STATION 7, MACKINAW TRAIL

VEHICLE TYPE AND TRIP PURPOSE

<u>Vehicle Type</u>	<u>Vehicles</u>	<u>% of Total</u>	<u>Terminal</u>	<u>%</u>	<u>Through</u>	<u>%</u>
Passenger Car	1,732	80.6	1,528	88.2	204	11.8
Passenger Car with Trailer	20	0.9	2	10.0	18	90.0
Panel or Pickup	314	14.6	270	86.0	44	14.0
Panel or Pickup with Trailer	6	0.3	6	100.0	0	0.0
Other Single Unit Trucks	64	3.0	54	84.4	10	15.6
Combinations and Trucks with Trailers	14	0.6	9	64.3	5	35.7
TOTAL	2,150	100.0	1,869	86.9	281	13.1

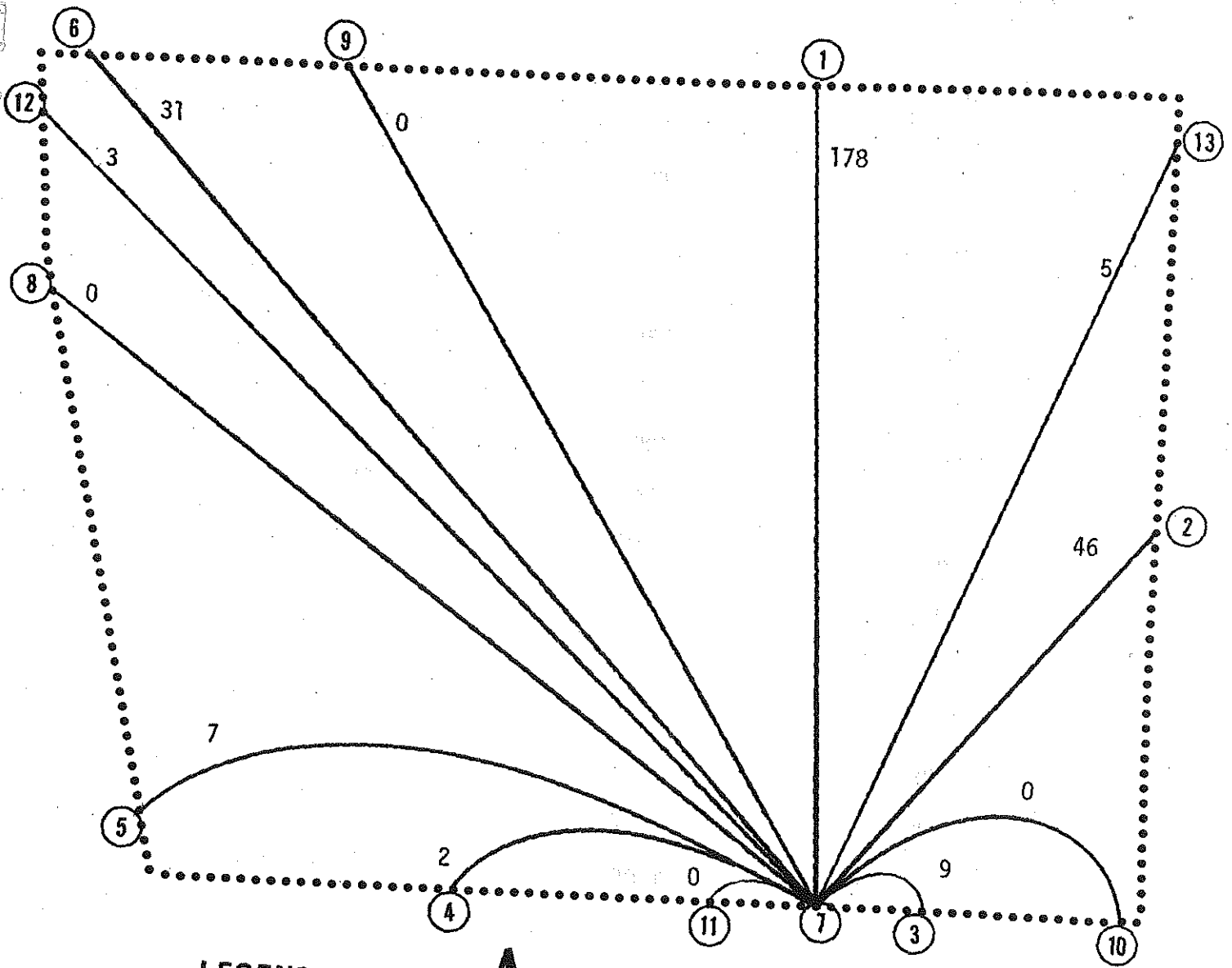
<u>Trip Purpose</u>	<u>Vehicles</u>	<u>% of Total</u>	<u>Terminal</u>	<u>%</u>	<u>Through</u>	<u>%</u>
Work	720	33.5	633	87.9	87	12.1
Personal Business	183	8.5	165	90.2	18	9.8
Shopping	446	20.7	438	98.2	8	1.8
Vacation	161	7.5	88	54.7	73	45.3
Other Soc. or Rec.	353	16.4	294	83.3	59	16.7
All Other	287	13.4	251	87.5	36	12.5
TOTAL	2,150	100.0	1,869	86.9	281	13.1

STATION 7, MACKINAW TRAIL

THRU TRIPS INTERCHANGING WITH EXTERNAL STATIONS

<u>EXTERNAL STATION</u>	<u>VEHICLES</u>	<u>PERCENT OF TOTAL</u>
1 US-131 North	178	63.3
2 M-55 East	46	16.4
3 US-131 South	9	3.2
4 M-115 South	2	0.7
5 M-55 West	7	2.5
6 M-115 North	31	11.0
7 Mackinaw Trail		
8 Lake Mitchell Drive	0	0.0
9 No. 37 Road	0	0.0
10 No. 45 Road	0	0.0
11 No. 41 Road	0	0.0
12 No. 34 Road (Boon) West	3	1.1
13 No. 34 Road (Boon) East	5	1.8
TOTAL	281	100.0

STATION 7, MACKINAW TRAIL
 TRAFFIC INTERCHANGING WITH EXTERNAL STATIONS



LEGEND
 CORDON
 (7) STATION NUMBER

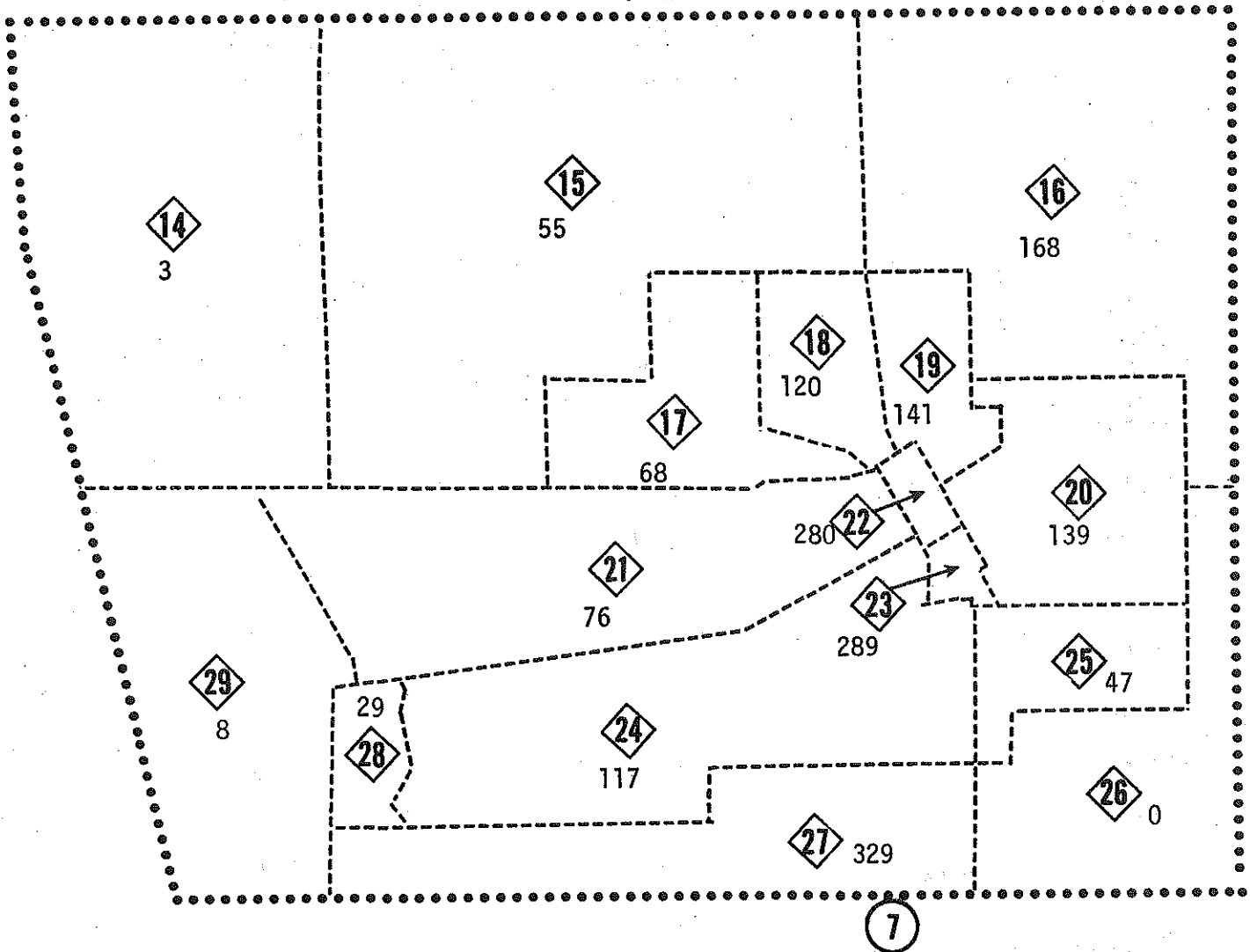


STATION 7, MACKINAW TRAIL

TERMINAL TRIPS INTERCHANGING WITH INTERNAL ZONES

<u>INTERNAL ZONE</u>	<u>VEHICLES</u>	<u>PERCENT OF TOTAL</u>
14	3	0.2
15	55	2.9
16	168	9.0
17	68	3.6
18	120	6.4
19	141	7.5
20	139	7.4
21	76	4.1
22	280	15.0
23	289	15.5
24	117	6.3
25	47	2.5
26	0	0.0
27	329	17.6
28	29	1.6
29	<u>8</u>	<u>0.4</u>
TOTAL	1,869	100.0

STATION 7, MACKINAW TRAIL
TRAFFIC INTERCHANGING WITH INTERNAL ZONES



LEGEND

- CORDON LINE
- - - - ZONE LIMITS
- ◇ 00 INTERNAL ZONES



STATION 7, MACKINAW TRAIL

<u>MINUTES</u>	<u>TRIP LENGTHS</u>	
	<u>NO. OF TRIPS</u>	<u>PERCENT OF TOTAL</u>
01-10	210	9.8
10-20	461	21.4
20-30	146	6.8
30-40	726	33.8
40-50	63	2.9
50-60	122	5.7
60-80	103	4.8
80-100	40	1.9
100-120	39	1.8
120-150	57	2.6
150-180	49	2.3
180-300	124	5.8
300-420	6	0.3
420-540	2	0.1
540-660	1	—
660-680	1	—
	<hr/>	<hr/>
TOTAL	2,150	100.0

* Longest Trip - 11 Hrs. 20 Min.

Average Trip Length - 50 Min.

* Median Trip Length - 30-40 Min.

* Due to the convention of the computer program, these values can be approximated only in 10 minute intervals.

STATION 8, LAKE MITCHELL DRIVE

LOCATION: 0.1 mile southwest of Ann Arbor Railroad,
Wexford County.

CLASSIFICATION: County Road

TOTAL TRIPS: 852

MAJOR VEHICLE TYPE: Passenger Car (83.6%)

MAJOR TRIP PURPOSE: Work 257 (30.1%)

TRIP DISTRIBUTION: Terminal 721 (84.6%)
Through 131 (15.4%)

MAJOR THROUGH TRIP ATTRACTORS: Station 4, M-115 south 28 (21.4%)

MAJOR TERMINAL TRIP ATTRACTORS: Zone 22 123 (17.1%)

LONGEST TRIP: 8 Hrs. 10 Min.

AVERAGE TRIP LENGTH: 15 Min.

STATION 8, LAKE MITCHELL DRIVE

VEHICLE TYPE AND TRIP PURPOSE

<u>Vehicle Type</u>	<u>Vehicles</u>	<u>% of Total</u>	<u>Terminal</u>	<u>%</u>	<u>Through</u>	<u>%</u>
Passenger Car	712	83.6	605	85.0	107	15.0
Passenger Car with Trailer	1	0.1	0	0.0	1	100.0
Panel or Pickup	121	14.2	104	86.0	17	14.0
Panel or Pickup with Trailer	7	0.8	4	57.1	3	42.9
Other Single Unit Trucks	9	1.1	6	66.7	3	33.3
Combinations and Trucks with Trailers	2	0.2	2	100.0	0	0.0
TOTAL	852	100.0	721	84.6	131	15.4

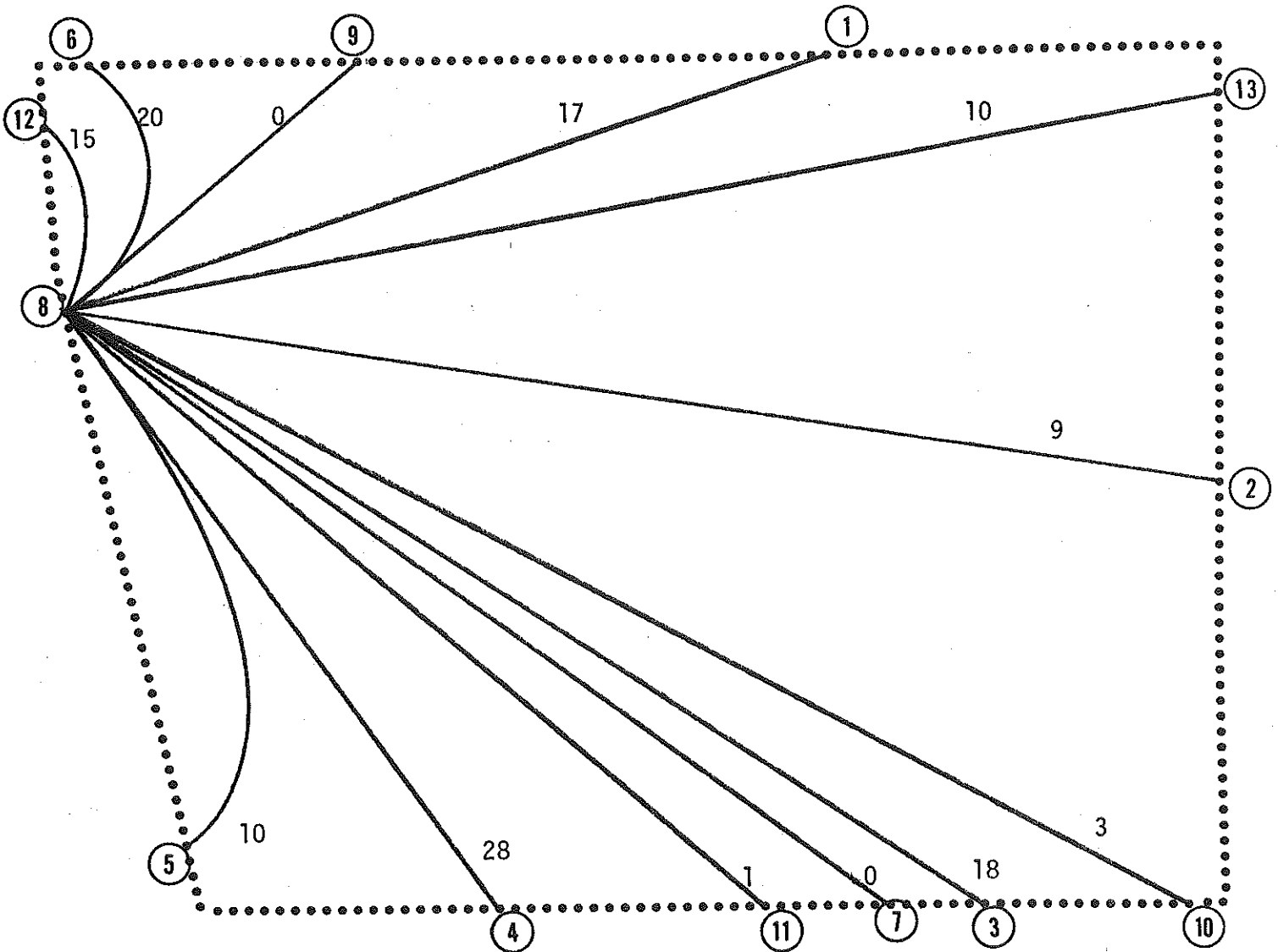
<u>Trip Purpose</u>	<u>Vehicles</u>	<u>% of Total</u>	<u>Terminal</u>	<u>%</u>	<u>Through</u>	<u>%</u>
Work	257	30.1	221	86.0	36	14.0
Personal Business	120	14.1	88	73.3	32	26.7
Shopping	168	19.7	161	95.8	7	4.2
Vacation	28	3.3	14	50.0	14	50.0
Other Soc. or Rec.	200	23.5	169	84.5	31	15.5
All Other	79	9.3	68	86.1	11	13.9
TOTAL	852	100.0	721	84.6	131	15.4

STATION 8, LAKE MITCHELL DRIVE

THRU TRIPS INTERCHANGING WITH EXTERNAL STATIONS

<u>EXTERNAL STATION</u>	<u>VEHICLES</u>	<u>PERCENT OF TOTAL</u>
1 US-131 North	17	13.0
2 M-55 East	9	6.9
3 US-131 South	18	13.7
4 M-115 South	28	21.4
5 M-55 West	10	7.6
6 M-115 North	20	15.3
7 Mackinaw Trail	0	0.0
8 Lake Mitchell Drive		
9 No. 37 Road	0	0.0
10 No. 45 Road	3	2.3
11 No. 41 Road	1	0.8
12 No. 34 Road (Boon) West	15	11.4
13 No. 34 Road (Boon) East	10	7.6
TOTAL	131	100.0

STATION 8, LAKE MITCHELL DRIVE
 TRAFFIC INTERCHANGING WITH EXTERNAL STATIONS



LEGEND
 CORDON
 (7) STATION NUMBER

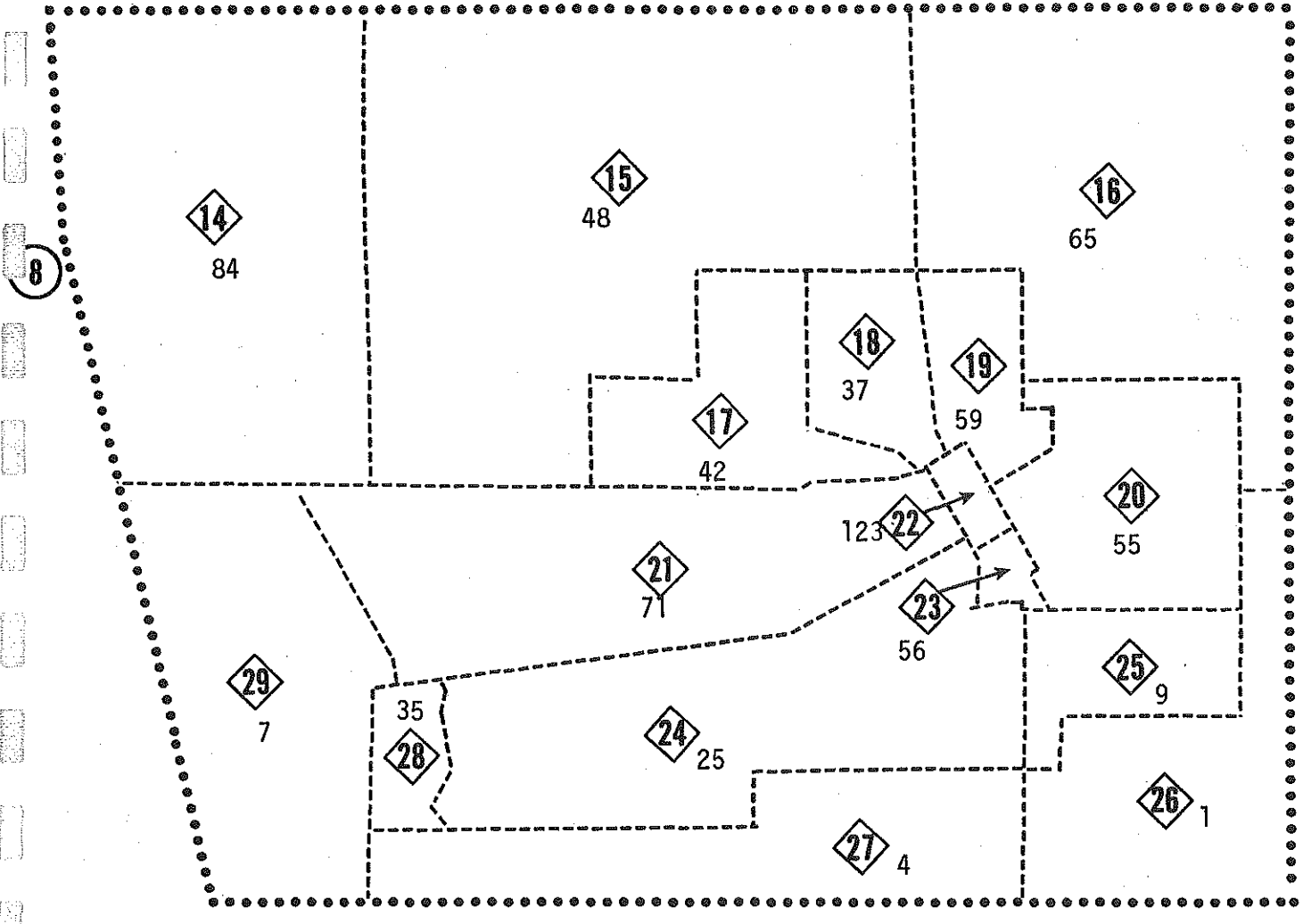


STATION 8, LAKE MITCHELL DRIVE

TERMINAL TRIPS INTERCHANGING WITH INTERNAL ZONES

<u>INTERNAL ZONE</u>	<u>VEHICLES</u>	<u>PERCENT OF TOTAL</u>
14	84	11.6
15	48	6.7
16	65	9.0
17	42	5.8
18	37	5.1
19	59	8.2
20	55	7.6
21	71	9.8
22	123	17.1
23	56	7.8
24	25	3.5
25	9	1.2
26	1	0.1
27	4	0.6
28	35	4.9
29	7	1.0
TOTAL	721	100.0

STATION 8, LAKE MITCHELL DRIVE
 TRAFFIC INTERCHANGING WITH INTERNAL ZONES



- LEGEND**
- CORDON LINE
 - - - - ZONE LIMITS
 - ◇ 00 INTERNAL ZONES



STATION 8, LAKE MITCHELL DRIVE

<u>MINUTES</u>	<u>TRIP LENGTHS</u>	
	<u>NO. OF TRIPS</u>	<u>PERCENT OF TOTAL</u>
01-10	261	30.7
10-20	516	60.6
20-30	8	0.9
30-40	28	3.3
40-50	1	0.1
50-60	5	0.6
60-80	15	1.8
80-100	1	0.1
100-120	2	0.2
120-150	6	0.7
150-180	2	0.2
180-300	6	0.7
300-420	0	0.0
420-490	1	0.1
	<hr/>	<hr/>
TOTAL	852	100.0

* Longest Trip - 8 Hrs. 10 Min.

Average Trip Length - 15 Min.

* Median Trip Length - 10-20 Min.

* Due to the convention of the computer program, these values can be approximated only in 10 minute intervals.

STATION 9, NO. 37 ROAD

LOCATION: 0.3 miles north of No. 34 Road, Wexford County.

CLASSIFICATION: County Road

TOTAL TRIPS: 728

MAJOR VEHICLE TYPE: Passenger Car 576 (79.1%)

MAJOR TRIP PURPOSE: Work 319 (43.8%)

TRIP DISTRIBUTION: Terminal 671 (92.2%)
Through 57 (7.8%)

MAJOR THROUGH TRIP ATTRACTORS: Station 3, US-131 south 18 (31.6%)

MAJOR TERMINAL TRIP ATTRACTORS: Zone 15 117 (17.4%)

LONGEST TRIP: 8 Hrs. 30 Min.

AVERAGE TRIP LENGTH: 18 Min.

STATION 9, NO. 37 ROAD

VEHICLE TYPE AND TRIP PURPOSE

<u>Vehicle Type</u>	<u>Vehicles</u>	<u>% of Total</u>	<u>Terminal</u>	<u>%</u>	<u>Through</u>	<u>%</u>
Passenger Car	576	79.1	538	93.4	38	6.6
Passenger Car with Trailer	3	0.4	3	100.0	0	0.0
Panel or Pickup	125	17.2	119	95.2	6	4.8
Panel or Pickup with Trailer	3	0.4	2	66.7	1	33.3
Other Single Unit Trucks	13	1.8	9	69.2	4	30.8
Combinations and Trucks with Trailers	8	1.1	0	0.0	8	100.0
TOTAL	728	100.0	671	92.2	57	7.8

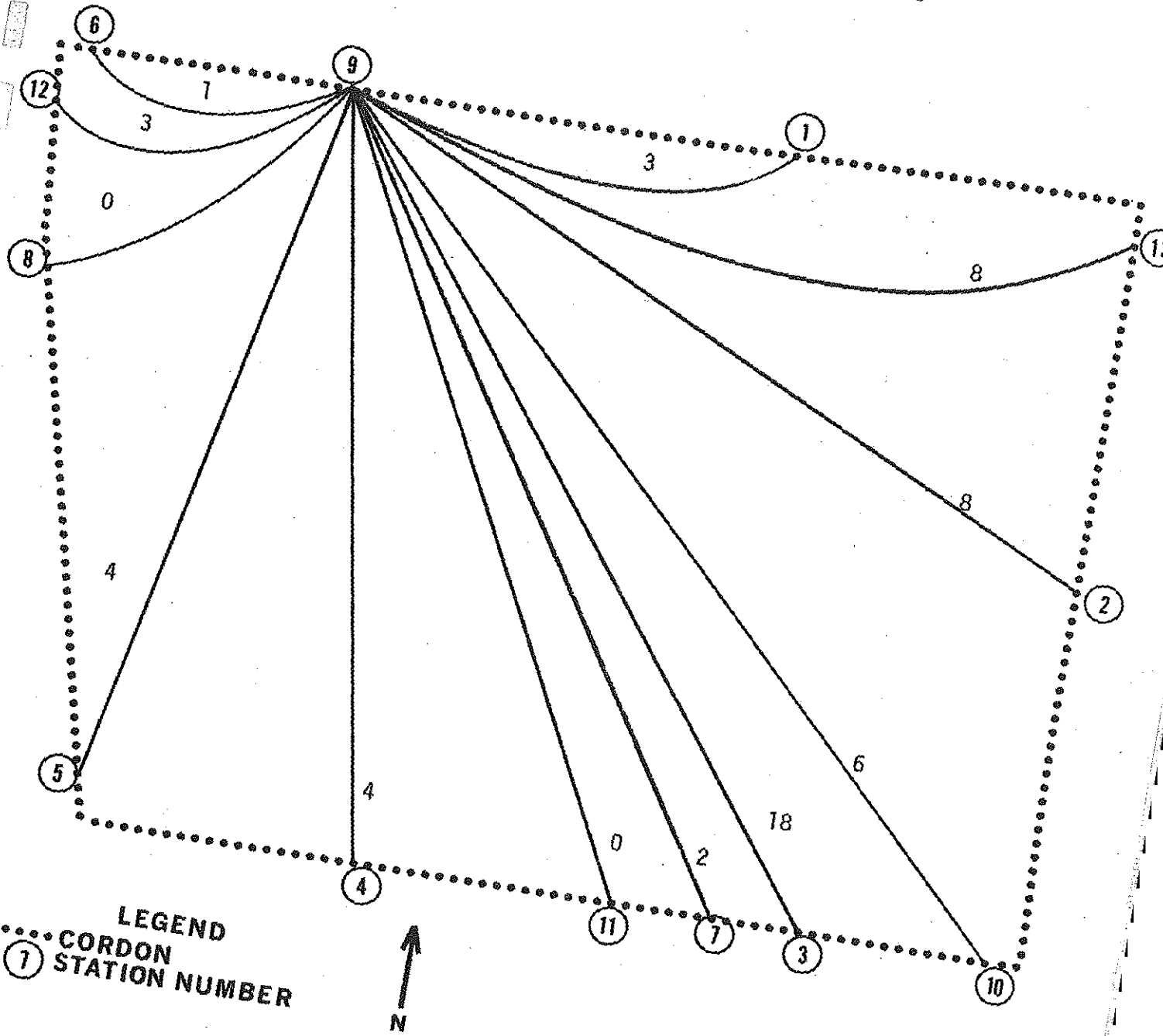
<u>Trip Purpose</u>	<u>Vehicles</u>	<u>% of Total</u>	<u>Terminal</u>	<u>%</u>	<u>Through</u>	<u>%</u>
Work	319	43.8	289	90.6	30	9.4
Personal Business	67	9.2	64	95.5	3	4.5
Shopping	109	15.0	109	100.0	0	0.0
Vacation	6	0.8	5	83.3	1	16.7
Other Soc. or Rec.	147	20.2	133	90.5	14	9.5
All Other	80	11.0	71	88.8	9	11.2
TOTAL	728	100.0	671	92.2	57	7.8

STATION 9, NO. 37 ROAD

THRU TRIPS INTERCHANGING WITH EXTERNAL STATIONS

<u>EXTERNAL STATION</u>	<u>VEHICLES</u>	<u>PERCENT OF TOTAL</u>
1 US-131 North	3	5.3
2 M-55 East	8	14.0
3 US-131 South	18	31.6
4 M-115 South	4	7.0
5 M-55 West	4	7.0
6 M-115 North	1	1.8
7 Mackinaw Trail	2	3.5
8 Lake Mitchell Drive	0	0.0
9 No. 37 Road		
10 No. 45 Road	6	10.5
11 No. 41 Road	0	0.0
12 No. 34 Road (Boon) West	3	5.3
13 No. 34 Road (Boon) East	8	14.0
TOTAL	57	100.0

STATION 9, NO. 37 ROAD
TRAFFIC INTERCHANGING WITH EXTERNAL STATIONS

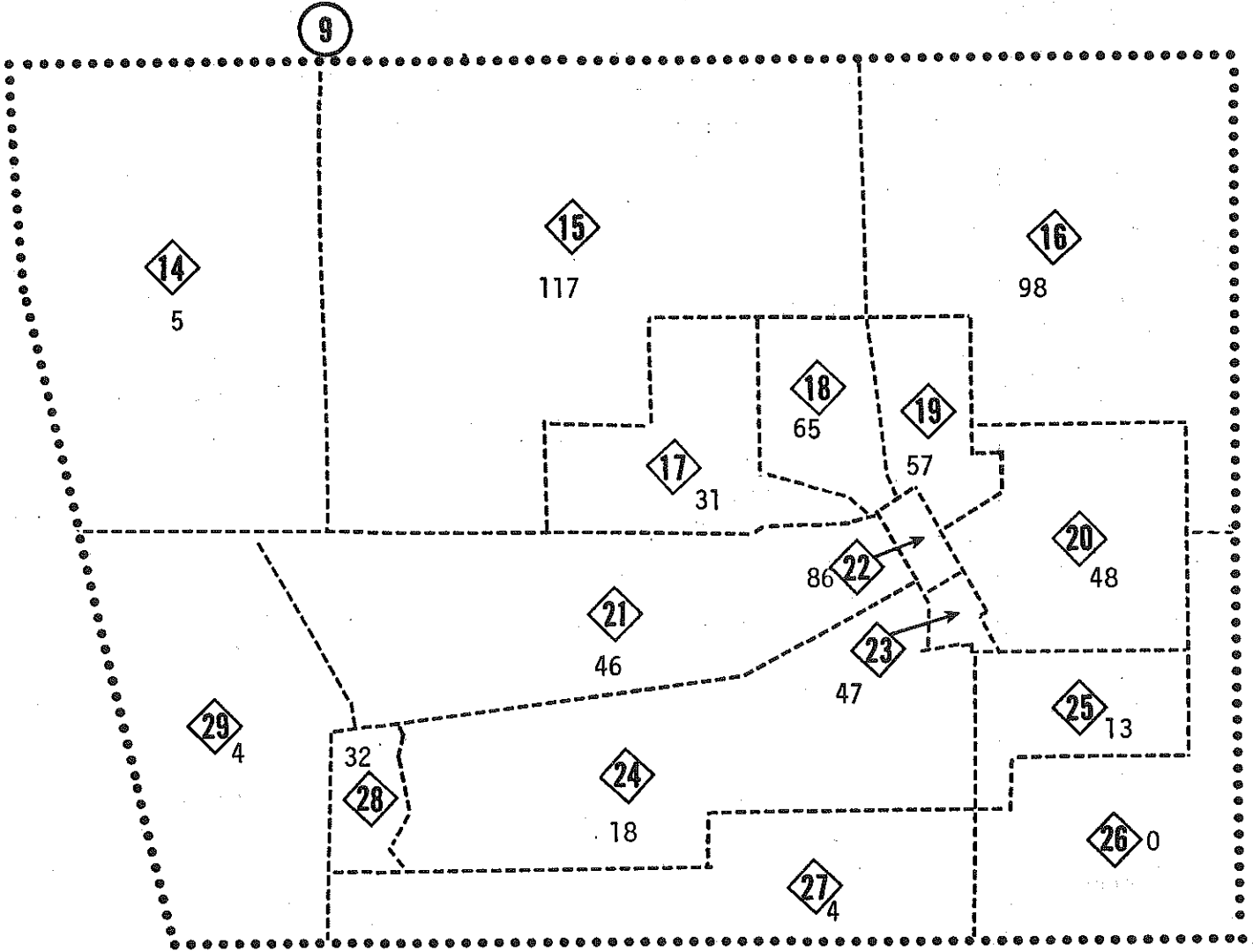


STATION 9, NO. 37 ROAD

TERMINAL TRIPS INTERCHANGING WITH INTERNAL ZONES

<u>INTERNAL ZONE</u>	<u>VEHICLES</u>	<u>PERCENT OF TOTAL</u>
14	5	0.7
15	117	17.4
16	98	14.6
17	31	4.6
18	65	9.7
19	57	8.5
20	48	7.2
21	46	6.9
22	86	12.8
23	47	7.0
24	18	2.7
25	13	1.9
26	0	0.0
27	4	0.6
28	32	4.8
29	<u>4</u>	<u>0.6</u>
TOTAL	671	100.0

STATION 9, NO. 37 ROAD
TRAFFIC INTERCHANGING WITH INTERNAL ZONES



- LEGEND**
- CORDON LINE
 - - - - ZONE LIMITS
 - ◇ 00 INTERNAL ZONES



STATION 9, NO. 37 ROAD

<u>MINUTES</u>	<u>TRIP LENGTHS</u>	<u>PERCENT OF TOTAL</u>
	<u>NO. OF TRIPS</u>	
01-10	207	28.5
10-20	367	50.4
20-30	69	9.5
30-40	53	7.3
40-50	3	0.4
50-60	2	0.3
60-80	16	2.2
80-100	1	0.1
100-120	0	
120-150	2	0.3
150-180	1	0.1
180-300	3	0.4
300-420	1	0.1
420-510	3	0.4
	<hr/>	<hr/>
TOTAL	728	100.0

* Longest Trip - 8 Hrs. 30 Min.

Average Trip Length - 18 Min.

* Median Trip Length - 10-20 Min.

* Due to the convention of the computer program, these values can be approximated only in 10 minute intervals.

STATION 10, NO. 45 ROAD

LOCATION: 0.3 miles south of 40 1/2 Road, Wexford County.

CLASSIFICATION: County Road

TOTAL TRIPS: 821

MAJOR VEHICLE TYPE: Passenger Car 595 (72.5%)

MAJOR TRIP PURPOSE: Work 430 (52.4%)

TRIP DISTRIBUTION: Terminal 769 (93.7%)
Through 52 (6.3%)

MAJOR THROUGH TRIP ATTRACTORS: Station 1, US-131 north 25 (48.1%)

MAJOR TERMINAL TRIP ATTRACTORS: Zone 20 151 (19.6%)

LONGEST TRIP: 13 Hrs.

AVERAGE TRIP LENGTH: 28 Min.

STATION 10, NO. 45 ROAD

VEHICLE TYPE AND TRIP PURPOSE

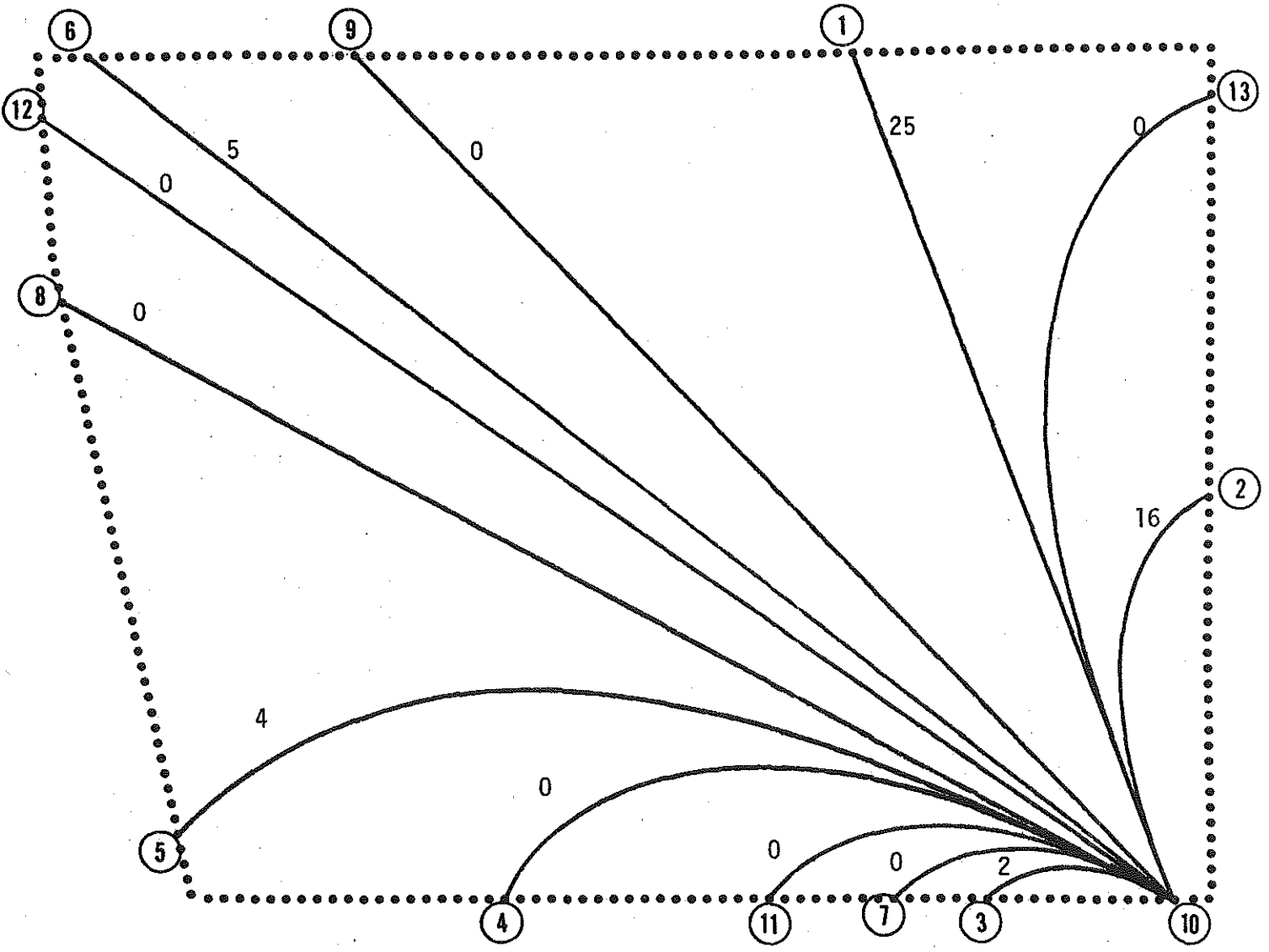
<u>Vehicle Type</u>	<u>Vehicles</u>	<u>% of Total</u>	<u>Terminal</u>	<u>%</u>	<u>Through</u>	<u>%</u>
Passenger Car	595	72.5	558	93.8	37	6.2
Passenger Car with Trailer	2	0.2	2	100.0	0	0.0
Panel or Pickup	160	19.5	149	93.1	11	6.9
Panel or Pickup with Trailer	7	0.8	6	85.7	1	14.3
Other Single Unit Trucks	44	5.4	43	97.7	1	2.3
Combinations and Trucks with Trailers	13	1.6	11	84.6	2	15.4
TOTAL	821	100.0	769	93.7	52	6.3
<u>Trip Purpose</u>	<u>Vehicles</u>	<u>% of Total</u>	<u>Terminal</u>	<u>%</u>	<u>Through</u>	<u>%</u>
Work	430	52.4	398	92.6	32	7.4
Personal Business	177	21.6	164	92.7	13	7.3
Shopping	88	10.7	88	100.0	0	0.0
Vacation	1	0.1	1	100.0	0	0.0
Other Soc. or Rec.	99	12.0	92	92.9	7	7.1
All Other	26	3.2	26	100.0	0	0.0
TOTAL	821	100.0	769	93.7	52	6.3

STATION 10, NO. 45 ROAD

THRU TRIPS INTERCHANGING WITH EXTERNAL STATIONS

<u>EXTERNAL STATION</u>	<u>VEHICLES</u>	<u>PERCENT OF TOTAL</u>
1 US-131 North	25	48.1
2 M-55 East	16	30.8
3 US-131 South	2	3.8
4 M-115 South	0	0.0
5 M-55 West	4	7.7
6 M-115 North	5	9.6
7 Mackinaw Trail	0	0.0
8 Lake Mitchell Drive	0	0.0
9 No. 37 Road	0	0.0
10 No. 45 Road		
11 No. 41 Road	0	0.0
12 No. 34 Road (Boon) West	0	0.0
13 No. 34 Road (Boon) East	0	0.0
TOTAL	52	100.0

STATION 10, NO. 45 ROAD
 TRAFFIC INTERCHANGING WITH EXTERNAL STATIONS



LEGEND
 CORDON
 (7) STATION NUMBER

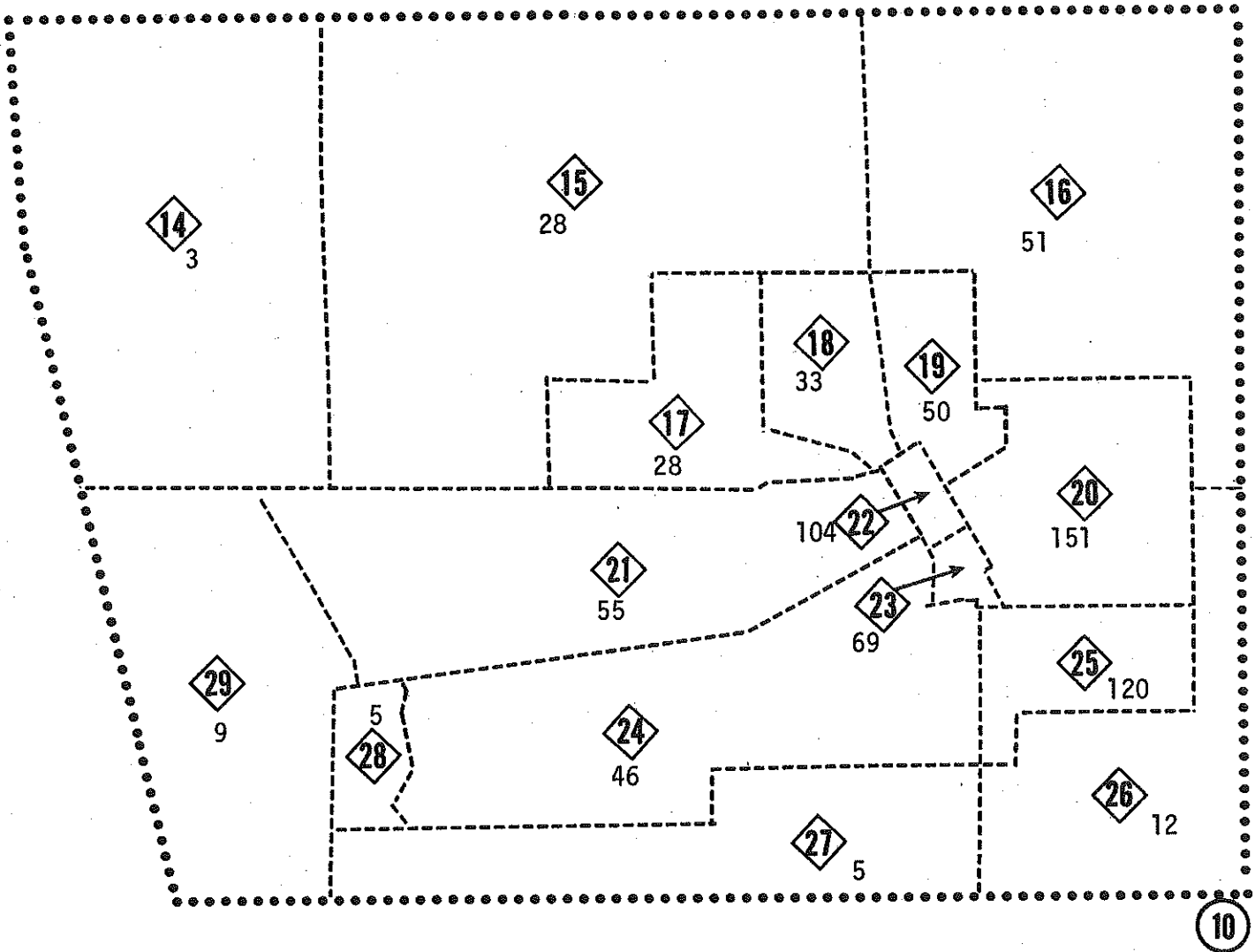


STATION 10, NO. 45 ROAD

TERMINAL TRIPS INTERCHANGING WITH INTERNAL ZONES

<u>INTERNAL ZONE</u>	<u>VEHICLES</u>	<u>PERCENT OF TOTAL</u>
14	3	0.4
15	28	3.6
16	51	6.6
17	28	3.6
18	33	4.3
19	50	6.5
20	151	19.6
21	55	7.1
22	104	13.5
23	69	9.0
24	46	6.0
25	120	15.6
26	12	1.6
27	5	0.7
28	5	0.7
29	<u>9</u>	<u>1.2</u>
TOTAL	769	100.0

STATION 10, NO. 45 ROAD
TRAFFIC INTERCHANGING WITH INTERNAL ZONES



- LEGEND**
- CORDON LINE
 - - - - ZONE LIMITS
 - ◇ 00 INTERNAL ZONES



STATION 10, NO. 45 ROAD

<u>MINUTES</u>	<u>TRIP LENGTHS</u>	
	<u>NO. OF TRIPS</u>	<u>PERCENT OF TOTAL</u>
01-10	65	7.9
10-20	341	41.5
20-30	222	27.1
30-40	84	10.2
40-50	6	0.7
50-60	45	5.5
60-80	28	3.4
80-100	11	1.3
100-120	5	0.6
120-150	4	0.5
150-180	4	0.5
180-300	4	0.5
300-420	0	0.0
420-540	0	0.0
540-660	0	0.0
660-780	2	.3
	821	100.0
TOTAL		

* Longest Trip - 13 Hrs.

Average Trip Length - 28 Min.

* Median Trip Length - 20-30 Min.

* Due to the convention of the computer program, these values can be approximated only in 10 minute intervals.

STATION 11, NO. 41 ROAD

LOCATION:

0.5 miles south of M-55, Wexford County.

CLASSIFICATION:

County Road

TOTAL TRIPS:

456

MAJOR VEHICLE TYPE:

Passenger Car 386 (84.7%)

MAJOR TRIP PURPOSE:

Work 154 (33.8%)

TRIP DISTRIBUTION:

Terminal 431 (94.5%)
Through 25 (5.5%)

MAJOR THROUGH TRIP ATTRACTORS:

Station 1, US-131 north 12 (48.0%)

MAJOR TERMINAL TRIP ATTRACTORS:

Zone 24 90 (20.9%)

LONGEST TRIP:

5 Hrs. 10 Min.

AVERAGE TRIP LENGTH:

20 Min.

STATION 11, NO. 41 ROAD

VEHICLE TYPE AND TRIP PURPOSE

<u>Vehicle Type</u>	<u>Vehicles</u>	<u>% of Total</u>	<u>Terminal</u>	<u>%</u>	<u>Through</u>	<u>%</u>
Passenger Car	386	84.7	371	96.1	15	3.9
Passenger Car with Trailer	0	0.0	0	0.0	0	0.0
Panel or Pickup	64	14.0	54	84.4	10	15.6
Panel or Pickup with Trailer	0	0.0	0	0.0	0	0.0
Other Single Unit Trucks	5	1.1	5	100.0	0	0.0
Combinations and Trucks with Trailers	1	0.2	1	100.0	0	0.0
TOTAL	456	100.0	431	94.5	25	5.5

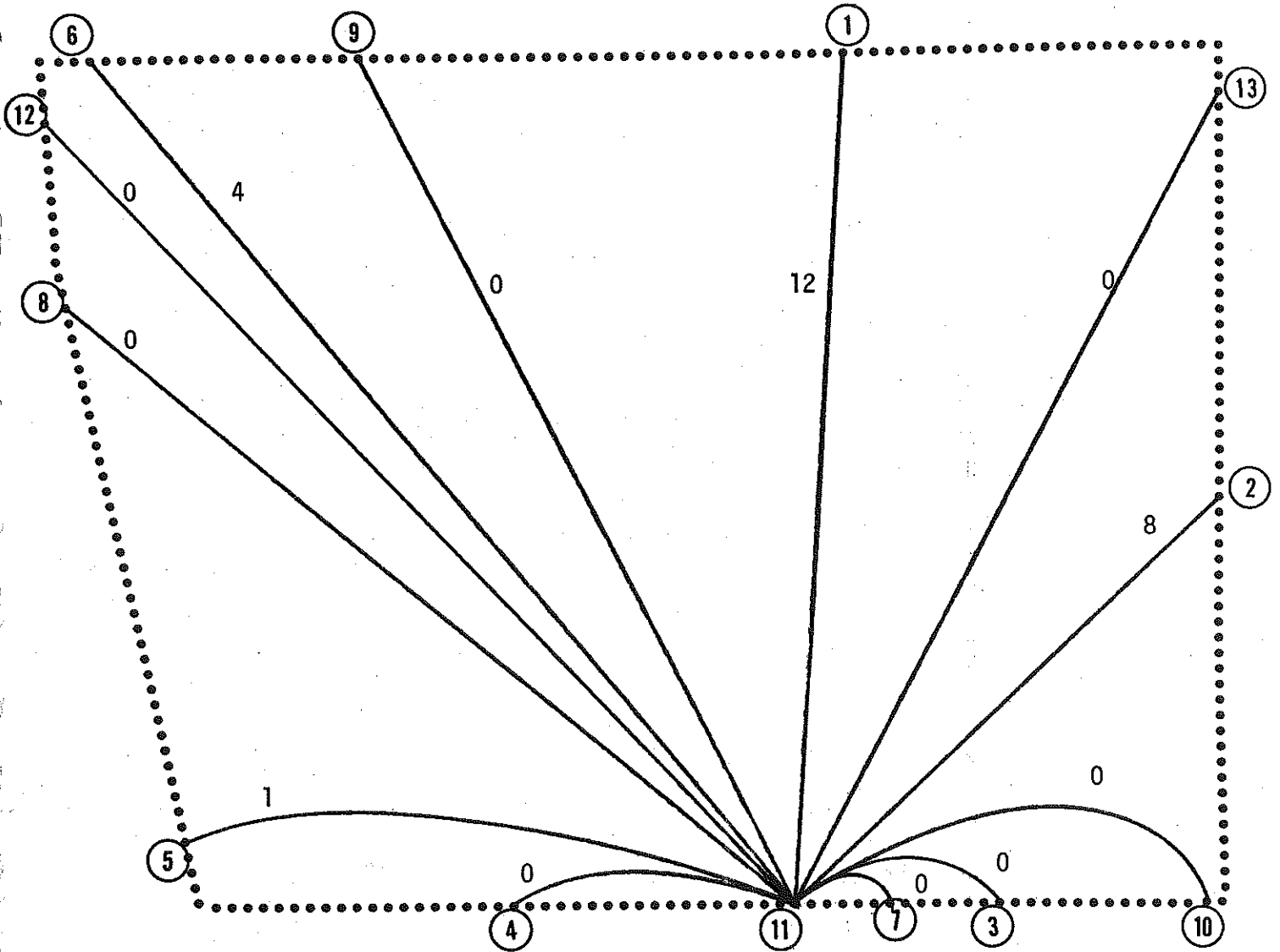
<u>Trip Purpose</u>	<u>Vehicles</u>	<u>% of Total</u>	<u>Terminal</u>	<u>%</u>	<u>Through</u>	<u>%</u>
Work	154	33.8	148	96.1	6	3.9
Personal Business	34	7.5	28	82.4	6	17.6
Shopping	73	16.0	72	98.6	1	1.4
Vacation	8	1.7	5	62.5	3	37.5
Other Soc. or Rec.	84	18.4	80	95.2	4	4.8
All Other	103	22.6	98	95.1	5	4.9
TOTAL	456	100.0	431	94.5	25	5.5

STATION 11, NO. 41 ROAD

THRU TRIPS INTERCHANGING WITH EXTERNAL STATIONS

<u>EXTERNAL STATION</u>	<u>VEHICLES</u>	<u>PERCENT OF TOTAL</u>
1 US-131 North	12	48.0
2 M-55 East	8	32.0
3 US-131 South	0	0.0
4 M-115 South	0	0.0
5 M-55 West	1	4.0
6 M-115 North	4	16.0
7 Mackinaw Trail	0	0.0
8 Lake Mitchell Drive	0	0.0
9 No. 37 Road	0	0.0
10 No. 45 Road	0	0.0
11 No. 41 Road	<hr/>	<hr/>
12 No. 34 Road (Boon) West	0	0.0
13 No. 34 Road (Boon) East	0	0.0
	<hr/>	<hr/>
TOTAL	25	100.0

STATION 11, NO. 41 ROAD
 TRAFFIC INTERCHANGING WITH EXTERNAL STATIONS



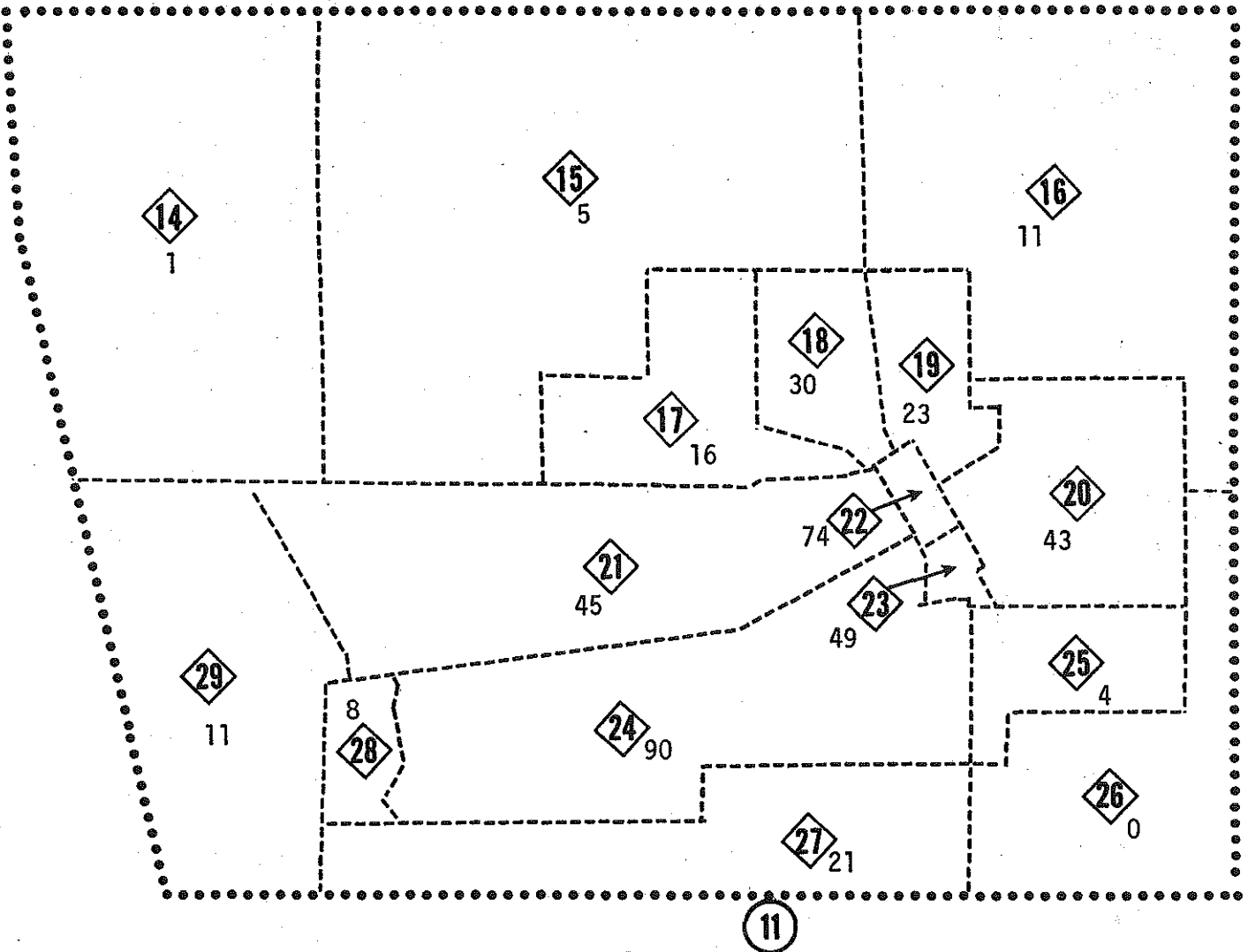
LEGEND
 CORDON
 (7) STATION NUMBER

STATION 11, NO. 41 ROAD

TERMINAL TRIPS INTERCHANGING WITH INTERNAL ZONES

<u>INTERNAL ZONE</u>	<u>VEHICLES</u>	<u>PERCENT OF TOTAL</u>
14	1	0.2
15	5	1.2
16	11	2.5
17	16	3.7
18	30	7.0
19	23	5.3
20	43	10.0
21	45	10.4
22	74	17.2
23	49	11.4
24	90	20.9
25	4	0.9
26	0	0.0
27	21	4.9
28	8	1.9
29	<u>11</u>	<u>2.5</u>
TOTAL	431	100.0

STATION 11, NO. 41 ROAD
TRAFFIC INTERCHANGING WITH INTERNAL ZONES



- LEGEND**
- CORDON LINE
 - - - - - ZONE LIMITS
 - ◇ 00 INTERNAL ZONES



STATION 11, NO. 41 ROAD

<u>MINUTES</u>	<u>TRIP LENGTHS</u> <u>NO. OF TRIPS</u>	<u>PERCENT OF TOTAL</u>
01-10	37	8.1
10-20	335	73.5
20-30	14	3.1
30-40	41	9.0
40-50	9	2.0
50-60	6	1.3
60-80	5	1.1
80-100	2	0.4
100-120	2	0.4
120-150	0	0.0
150-180	0	0.0
180-300	4	0.9
300-310	1	0.2
	<hr/>	<hr/>
TOTAL	456	100.0

* Longest Trip - 5 Hrs. 10 Min.

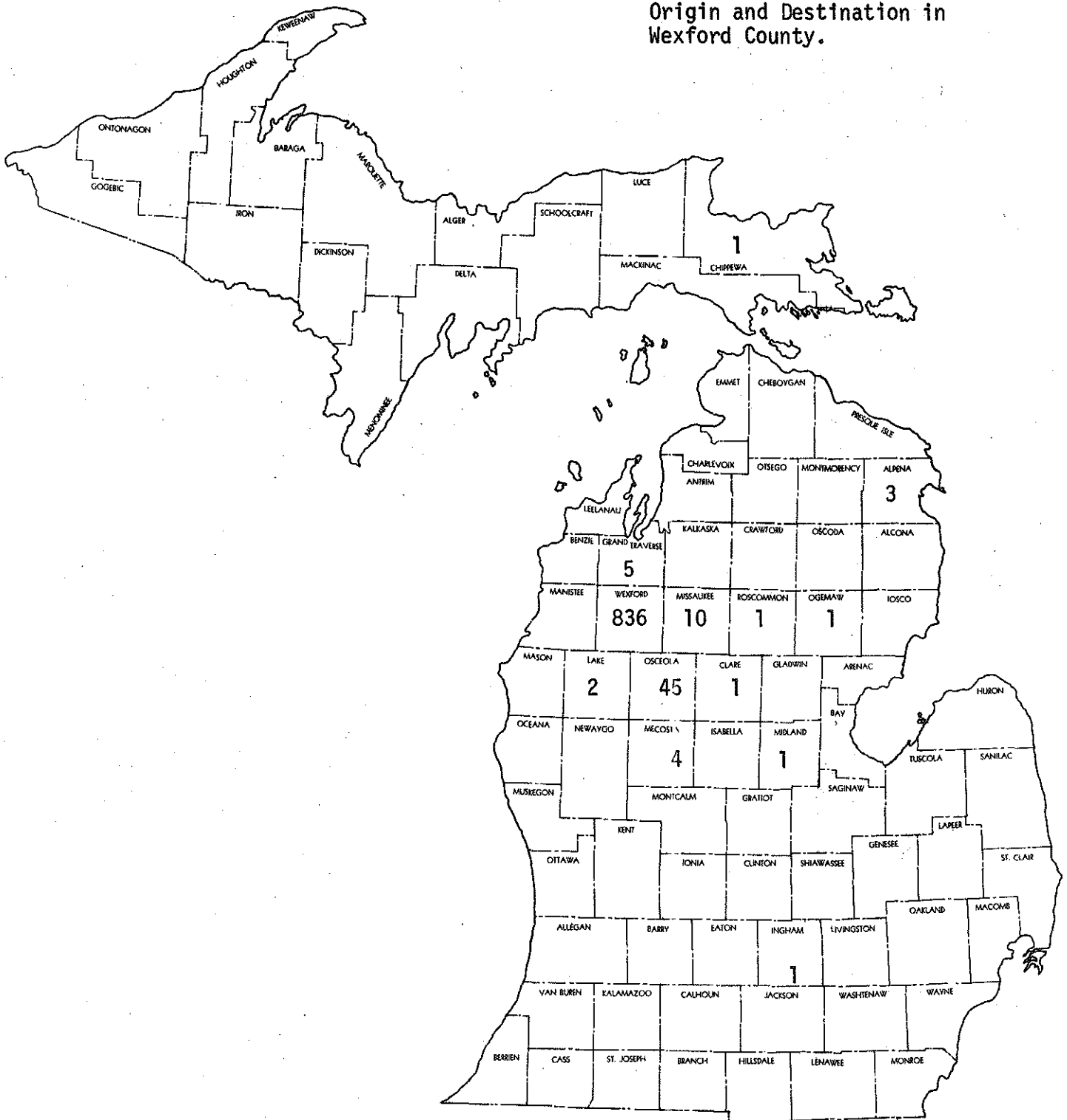
Average Trip Length - 20 Min.

* Median Trip Length - 10-20 Min.

* Due to the convention of the computer program, these values can be approximated only in 10 minute intervals.

STATION 11, NO. 41 ROAD
TRIP END SUMMARY

Total: 456 trips = 912 trip ends. 382 trips had both Origin and Destination in Wexford County.



Indiana 1

STATION 12, NO. 34 ROAD (BOON) WEST

LOCATION: 0.2 miles west of No. 33 1/2 Road,
Wexford County.

CLASSIFICATION: County Road

TOTAL TRIPS: 565

MAJOR VEHICLE TYPE: Passenger Car 413 (73.1%)

MAJOR TRIP PURPOSE: Work 265 (46.9%)

TRIP DISTRIBUTION: Terminal 490 (86.7%)
Through 75 (13.3%)

MAJOR THROUGH TRIP ATTRACTORS: Station 1, US-131 north 17 (22.7%)

MAJOR TERMINAL TRIP ATTRACTORS: Zone 16 73 (14.9%)

LONGEST TRIP: 6 Hrs. 50 Min.

AVERAGE TRIP LENGTH: 19 Min.

STATION 12, NO. 34 ROAD (BOON) WEST

VEHICLE TYPE AND TRIP PURPOSE

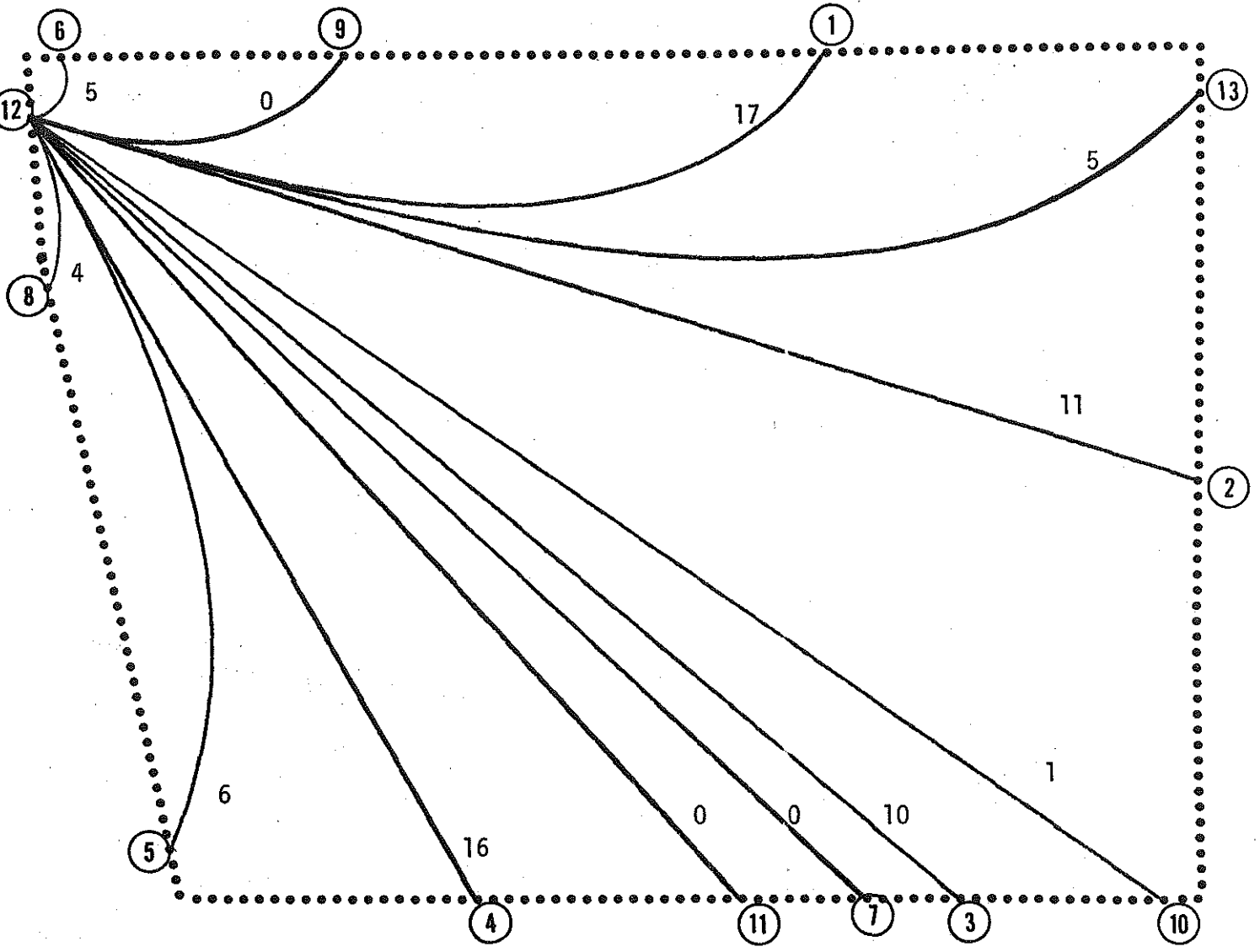
<u>Vehicle Type</u>	<u>Vehicles</u>	<u>% of Total</u>	<u>Terminal</u>	<u>%</u>	<u>Through</u>	<u>%</u>
Passenger Car	413	73.1	357	86.4	56	13.6
Passenger Car with Trailer	9	1.6	5	55.6	4	44.4
Panel or Pickup	118	20.9	106	89.8	12	10.2
Panel or Pickup with Trailer	8	1.4	7	87.5	1	12.5
Other Single Unit Trucks	15	2.7	15	100.0	0	0.0
Combinations and Trucks with Trailers	2	0.3	0	0.0	2	100.0
TOTAL	565	100.0	490	86.7	75	13.3
<u>Trip Purpose</u>	<u>Vehicles</u>	<u>% of Total</u>	<u>Terminal</u>	<u>%</u>	<u>Through</u>	<u>%</u>
Work	265	46.9	224	84.5	41	15.5
Personal Business	101	17.9	96	95.0	5	5.0
Shopping	103	18.2	102	99.0	1	1.0
Vacation	10	1.8	1	10.0	9	90.0
Other Soc. or Rec.	66	11.7	50	75.8	16	24.2
All Other	20	3.5	17	85.0	3	15.0
TOTAL	565	100.0	490	86.7	75	13.3

STATION 12, NO. 34 ROAD (BOON) WEST

THRU TRIPS INTERCHANGING WITH EXTERNAL STATIONS

<u>EXTERNAL STATION</u>	<u>VEHICLES</u>	<u>PERCENT OF TOTAL</u>
1 US-131 North	17	22.7
2 M-55 East	11	14.7
3 US-131 South	10	13.3
4 M-115 South	16	21.3
5 M-55 West	6	8.0
6 M-115 North	5	6.7
7 Mackinaw Trail	0	0.0
8 Lake Mitchell Drive	4	5.3
9 No. 37 Road	0	0.0
10 No. 45 Road	1	1.3
11 No. 41 Road	0	0.0
12 No. 34 Road (Boon) West		
13 No. 34 Road (Boon) East	5	6.7
TOTAL	75	100.0

STATION 12, NO. 34 ROAD (BOON) WEST
 TRAFFIC INTERCHANGING WITH EXTERNAL STATIONS



LEGEND
 CORDON
 (7) STATION NUMBER



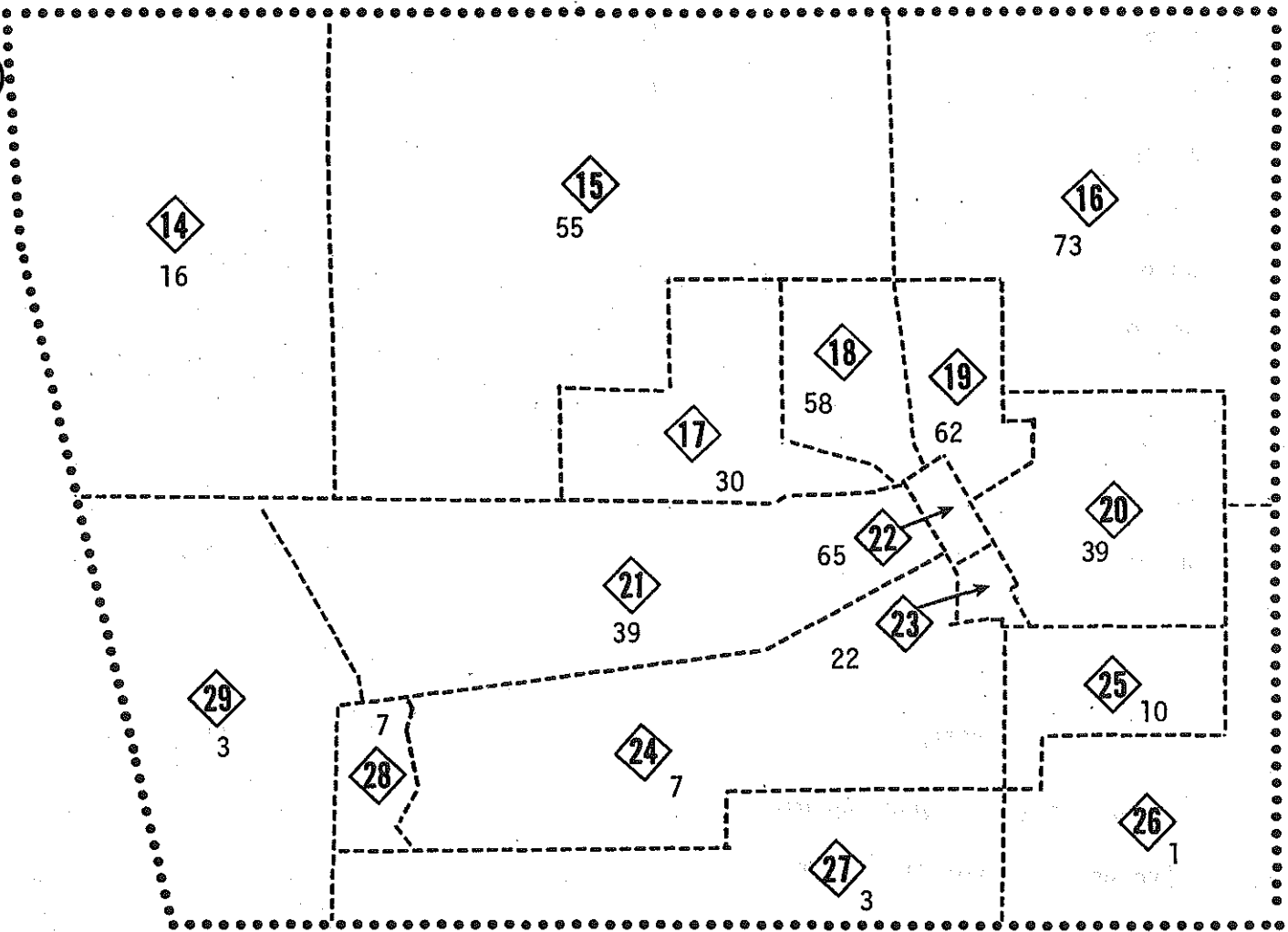
TRANSPORTATION LIBRARY
 MICHIGAN DEPT. STATE HIGHWAYS &
 TRANSPORTATION, LANSING, MICH.

STATION 12, NO. 34 ROAD (BOON) WEST

TERMINAL TRIPS INTERCHANGING WITH INTERNAL ZONES

<u>INTERNAL ZONE</u>	<u>VEHICLES</u>	<u>PERCENT OF TOTAL</u>
14	16	3.3
15	55	11.2
16	73	14.9
17	30	6.1
18	58	11.8
19	62	12.7
20	39	8.0
21	39	8.0
22	65	13.3
23	22	4.5
24	7	1.4
25	10	2.0
26	1	0.2
27	3	0.6
28	7	1.4
29	<u>3</u>	<u>0.6</u>
TOTAL	490	100.0

STATION 12, NO. 34 ROAD (BOON) WEST
 TRAFFIC INTERCHANGING WITH INTERNAL ZONES



- LEGEND**
- CORDON LINE
 - ZONE LIMITS
 - ◇ 00 INTERNAL ZONES



STATION 12, NO. 34 ROAD (BOON) WEST

TRIP LENGTHS

<u>MINUTES</u>	<u>NO. OF TRIPS</u>	<u>PERCENT OF TOTAL</u>
01-10	154	27.3
10-20	321	56.8
20-30	18	3.2
30-40	42	7.4
40-50	3	0.5
50-60	5	0.9
60-80	5	0.9
80-100	1	0.2
100-120	1	0.2
120-150	4	0.7
150-180	1	0.2
180-300	7	1.2
300-410	3	0.5
	<hr/>	<hr/>
TOTAL	565	100.0

* Longest Trip - 6 Hrs. 50 Min.

Average Trip Length - 19 Min.

* Median Trip Length - 10-20 Min.

* Due to the convention of the computer program, these values can be approximated only in 10 minute intervals.

STATION 13, NO. 34 ROAD (BOON) EAST

LOCATION: 1.5 miles east of US-131, Wexford County.

CLASSIFICATION: County Road

TOTAL TRIPS: 1,642

MAJOR VEHICLE TYPE: Passenger Car 1,160 (70.6%)

MAJOR TRIP PURPOSE: Work 688 (41.9%)

TRIP DISTRIBUTION: Terminal 1,479 (90.1%)
Through 163 (9.9%)

MAJOR THROUGH TRIP ATTRACTORS: Station 1, US-131 north 40 (24.6%)

MAJOR TERMINAL TRIP ATTRACTORS: Zone 16 395 (26.7%)

LONGEST TRIP: 8 Hrs. 20 Min.

AVERAGE TRIP LENGTH: 28 Min.

STATION 13, NO. 34 ROAD (BOON) EAST

VEHICLE TYPE AND TRIP PURPOSE

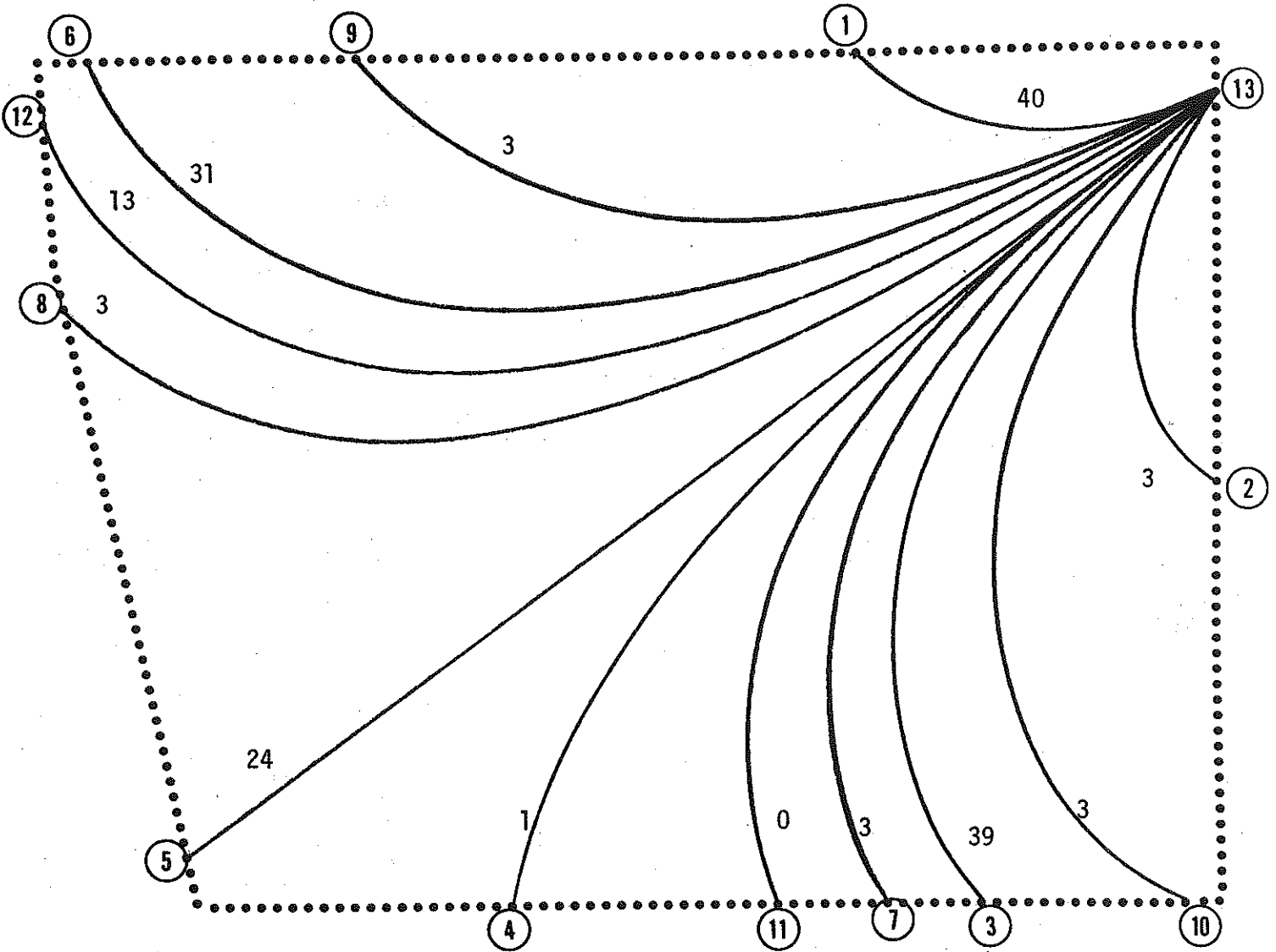
<u>Vehicle Type</u>	<u>Vehicles</u>	<u>% of Total</u>	<u>Terminal</u>	<u>%</u>	<u>Through</u>	<u>%</u>
Passenger Car	1,160	70.6	1,092	94.1	68	5.9
Passenger Car with Trailer	10	0.6	6	60.0	4	40.0
Panel or Pickup	362	22.0	308	85.1	54	14.9
Panel or Pickup with Trailer	24	1.5	13	54.2	11	45.8
Other Single Unit Trucks	57	3.5	48	84.2	9	15.8
Combinations and Trucks with Trailers	29	1.8	12	41.4	17	58.6
TOTAL	1,642	100.0	1,479	90.1	163	9.9
<u>Trip Purpose</u>	<u>Vehicles</u>	<u>% of Total</u>	<u>Terminal</u>	<u>%</u>	<u>Through</u>	<u>%</u>
Work	688	41.9	600	87.2	88	12.8
Personal Business	160	9.8	149	93.1	11	6.9
Shopping	415	25.3	408	98.3	7	1.7
Vacation	40	2.4	23	57.5	17	42.5
Other Soc. or Rec.	181	11.0	153	84.5	28	15.5
All Other	158	9.6	146	92.4	12	7.6
TOTAL	1,642	100.0	1,479	90.1	163	9.9

STATION 13, NO. 34 ROAD (BOON) EAST

THRU TRIPS INTERCHANGING WITH EXTERNAL STATIONS

<u>EXTERNAL STATION</u>	<u>VEHICLES</u>	<u>PERCENT OF TOTAL</u>
1 US-131 North	40	24.6
2 M-55 East	3	1.8
3 US-131 South	39	24.0
4 M-115 South	1	0.6
5 M-55 West	24	14.8
6 M-115 North	31	19.0
7 Mackinaw Trail	3	1.8
8 Lake Mitchell Drive	3	1.8
9 No. 37 Road	3	1.8
10 No. 45 Road	3	1.8
11 No. 41 Road	0	0.0
12 No. 34 Road (Boon) West	13	8.0
13 No. 34 Road (Boon) East		
TOTAL	163	100.0

STATION 13, NO. 34 ROAD (BOON) EAST
 TRAFFIC INTERCHANGING WITH EXTERNAL STATIONS



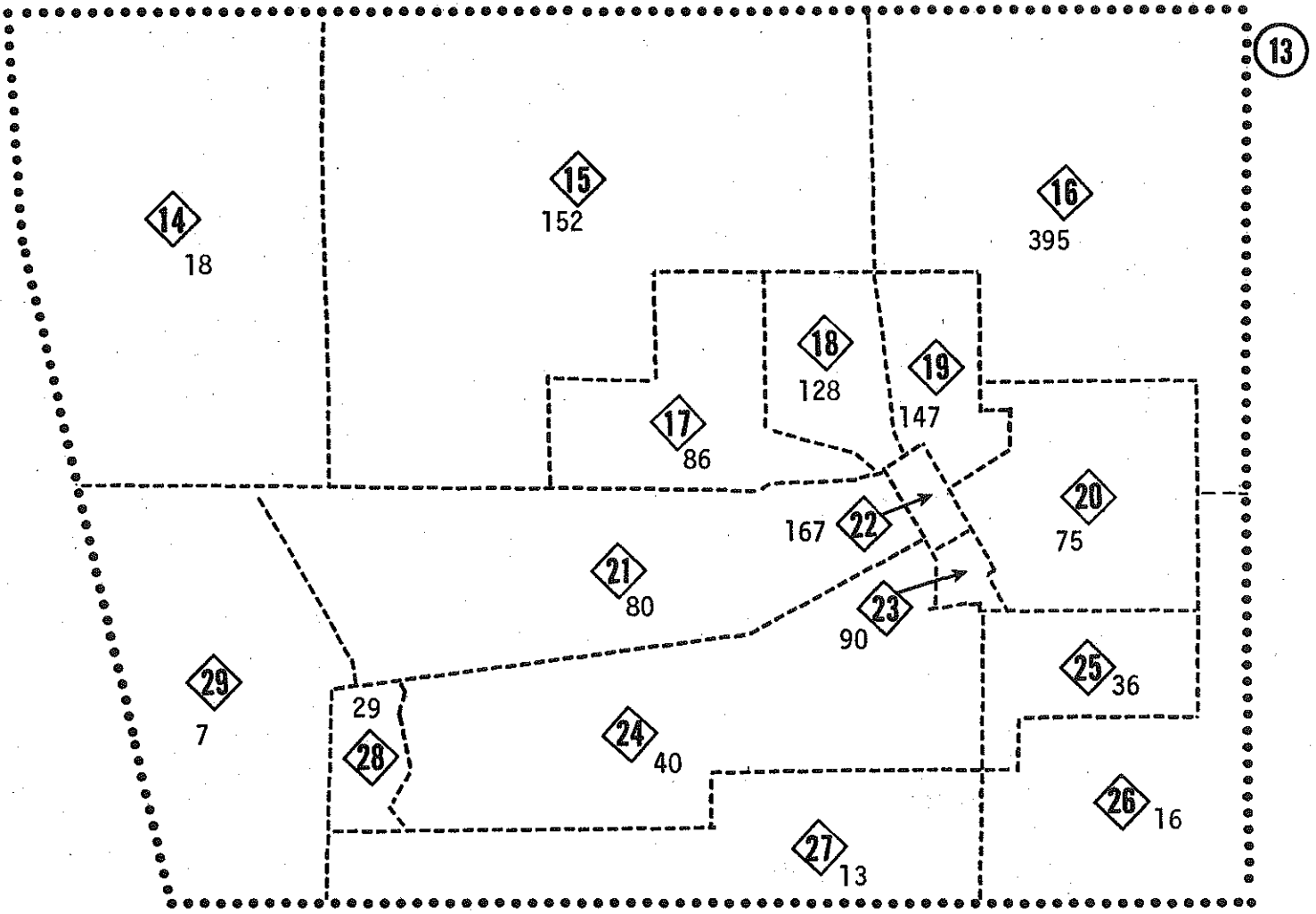
LEGEND
 CORDON
 (7) STATION NUMBER



STATION 13, NO. 34 ROAD (BOON) EAST
TERMINAL TRIPS INTERCHANGING WITH INTERNAL ZONES

<u>INTERNAL ZONE</u>	<u>VEHICLES</u>	<u>PERCENT OF TOTAL</u>
14	18	1.2
15	152	10.3
16	395	26.7
17	86	5.8
18	128	8.6
19	147	9.9
20	75	5.1
21	80	5.4
22	167	11.3
23	90	6.1
24	40	2.7
25	36	2.4
26	16	1.1
27	13	0.9
28	29	2.0
29	<u>7</u>	<u>0.5</u>
TOTAL	1,479	100.0

STATION 13, NO. 34 ROAD (BOON) EAST
TRAFFIC INTERCHANGING WITH INTERNAL ZONES



- LEGEND**
- CORDON LINE
 - - - - ZONE LIMITS
 - ◇ 00 INTERNAL ZONES



STATION 13, NO. 34 ROAD (BOON) EAST

<u>MINUTES</u>	<u>NO. OF TRIPS</u>	<u>PERCENT OF TOTAL</u>
01-10	152	9.3
10-20	294	17.9
20-30	536	32.6
30-40	467	28.4
40-50	43	2.6
50-60	46	2.8
60-80	52	3.2
80-100	13	0.8
100-120	3	0.2
120-150	11	0.7
150-180	10	0.6
180-300	14	0.8
300-420	0	0.0
420-500	1	0.1
	<hr/>	<hr/>
TOTAL	1,642	100.0

* Longest Trip - 8 Hrs. 20 Min.

Average Trip Length - 28 Min.

* Median Trip Length - 20-30 Min.

* Due to the convention of the computer program, these values can be approximated only in 10 minute intervals.

**PART III
APPENDICES**

APPENDIX "A"

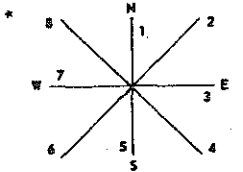
FORM NUMBER	6	COUNTY NUMBER		STATEWIDE NUMBER		HOUR PERIOD ENDING		* DIRECTION		DAY ** OF TRAVEL		MO.		DATE	
	1	2 3		4 5 6 7			8 9	10		11		12 13		14 15	

INTERVIEW NUMBER	VEH. TYPE	NO. IN VEH.	ORIGIN Where did this trip begin? Co. or State	DESTINATION Where will this trip end? Co. or State	WHERE IS VEHICLE GARAGED	TRIP PURPOSE	ROUTE OF EXIT OR ENT.
					0 0 0		
					0 0 0		
					0 0 0		
					0 0 0		
					0 0 0		
					0 0 0		
					0 0 0		

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16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67

- VEHICLE TYPE**
- PASSENGER CAR WITHOUT A TRAILER
 - PASSENGER CAR WITH A TRAILER
 - PANEL OR PICK-UP WITHOUT A TRAILER
 - PANEL OR PICK-UP WITH A TRAILER
 - OTHER SINGLE UNIT TRUCKS
 - COMBINATIONS & TRUCKS WITH TRAILERS



- DAY OF TRAVEL ****
- | | | | |
|-----------|---|----------|---|
| SUNDAY | 1 | THURSDAY | 5 |
| MONDAY | 2 | FRIDAY | 6 |
| TUESDAY | 3 | SATURDAY | 7 |
| WEDNESDAY | 4 | | |

- GARAGED**
- ORIGIN
 - DESTINATION
 - OTHER

- TRIP PURPOSE**
- WORK
 - PERS. BUSINESS
 - SHOPPING
 - VACATION
 - OTHER SOC. OR REC.
 - ALL OTHER

ROUTE _____ LOCATION DESCRIPTION _____ CITY _____

FORM	COUNTY	STATEWIDE STA. NO.						O-D STA. NO.		YEAR	MONTH		DATE		DAY	O-D CITY		TYPE	SEQ	
9																				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21

RECORDER _____

DO NOT ACCUMULATE

IN OUT	DIRECT OF TRAVEL		TIME ENDING		PASSENGER CAR				PANEL & PICK-UP (2 AXLE, 4 TIRE)				ALL OTHER SINGLE UNIT TRUCKS WITHOUT TRAILER (5)			ALL TRUCK COMB. AND SINGLE UNIT TRUCK WITH TRAILER (6)			(7) ALL BUSES		(8) MOTOR CYCLE		TOTAL					
	23	24	HOUR	MIN.	WITHOUT (1) TRAILER		WITH (2) TRAILER		WITHOUT (3) TRAILER		WITH (4) TRAILER		42	43	44	45	46	47	48	49	50	51			52	53	54	55
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DAY OF WEEK: Col. 17

Sunday	1	Thursday	5	Cordon Line Station	2
Monday	2	Friday	6	Screen Line Station	1
Tuesday	3	Saturday	7	Single Station	3
Wednesday	4			S. W. Winter Class.	4

STATION TYPE: Col. 20

TRUCK IDENTIFICATION

DIRECTION OF TRAVEL: Cols. 23-24

Northbound	01	Westbound	07
Northeastbound	02	Northwestbound	08
Eastbound	03	North-South (2-Way)	09
Southeastbound	04	East-West (2-Way)	10
Southbound	05	Northeast-Southwest (2-Way)	11
Southwestbound	06	Northwest-Southeast (2-Way)	12

TIME ENDING: Cols. 25-28

<u>TIME</u>	<u>HOUR</u>	<u>MIN.</u>
	<u>Cols. 25-26</u>	<u>Cols. 27-28</u>
1:05 AM	01	05
2:13 AM	02	13
etc.		
12:00 Noon	12	00
etc.		
3:15 PM	15	15
etc.		
11:45 PM	23	45
etc.		

Panel and Pickup (2 axle, 4 tire)

Light 2-axle, 4-tire trucks of less than one ton rated capacity, including:

- a. Panel and pickups standard type, including mini-vans (Ford Econoline, Volkswagon, etc.)
- b. Pickup trucks carrying a cab high (sleeper style) camper.

All Other Single Unit Trucks

Heavy 2-axles or more (dual tires or super singles) equal to or greater than one ton rated capacity, including:

- a. All multistop or standup delivery trucks (primarily designed for moving rural and urban goods.)
- b. All large 4-tire trucks with flatbed, dump or other heavy cargo bodies.
- c. Pickups and panels, having heavy truck type hubs or axles, or are noticeably larger and longer than the standard type.
- d. Heavy 2-axle trucks with a higher than cab camper body.
- e. Truck tractor without trailer.

Truck Combinations

Truck and/or truck tractor (power unit) pulling semi-trailer or full trailer combinations.

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APPENDIX "B"

COMPARISON OF 1961 AND 1977 O-D STUDIES

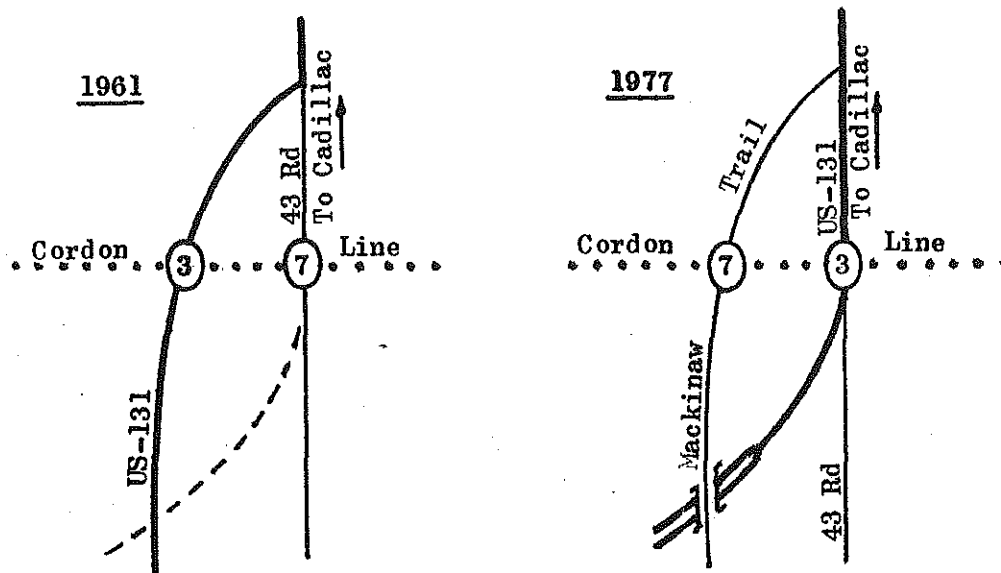
The cordon line for the 1961 and 1977 studies is identical. However, data were collected from two additional stations in 1977.

One of the new stations is on No. 34 Road East (Boon Road). In 1961, traffic volumes were too low to justify a station at this location.

Preliminary counts in 1977 indicated that it should be included in the new survey. It is designated Station 13.

Explaining the other new location is somewhat more difficult due to a reversal in station numbering brought about by a trunkline relocation.

A schematic diagram is shown below for clarification.



As shown in the 1961 sketch, US-131 was then located along what is now known as Mackinaw Trail. The survey station was designated number 3. Station 7 was located on No. 43 Road which was being incorporated into the new US-131 alignment. Since construction was not completed at the time of the 1961 survey, Station 7 was not operated.

In 1977, station numbers 3 and 7 were reversed. This was done so that the state trunkline route (US-131) could retain the same station number, even though the location had slightly changed. It was felt that this change would prevent discrepancies when comparing data from the two surveys. Therefore, Station 7 was changed to 3 and the station on Mackinaw Trail (Old US-131) was remembered Station 7. The reference to No. 43 Road was no longer necessary and was dropped from the survey data.

The 1961 study was conducted during the month of August while the 1977 survey was operated during late June and early July. Following are tables and charts comparing the two sets of data.

CORDON LINE STATIONS

<u>1977 STATION NUMBER</u>	<u>1961 STATION NUMBER</u>	<u>1977 ROUTE</u>	<u>1961 ROUTE DESIGNATION</u>	<u>1961 DESCRIPTION #</u>
1	1	US-131 North	Same	0.3 miles north of No. 34 Road (Boon)
2	2	M-55 East	Same	0.1 miles east of Cadillac East City Limit
3	*7	US-131 South	(No. 43 Rd.)	Not operated under construction
4	4	M-115 South	Same	0.3 miles Southeast of M-55
5	5	M-55 West	Same	0.8 miles west of Northwest Junction M-115
6	6	M-115 North	Same	0.4 miles Northwest of No. 34 Road (Boon)
7	+3	Mackinaw Trail	(US-131 South)	0.3 miles south of No. 43 Road
8	8	Lake Mitchell Drive	Same	0.1 miles southwest of Ann Arbor Railroad
9	9	No. 37 Road	Same	0.3 miles north of No. 34 Road
10	10	No. 45 Road	Same	0.3 miles south of No. 40 1/2 Road
11	11	No. 41 Road	Same	0.5 miles south of M-55
12	12	No. 34 Rd. (Boon) West	Same	0.2 miles west of 33 1/2 Road
13	None	No. 34 Rd. (Boon) East	_____	None

* This station was not operated. It was under construction (US-131 Relocated).

+ This station was US-131 south existing in 1961.

#1977 station descriptions are on page 9.

EXPANDED VEHICLE TRIPS BY STATION

<u>ROUTE</u>	<u>1961</u>	<u>% OF TOTAL</u>	<u>1977</u>	<u>% OF TOTAL</u>	<u>% INCREASE 1961 to 1977</u>
US-131 North	4,082	22.4	5,580	15.4	36.7
M-55 East	2,193	12.1	4,912	13.5	124.0
US-131 South	# 4,030	22.2	+ 5,361	14.8	33.0
M-115 South	1,936	10.6	4,735	13.0	144.6
M-55 West	2,035	11.2	4,272	11.8	109.9
M-115 North	1,887	10.4	4,214	11.6	123.3
Mackinaw Trail	#		+ 2,150	5.9	
Lake Mitchell Drive	474	2.6	852	2.3	79.7
No. 37 Road	367	2.0	728	2.0	98.4
No. 45 Road	544	3.0	821	2.3	50.9
No. 41 Road	383	2.1	456	1.3	19.1
No. 34 Road (Boon) West	251	1.4	565	1.6	125.1
No. 34 Road (Boon) East			1,642	4.5	
	<u>18,182</u>	<u>100.0</u>	<u>36,288</u>	<u>100.0</u>	
* Adjusted	<u>-4,455</u>		<u>-6,508</u>		
Vehicle Trips	13,727	100.0%	29,780	100.0%	116.9%

* A through trip is counted both at the station of entrance and exit. To adjust for this double counting it was necessary to half-factor through trips.

US-131 south and Mackinaw Trail were the same in 1961.

+ Combining these would yield the movement in the US-131 and Mackinaw Trail corridor and when compared to the 1961 US-131-Mackinaw Trail route the results are a 86.4% increase.

TRIP MOVEMENTS
1961 VS 1977

THROUGH TRIPS
4,455
32.5%

THROUGH TRIPS
6,508
21.9%

TERMINAL TRIPS
9,272
67.5%

TERMINAL TRIPS
23,271
78.1%

1961
STUDY

1977
STUDY



LEGEND
..... CORDON

TOTAL TRIPS
13,727
100%

TOTAL TRIPS
29,781
100%