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MICHIGAN DEPARTMENT OF TRANSPORTATION

M-32 SINGLE STATIONS
ORIGIN-DESTINATION SURVEY

OTSEGO COUNTY
- 1978 -

FACTUAL DATA REPORT



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DEPARTMENT OF TRANSPORTATION

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POST OFFICE BOX 30050, LANSING, MICHIGAN 48909

JOHN P. WOODFORD, DIRECTOR

August 1, 1979

Mr. Sam F. Cryderman, Deputy Director
Bureau of Transportation Planning

Dear Mr. Cryderman:

The Multi-Regional Planning Division of the Bureau of Transportation Planning has documented the results of the M-32 Single Stations Origin-Destination Survey conducted in 1978. The purpose of the survey was two-fold. First, it was necessary to determine volumes and patterns of traffic using M-32 through Gaylord. Special emphasis was placed upon truck movements. And secondly, the data will serve as an important update of an earlier survey conducted in 1972.

The report was prepared by Thomas Pickens, Transportation Planner for the North Region Planning Section, Managed by John B. Ouder Kirk.

Sincerely,

Richard J. Lilly, Administrator
Multi-Regional Planning Division

PREFACE

Considerable speculation has recently been made concerning the amount of truck traffic using M-32 through the City of Gaylord. Questions have arisen as to whether this type of commercial traffic could be rerouted to ease the traffic congestion within the city. Others are concerned with the total volume of traffic, the percentage which is trucks, those stopping in Gaylord or those only passing through. In order to answer these and related questions, an origin-destination traffic survey was conducted. This report contains the factual data obtained from the survey.

It should be noted that this report is intended only to present the data developed from the original survey questionnaires. No attempt has been made to speculate, hypothesize nor forecast future conditions. No plans or alternative solutions are proposed. The findings of the survey will, however, be useful to those who do become involved in these activities in attempting to resolve the issues raised.

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TERMINOLOGY AND DEFINITIONS

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

Destination --- The place where a trip ends.

Interview Counts --- 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.

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

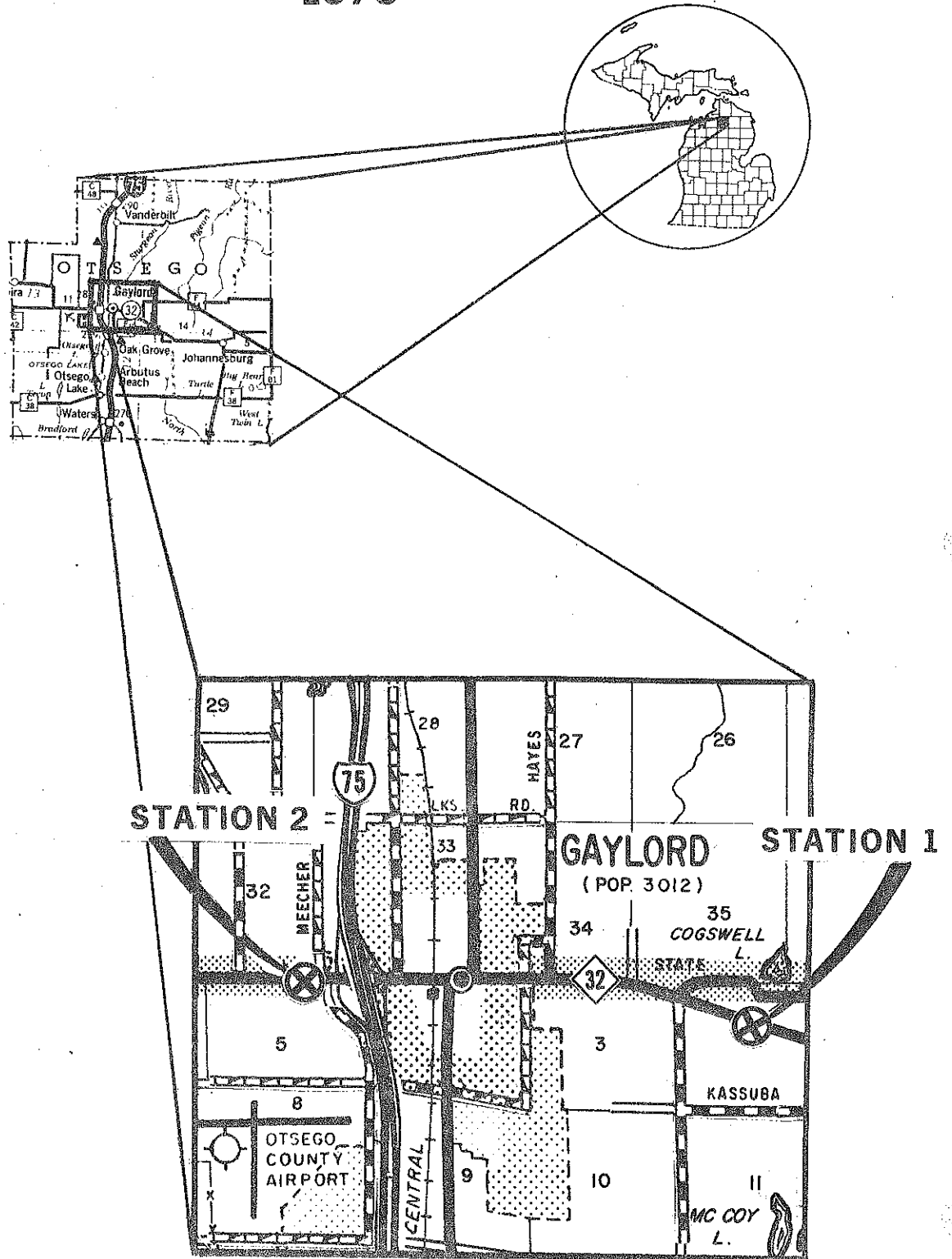
Trip Ends - Each trip has two ends; an origin and a destination.

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.

M-32 SINGLE STATIONS SURVEY LOCATIONS

- 1978 -



STUDY LOCATION

The City of Gaylord is centrally located within Otsego County in northern lower Michigan. (See accompanying map). Being the county seat, it offers many governmental and business services to neighboring communities. Furthermore, having many lakes, streams, and recreational opportunities, it attracts both summer and winter sports enthusiasts from throughout Michigan and surrounding states.

Gaylord is located in one of the fastest growing regions in the state and nation. From 1960-1970, Otsego County experienced about a 38 percent increase in population, with Gaylord reaching 3,012 permanent residents. Some population forecasts predict this northern region to double its population by the year 2000.

Two transstate trunkline highways serve the study area. Interstate 75, running from Florida to Sault Ste. Marie in Michigan's Upper Peninsula, is of course the major of the two. East-west service is primarily provided by M-32, a two-lane trunkline which extends from Alpena to Charlevoix. These two state highways intersect at Gaylord.

FIELD PROCEDURE

Two interview stations were established on M-32. Station 1 was located 1.4 miles east of the east city limits of Gaylord. Station 2 was located 0.3 miles west of the west city limits.

Traffic information was obtained at the stations during May and July of 1978. Interviews and some classification counts were taken from May 22 to May 25 (Monday-Thursday).

Interviews were conducted between the hours of 6:00 am and 8:00 pm. Both inbound and outbound vehicles were surveyed. Vehicles were stopped and drivers interviewed regarding the origin, destination and purpose of their trip.

Manual Classification Counts were taken in conjunction with the interviews during those hours of station operation. For the remainder of the 24-hour period (8:00 pm to 6:00 am) classification counts were obtained on July 12 and July 13 (Wednesday and Thursday).

A sample copy of the interview form and the classification count form are shown in the Appendix.

STATION 1
VEHICLE TYPE AND TRIP PURPOSE

ALL VEHICLES

<u>Vehicle type</u>	<u>Vehicles</u>	<u>Percent of Total</u>	<u>Terminal</u>	<u>%</u>	<u>Through</u>	<u>%</u>
Passenger Car	1,858	64.5	1,464	78.8	394	21.2
Passenger Car with Trailer	20	0.7	6	30.0	14	70.0
Panel or Pickup	634	22.0	483	76.2	151	23.8
Panel or Pickup with Trailer	18	0.6	4	22.2	14	77.8
Other Single Unit Trucks	224	7.8	144	64.3	80	35.7
Combinations and Trucks with Trailers	127	4.4	40	31.5	87	68.5
TOTAL	2,881	100.0	2,141	74.3	740	25.7

Handwritten notes: 351 } (bracketing 224 and 127), 12.2% } (bracketing 7.8 and 4.4)

<u>Trip Purpose</u>	<u>Vehicles</u>	<u>Percent of Total</u>	<u>Terminal</u>	<u>%</u>	<u>Through</u>	<u>%</u>
Work	1,386	48.1	993	71.6	393	28.4
Personal Business	182	6.3	135	74.2	47	25.8
Shopping	329	11.4	317	96.4	12	3.6
Vacation	100	3.5	51	51.0	49	49.0
Other Soc. or Rec.	528	18.3	367	69.5	161	30.5
All Other	356	12.4	278	78.1	78	21.9
TOTAL	2,881	100.0	2,141	74.3	740	25.7

STATION 1
TRIP LENGTHS - ALL VEHICLES

<u>MINUTES</u>	<u>NO. OF TRIPS</u>	<u>PERCENT OF TOTAL</u>
01-10	1,471	51.1
10-20	82	2.8
20-30	104	3.6
30-40	6	0.2
40-50	28	1.0
50-60	466	16.2
60-80	53	1.8
80-100	281	9.8
100-120	45	1.6
120-150	125	4.3
150-180	44	1.5
180-300	126	4.4
300-540	50	1.7
TOTAL	2,881	100.0

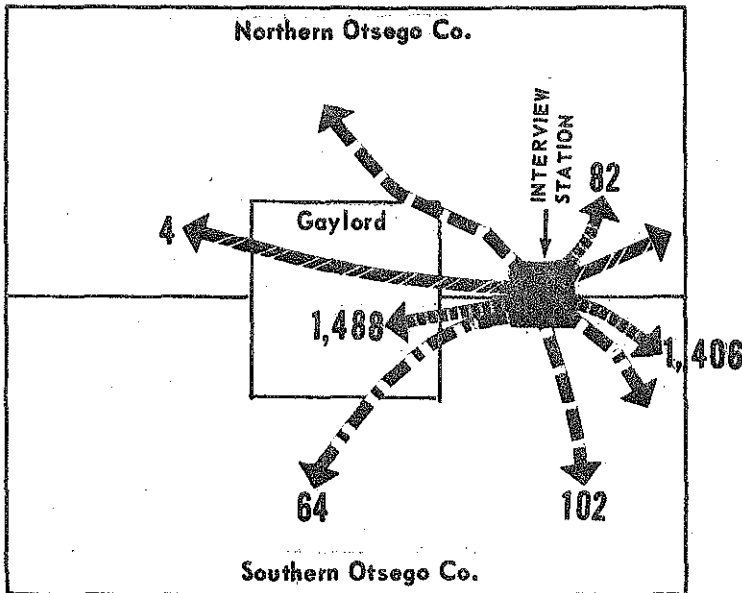
* Longest Trip = 9 Hrs. Average Trip Length = 51 Min.

* Median Trip Length = 0-10 Min.

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

STATION 1 ALL VEHICLES

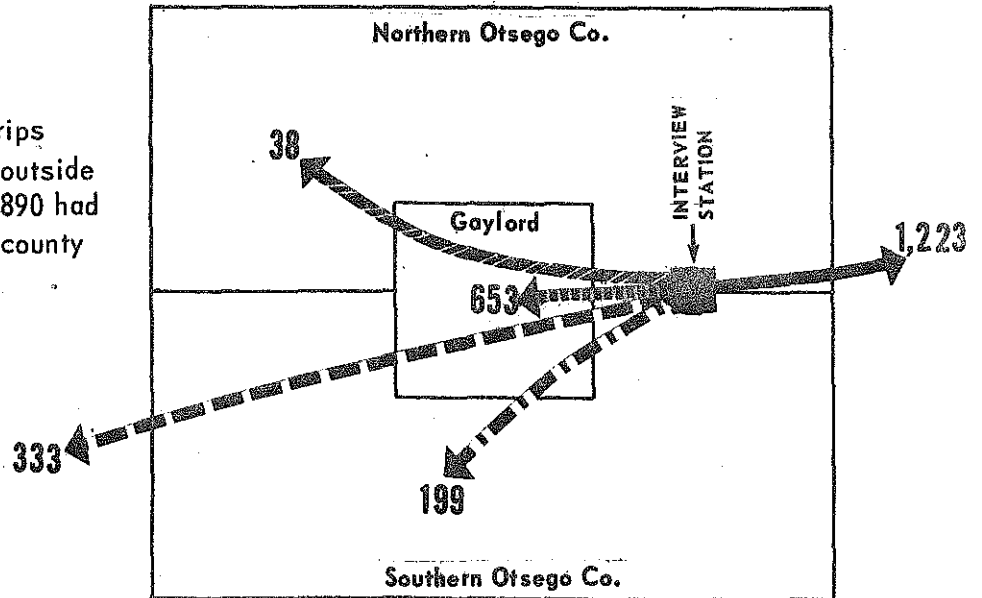
INTRA-COUNTY TRIPS



Note: There were 1,658 trips with both origin and destination in Otsego County.*

EXTERNAL TRIPS

Note: There were 1,223 trips with at least one trip end outside Otsego County. Of these, 890 had their other trip end in the county and 333 passed through.*



* Some or all of these trips may have passed through Gaylord enroute to their destination.

STATION 1
TRIP LENGTHS OF
TRUCKS ONLY *

<u>MINUTES</u>	<u>NO. OF TRIPS</u>	<u>PERCENT OF TOTAL</u>
01-10	111	31.6
10-20	7	2.0
20-30	53	15.1
30-40	2	0.6
40-50	6	1.7
50-60	45	12.8
60-80	14	4.0
80-100	35	10.0
100-120	14	4.0
120-150	30	8.5
150-180	3	0.9
180-300	26	7.4
300-410	5	1.4
	351	100.0
TOTAL		

Longest Trip = 6 Hrs. 50 Mins. Average Trip Length = 1 Hr. 6 Min.

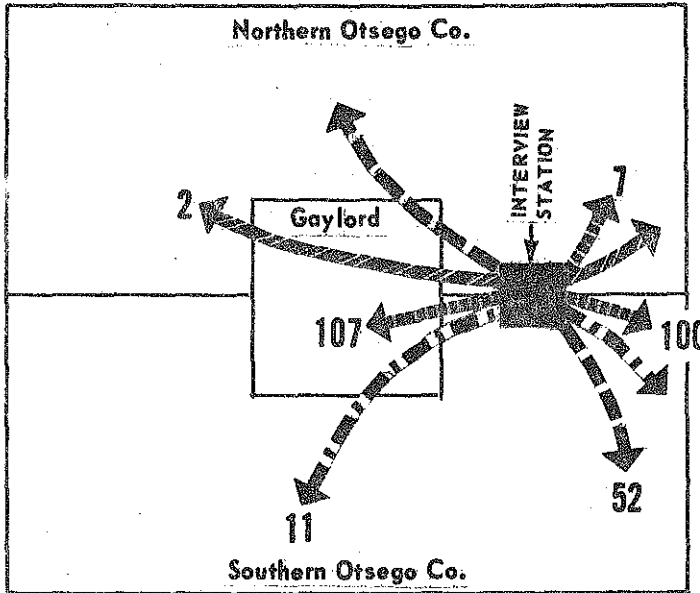
Median Trip Length = 40-50 Min. (Due to the convention of the computer program, these values can be approximated only in 10 minute intervals.

* Does not include panel or pickup trucks, but all other single unit trucks or combinations and trucks with trailers are included.

STATION 1 TRUCKS ONLY

(Does not include panel or pickup trucks)

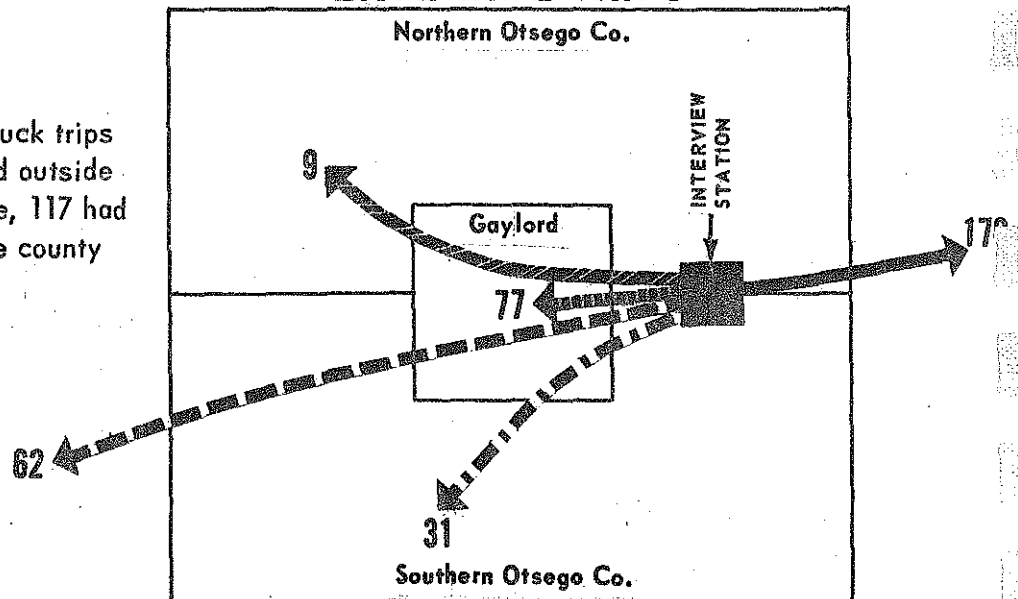
INTRA-COUNTY TRIPS



Note: There were 172 truck trips with both origin and destination in Otsego County.*

EXTERNAL TRIPS

Note: There were 179 truck trips with at least one trip end outside Otsego County. Of these, 117 had their other trip end in the county and 62 passed through.*

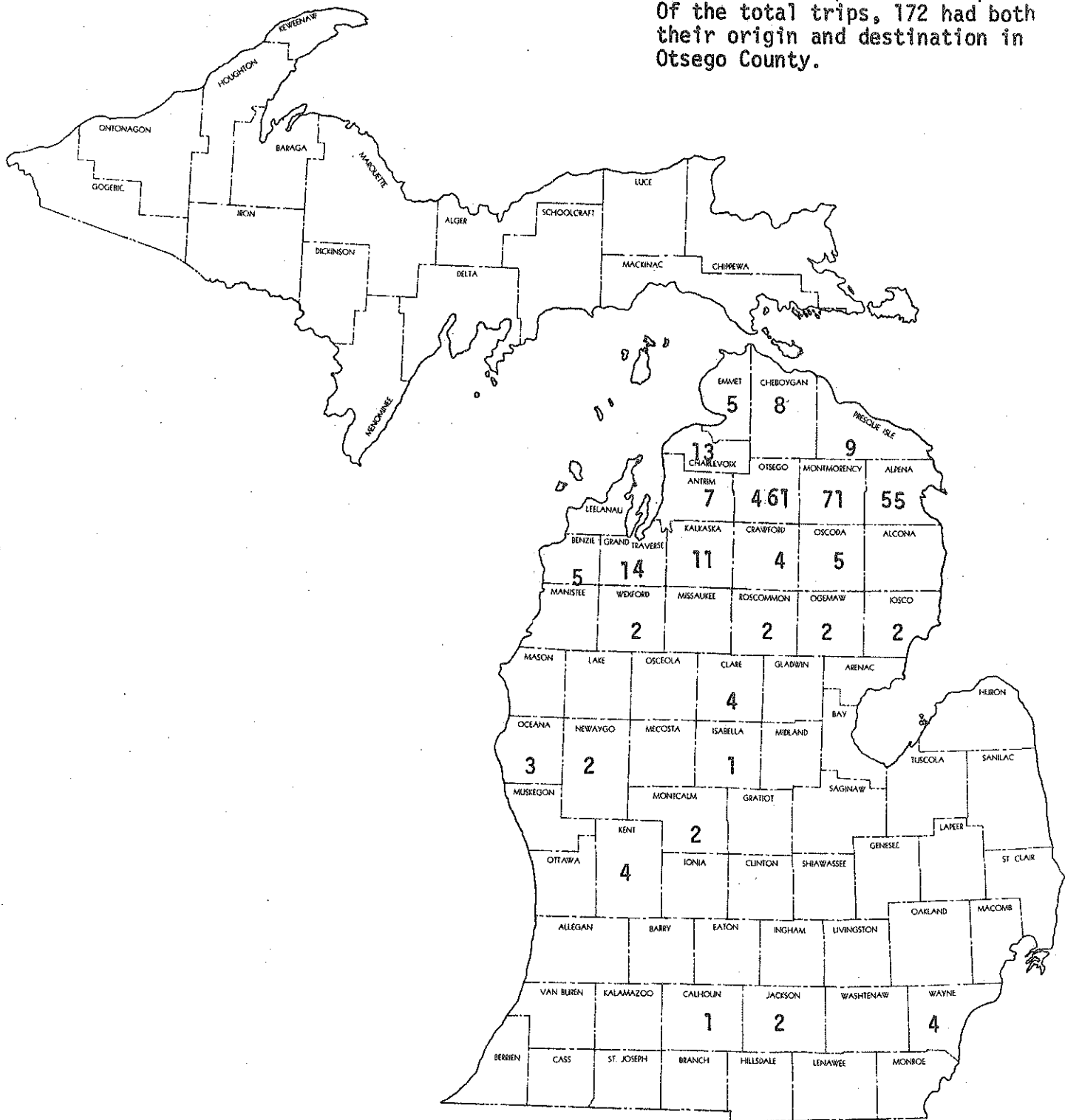


* Some or all of these trips may have passed through Gaylord enroute to their destination.

STATION 1

TRIP END SUMMARY
TRUCKS ONLY *

Total: 351 trips = 702 trip ends.
 Of the total trips, 172 had both
 their origin and destination in
 Otsego County.



Indiana - 2

Ohio - 1

* Does not include panel or pickup trucks, but all other single unit trucks or combinations and trucks with trailers are included.

STATION 2
VEHICLE TYPE AND TRIP PURPOSE

ALL VEHICLES

<u>Vehicle type</u>	<u>Vehicles</u>	<u>Percent of Total</u>	<u>Terminal</u>	<u>%</u>	<u>Through</u>	<u>%</u>
Passenger Car	4,152	69.6	2,998	72.2	1,154	27.8
Passenger Car with Trailer	43	0.7	16	37.2	27	62.8
Panel or Pickup	1,138	19.1	865	76.0	273	24.0
Panel or Pickup with Trailer	50	0.8	26	52.0	24	48.0
Other Single Unit Trucks	338	5.7	234	69.2	104	30.8
Combinations and Trucks with Trailers	245	4.1	105	42.9	140	57.1
TOTAL	5,966	100.0	4,244	71.1	1,722	28.9

<u>Trip Purpose</u>	<u>Vehicles</u>	<u>Percent of Total</u>	<u>Terminal</u>	<u>%</u>	<u>Through</u>	<u>%</u>
Work	2,623	44.0	1,962	74.8	661	25.2
Personal Business	395	6.6	256	64.8	139	35.2
Shopping	670	11.2	627	93.6	43	6.4
Vacation	274	4.6	120	43.8	154	56.2
Other Soc. or Rec.	1,443	24.2	857	59.4	586	40.6
All Other	561	9.4	422	75.2	139	24.8
TOTAL	5,966	100.0	4,244	71.1	1,722	28.9

STATION 2
TRIP LENGTHS - ALL VEHICLES

<u>MINUTES</u>	<u>NO. OF TRIPS</u>	<u>PERCENT OF TOTAL</u>
01-10	633	10.6
10-20	1,939	32.5
20-30	120	2.0
30-40	421	7.1
40-50	586	9.8
50-60	377	6.3
60-80	260	4.4
80-100	378	6.3
100-120	133	2.2
120-150	166	2.8
150-180	138	2.3
180-300	510	8.6
300-420	305	5.1
	5,966	100.0
TOTAL		

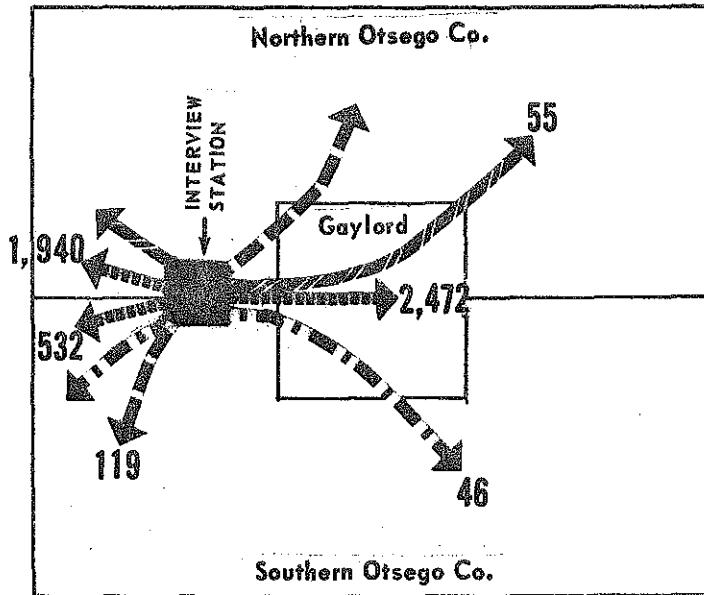
* Longest Trip = 14 Hrs. 50 Min. Average Trip Length = 1 Hr. 17 Min.

* 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 2 ALL VEHICLES

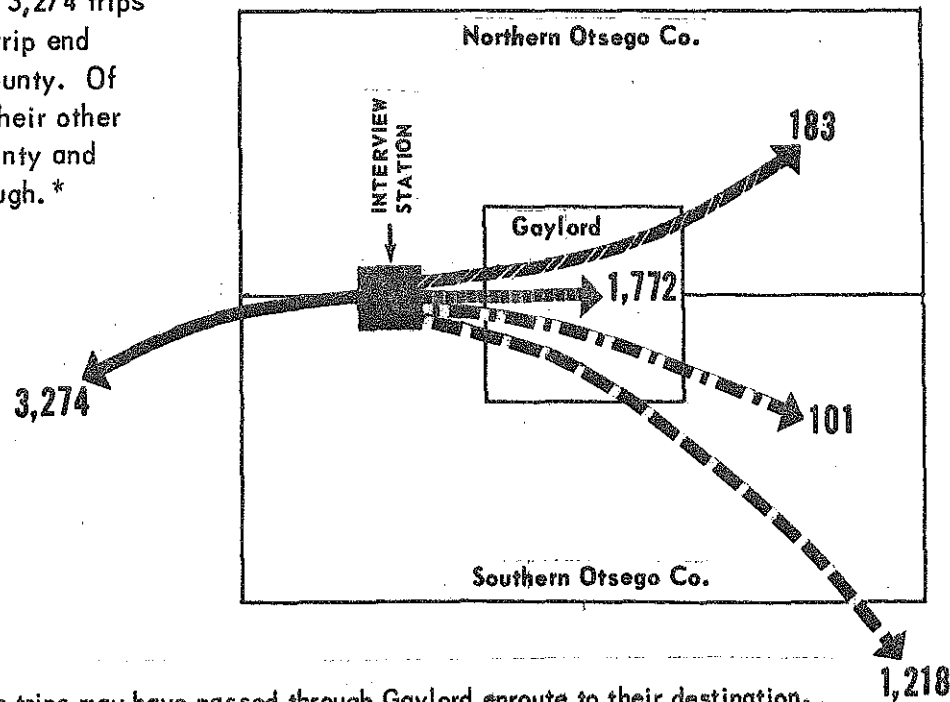
INTRA-COUNTY TRIPS



Note: There were 2,692 trips with both origin and destination in Otsego County.*

Note: There were 3,274 trips with at least one trip end outside Otsego County. Of these, 2,056 had their other trip end in the county and 1,218 passed through.*

EXTERNAL TRIPS

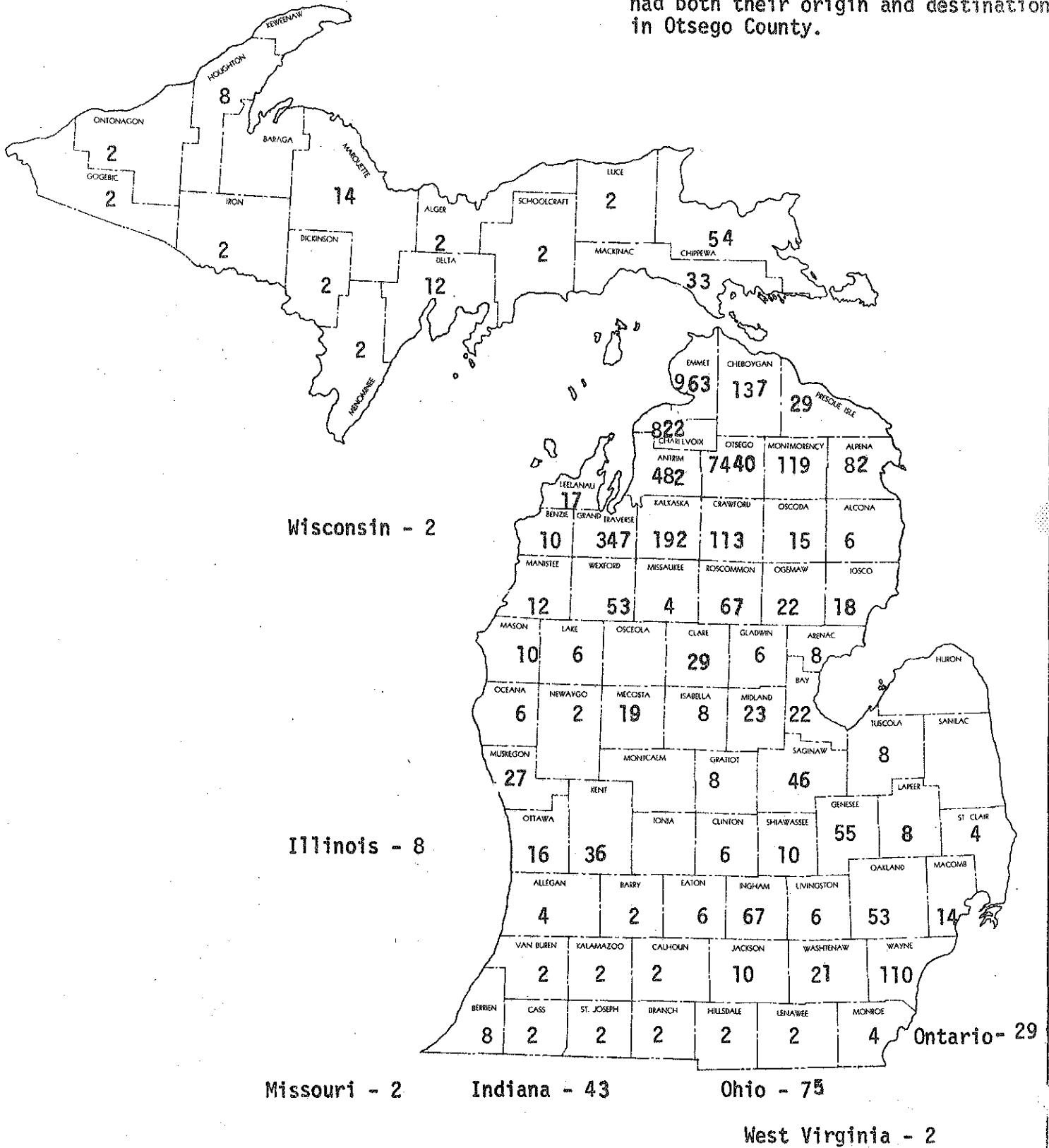


* Some or all of these trips may have passed through Gaylord enroute to their destination.

STATION 2
TRIP END SUMMARY

ALL VEHICLES

Total: 5,966 trips = 11,932 trip ends. Of the total trips, 2,692 had both their origin and destination in Otsego County.



STATION 2
TRIP LENGTHS OF TRUCKS ONLY *

<u>MINUTES</u>	<u>NO. OF TRIPS</u>	<u>PERCENT OF TOTAL</u>
01-10	26	4.4
10-20	106	18.2
20-30	26	4.4
30-40	46	7.9
40-50	53	9.1
50-60	61	10.5
60-80	28	4.8
80-100	46	7.9
100-120	29	5.0
120-150	31	5.3
150-180	25	4.3
180-300	81	13.9
300-630	25	4.3
TOTAL	583	100.0

Longest Trip = 10 Hrs. 30 Min. Average Trip Length = 1 Hr. 37 Min.

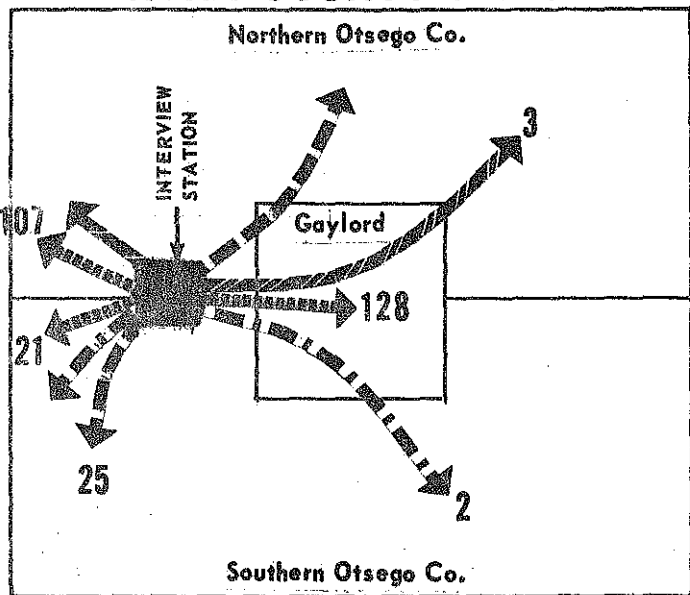
Median Trip Length = 50 - 60 Min. (Due to the convention of the computer program, these values can be approximated only in 10 minute intervals.

* Does not include panel or pickup trucks, but all other single unit trucks or combinations and trucks with trailers are included.

STATION 2 TRUCKS ONLY

(Does not include panel or pickup trucks)

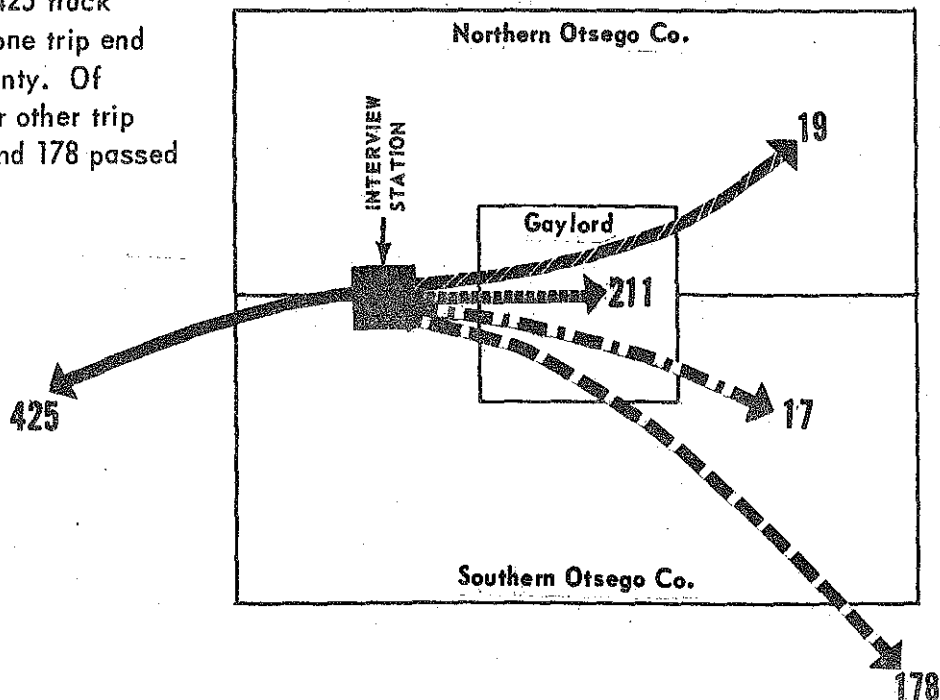
INTRA-COUNTY TRIPS



Note: There were 158 truck trips with both origin and destination in Otsego County.*

Note: There were 425 truck trips with at least one trip end outside Otsego County. Of these, 247 had their other trip end in the county and 178 passed through.*

EXTERNAL TRIPS



* Some or all of these trips may have passed through Gaylord enroute to their destination.

APPENDIX

STATE OF MICHIGAN
DEPARTMENT OF STATE HIGHWAYS
AND TRANSPORTATION
Form 1757 (4/74)

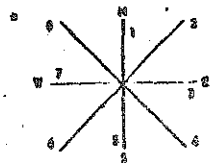
SINGLE STATION RURAL O-D STUDY

STA. LOCATION AND NUMBER

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?																	DESTINATION Where will this trip end?																	WHERE IS VEHICLE GARAGED			R. PICK-UP OR		ROUTE OF EXIT OR ENT.										
			Co. or State																	Co. or State																	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	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	66	67	68

-21-

- VEHICLE TYPE**
- 1 PASSENGER CAR WITHOUT A TRAILER
 - 2 PASSENGER CAR WITH A TRAILER
 - 3 PANEL OR PICK-UP WITHOUT A TRAILER
 - 4 PANEL OR PICK-UP WITH A TRAILER
 - 5 OTHER SINGLE UNIT TRUCKS
 - 6 COMBINATIONS & TRUCKS WITH TRAILERS



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

- GARAGED**
- 1 ORIGIN
 - 2 DESTINATION
 - 3 OTHER

- TRIP PURPOSE**
- 1 WORK
 - 2 PERS. BUSINESS
 - 3 SHOPPING
 - 4 VACATION
 - 5 OTHER SOC. OR REC.
 - 6 ALL OTHER

DAY OF WEEK: Col. 17

STATION TYPE: Col. 20

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

TRUCK IDENTIFICATION

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-axes 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.

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

TIME	HOUR		MIN.
	Cols. 25 - 26		
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.			