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EXTERNAL ORIGIN - DESTINATION STUDY

FACTUAL DATA REPORT

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**Transportation Planning Division
Transportation Survey and Analysis Section
Michigan Department of State Highways**

65-7649

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HENRIK E. STAFSETH, DIRECTOR

January 15, 1971

Mr. Sam F. Cryderman
Engineer of Transportation Planning
Transportation Planning Division
Michigan Department of State Highways
Lansing, Michigan 48904

Dear Mr. Cryderman:

This presents the "Factual Data and Trip Tables" report for the 1969 Fremont Area Transportation Study External Survey. This publication fulfills a requirement of the Federal Highway Administration.

The purpose of this report is to summarize the base year data obtained from the Origin-Destination survey including trip tables.

This report was prepared by the following Transportation Analysts of the Northwest Michigan Analysis Unit of the Transportation Survey and Analysis Section: Phillip Lamb, David Jewison. Their Supervisor is Leo Farman.

Sincerely,

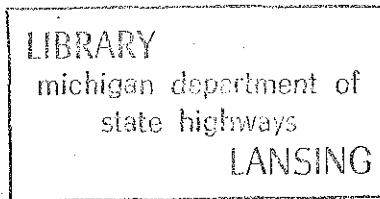
K.E. Bushnell

K. E. Bushnell, Engineer
Transportation Survey & Analysis

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MICHIGAN DEPARTMENT OF STATE HIGHWAYS



FACTUAL DATA REPORT

Fremont Area
Transportation Study
External Survey

Cooperating Agencies:

City of Fremont
Newaygo County Road Commission
U.S. Department of Transportation,
Federal Highway Administration

Prepared By:

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1970

PREFACE

During the months of July and August 1969, the Transportation Planning Division of the Department of State Highways conducted an external origin and destination survey at Fremont, Michigan. Its purpose is to determine the traffic patterns in Fremont as a sound basis for planning the efficient traffic arteries needed in the future.

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

TABLE OF CONTENTS

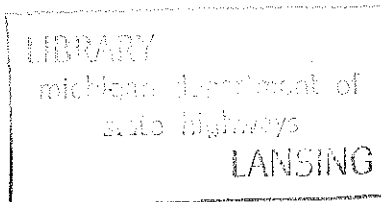
	<u>Page</u>
Preface	i
History	1
Survey Area	3
Field Procedure	5
Terminology and Definitions	6
Traffic Volumes	7
Summary	9
Total Traffic	9
Automobile and Truck Traffic	10
External Station Traffic by High One-Hour, Two-Hour and Three-Hour Periods	11
Trip Movements	12
Passenger Car Occupancy	14
Comparison of Fremont Traffic with Other Michigan Communities	16
Total Traffic and Through Traffic Interchange	17
Total Auto Traffic and Auto Through Traffic Interchange	20
Total Single Unit Truck Traffic and Single Unit Truck Through Traffic Interchange	23
Total Trailer Combination Truck Traffic and Trailer Combination Truck Through Traffic Interchange	26
Terminal Traffic Distribution - by Internal Zone and Station of Total Driver Trips	29
Terminal Traffic Distribution - by Internal Zone and Station of Auto Driver Trips	39
Terminal Traffic Distribution - by Internal Zone and Station of Single Unit Truck Trips	42
Terminal Traffic Distribution - by Internal Zone and Station of Trailer Combination Truck Trips	45

Table of Contents (cont'd.)

	<u>Page</u>
Station 1 (Stone Road north) Through and Terminal Traffic by Vehicle Type and Trip Purpose . . .	47
Station 2 (M-20 east) Through and Terminal Traffic by Vehicle Type and Trip Purpose	52
Station 3 (M-82 south) Through and Terminal Traffic by Vehicle Type and Trip Purpose	57
Station 4 (M-20/M-82 west) Through and Terminal Traffic by Vehicle Type and Trip Purpose . . .	62
Station 5 (Osborn Avenue) Through and Terminal Traffic by Vehicle Type and Trip Purpose . . .	67
Station 6 (Ramshorn Drive) Through and Terminal Traffic by Vehicle Type and Trip Purpose . . .	69
Station 7 (Lake Drive) Through and Terminal Traffic by Vehicle Type and Trip Purpose	71
External Terminals	76

APPENDIX

	<u>App.</u>
Appendix A - Interview Forms	1
Interview Form-Inbound	2
Interview Form-Outbound	3
Appendix B - Trip Tables	4
S-1 Total Trips by Passenger Car, Truck, and Taxi . .	5
S-2 Total Trips by Combination Truck Drivers	14
S-3 Total Trips by Single Unit Truck Drivers	23
S-4 Total Trips by Passenger Car and Taxi	32
Single Zone Trip Table by Destination Purpose	42



DIAGRAMS

<u>Diagram</u>	<u>Page</u>
1 Zone Base Map	4
2 Traffic Volume Map	8
3 Through Traffic Interchange-Total Driver Trips.	19
4 Through Traffic Interchange-Auto Driver Trips .	22
5 Through Traffic Interchange- Single Unit Truck Driver Trips	25
6 Through Traffic Interchange- Trailer Combination Truck Driver Trips .	28
7 Terminal Traffic Between Stone, South of 38th and Internal Zones of Attraction	32
8 Terminal Traffic Between Main(M-20) West of Luce and Internal Zones of Attraction .	33
9 Terminal Traffic Between Stewart(M-82), South of 56th & Internal Zones of Attraction .	34
10 Terminal Traffic Between Main(M-20,M-82) E. of Green & Internal Zones of Attraction . .	35
11 Terminal Traffic Between Osborn (Weaver), North of 44th & Internal Zones of Attraction .	36
12 Terminal Traffic Between Ramshorn (Darling) S. of 38th & Internal Zones of Attraction .	37
13 Terminal Traffic Between Lake Dr. East of Green and Internal Zones of Attraction	38
14 External Terminals of Traffic Through Station 1 Outside the 9 County Area	77
15 External Terminals of Traffic Through Station 2 Outside the 9 County Area	78
16 External Terminals of Traffic Through Station 3 Outside the 9 County Area	79

DIAGRAMS (cont'd.)

<u>Diagram</u>		<u>Page</u>
17	External Terminals of Traffic Through Station 4 Outside the 9 County Area	80
18	External Terminals of Traffic Through Station 7 Outside the 9 County Area	81
19	External Terminals of Traffic Through Station 1 Within the 9 County Area	83
20	External Terminals of Traffic Through Station 2 Within the 9 County Area	84
21	External Terminals of Traffic Through Station 3 Within the 9 County Area	85
22	External Terminals of Traffic Through Station 4 Within the 9 County Area	86
23	External Terminals of Traffic Through Station 5 Within the 9 County Area	87
24	External Terminals of Traffic Through Station 6 Within the 9 County Area	88
25	External Terminals of Traffic Through Station 7 Within the 9 County Area	89

HISTORY

Fremont was incorporated in the mid-nineteenth century. By 1880 it had a population of 902 persons. The population of the rest of the County was 13,868. Fremont was a trade center for the major logging industry and the newly created farming areas. A tannery started in 1874 by Dan Gerber was the town's principal industry. The community was served by a railroad which ran between Muskegon and Big Rapids.

By 1890 the City boasted a public water system and a new stone paving was installed on Main Street. By 1900 the City had an electric light plant and a telephone system connected to Grand Rapids.

With the planting of orchards and other crops on cleared land by area farmers, the citizens of Fremont invested in their local industry, creating the Fremont Canning Company. By 1910 the City had a new high school and a public sanitary sewer system. Cement curbs and sidewalks were added on Main Street. The canning company proved a major success and began purchasing and running farms to produce quality crops and to study ways to improve yields. By 1920 the City had a public hospital, a library, and a new City Hall. Dan Gerber, son of the cannery founder, pioneered the developemnt of cooked and strained foods for babies during this period

and in 1926 the company began marketing baby food nationally. During the 1940's, Gerber Products began decentralizing its operations to other parts of the county to meet national market demands.

In 1955 the City constructed a new firehouse and substantial modern facilities were added to the Memorial Hospital. The same year saw the beginning of the Ramshorn Country Club on Second and Third Lakes.

During the latter part of the 1950's, Gerber Products decided to move its research center to Fremont. In 1960, Gerber Products constructed and staffed a new research building.

Fremont is served by two secondary State Highways, M-20 which goes along Main Street, and M-82 which is located on south Stewart Avenue and joins M-20 along west Main Street. Fremont also has an airport located southwest of the City.

SURVEY AREA

Fremont is a city of 4,025 people, located in Newaygo County in the west central part of Michigan's Lower Peninsula. Population within the entire survey area is estimated at 4,888. This area is composed of the city of Fremont, part of Fremont Lake and parts of Dayton and Sheridan townships. The entire study area covers approximately 7.1 square miles.

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FIELD PROCEDURE

Field work on the Fremont Traffic Study was conducted during the months of July and August, 1969. The purpose was to accumulate data concerning the movement of people and goods by motor vehicle through, into and out of the study area.

Data for the study of external trips was obtained on a cordon at seven interview stations established on all of the important roads leading into the study area. At each of these stations, vehicles were stopped and the drivers interviewed concerning the origin, destination and purpose of their trips. Manual vehicle classification counts were taken at the seven stations for twenty-four hours.

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

TERMINOLOGY AND DEFINITIONS

Central Business District (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, Terminal 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.
Non-Resident:	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 dominate land use, designated for purposes of tabulation and analysis.
Resident:	A person living within the study area.
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.

TRAFFIC VOLUMES

Many factors are responsible for the patterns of traffic within a community. Such items as land use, street width, type and condition of street surface, parking restrictions, one or two way operation and signalization attract traffic to certain routes.

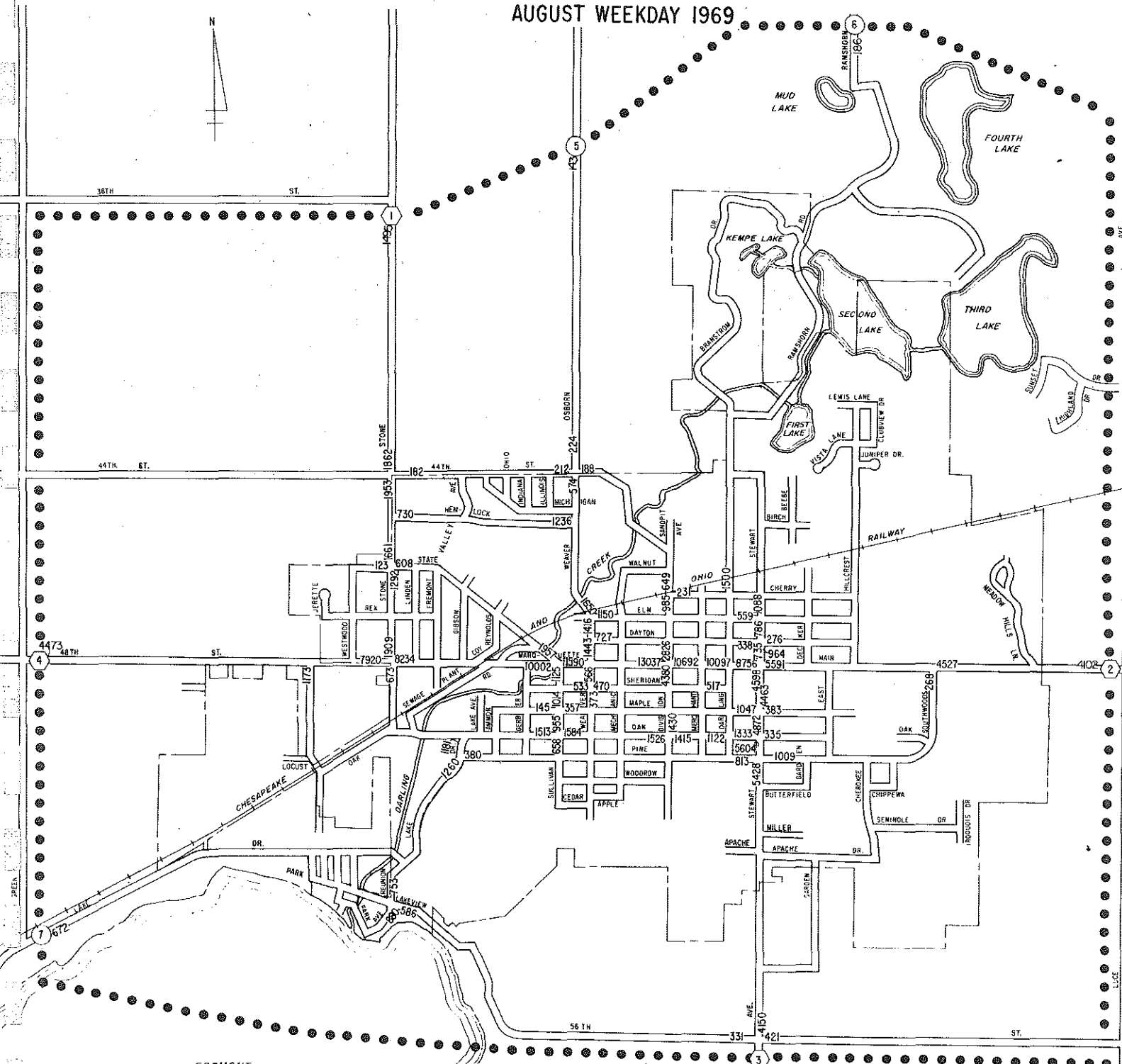
The majority of motorists in the Fremont Area voluntarily confine their travel to a small number of streets. These are: Stewart Avenue (M-82), Main Street (M-20, M-82), Stone Road, Lake Drive, Weaver (Osborn), Darling (Ramshorn), Hemlock, Division, Sullivan, Maple, Oak, Pine, Sheridan, Dayton, Elm, and State.

Traffic volumes on these thoroughfares are in most cases small in the peripheral areas, gradually increasing as these routes converge upon the central area, and reaching their maximum in the Fremont central business district. The highest traffic volume in the city (13,037 vehicles, August weekday) occurred on Main Street (M-20, M-82) West of Division.

The map on the following page shows the traffic volumes on the various streets for an August weekday in 1969.

FREMONT EXTERNAL O & D STUDY

TRAFFIC VOLUME MAP
AUGUST WEEKDAY 1969



- LEGEND
- ③ 24 HOUR STATIONS
 - ⑦ 14 HOUR STATIONS
 - CORDON LINE
- 3411 TRAFFIC VOLUME

Diagram No. 2

SUMMARY

Total Traffic

On an average July and August weekday in 1969, approximately 14,506 vehicles passed the seven inter-view stations located on the federal aid primary and secondary highways serving Fremont. Of the 14,506 vehicles, 12,010 (82.8%) traveled on the state highways.

The traffic volume at each station is as follows:

<u>Station</u>	<u>Location</u>	<u>Traffic</u>	<u>Percent of Total</u>
1	Stone Road, South of 38th St.	1,495	10.3
2	Main St. (M-20), West of Luce Avenue	4,102	28.3
3	Stewart Ave. (M-82), South of 56th Street	3,435	23.7
4	Main St. (M-20, M-82), East of Green Avenue	4,473	30.8
5	Osborn Ave. (Weaver Ave.), North of 44th Street	143	1.0
6	Ramshorn Dr. (Darling Ave.), South of 38th Street	186	1.3
7	Lake Dr., East of Green Ave.	672	4.6
Total All Stations		14,506	100.0

AUTOMOBILE AND TRUCK TRAFFIC

Automobiles account for 11,721 vehicles or 80.8 percent of the total traffic. The remaining 2,785 vehicles are trucks of which 2,493, or 17.2 percent of the total traffic, are single unit trucks.

The traffic volume by vehicle type at each station is listed below:

<u>Location</u>	<u>Station</u>	<u>Trucks</u>					
		<u>Auto & Taxi Veh.</u>	<u>%</u>	<u>Single Unit Veh.</u>	<u>%</u>	<u>Trailer Comb. Veh.</u>	<u>%</u>
Stone Road	1	1,211	81.0	274	18.3	10	0.7
Main St. (M-20 East)	2	3,423	83.5	642	15.6	37	0.9
Stewart Ave. (M-82 South)	3	2,714	79.0	619	18.0	102	3.0
Main St. (M-20, M-82 West)	4	3,521	78.7	813	18.2	139	3.1
Osborn Ave. (Weaver Ave.)	5	112	78.3	30	21.0	1	0.7
Ramshorn Dr. (Darling Ave.)	6	158	84.9	28	15.1	0	0.0
Lake Dr.	7	582	86.6	87	12.9	3	0.5
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Total All Stations		11,721	80.8	2,493	17.2	292	2.0

EXTERNAL STATION TRAFFIC

By

High One-Hour, Two-Hour and Three-Hour Periods

Sta. No.	<u>One-Hour</u>			<u>Two-Hour</u>			<u>Three-Hour</u>		
	<u>Time</u>	<u>Volume</u>	<u>%</u>	<u>Time</u>	<u>Volume</u>	<u>%</u>	<u>Time</u>	<u>Volume</u>	<u>%</u>
1	4-5P	144	9.4	3-5P	267	17.3	2-5P	385	25.0
2	4-5P	377	9.1	3-5P	689	16.7	3-6P	980	23.7
3	4-5P	276	8.1	3-5P	502	14.7	2-5P	722	21.2
4	4-5P	396	8.9	3-5P	746	16.9	3-6P	1,073	24.2
5	4-5P	23	15.2	4-6P	34	22.5	3-6P	41	27.2
6	7-8P	19	9.6	6-8P	36	18.2	5-8P	50	25.3
7	8-9P	67	9.6	4-6P	119	17.1	4-7P	166	23.9

The above table summarizes the traffic movement at each external station during the high one-hour, two-hour and three-hour periods. For each period, the table shows the traffic volume, its percentage of the station total and time of occurrence. The largest external traffic movement for all stations combined (3,364 vehicles or 23.1%) occurred during the afternoon between 3:00 P.M. and 6:00 P.M. The highest one-hour period for all stations (1,287 vehicles or 8.8%) was from 4:00 P.M. - 5:00 P.M. The highest two-hour period for all stations (2,355 vehicles or 16.2%) occurred during the afternoon between 3:00 P.M. and 5:00 P.M.

TRIP MOVEMENTS

The following tables are a consolidation of the through and terminal traffic by vehicle type and by trip purpose. Of the total number of trips made, 1,673 (13.0%) were through trips and 11,160 (87.0%) were terminal trips. A through vehicle is counted twice. It is counted at both its entering and departing stations.

The table shows that more than 8 out of 10 vehicles were autos. Approximately 5 out of 10 through trips were made for the purpose of social-recreation. More than 4 out of 10 terminal trips (5,068 trips) were made for the purpose of work. Work and social-recreation accounted for 75.5 percent of the total traffic movement. All trips not listed under work, business, or shopping, that were made for other purposes are included under social-recreation.

THROUGH AND TERMINAL TRAFFIC

By

Vehicle Type

Vehicle Type	<u>Through Traffic</u>		<u>Terminal Traffic</u>		<u>Total Traffic</u>	
	<u>Number of Trips</u>	<u>Percent</u>	<u>Number of Trips</u>	<u>Percent</u>	<u>Number of Trips</u>	<u>Percent</u>
Auto	1,321	79.0	9,079	81.3	10,400	81.0
Single Unit Truck	310	18.5	1,873	16.8	2,183	17.0
Trailer Comb. Truck	42	2.5	208	1.9	250	2.0
Totals	1,673	100.0	11,160	100.0	12,833	100.0
Percent of Totals	13.0		87.0		100.0	

THROUGH AND TERMINAL TRAFFIC

By

Trip Purpose

Trip Purpose	<u>Number of Trips</u>		<u>Number of Trips</u>		<u>Number of Trips</u>	
	<u>Trips</u>	<u>Percent</u>	<u>Trips</u>	<u>Percent</u>	<u>Trips</u>	<u>Percent</u>
Work	683	40.8	5,068	45.4	5,751	44.8
Business	75	4.5	1,081	9.7	1,156	9.0
Shopping	68	4.1	1,923	17.2	1,991	15.5
Social- Recreation	847	50.6	3,088	27.7	3,935	30.7
Totals	1,673	100.0	11,160	100.0	12,833	100.0
Percent of Totals	13.0		87.0		100.0	

PASSENGER CAR OCCUPANCY

Separate tabulations were made for vehicles owned inside the study area and those owned outside the area. The first table shows the average occupancy of passenger cars owned by area residents making trips that crossed the cordon line. The second table shows the average occupancy of passenger cars owned by non-residents and garaged outside the study area making trips that crossed the cordon line. The tabulations use the driver's trip purpose and includes him in the occupancy count.

More than half of all person travel is accounted for by the driver of the car. Of the principal purpose categories, social-recreation had the greatest number of passengers. This is expected since social-recreation is most often a family oriented activity. The average auto occupancy rate for vehicles owned outside the area is almost the same as for vehicles owned inside the area.

PASSENGER CAR OCCUPANCY TABLE

VEHICLES OWNED INSIDE THE AREA

<u>To-Purpose of Trip</u>	<u>Number of Vehicles</u>	<u>% of Vehicles</u>	<u>Number of Occupants</u>	<u>Average Occupants</u>
Work	847	35.1	1,203	1.42
Business	142	5.9	291	2.05
Shopping	200	8.3	458	2.29
Social-Rec.	<u>1,223</u>	<u>50.7</u>	<u>2,911</u>	<u>2.38</u>
Sub-Total	2,412	100.0	4,863	2.02

VEHICLES OWNED OUTSIDE THE AREA

Work	3,091	38.7	4,204	1.36
Business	911	11.4	1,840	2.02
Shopping	1,582	19.8	3,560	2.25
Social-Rec.	<u>2,404</u>	<u>30.1</u>	<u>6,101</u>	<u>2.54</u>
Sub-Total	7,988	100.0	15,705	1.97

	2,412	23.2	4,863	2.02
	<u>7,988</u>	<u>76.8</u>	<u>15,705</u>	<u>1.97</u>
TOTAL	10,400	100.0	20,568	1.98

COMPARISON OF FREMONT TRAFFIC
WITH OTHER MICHIGAN COMMUNITIES

DATA COMPARED	CITIES		
	<u>Big Rapids</u>	<u>Fremont</u>	<u>Petoskey</u>
Month and Year of Survey	July, 1968	July & Aug., 1969	July, 1967
Population Year of Survey	15,800	4,880	7,430
Total Trips Per Day	16,176	12,833	18,775
Trips Per Person Population	1.02	2.63	2.53
Terminal Trips Per Day	12,447	11,160	13,599
Percent of Total Trips	76.9	87.0	72.4
Through Trips Per Day	3,729	1,673	5,176
Percent of Total Trips	23.1	13.0	27.6
Terminal Auto Trips Per Day	10,467	9,079	11,623
Percent of Total Trips	64.7	70.8	61.9
Terminal Truck Trips Per Day	1,980	2,081	1,976
Percent of Total Trips	12.3	16.2	10.5
Through Auto Trips Per Day	2,753	1,321	4,619
Percent of Total Trips	17.0	10.3	24.6
Through Truck Trips Per Day	976	352	557
Percent of Total Trips	6.0	2.7	3.0
Percent of Total Trips for Social-Recreation Purpose	28.4	30.7	35.9
Percent of Terminal Trips to Central Business District	13.8	20.8	36.4
Average Passenger Car Occupancy for Vehicles Owned Inside the Area	1.90	2.02	1.82
Average Passenger Car Occupancy for Vehicles Owned Outside the Area	2.02	1.97	2.33

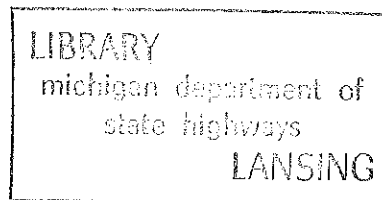
TOTAL TRAFFIC AND THROUGH TRAFFIC INTERCHANGE

Desire line diagram No. 3 shows the total traffic passing each station and the station interchange of through traffic. The 3,346 through vehicles consist of only 1,673 through trips as each vehicle is counted at both its entering and departing stations. The 3,346 through vehicles represent 23.1 percent of the 14,506 total vehicles passing the seven interview stations.

The largest through traffic movement is the 808 east-west movement on M-20 interchanging between Stations 2 and 4.

Station 4 (M-20, M-82 West) has the largest traffic flow with 4,473 vehicles per day or 30.8 percent of the total traffic.

The following table shows the station interchange of through traffic, and the terminal and total traffic passing each station:



								TOTAL TRAFFIC AND THROUGH TRAFFIC INTERCHANGE		
								TOTAL TRAFFIC		
								AND		
								THROUGH TRAFFIC		
								INTERCHANGE		
54	STATION 1 STONE SOUTH OF 38th MAIN (M-20) WEST OF LUCE		STATION 2 STEWART (M-82) SOUTH OF 56th		STATION 3 MAIN (M-20, M-82) EAST OF GREEN		STATION 4 OSBORN (WEAVER) NORTH OF 44th		STATION 5 RAMSHORN (DARLING) SOUTH OF 38th	
118	171	STATION 6 LAKE DRIVE EAST OF GREEN		STATION 7 TOTAL GREEN		TOTAL ALL STATIONS		TOTAL THROUGH TRIPS		
73	808	389	4	0	0	0	0	0	0	
0	5	3	4	0	0	0	0	0	0	
0	10	4	3	0	0	0	0	0	0	
0	17	11	2	1	0	0	0	0	0	
245	1065	696	1279	13	17	31	3346	THROUGH TRIPS		
1250	3037	2739	3194	130	169	641	11160	TERMINAL TRIPS		
1495	4102	3435	4473	143	186	672	14506	TOTAL TRIPS		

TOTAL AUTO TRAFFIC AND AUTO THROUGH TRAFFIC INTERCHANGE

Desire line diagram No. 4 shows the total auto traffic passing each station and the station interchange of through auto traffic. The 2,642 through autos consist of only 1,321 through auto trips as each vehicle is counted at both its entering and departing stations. The 2,642 through autos represent 22.5 percent of the total auto traffic of 11,721 autos passing the seven interview stations.

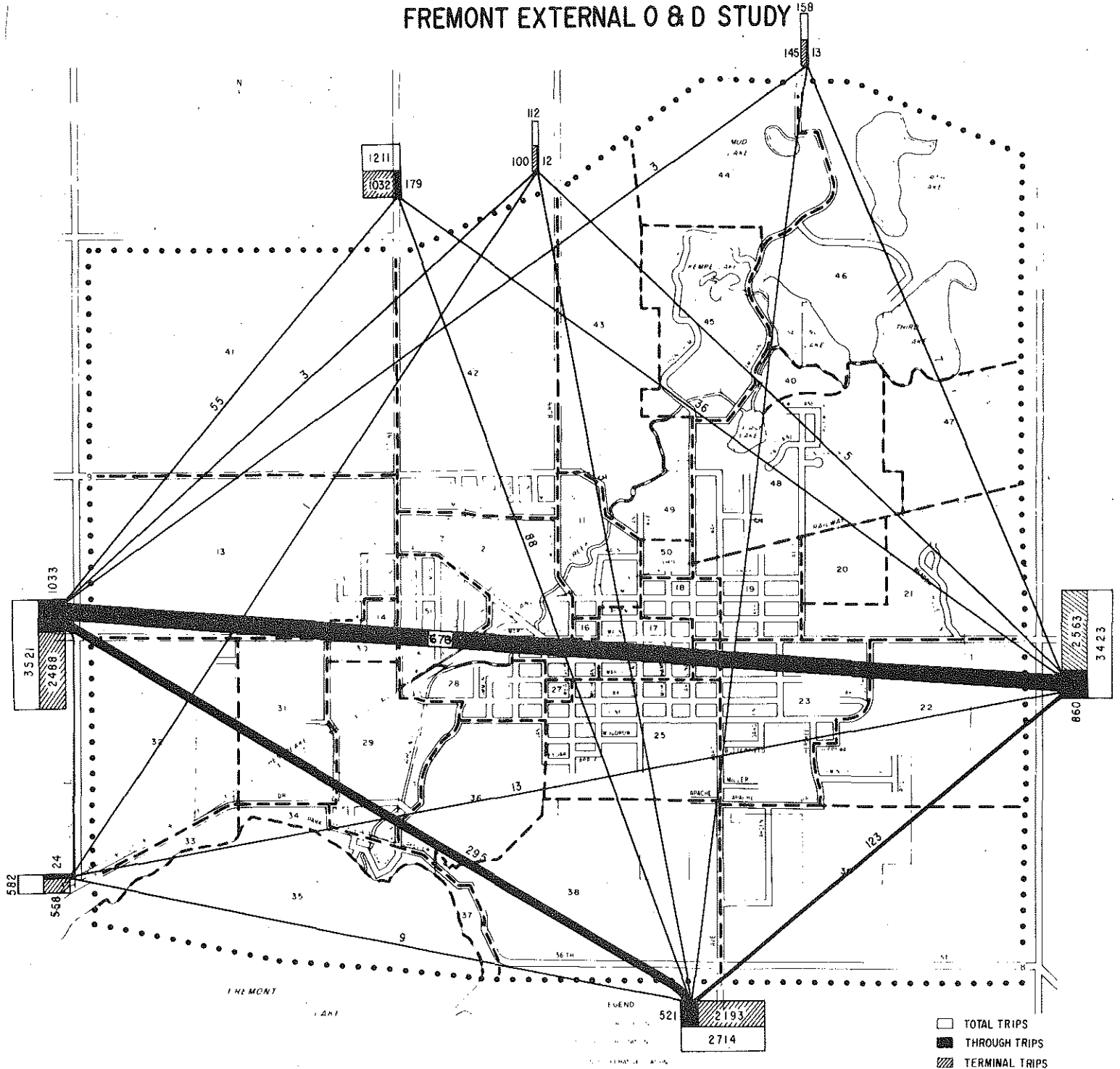
The largest through auto traffic movement is the 676 east-west trips on M-20 interchanging between stations 2 and 4.

Station 4 has the largest total auto traffic flow of 3,521 autos or 30.0 percent of the total auto traffic.

The following table shows the station interchange of through auto traffic, and the terminal and total auto traffic passing each station:

								TOTAL AUTO TRAFFIC AND THROUGH AUTO TRAFFIC INTERCHANGE	
36									
88	123								
55	676	295							
0	5	3	3						
0	7	3	3	0					
0	13	9	1	1	0				
179	860	521	1033	12	13	24	2642	THROUGH TRIPS	TOTAL THROUGH TRIPS
1032	2563	2153	2488	100	145	558	9079	TERMINAL TRIPS	1321
1211	3423	2714	3521	112	158	582	11721	TOTAL TRIPS	

FREMONT EXTERNAL O & D STUDY



THROUGH TRAFFIC INTERCHANGE - AUTO DRIVER TRIPS

SUMMER WEEKDAY 1969

Diagram No. 4

TOTAL SINGLE UNIT TRUCK TRAFFIC

AND

SINGLE UNIT TRUCK THROUGH TRAFFIC INTERCHANGE

Desire line diagram No. 5 shows the total single unit truck traffic passing each station and the station interchange of single unit truck through traffic. The 620 through single unit trucks consist of only 310 single unit truck through trips as each vehicle is counted at both its entering and departing stations. The 620 through single unit truck trips represents 24.9 percent of the total single unit truck traffic of 2,493 single unit trucks passing the seven interview stations.

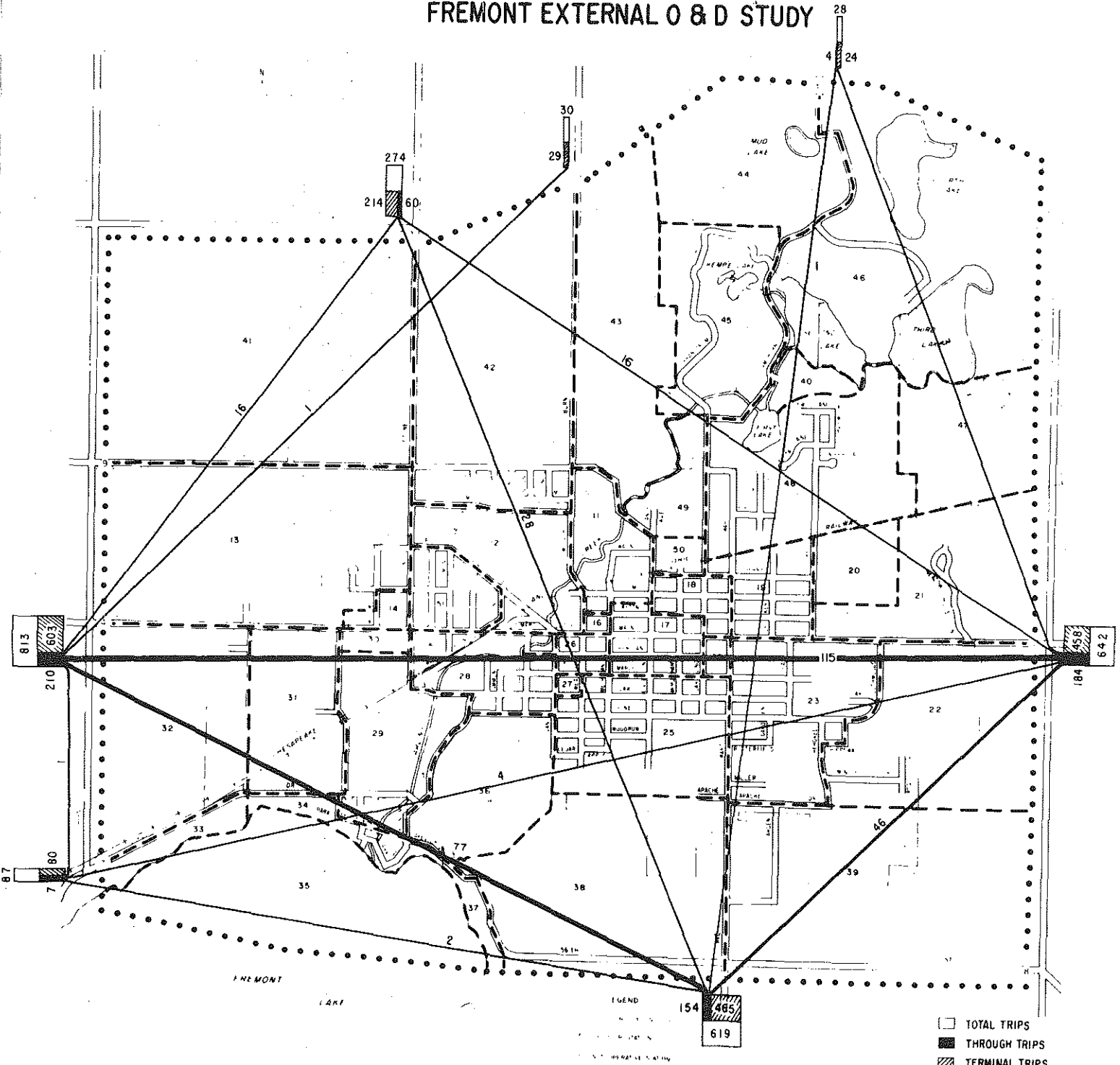
The heaviest single unit truck through traffic movement is the 115 east-west trips on M-20 interchanging between stations 2 and 4.

Station 4 has the largest total single unit truck traffic flow of 813 single unit trucks or 32.6 percent of the total single unit truck traffic.

The following table shows the station interchange of through single unit truck traffic, and the terminal and total single unit truck traffic passing each station:

TOTAL SINGLE UNIT TRUCK TRAFFIC AND SINGLE UNIT TRUCK THROUGH TRAFFIC INTERCHANGE								
	STONE SOUTH OF 38th STATION 1							
16	MAIN (M-20) WEST OF LUCE STATION 2							
	STEWART (M-82) SOUTH OF 56th STATION 3							
28	46	MAIN (M-20M-82) EAST OF GREEN STATION 4						
16	115	77	OSBORN (WEAVER) NORTH OF 44th STATION 5					
0	0	0	1	RAMSHORN (DARLING) SOUTH OF 38th STATION 6				
0	3	1	0	0	LAKE DRIVE EAST OF GREEN STATION 7			
0	4	2	1	0	0	TOTAL ALL STATIONS		TOTAL THROUGH TRIPS 310
60	184	154	210	1	4	7	620	THROUGH TRIPS
214	458	465	603	29	24	80	1873	TERMINAL TRIPS
274	642	619	813	30	28	87	2493	TOTAL TRIPS

FREMONT EXTERNAL O & D STUDY



THROUGH TRAFFIC INTERCHANGE - SINGLE UNIT TRUCK DRIVER TRIPS
SUMMER WEEKDAY 1969

Diagram No. 5

TOTAL TRAILER COMBINATION TRUCK TRAFFIC

AND

TRAILER COMBINATION TRUCK THROUGH TRAFFIC INTERCHANGE

Desire line diagram No. 6 shows the total trailer combination truck traffic passing each station and the station interchange of through trailer combination truck traffic. The 84 through trailer combination trucks consist of only 42 through trailer combination truck trips as each vehicle is counted at both its entering and departing stations. The 84 through trailer combination trucks represents 28.8 percent of the total trailer combination traffic of 292 that passed the seven interview stations.

The heaviest through movement of trailer combination trucks was the 17 east-west trips on M-20 interchanging between Station 2 and 4 with an equal number interchanging between Station 3 and 4.

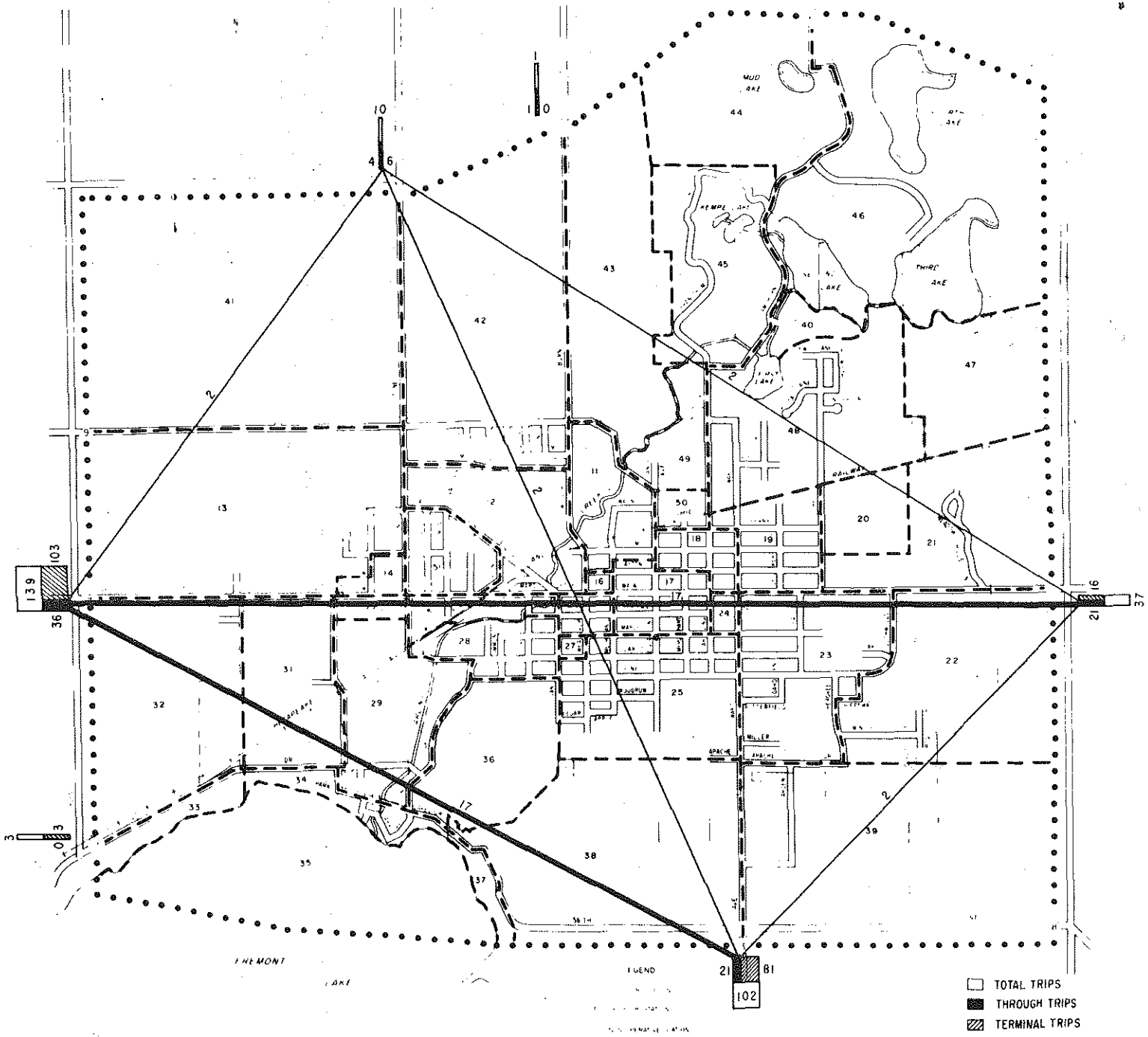
Station 4 has the largest total trailer combination truck traffic flow of 139 vehicles or 47.6 percent of the total trailer combination truck traffic.

The following table shows the station interchange of through trailer combination truck traffic, and the terminal and total trailer combination truck traffic passing each station:

TOTAL TRAILER COMBINATION TRUCK TRAFFIC AND TRAILER COMBINATION TRUCK THROUGH TRAFFIC INTERCHANGE									
2									
2	2								
2	17	17							
0	0	0	0						
0	0	0	0	0					
0	0	0	0	0	0				
6	21	21	36	0	0	0	84		TOTAL THROUGH TRIPS 42
4	16	81	103	1	0	3	208		THROUGH TRIPS
10	37	102	139	1	0	3	292		TERMINAL TRIPS
									TOTAL TRIPS

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THROUGH TRAFFIC INTERCHANGE - TRAILER COMBINATION TRUCK DRIVER TRIPS
 SUMMER WEEKDAY 1969

Diagram No. 6

TERMINAL TRAFFIC DISTRIBUTION

By

Internal Zone and Station

TOTAL DRIVER TRIPS

The 11,160 total driver trips have terminals in zones as designated on the following pages and desire line diagram Nos. 7, 8, 9, 10, 11, 12, 13.

Approximately 80.4 percent of the vehicles making a trip into or out of the study area passed through the three trunkline stations.

The central business district, zone 17, is origin or destination of 2,663 (23.9%) of the 11,160 terminal trips. Zone 12, containing Gerber Products, is second highest with 1,904 (17.1%) trips.

TERMINAL TRAFFIC DISTRIBUTION

By

Internal Zone and Station

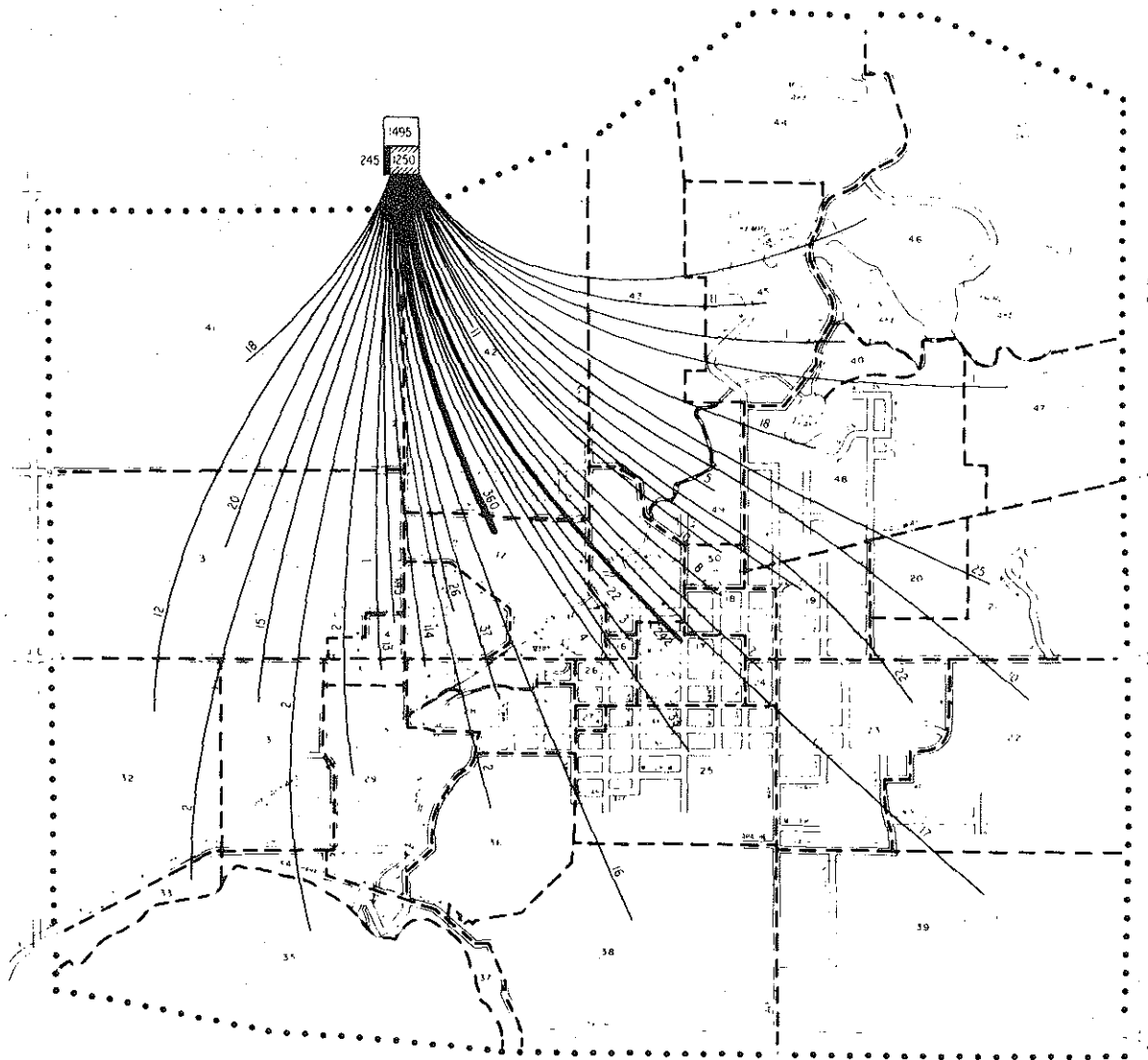
TOTAL DRIVER TRIPS

Entering or Departing Stations

<u>Internal Zone</u>	<u>Zone Totals</u>	<u>Sta. 1 Stone Road</u>	<u>Sta. 2 M-20 East</u>	<u>Sta. 3 M-82 South</u>	<u>Sta. 4 M-20, M-82 West</u>	<u>Sta. 5 Os-born Ave.</u>	<u>Sta. 6 Rams-horn Dr.</u>	<u>Sta. 7 Lake Drive</u>	<u>Percent of Total</u>
11	229	22	60	72	60	0	5	10	2.1
12	1,904	360	475	457	544	28	7	33	17.1
13	178	20	60	36	57	1	0	4	1.6
14	847	143	222	130	312	2	19	19	7.6
15	730	114	216	133	221	4	4	38	6.5
16	46	3	7	8	9	0	0	19	0.4
17	2,663	242	816	640	760	42	40	123	23.9
18	166	8	46	57	50	0	2	3	1.5
19	201	17	54	69	53	0	2	6	1.8
20	15	0	8	0	7	0	0	0	0.1
21	196	25	69	36	61	2	1	2	1.8
22	124	10	36	46	21	1	3	7	1.1
23	383	22	121	94	97	8	1	40	3.4
24	145	7	38	30	50	4	1	15	1.3
25	423	33	113	126	91	4	15	41	3.8
26	150	4	44	35	51	1	4	11	1.3
27	3	0	1	1	1	0	0	0	0.0
28	417	37	133	110	96	14	2	25	3.7
29	62	2	8	10	14	0	3	25	0.6
30	136	13	28	31	56	2	1	5	1.2

<u>Internal Zone</u>	<u>Zone Totals</u>	<u>Sta. 1</u>	<u>Sta. 2</u>	<u>Sta. 3</u>	<u>Sta. 4</u>	<u>Sta. 5</u>	<u>Sta. 6</u>	<u>Sta. 7</u>	<u>Percent of Total</u>
31	204	15	39	34	75	0	5	36	1.8
32	258	12	53	69	108	3	0	13	2.3
33	75	2	3	7	1	0	0	62	0.7
34	138	0	21	26	42	1	0	48	1.2
35	17	2	3	7	2	0	0	3	0.2
36	67	2	16	20	8	1	0	20	0.6
37	4	0	1	3	0	0	0	0	0.0
38	264	16	61	119	57	1	1	9	2.4
39	161	17	40	77	21	2	0	4	1.4
40	62	1	22	13	11	0	14	1	0.6
41	38	18	3	8	9	0	0	0	0.3
42	53	11	9	27	4	0	1	1	0.5
43	7	0	0	2	2	2	1	0	0.1
44	13	0	3	0	5	0	5	0	0.1
45	132	11	30	31	54	0	5	1	1.2
46	39	1	7	8	6	0	16	1	0.3
47	6	1	0	4	1	0	0	0	0.1
48	211	18	77	56	52	1	2	5	1.9
49	36	5	13	6	9	0	2	1	0.3
50	160	10	40	52	50	3	5	0	1.4
51	197	26	41	49	66	3	2	10	1.8
TOTAL	11,160	1,250	3,037	2,739	3,194	130	169	641	
PERCENT		11.2	27.2	24.6	28.6	1.2	1.5	5.7	100.0

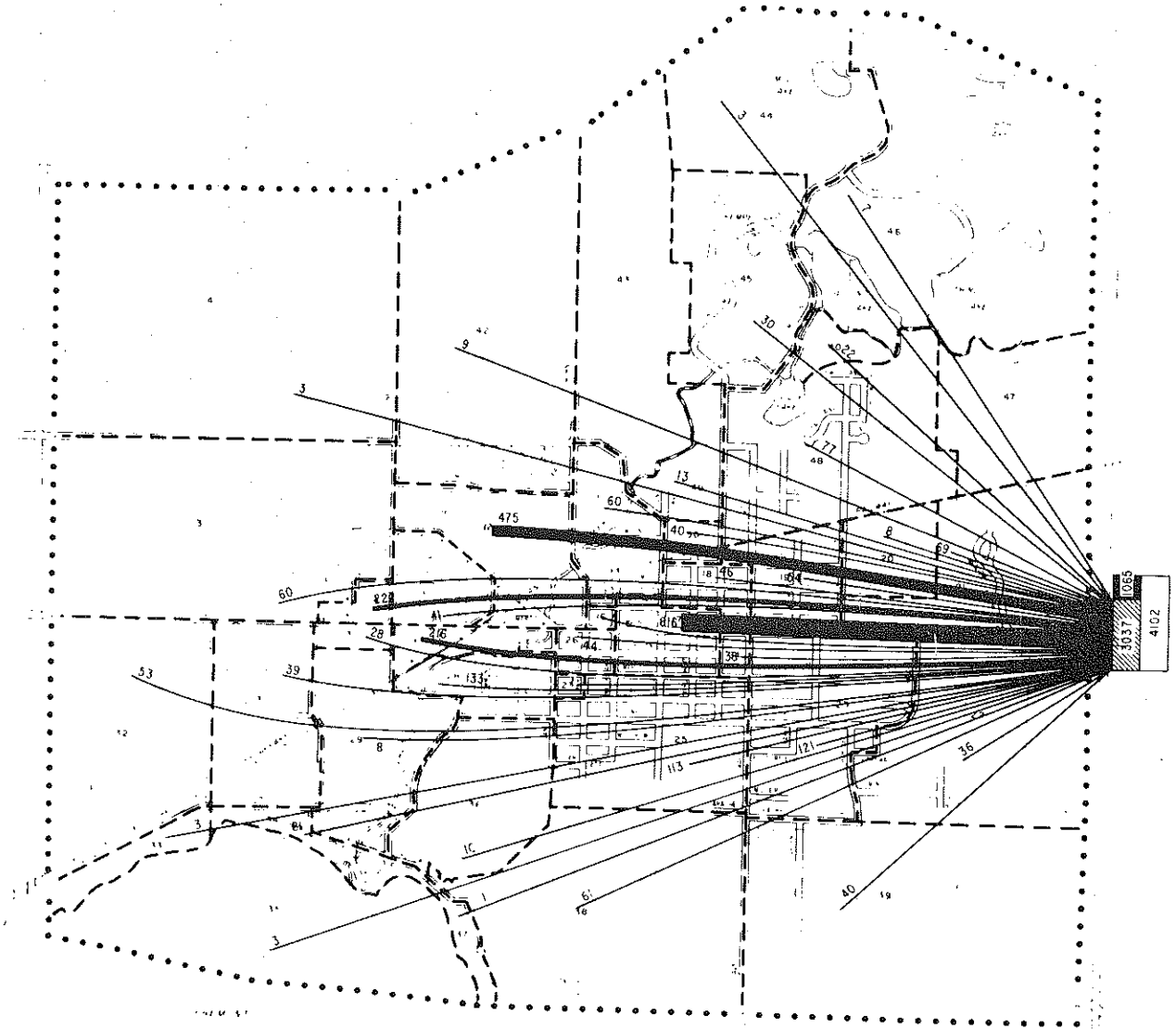
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TERMINAL TRAFFIC BETWEEN STONE, SOUTH OF 38TH AND INTERNAL ZONES OF ATTRACTION TOTAL DRIVER TRIPS
SUMMER WEEKDAY 1969

Diagram No. 7

FREMONT EXTERNAL O & D STUDY

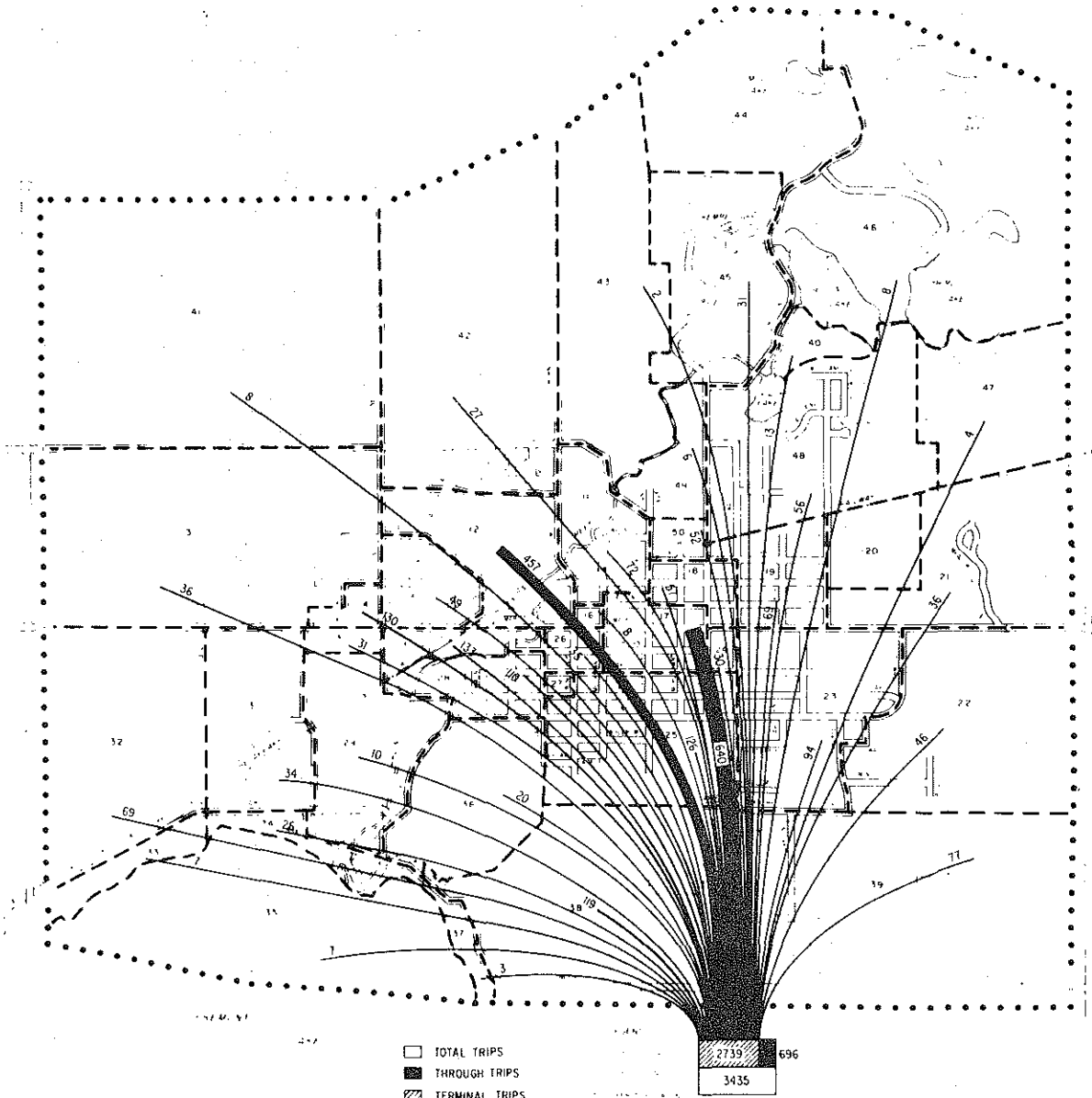


- TOTAL TRIPS
- THROUGH TRIPS
- ▨ TERMINAL TRIPS

TERMINAL TRAFFIC BETWEEN MAIN (M-20) WEST OF LUCE AND INTERNAL ZONES OF ATTRACTION TOTAL DRIVER TRIPS
SUMMER WEEKDAY 1969

Diagram No. 8

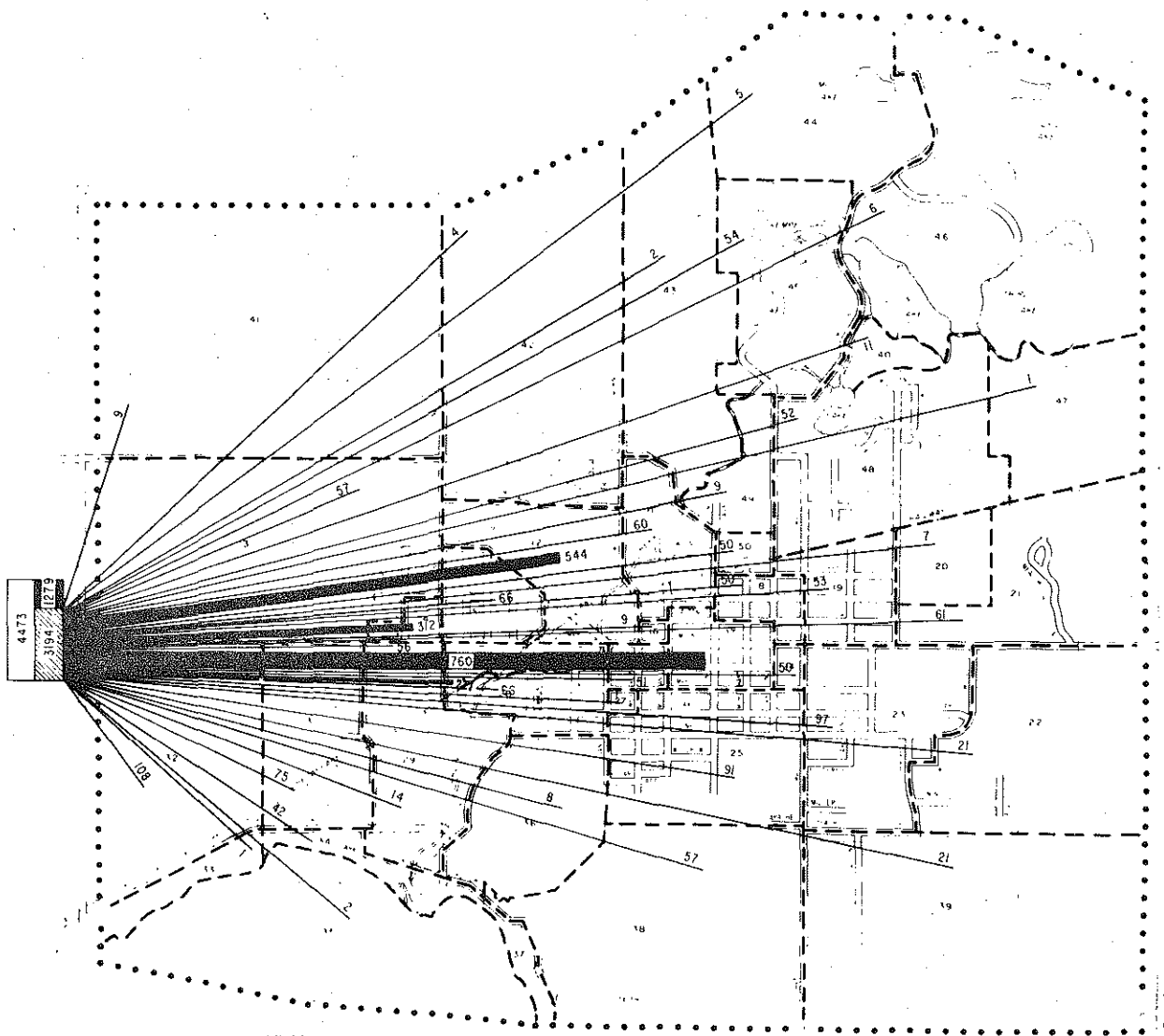
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TERMINAL TRAFFIC BETWEEN STEWART (M-82), SOUTH OF 56TH AND INTERNAL ZONES OF ATTRACTION TOTAL DRIVER TRIPS
SUMMER WEEKDAY 1969

Diagram No. 9

FREMONT EXTERNAL O & D STUDY

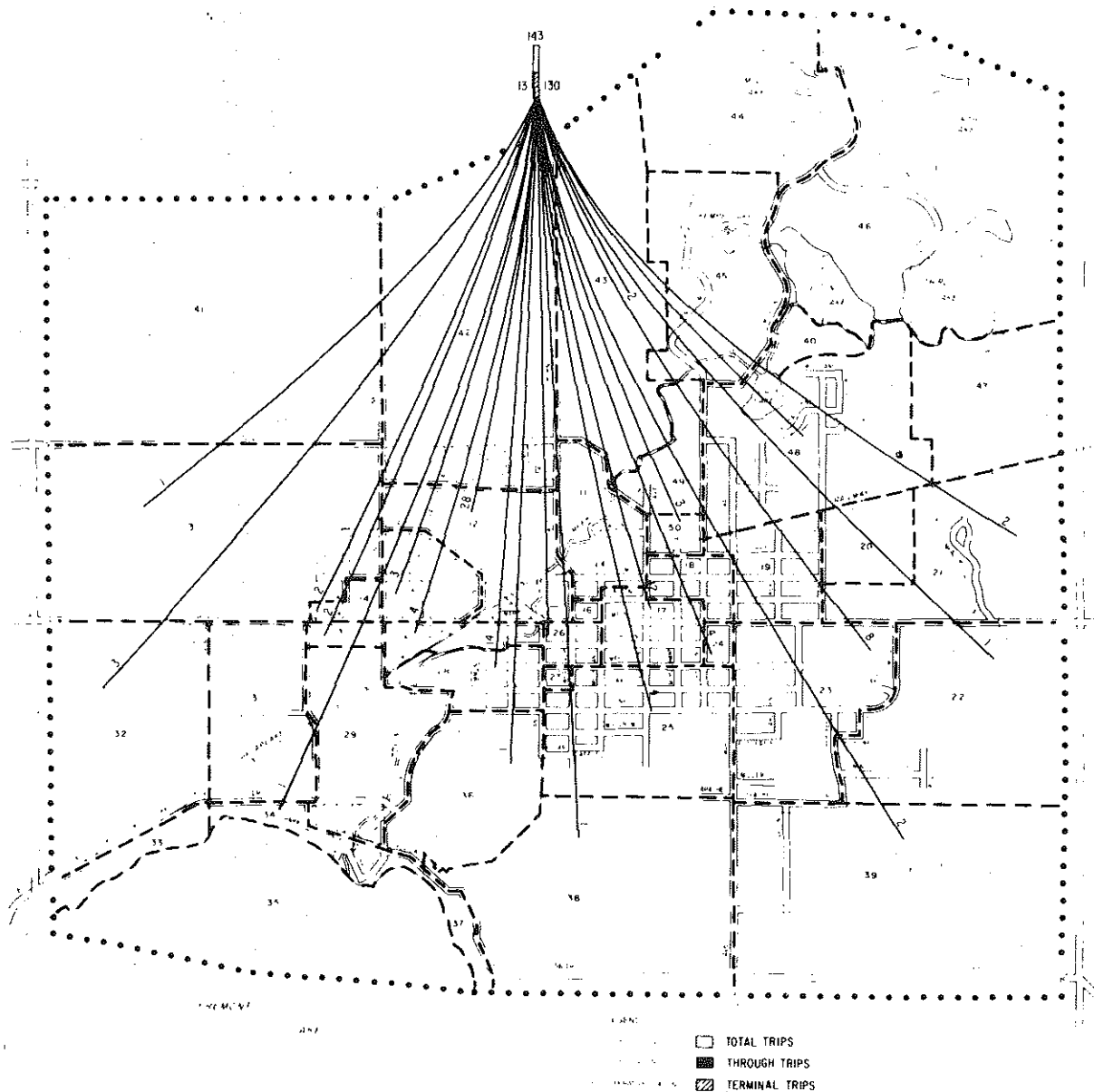


- TOTAL TRIPS
- THROUGH TRIPS
- ▨ TERMINAL TRIPS

TERMINAL TRAFFIC BETWEEN MAIN (M-20, M-82) E. OF GREEN AND INTERNAL ZONES OF ATTRACTION TOTAL DRIVER TRIPS
SUMMER WEEKDAY 1969

Diagram No. 10

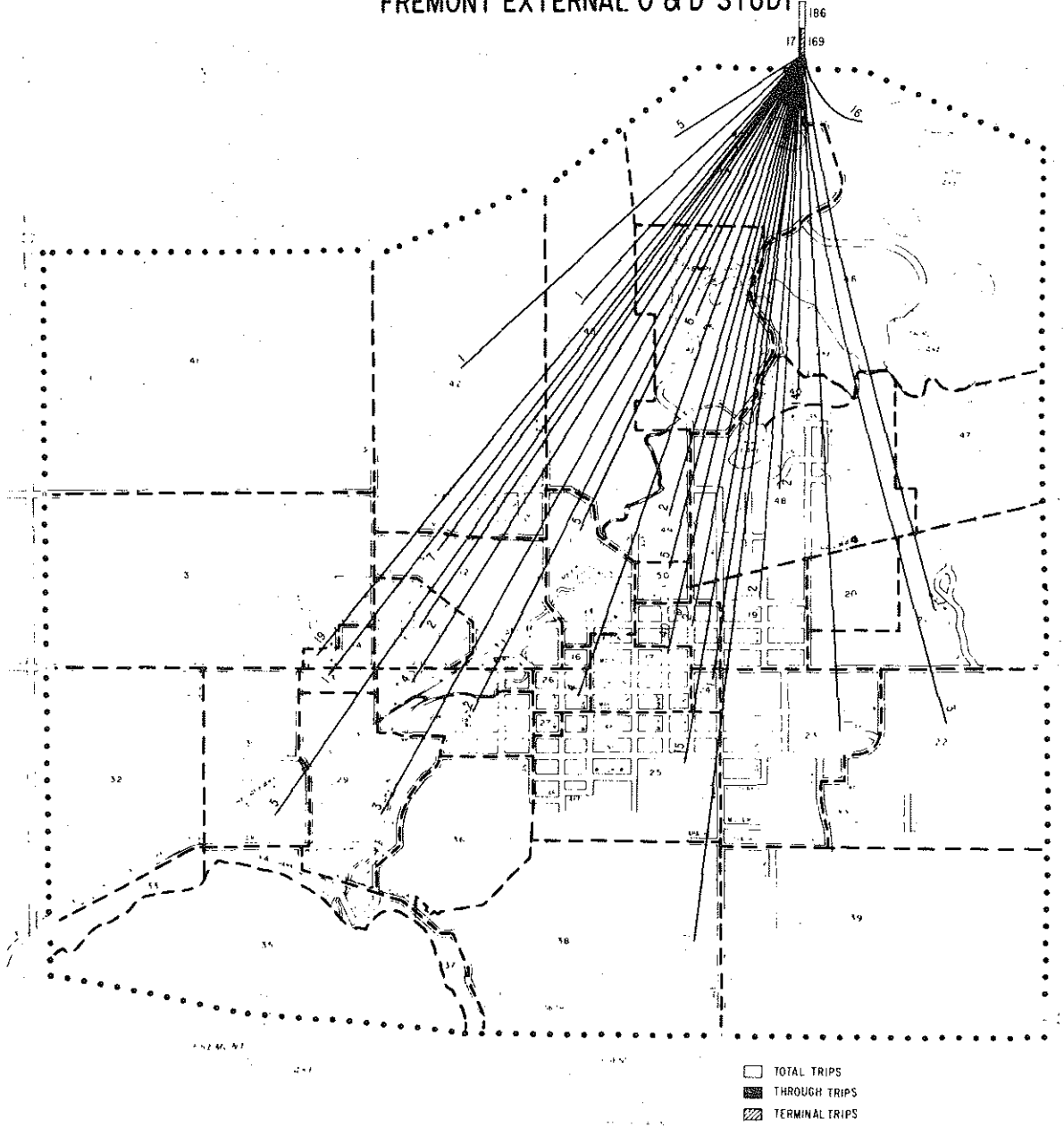
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TERMINAL TRAFFIC BETWEEN OSBORN (WEAVER), NORTH OF 44TH AND INTERNAL ZONES OF ATTRACTION TOTAL DRIVER TRIPS
 SUMMER WEEKDAY 1969

Diagram No. 11

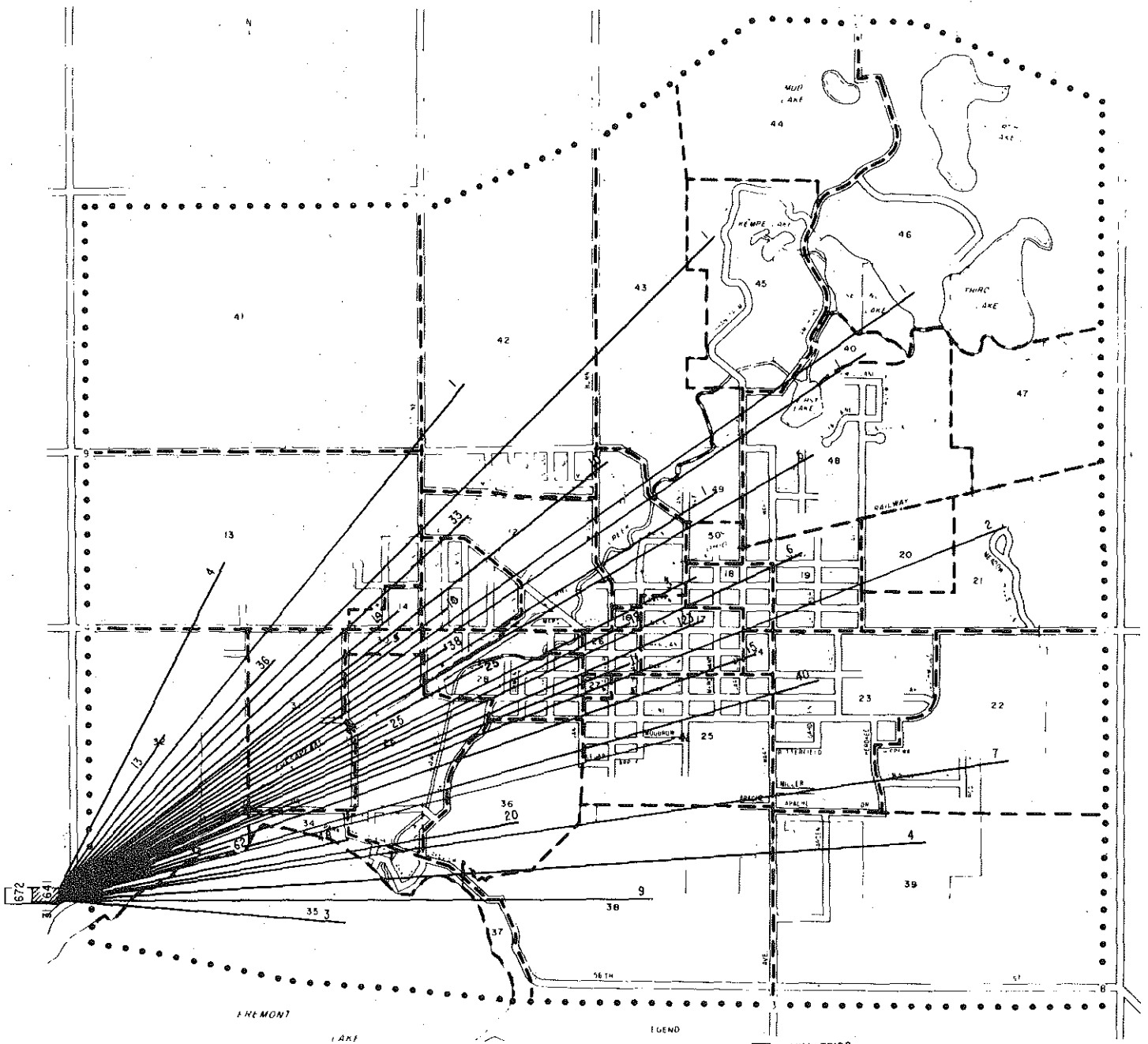
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TERMINAL TRAFFIC BETWEEN RAMSHORN (DARLING) SOUTH OF 38TH AND INTERNAL ZONES OF ATTRACTION TOTAL DRIVER TRIPS
 SUMMER WEEKDAY 1969

Diagram No. 12

FREMONT EXTERNAL O & D STUDY



TERMINAL TRAFFIC BETWEEN LAKE DR. EAST OF GREEN AND INTERNAL ZONES OF ATTRACTION TOTAL DRIVER TRIPS
SUMMER WEEKDAY 1969

Diagram No. 13

TERMINAL TRAFFIC DISTRIBUTION

By

Internal Zone and Station

AUTO DRIVER TRIPS

The 9,079 total auto driver trips have terminals in zones as designated in the table. Approximately 55.6 percent of the terminal auto trips passed through Stations 2 and 4.

The central business district, zone 17, is origin or destination of 2,180 (24.0%) of the 9,079 terminal auto trips. Zone 12, Gerber Products, is second with 1,583 (17.4%) trips.

TERMINAL TRAFFIC DISTRIBUTION

By

Internal Zone and Station

AUTO DRIVER TRIPS

Entering or Departing Stations

Internal Zone	Zone Totals	Sta. 1 Stone Road	Sta. 2 M-20 East	Sta. 3 M-82 South	Sta. 4 M-20, M-82, West	Sta. 5 Os- born Ave.	Sta. 6 Rams- horn Dr.	Sta. 7 Lake Dr.	Percent of Total
11	166	18	40	45	49	0	4	10	1.8
12	1,583	293	409	368	452	27	7	27	17.4
13	143	10	49	28	51	1	0	4	1.6
14	748	128	208	112	261	1	19	19	8.2
15	465	81	152	79	124	1	3	25	5.1
16	40	3	6	3	9	0	0	19	0.4
17	2,180	211	681	523	614	30	30	91	24.0
18	131	5	44	38	39	0	2	3	1.5
19	176	17	49	59	43	0	2	6	1.9
20	10	0	7	0	3	0	0	0	0.1
21	119	18	49	22	27	1	1	1	1.3
22	109	10	35	38	16	0	3	7	1.2
23	343	20	111	87	81	5	1	38	3.8
24	127	7	31	25	45	3	1	15	1.4
25	371	33	96	110	76	4	15	37	4.1
26	120	3	36	27	38	1	4	11	1.3
27	2	0	1	1	0	0	0	0	0.0
28	386	35	126	104	83	14	1	23	4.3
29	48	1	6	9	7	0	1	24	0.5
30	98	6	25	22	42	0	0	3	1.1

<u>Internal Zone</u>	<u>Zone Totals</u>	<u>Sat. 1</u>	<u>Sta. 2</u>	<u>Sta. 3</u>	<u>Sta. 4</u>	<u>Sta. 5</u>	<u>Sta. 6</u>	<u>Sta. 7</u>	<u>Percent of Total</u>
31	162	12	31	31	51	0	5	32	1.8
32	193	7	46	47	81	3	0	9	2.1
33	68	1	3	4	1	0	0	59	0.8
34	93	0	14	19	17	1	0	42	1.0
35	16	2	3	6	2	0	0	3	0.2
36	58	2	13	18	6	1	0	18	0.6
37	4	0	1	3	0	0	0	0	0.1
38	202	12	49	89	41	1	1	9	2.2
39	128	17	31	62	13	1	0	4	1.4
40	49	0	19	12	9	0	8	1	0.5
41	31	13	3	6	9	0	0	0	0.4
42	40	4	8	22	4	0	1	1	0.4
43	7	0	0	2	2	2	1	0	0.1
44	13	0	3	0	5	0	5	0	0.2
45	117	10	28	29	45	0	4	1	1.3
46	37	0	6	8	6	0	16	1	0.4
47	6	1	0	4	1	0	0	0	0.1
48	193	17	73	47	49	1	2	4	2.1
49	35	5	13	5	9	0	2	1	0.4
50	103	8	24	37	29	0	5	0	1.1
51	159	22	34	42	48	2	1	10	1.8
TOTAL	9,079	1,032	2,563	2,193	2,488	100	145	558	
PERCENT		11.4	28.2	24.2	27.4	1.1	1.6	6.1	100.0

TERMINAL TRAFFIC DISTRIBUTION

By

Internal Zone and Station

SINGLE UNIT TRUCK TRIPS

The 1,873 total single unit truck driver trips have terminals in zones as designated in the table. Approximately 32.2 percent of the single unit trucks making terminal trips pass Station 4 on M-20/M-82 West.

Approximately 23.7 percent of the 1,873 single unit trucks have a terminal in zone 17 (CBD). Zone 12, Gerber Products, has 14.4 percent of the total terminal single unit truck trips.

TERMINAL TRAFFIC DISTRIBUTION

By

Internal Zone and Station

SINGLE UNIT TRUCKS

Entering or Departing Stations

Internal Zone	Zone Totals	Sta. 1 Stone Road	Sta. 2 M-20 East	Sta. 3 M-82 South	Sta. 4 M-20, M-82 West	Sta. 5 Os- born Ave.	Sta. 6 Rams- horn Dr.	Sta. 7 Lake Dr.	Percent of Total
11	60	3	20	25	11	0	1	0	3.2
12	269	67	65	55	75	1	0	6	14.4
13	35	10	11	8	6	0	0	0	1.9
14	87	15	13	14	44	1	0	0	4.6
15	221	30	60	39	76	3	1	12	11.8
16	6	0	1	5	0	0	0	0	0.3
17	445	31	128	106	128	12	10	30	23.7
18	22	3	1	14	4	0	0	0	1.2
19	25	0	5	10	10	0	0	0	1.3
20	5	0	1	0	4	0	0	0	0.3
21	72	7	20	14	29	1	0	1	3.8
22	14	0	1	7	5	1	0	0	0.7
23	38	2	10	7	15	2	0	2	2.0
24	18	0	7	5	5	1	0	0	1.0
25	50	0	16	16	14	0	0	4	2.7
26	27	1	8	7	11	0	0	0	1.4
27	1	0	0	0	1	0	0	0	0.1
28	31	2	7	6	13	0	1	2	1.6
29	12	1	2	1	5	0	2	1	0.6
30	36	7	3	8	13	2	1	2	1.9

<u>Internal Zone</u>	<u>Zone Totals</u>	<u>Sta. 1</u>	<u>Sta. 2</u>	<u>Sta. 3</u>	<u>Sta. 4</u>	<u>Sta. 5</u>	<u>Sta. 6</u>	<u>Sta. 7</u>	<u>Percent of Total</u>
31	32	3	8	3	14	0	0	4	1.7
32	65	5	7	22	27	0	0	4	3.5
33	7	1	0	3	0	0	0	3	0.4
34	43	0	6	7	24	0	0	6	2.3
35	1	0	0	1	0	0	0	0	0.1
36	9	0	3	2	2	0	0	2	0.5
38	62	4	12	30	16	0	0	0	3.3
39	28	0	9	14	4	1	0	0	1.5
40	13	1	3	1	2	0	6	0	0.7
41	7	5	0	2	0	0	0	0	0.4
42	13	7	1	5	0	0	0	0	0.7
45	13	1	2	2	7	0	1	0	0.7
46	2	1	1	0	0	0	0	0	0.1
48	18	1	4	9	3	0	0	1	1.0
49	1	0	0	1	0	0	0	0	0.1
50	47	2	16	9	17	3	0	0	2.5
51	38	4	7	7	18	1	1	0	2.0
TOTAL	1,873	214	458	465	603	29	24	80	
PERCENT		11.4	24.5	24.8	32.2	1.5	1.3	4.3	100.0

TERMINAL TRAFFIC DISTRIBUTION

By

Internal Zone and Station

TRAILER COMBINATION TRUCK TRIPS

The 208 total trailer combination truck driver trips have terminals in zones as designated in the table. Station 6 and the unlisted zones did not have trailer combination truck trips. Approximately 50 percent of the trailer combination trucks making terminal trips pass Station 4 on M-20/M-82 West.

Zones 12, 15, and 17 account for 134 (64.4%) terminal trailer combination truck trips. Gerber Products is in zone 12 while zones 15 and 17 are primarily commercial in nature.

TERMINAL TRAFFIC DISTRIBUTION

By

Internal Zone and Station

TRAILER COMBINATION TRUCK TRIPS

Entering or Departing Stations

Internal Zone	Zone Totals	Sta. 1 Stone Road	Sta. 2 M-20 East	Sta. 3 M-82 South	Sta. 4 M-20, M-82 West	Sta. 5 Os- born Ave.	Sta. 7 Lake Dr.	Percent of Total
11	3	1	0	2	0	0	0	1.4
12	52	0	1	34	17	0	0	25.0
14	12	0	1	4	7	0	0	5.7
15	44	3	4	15	21	0	1	21.1
17	38	0	7	11	18	0	2	18.3
18	13	0	1	5	7	0	0	6.2
21	5	0	0	0	5	0	0	2.4
22	1	0	0	1	0	0	0	0.5
23	2	0	0	0	1	1	0	1.0
25	2	0	1	0	1	0	0	1.0
26	3	0	0	1	2	0	0	1.4
29	2	0	0	0	2	0	0	1.0
30	2	0	0	1	1	0	0	1.0
31	10	0	0	0	10	0	0	4.8
34	2	0	1	0	1	0	0	1.0
39	5	0	0	1	4	0	0	2.4
45	2	0	0	0	2	0	0	1.0
50	10	0	0	6	4	0	0	4.8
TOTAL	208	4	16	81	103	1	3	
PERCENT		2.0	7.7	38.9	49.5	0.5	1.4	100.0

STATION 1
STONE ROAD
THROUGH AND TERMINAL TRAFFIC
By
Vehicle Type and Trip Purpose.

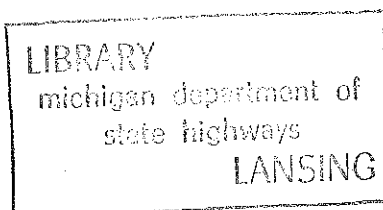
A total of 1,495 vehicles passed through Station 1 on Stone Road North of Fremont. Tabulations on the following pages give a detailed analysis of this traffic.

Approximately 84 percent of the vehicles had a terminal inside the study area. Eight of every 10 vehicles were autos.

More than 18 out of every 100 vehicles were single unit trucks. Less than 1 out of every 100 vehicles were trailer combination trucks.

The heaviest terminal traffic movements are to and from zone 12 (Gerber Products) and zone 17 (Central Business District). Four out of 10 terminal trips were for the purpose of work.

The largest through traffic movement at this station is the 118 (48.2%) vehicles interchanging with Station 3 on M-20/M-82 West. Of these 118 vehicles, 30 were trucks of which 2 were trailer combination trucks. Five out of 10 through trips were made for the purpose of social-recreation.



1. Total Traffic Through Station 1 By Vehicle Type

<u>Through</u>	<u>Terminal</u>	<u>Total</u>	
245	1,250	1,495	Vehicles
16.4	83.6	100.0	Percent of Total

<u>Auto</u>	<u>Truck</u>		
	<u>Single Unit</u>	<u>Trailer Combination</u>	
1,211	274	10	Vehicles
81.0	18.3	0.7	Percent of Total

A. Through Traffic: 245 Vehicles

<u>Auto</u>	<u>Truck</u>		
	<u>Single Unit</u>	<u>Trailer Combination</u>	
179	60	6	Vehicles
73.1	24.5	2.4	Percent of Total

B. Terminal Traffic: 1,250 Vehicles

<u>Auto</u>	<u>Truck</u>		
	<u>Single Unit</u>	<u>Trailer Combination</u>	
1,032	214	4	Vehicles
82.6	17.1	0.3	Percent of Total

C. Through Traffic Interchange of 245 Vehicles

Station	Autos	Trucks		Total Vehicles	Percent of Total
		Single Unit	Trailer Combination		
2	36	16	2	54	22.0
3	88	28	2	118	48.2
4	55	16	2	73	29.8
Total	179	60	6	245	100.0

D. Terminal Traffic Distribution of 1,250 Vehicles

Zones	Autos	Trucks		Total Vehicles	Percent of Total
		Single Unit	Trailer Combination		
11	18	3	1	22	1.8
12	293	67	0	360	28.8
13	10	10	0	20	1.6
14	128	15	0	143	11.4
15	81	30	3	114	9.1
17	211	31	0	242	19.3
19	17	0	0	17	1.4
21	18	7	0	25	2.0
23	20	2	0	22	1.8
25	33	0	0	33	2.6
28	35	2	0	37	3.0
39	17	0	0	17	1.4
41	13	5	0	18	1.4
48	17	1	0	18	1.4
51	22	4	0	26	2.1
TOTAL	933	177	4	1,114	89.1

NOTE: Zones not listed attracted only a small percentage of the total trips.

2. Total Traffic Through Station 1 By Trip Purpose

<u>Work</u>	<u>Business</u>	<u>Shopping</u>	<u>Social- Recreation</u>	<u>Total</u>	
651	107	281	456	1,495	Vehicles
43.5	7.2	18.8	30.5	100.0	Percent of Total

A. Through Traffic Interchange By Trip Purpose

<u>Station</u>	<u>Work</u>	<u>Business</u>	<u>Shopping</u>	<u>Social- Recreation</u>	<u>Total</u>
2	24	5	1	24	54
3	40	4	9	65	118
4	35	2	4	32	73
	—	—	—	—	—
Total	99	11	14	121	245
Percent of Total	40.4	4.5	5.7	49.4	100.0

B. Terminal Traffic Distribution By Trip Purpose

<u>Zone</u>	<u>Work</u>	<u>Business</u>	<u>Shopping</u>	<u>Social- Recreation</u>	<u>Total</u>
11	5	13	3	1	22
12	306	7	20	27	360
13	12	0	3	5	20
14	13	4	113	13	143
15	49	1	40	24	114
17	57	46	61	78	242
19	2	2	0	13	17
21	13	2	0	10	25
23	2	0	4	16	22
25	9	9	0	15	33
28	10	3	0	24	37
39	3	2	8	4	17
41	7	0	0	11	18
48	5	1	1	11	18
51	5	2	2	17	26
Total	498	92	255	269	1,114
 Percent of Total	39.8	7.4	20.4	21.5	89.1

NOTE: Zones not listed attracted only a small percentage of the total trips.

STATION 2

M-20 EAST

THROUGH AND TERMINAL TRAFFIC

By

Vehicle Type and Trip Purpose

A total of 4,102 vehicles passed through Station 2 on M-20 East of Fremont. Tabulations on the following pages give a detailed analysis of this traffic.

Approximately 3 out of every 4 vehicles had a terminal inside the study area. Eight of every 10 vehicles were autos, whether they traveled into or through the area. More than 15 out of 100 vehicles were single unit trucks. One out of 100 vehicles were trailer combination trucks.

The largest through traffic movement at this station is the 808 (75.9%) vehicles interchanging with Station 4 on M-20/M-82 West. Of these 808 vehicles, approximately 1 of 6 is a truck of which more than 8 out of 10 are single unit trucks.

The heaviest terminal traffic movements are to or from the same zones as for Station 1.

Four out of 10 trips passing through the station were made for the purpose of work. Five out of 10 through trips were made for the purpose of social-recreation.

The largest terminal trip movements by purpose were the 381 work trips to zone 12 (Gerber Products) and the 286 work trips to zone 17 (CBD).

1. Total Traffic Through Station 2 By Vehicle Type

<u>Through</u>	<u>Terminal</u>	<u>Total</u>	
1,065	3,037	4,102	Vehicles
26.0	74.0	100.0	Percent of Total

<u>Auto</u>	<u>Truck</u>		
	<u>Single Unit</u>	<u>Trailer Combination</u>	
3,423	642	37	Vehicles
83.5	15.6	0.9	Percent of Total

A. Through Traffic: 1,065 Vehicles

<u>Auto</u>	<u>Truck</u>		
	<u>Single Unit</u>	<u>Trailer Combination</u>	
860	184	21	Vehicles
80.7	17.3	2.0	Percent of Total

B. Terminal Traffic: 3,037 Vehicles

<u>Auto</u>	<u>Truck</u>		
	<u>Single Unit</u>	<u>Trailer Combination</u>	
2,563	458	16	Vehicles
84.4	15.1	0.5	Percent of Total

C. Through Traffic Interchange of 1,065 Vehicles

<u>Station</u>	<u>Autos</u>	<u>Trucks</u>		<u>Total Vehicles</u>	<u>Percent of Total</u>
		<u>Single Unit</u>	<u>Trailer Combination</u>		
1	36	16	2	54	5.1
3	123	46	2	171	16.0
4	676	115	17	808	75.9
5	5	0	0	5	0.5
6	7	3	0	10	0.9
7	13	4	0	17	1.6
TOTAL	860	184	21	1,065	100.0

D. Terminal Traffic Distribution of 3,037 Vehicles

<u>Zone</u>	<u>Autos</u>	<u>Trucks</u>		<u>Total Vehicles</u>	<u>Percent of Total</u>
		<u>Single Unit</u>	<u>Trailer Combination</u>		
11	40	20	0	60	2.0
12	409	65	1	475	15.6
13	49	11	0	60	2.0
14	208	13	1	222	7.3
15	152	60	4	216	7.1
17	681	128	7	816	26.9
18	44	1	1	46	1.5
19	49	5	0	54	1.8
21	49	20	0	69	2.3
23	111	10	0	121	4.0
25	96	16	1	113	3.7
26	36	8	0	44	1.5
28	126	7	0	133	4.4

<u>Zone</u>	<u>Trucks</u>			<u>Total Vehicles</u>	<u>Percent of Total</u>
	<u>Autos</u>	<u>Single Unit</u>	<u>Trailer Combination</u>		
32	46	7	0	53	1.7
38	49	12	0	61	2.0
39	31	9	0	40	1.3
48	73	4	0	77	2.5
50	24	16	0	40	1.3
51	34	7	0	41	1.4
TOTAL	2,307	419	15	2,741	90.3

NOTE: Zones not listed attracted only a small percentage of the total trips.

2. Total Traffic Through Station 2 By Trip Purpose

<u>Work</u>	<u>Business</u>	<u>Shopping</u>	<u>Social-Recreation</u>	<u>Total</u>	
1,758	372	602	1,370	4,102	Vehicles
42.8	9.1	14.7	33.4	100.0	Percent of Total

A. Through Traffic Interchange By Trip Purpose

<u>Station</u>	<u>Work</u>	<u>Business</u>	<u>Shopping</u>	<u>Social-Recreation</u>	<u>Total</u>
1	24	5	1	24	54
3	71	6	2	92	171
4	301	45	35	427	808
5	2	0	0	3	5
6	9	0	0	1	10
7	5	1	1	10	17
TOTAL	412	57	39	557	1,065
PERCENT OF TOTAL	38.7	5.3	3.7	52.3	100.0

B. Terminal Traffic Distribution By Trip Purpose

<u>Zone</u>	<u>Work</u>	<u>Business</u>	<u>Shopping</u>	<u>Social- Recreation</u>	<u>Total</u>
11	18	17	9	16	60
12	381	8	22	64	475
13	29	5	5	21	60
14	33	9	159	21	222
15	99	19	41	57	216
17	286	153	223	154	816
18	19	1	3	23	46
19	11	1	1	41	54
21	35	21	2	11	69
23	45	1	12	63	121
25	36	19	7	51	113
26	27	4	1	12	44
28	46	27	4	56	133
32	33	3	14	3	53
38	21	2	33	5	61
39	19	1	7	13	40
48	30	7	7	33	77
50	31	0	3	6	40
51	23	2	2	14	41
	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
TOTAL	1,222	300	555	664	2,741
PERCENT OF TOTAL	40.2	9.9	18.3	21.9	90.3

NOTE: Zones not listed attracted only a small percentage of the total trips.

Station 3
M-82 South
Through and Terminal Traffic
By Vehicle Type and Trip Purpose

A total of 3,435 vehicles passed through Station 3 on M-82 south of Fremont. Tabulations on the following pages give a detailed analysis of this traffic.

Approximately 80 percent of the traffic that passed this station had a terminal inside the study area. Eight out of 10 vehicles were autos. One truck out of 7 was a trailer combination.

The largest through traffic movement at this station is the 389(55.9%) vehicles interchanging with Station 4 on M-20/M-82 west. Of these 389 vehicles 94 were trucks of which 17 were trailer combination trucks.

The heaviest terminal traffic movements are to and from Zone 17 (CBD) and Zone 12 (Gerber Products).

Approximately 4 out of 10 trips passing through the station were made for the purpose of work. Five out of 10 through trips were made for the purpose of social-recreation. Four out of 10 terminal trips were made for the purpose of work.

The largest terminal trip movements by purpose were the 347 work trips to Zone 12 and the 224 work trips to Zone 17.

1. Total traffic through Station 3 by Vehicle Type

<u>Through</u>	<u>Terminal</u>	<u>Total</u>	
696	2739	3435	Vehicles
20.3	79.7	100.0	Percent of Total

<u>Auto</u>	<u>Truck</u>		
	<u>Single Unit</u>	<u>Trailer Combination</u>	
2714	619	102	Vehicles
79.0	18.0	3.0	Percent of Total

A. Through Traffic: 696 Vehicles

<u>Auto</u>	<u>Truck</u>		
	<u>Single Unit</u>	<u>Trailer Combination</u>	
521	154	21	Vehicles
74.9	22.1	3.0	Percent of Total

B. Terminal Traffic: 2739 Vehicles

<u>Auto</u>	<u>Truck</u>		
	<u>Single Unit</u>	<u>Trailer Combination</u>	
2193	465	81	Vehicles
80.1	17.0	2.9	Percent of Total

C. Through Traffic Interchange of 696 Vehicles

<u>Station</u>	<u>Autos</u>	<u>Trucks</u>		<u>Total Vehicles</u>	<u>Percent of Total</u>
		<u>Single Unit</u>	<u>Trailer Combination</u>		
1	88	28	2	118	16.9
2	123	46	2	171	24.6
4	295	77	17	389	55.9
5	3	0	0	3	0.4
6	3	1	0	4	0.6
7	9	2	0	11	1.6
Total	521	154	21	696	100.0

D. Terminal Traffic Distribution of 2739 Vehicles

Zone	Autos	Trucks		Total Vehicles	Percent of Total
		Single Unit	Trailer Combination		
11	45	25	2	72	2.6
12	368	55	34	457	16.7
13	28	8	0	36	1.3
14	112	14	4	130	4.8
15	79	39	15	133	4.9
17	523	106	11	640	23.4
18	38	14	5	57	2.1
19	59	10	0	69	2.5
21	22	14	0	36	1.3
22	38	7	1	46	1.7
23	87	7	0	94	3.4
24	25	5	0	30	1.1
25	110	16	0	126	4.6
26	27	7	1	35	1.3
28	104	6	0	110	4.0
30	22	8	1	31	1.1
31	31	3	0	34	1.2
32	47	22	0	69	2.5
38	89	30	0	119	4.4
39	62	14	1	77	2.8
45	29	2	0	31	1.1
48	47	9	0	56	2.0
50	37	9	6	52	1.9
51	42	7	0	49	1.8
Total	2071	437	81	2589	94.5

NOTE: Zones not listed attracted only a small percentage of the total trips.

2. Total traffic through Station 3 by Trip Purpose

<u>Work</u>	<u>Business</u>	<u>Shopping</u>	<u>Soc-Recreation</u>	<u>Total</u>	
1496	257	445	1237	3435	Vehicles
43.5	7.5	13.0	36.0	100.0	Percent of Total

A. Through Traffic Interchange by Trip Purpose

<u>Station</u>	<u>Work</u>	<u>Business</u>	<u>Shopping</u>	<u>Soc-Recreation</u>	<u>Total</u>
1	40	4	9	65	118
2	71	6	2	92	171
4	185	12	14	178	389
5	1	0	0	2	3
6	2	0	0	2	4
7	<u>4</u>	<u>0</u>	<u>0</u>	<u>7</u>	<u>11</u>
Total	303	22	25	346	696
Percent of Total	43.5	3.2	3.6	49.7	100.0

B. Terminal Traffic Distribution by Trip Purpose

<u>Zone</u>	<u>Work</u>	<u>Business</u>	<u>Shopping</u>	<u>Soc-Recreation</u>	<u>Total</u>
11	33	16	10	13	72
12	347	7	13	90	457
13	18	2	1	15	36
14	30	7	75	18	130
15	77	8	14	34	133
17	224	143	141	132	640
18	24	3	4	26	57
19	22	3	2	42	69
21	17	1	3	15	36
22	14	2	3	27	46
23	30	4	8	52	94
24	11	2	1	16	30
25	39	6	3	78	126
26	22	3	4	6	35
28	33	12	5	60	110
30	11	0	11	9	31
31	15	5	3	11	34
32	25	4	30	10	69
38	42	0	64	13	119
39	34	2	6	35	77
45	1	0	0	30	31
48	14	2	4	36	56
50	44	0	0	8	52
51	19	0	5	25	49
Total	<u>1146</u>	<u>232</u>	<u>410</u>	<u>801</u>	<u>2589</u>

Percent
of Total 41.8 8.5 15.0 29.2 94.5

NOTE: Zones not listed attracted only a small percentage of the total trips.

Station 4
M-20/M-82 West
Through and Terminal Traffic
By Vehicle Type and Trip Purpose

A total of 4,473 vehicles passed through Station 4 on M-20/M-82 west of Fremont. Tabulations on the following pages give a detailed analysis of this traffic.

Approximately 7 out of every 10 vehicles had a terminal inside the study area. Nearly 8 out of 10 vehicles were autos. Approximately 15 percent of the trucks were trailer combinations.

The largest through traffic movement at this station is the 808 (63.2%) vehicles interchanging with Station 2 on M-20 east. Of these 808 vehicles, 132 of them were trucks, of which 17 were trailer combination trucks.

The heaviest terminal traffic movements are to or from Zone 12 (Gerber Products) and Zone 17 (CBD).

More than 4 out of 10 trips passing through the station were made for the purpose of work. Five out of 10 through trips were for the purpose of social-recreation. More than 1 out of 4 terminal trips were made for business or shopping.

The largest terminal trip movements by purpose were the 424 work trips to Zone 12 and the 279 work trips to Zone 17.

1. Total traffic through Station 4 by Vehicle Type

<u>Through</u>	<u>Terminal</u>	<u>Total</u>	
1279	3194	4473	Vehicles
28.6	71.4	100.0	Percent of Total

<u>Auto</u>	<u>Truck</u>		Vehicles
	<u>Single Unit</u>	<u>Trailer Combination</u>	
3521	813	139	Vehicles
78.7	18.2	3.1	Percent of Total

A. Through Traffic: 1279 Vehicles

<u>Auto</u>	<u>Truck</u>		Vehicles
	<u>Single Unit</u>	<u>Trailer Combination</u>	
1033	210	36	Vehicles
80.8	16.4	2.8	Percent of Total

B. Terminal Traffic: 3194 Vehicles

<u>Auto</u>	<u>Truck</u>		Vehicles
	<u>Single Unit</u>	<u>Trailer Combination</u>	
2488	603	103	Vehicles
77.9	18.9	3.2	Percent of Total

C. Through Traffic Interchange of 1279 Vehicles

<u>Station</u>	<u>Autos</u>	<u>Trucks</u>		<u>Total Vehicles</u>	<u>Percent of Total</u>
		<u>Single Unit</u>	<u>Trailer Combination</u>		
1	55	16	2	73	5.7
2	676	115	17	808	63.2
3	295	77	17	389	30.4
5	3	1	0	4	0.3
6	3	0	0	3	0.2
7	<u>1</u>	<u>1</u>	<u>0</u>	<u>2</u>	<u>0.2</u>
Total	1033	210	36	1279	100.0

D. Terminal Traffic Distribution of 3194 Vehicles

Zone	Autos	Trucks		Total Vehicles	Percent of Total
		Single Unit	Trailer Combination		
11	49	11	0	60	1.9
12	452	75	17	544	17.0
13	51	6	0	57	1.8
14	261	44	7	312	9.8
15	124	76	21	221	6.9
17	614	128	18	760	23.8
18	39	4	7	50	1.6
19	43	10	0	53	1.7
21	27	29	5	61	1.9
23	81	15	1	97	3.0
24	45	5	0	50	1.6
25	76	14	1	91	2.8
26	38	11	2	51	1.6
28	83	13	0	96	3.0
30	42	13	1	56	1.7
31	51	14	10	75	2.3
32	81	27	0	108	3.4
34	17	24	1	42	1.3
38	41	16	0	57	1.8
45	45	7	2	54	1.7
48	49	3	0	52	1.6
50	29	17	4	50	1.6
51	48	18	0	66	2.1
Total	2386	580	97	3063	95.9

NOTE: Zones not listed attracted only a small percentage of the total trips.

2. Total Traffic Through Station 4 By Trip Purpose

<u>Work</u>	<u>Business</u>	<u>Shopping</u>	<u>Soc-Recreation</u>	<u>Total</u>	
2050	405	593	1425	4473	Vehicles
45.8	9.0	13.3	31.9	100.0	Percent of Total

A. Through Traffic Interchange by Trip Purpose

<u>Station</u>	<u>Work</u>	<u>Business</u>	<u>Shopping</u>	<u>Soc-Recreation</u>	<u>Total</u>
1	35	2	4	32	73
2	301	45	35	427	808
3	185	12	14	178	389
5	2	0	2	0	4
6	0	0	0	3	3
7	<u>1</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>2</u>
Total	524	59	55	641	1279
Percent of Total	41.0	4.6	4.3	50.1	100.0

B. Terminal Traffic Distribution by Trip Purpose

<u>Zone</u>	<u>Work</u>	<u>Business</u>	<u>Shopping</u>	<u>Soc-Recreation</u>	<u>Total</u>
11	17	31	5	7	60
12	424	10	24	86	544
13	26	0	9	22	57
14	70	20	189	33	312
15	111	22	42	46	221
17	279	157	189	135	760
18	22	1	2	25	50
19	13	4	2	34	53
21	34	21	0	6	61
23	42	7	6	42	97
24	25	1	0	24	50
25	43	6	5	37	91
26	34	5	3	9	51
28	25	15	0	56	96
30	33	1	5	17	56
31	52	7	3	13	75
32	58	23	15	12	108
34	25	1	0	16	42
38	33	1	15	8	57
45	3	1	1	49	54
48	26	4	4	18	52
50	41	1	2	6	50
51	34	4	7	21	66
Total	1470	343	528	722	3063

Percent
of Total 46.0 10.8 16.5 22.6 95.9

NOTE: Zones not listed attracted only a small percentage of the total trips.

Station 5
Osborn Avenue
Through and Terminal Traffic
By Vehicle Type and Trip Purpose

A total of 143 vehicles passed through Station 5 on Osborn Avenue north of Fremont. Nine out of 10 trips had a terminal inside the study area. Approximately 1 vehicle out of 5 was a single unit truck. Autos accounted for more than 3 out of 4 vehicles making terminal trips.

More than 5 out of 10 trips, which passed through this station, were made for the purpose of work. Social-Recreation was the next most important purpose for which trips were made.

NOTE: The small number of vehicles passing Station 5 did not justify all the tabulations presented for the other stations. This information can be found in the trip tables.

1. Total traffic through Station 5 by Vehicle Type

<u>Through</u>	<u>Terminal</u>	<u>Total</u>	
13	130	143	Vehicles
9.1	90.9	100.0	Percent of Total
<u>Auto</u>	<u>Truck</u>		
	<u>Single Unit</u>	<u>Trailer Combination</u>	
112	30	1	Vehicles
78.3	21.0	0.7	Percent of Total

A. Through Traffic: 13 Vehicles

<u>Auto</u>	<u>Truck</u>		
	<u>Single Unit</u>	<u>Trailer Combination</u>	
12	1	0	Vehicles
92.3	7.7	0.0	Percent of Total

B. Terminal Traffic: 130 Vehicles

<u>Auto</u>	<u>Truck</u>		
	<u>Single Unit</u>	<u>Trailer Combination</u>	
100	29	1	Vehicles
76.9	22.3	0.8	Percent of Total

2. Total Traffic through Station 5 by Trip Purpose

<u>Work</u>	<u>Business</u>	<u>Shopping</u>	<u>Soc-Recreation</u>	<u>Total</u>	
78	15	17	33	143	Vehicles
54.5	10.5	11.9	23.1	100.0	Percent of Total

Station 6
Ramshorn Drive
Through and Terminal Traffic
By Vehicle Type and Trip Purpose

A total of 186 vehicles passed through Station 6 on Ramshorn Drive north of Fremont. The same percentage of trips had a terminal inside the area as for Station 5. There were no trailer combination trucks which passed this station. Single unit trucks accounted for 28 vehicles. Approximately 85 percent of the vehicles passing this station were autos.

More than 5 out of every 10 trips passing this station are made for the purpose of work. Approximately 1 out of 4 trips were made for the purpose of social-recreation.

NOTE: The small number of vehicles passing Station 6 did not justify all the tabulations presented for the other stations. This information can be found in the trip tables.

1. Total traffic through Station 6 by Vehicle Type

<u>Through</u>	<u>Terminal</u>	<u>Total</u>	
17	169	186	Vehicles
9.1	90.9	100.0	Percent of Total
<u>Auto</u>	<u>Truck</u>		
	<u>Single Unit</u>	<u>Trailer Combination</u>	
158	28	0	Vehicles
84.9	15.1	0.0	Percent of Total

A. Through Traffic: 17 Vehicles

<u>Auto</u>	<u>Truck</u>		
	<u>Single Unit</u>	<u>Trailer Combination</u>	
13	4	0	Vehicles
76.5	23.5	0.0	Percent of Total

B. Terminal Traffic: 169 Vehicles

<u>Auto</u>	<u>Truck</u>		
	<u>Single Unit</u>	<u>Trailer Combination</u>	
145	24	0	Vehicles
85.8	14.2	0.0	Percent of Total

2. Total traffic through Station 6 by Trip Purpose

<u>Work</u>	<u>Business</u>	<u>Shopping</u>	<u>Soc-Recreation</u>	<u>Total</u>
96	22	21	47	186 Vehicles
51.6	11.8	11.3	25.3	100.0 Percent of Total

Station 7
Lake Drive
Through and Terminal Traffic
By Vehicle Type and Trip Purpose

A total of 672 vehicles passed through Station 7 on Lake Drive, southwest of Fremont. Tabulations on the following pages give a detailed analysis of this traffic.

The terminal traffic passing this station accounted for more than 9 out of every 10 vehicles. Approximately 8 out of 10 vehicles were autos. Truck traffic accounted for 90 vehicles of which 3 were trailer combination trucks.

The largest through traffic movement at this station is the 17 (54.8%) vehicles interchanging with Station 2 on M-20 east. Of these 17 vehicles 13 were autos and 4 were single unit trucks.

The heaviest terminal traffic movements (185 vehicles or 28.9%) were to or from Zones 17 and 33.

More than 4 out of 10 trips passing through the station were made for the purpose of work and approximately 3 out of 10 trips were made for the purpose of social-recreation.

More than 5 out of 10 through trips were made for the purpose of social-recreation.

The largest terminal trip movements by purpose were the 60 work trips to or from Zone 17 and the 31 work trips to Zone 12 followed by the 29 trips to Zone 33 for social-recreation.

1. Total traffic through Station 7 by Vehicle Type

<u>Through</u>	<u>Terminal</u>	<u>Total</u>	
31	641	672	Vehicles
4.6	95.4	100.0	Percent of Total

<u>Auto</u>	<u>Truck</u>		
	<u>Single Unit</u>	<u>Trailer Combination</u>	
582	87	3	Vehicles
86.6	12.9	0.5	Percent of Total

A. Through Traffic: 31 Vehicles

<u>Auto</u>	<u>Truck</u>		
	<u>Single Unit</u>	<u>Trailer Combination</u>	
27	7	0	Vehicles
77.4	22.6	0.0	Percent of Total

B. Terminal Traffic: 641 Vehicles

<u>Auto</u>	<u>Truck</u>		
	<u>Single Unit</u>	<u>Trailer Combination</u>	
558	80	3	Vehicles
87.0	12.5	0.5	Percent of Total

C. Through Traffic Interchange of 31 Vehicles

<u>Station</u>	<u>Autos</u>	<u>Trucks</u>		<u>Total Vehicles</u>	<u>Percent of Total</u>
		<u>Single Unit</u>	<u>Trailer Combination</u>		
2	13	4	0	17	54.8
3	9	2	0	11	35.5
4	1	1	0	2	6.5
5	<u>1</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>3.2</u>
Total	24	7	0	31	100.0

D. Terminal Traffic Distribution of 641 Vehicles

Zone	Autos	Trucks		Total Vehicles	Percent of Total
		Single Unit	Trailer Combination		
11	10	0	0	10	1.6
12	27	6	0	33	5.1
14	19	0	0	19	3.0
15	25	12	1	38	5.9
16	19	0	0	19	3.0
17	91	30	2	123	19.2
19	6	0	0	6	0.9
22	7	0	0	7	1.1
23	38	2	0	40	6.2
24	15	0	0	15	2.3
25	37	4	0	41	6.4
26	11	0	0	11	1.7
28	23	2	0	25	3.9
29	24	1	0	25	3.9
30	3	2	0	5	0.8
31	32	4	0	36	5.6
32	9	4	0	13	2.0
33	59	3	0	62	9.7
34	42	6	0	48	7.5
36	18	2	0	20	3.1
38	9	0	0	9	1.4
48	4	1	0	5	0.8
51	<u>10</u>	<u>0</u>	<u>0</u>	<u>10</u>	<u>1.6</u>
Total	538	79	3	620	96.7

NOTE: Zones not listed attracted only a small percentage of the total trips.

2. Total Traffic through Station 7 by Trip Purpose

<u>Work</u>	<u>Business</u>	<u>Shopping</u>	<u>Soc-Recreation</u>	<u>Total</u>	
305	53	100	214	672	Vehicles
45.4	7.9	14.9	348	100.0	Percent of Total

A. Through Traffic Interchange by Trip Purpose

<u>Station</u>	<u>Work</u>	<u>Business</u>	<u>Shopping</u>	<u>Soc-Recreation</u>	<u>Total</u>
2	5	1	1	10	17
3	4	0	0	7	11
4	1	0	0	1	2
5	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>1</u>
Total	11	1	1	18	31
Percent of Total	35.5	3.2	3.2	58.1	100.0

B. Terminal Traffic Distribution by Trip Purpose

<u>Zone</u>	<u>Work</u>	<u>Business</u>	<u>Shopping</u>	<u>Soc-Recreation</u>	<u>Total</u>
11	6	6	0	1	10
12	31	1	0	1	33
14	2	0	17	0	19
15	28	0	9	1	38
16	4	0	0	15	19
17	60	23	28	12	123
19	2	2	0	2	6
22	2	0	0	5	7
23	17	2	2	19	40
24	12	1	0	2	15
25	9	3	1	28	41
26	8	1	1	1	11
28	7	3	2	13	25
29	14	1	3	7	25
30	4	0	0	1	5
31	22	2	2	10	36
32	5	2	5	1	13
33	16	6	11	29	62
34	21	0	7	20	48
36	11	0	3	6	20
38	2	0	4	3	9
48	5	0	0	0	5
51	<u>3</u>	<u>0</u>	<u>1</u>	<u>6</u>	<u>10</u>
Total	291	50	96	183	620

Percent
of Total 45.4 7.8 15.0 28.5 96.7

NOTE: Zones not listed attracted only a small percentage of the total trips.

External Terminals

The preceding part of this report dealt with the traffic inside the Fremont O-D Survey Area. This part of the report will deal with the origin and/or destination trip ends outside the Study Area. A through trip is counted twice. It is counted at both its entering and departing stations but this will not change the number of external terminals.

The following desire diagrams show all external terminals by county for the State of Michigan and by states for terminals outside the State of Michigan:

Desire Diagram No. 14 Station 1

Desire Diagram No. 15 Station 2

Desire Diagram No. 16 Station 3

Desire Diagram No. 17 Station 4

Desire Diagram No. 18 Station 7

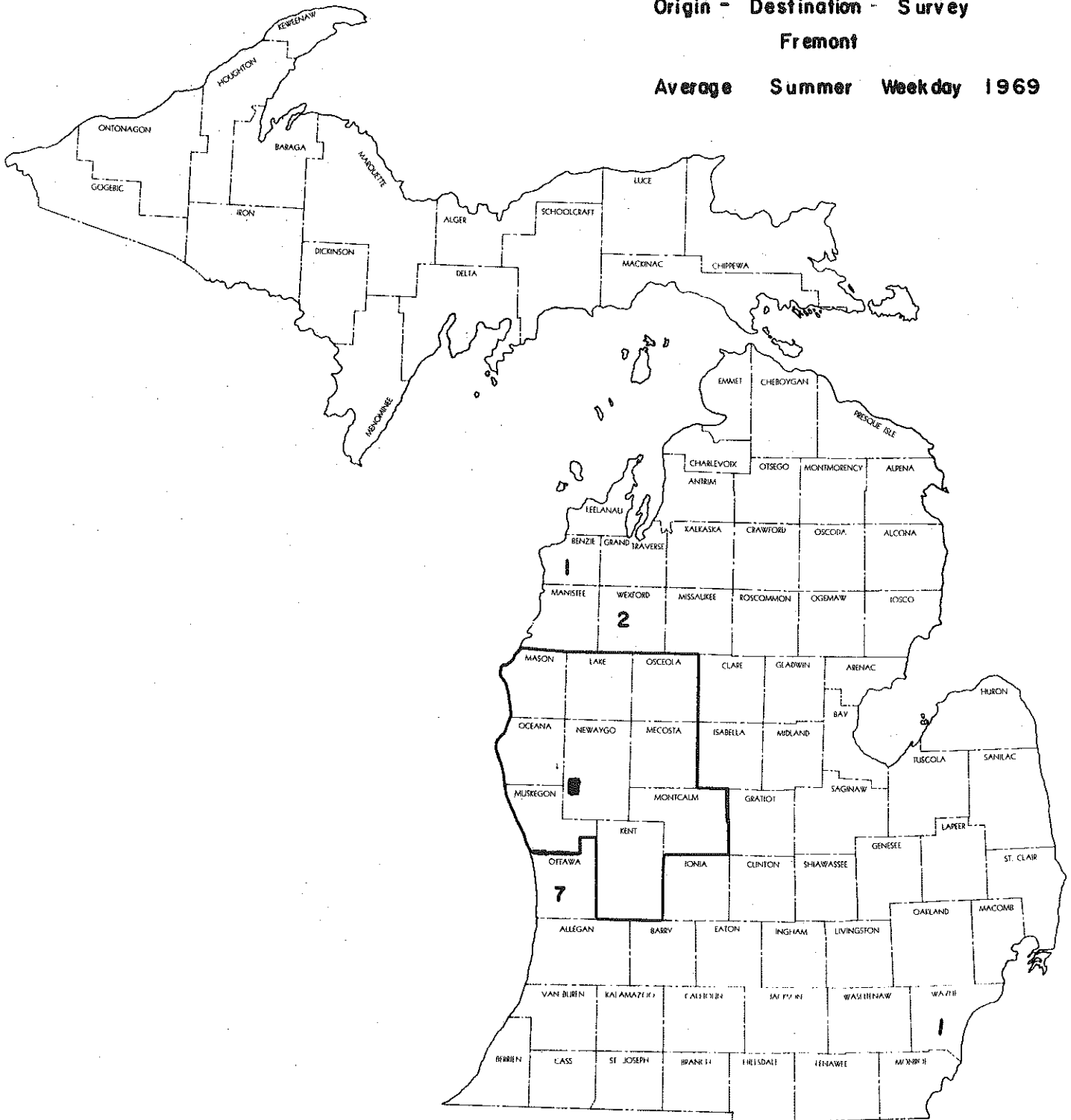
Note: Stations 5 and 6 had no trips with an origin and/or destination outside the nine county area.

External Terminals of Traffic Through
Station 1

Stone Road, 100 Feet South of 30th St.
Outside of the 9 County Area.
Origin - Destination - Survey

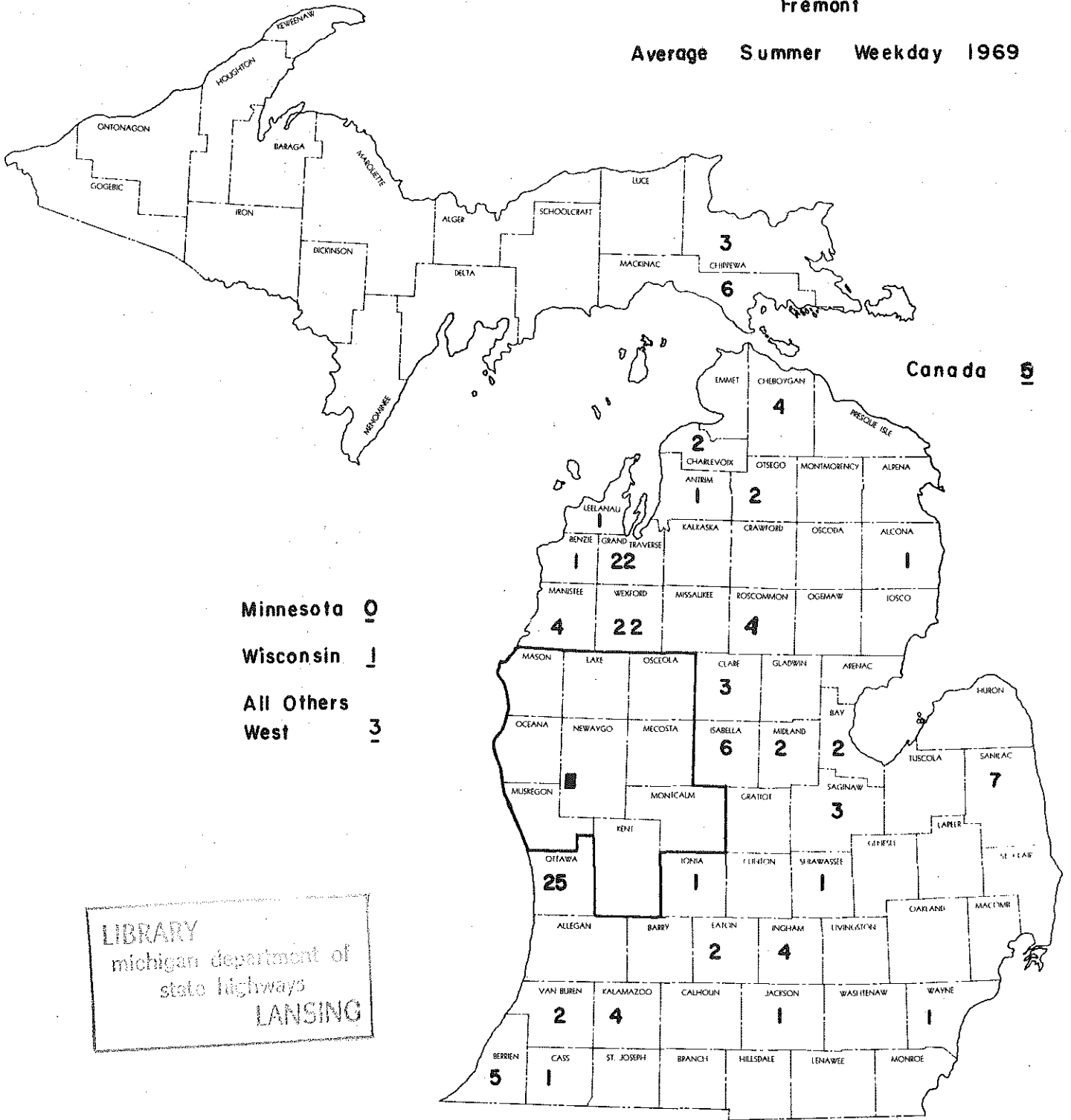
Fremont

Average Summer Weekday 1969



External Terminals of Traffic
Through Station 2
Main St. (M-20), 0.2 Miles West of
Luce Ave. Outside of the 9 County Area
Origin - Destination Survey
Fremont

Average Summer Weekday 1969



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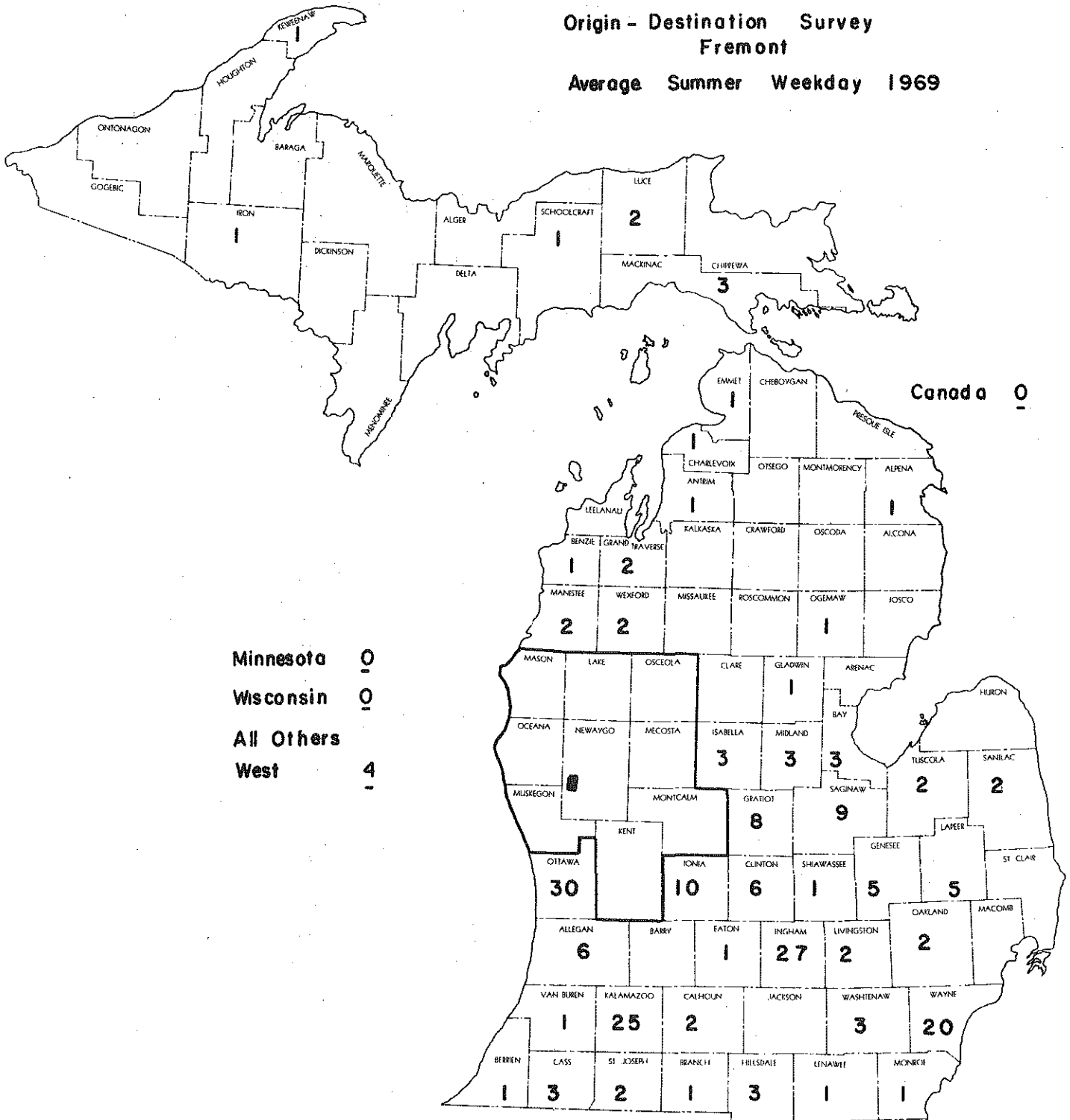
ILLINOIS 15 INDIANA 8 OHIO 1
All Others East
and South 3

**External Terminals of Traffic Through
Station 3**

**Stewart Ave (M-82), 0.2 Mile South of
56th St. Outside of the 9 County Area.**

**Origin - Destination Survey
Fremont**

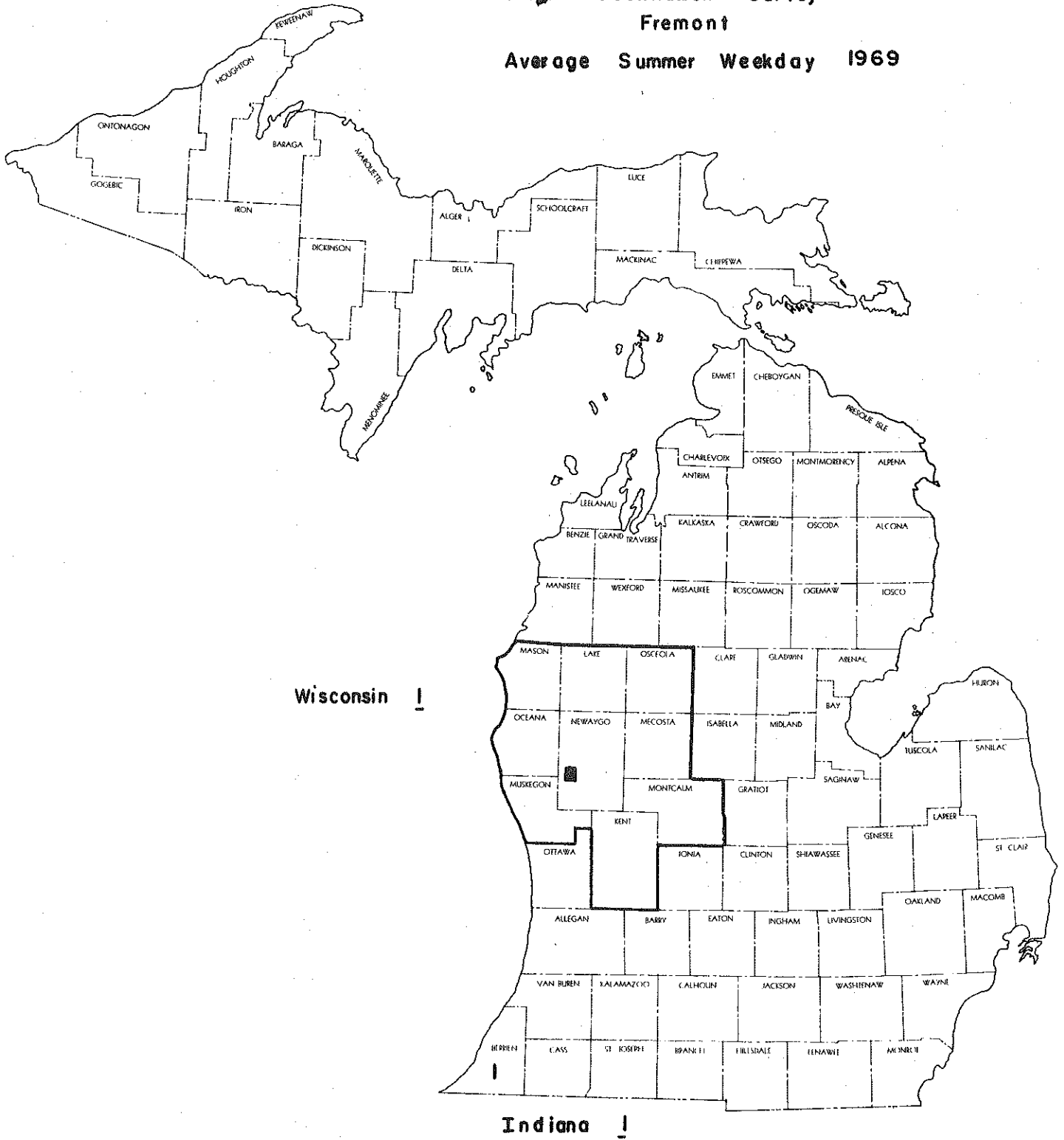
Average Summer Weekday 1969



Minnesota 0
Wisconsin 0
All Others 4
West -

Illinois 5 Indiana 12 Ohio 6
All Others East
and South 7

External Terminals of Traffic Through
Station 7
 Lake Dr., 0.1 Mile East of Green Ave.
 Outside of the 9 County Area
 Origin - Destination Survey
 Fremont
 Average Summer Weekday 1969



Wisconsin |

Indiana |

The following desire line diagrams show only the external terminals in Newaygo and the surrounding eight counties.

Desire Line Diagram No. 19 Station 1

Desire Line Diagram NO. 20 Station 2

Desire Line Diagram No. 21 Station 3

Desire Line Diagram No. 22 Station 4

Desire Line Diagram No. 23 Station 5

Desire Line Diagram No. 24 Station 6

Desire Line Diagram No. 25 Station 7

Of the 1,495 vehicles which passed through Station 1, all but 11 had origins and/or destinations within the nine county area.

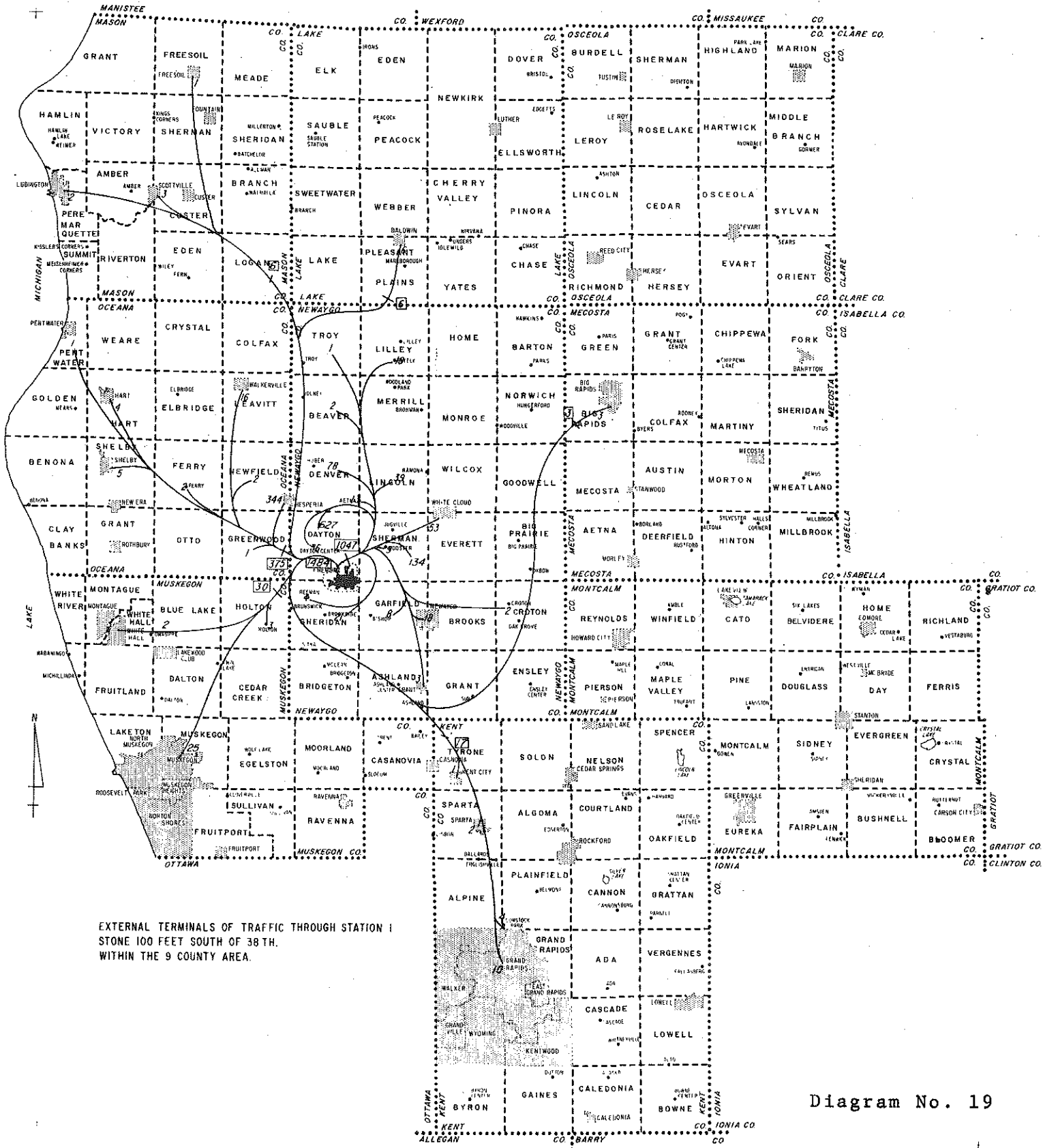
Of the 4,102 vehicles which passed through Station 2, 3,923 (95.6%) trips had origins and/or destinations within the nine county area.

Of the 3,435 vehicles which passed through Station 3, 3,192 (92.9%) trips had origins and/or destinations within the nine county area.

Of the 4,473 vehicles which passed through Station 4, 4,163 (93.1%) trips had origins and/or destinations within the nine county area.

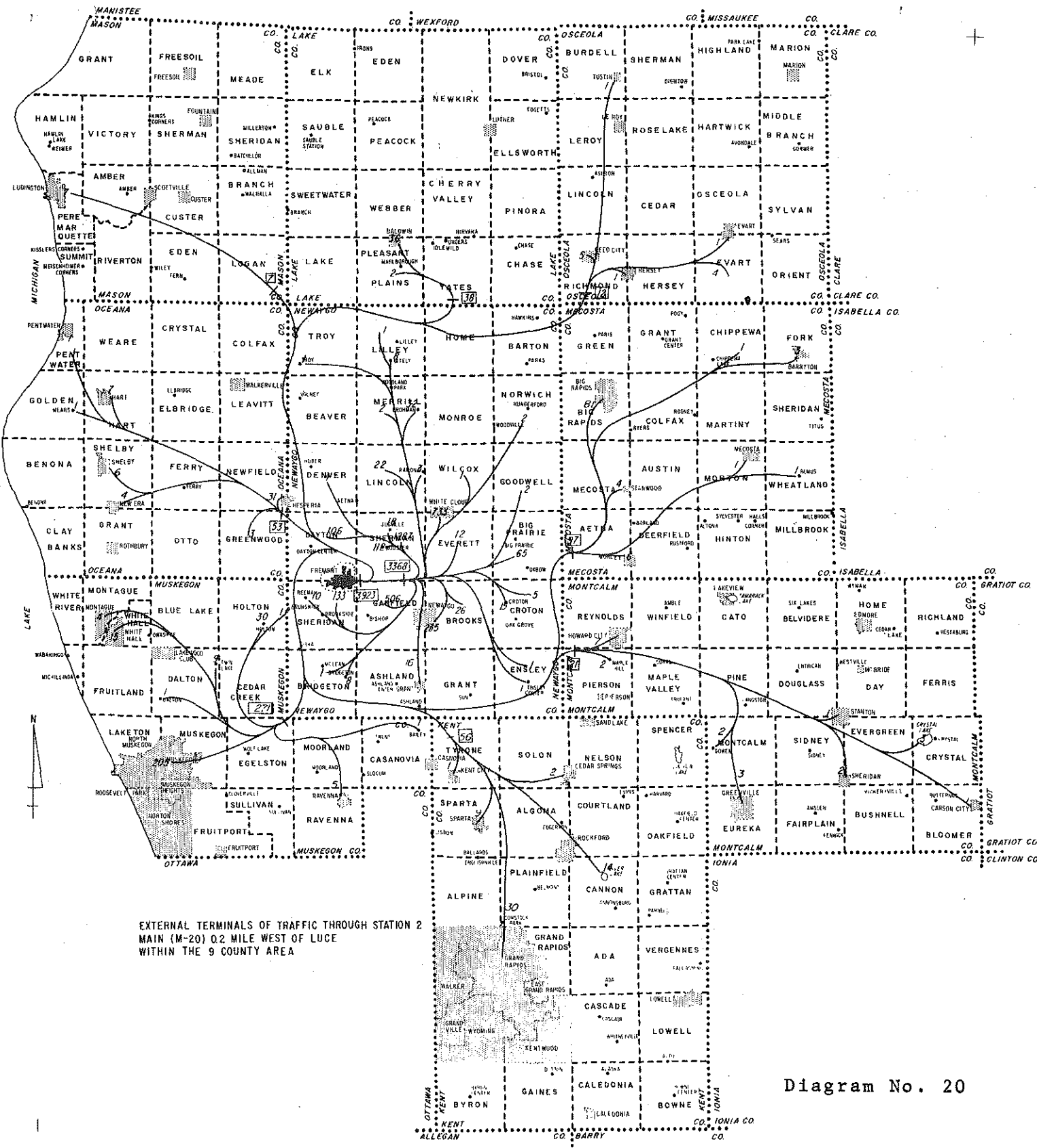
All the vehicles which passed through Stations 5 and 6 had origins and/or destinations within the nine county area.

Of the 672 vehicles which passed through Station 7, all but three had origins and/or destinations within the nine county area.



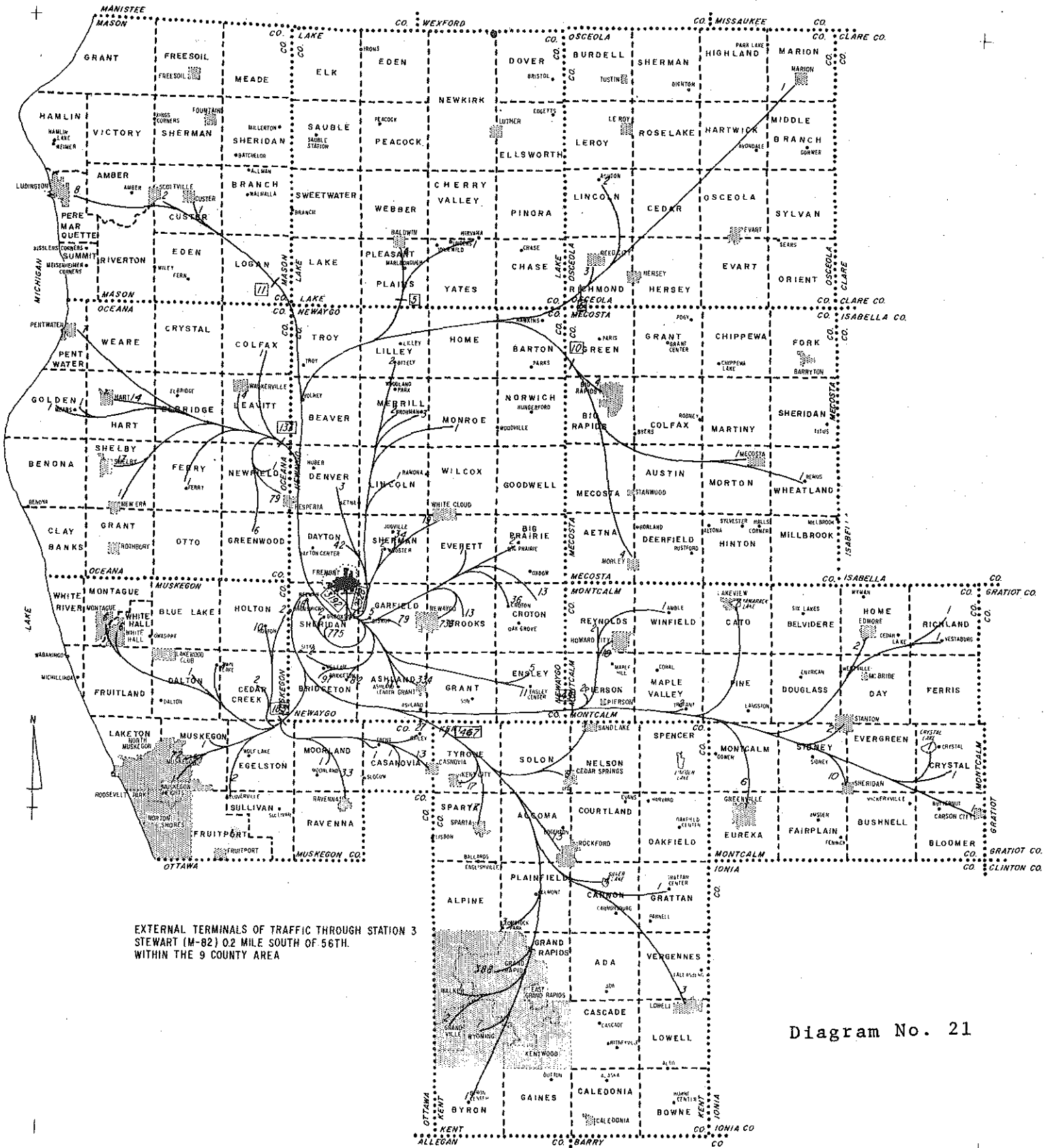
EXTERNAL TERMINALS OF TRAFFIC THROUGH STATION 1
 STONE 100 FEET SOUTH OF 38 TH.
 WITHIN THE 9 COUNTY AREA.

Diagram No. 19



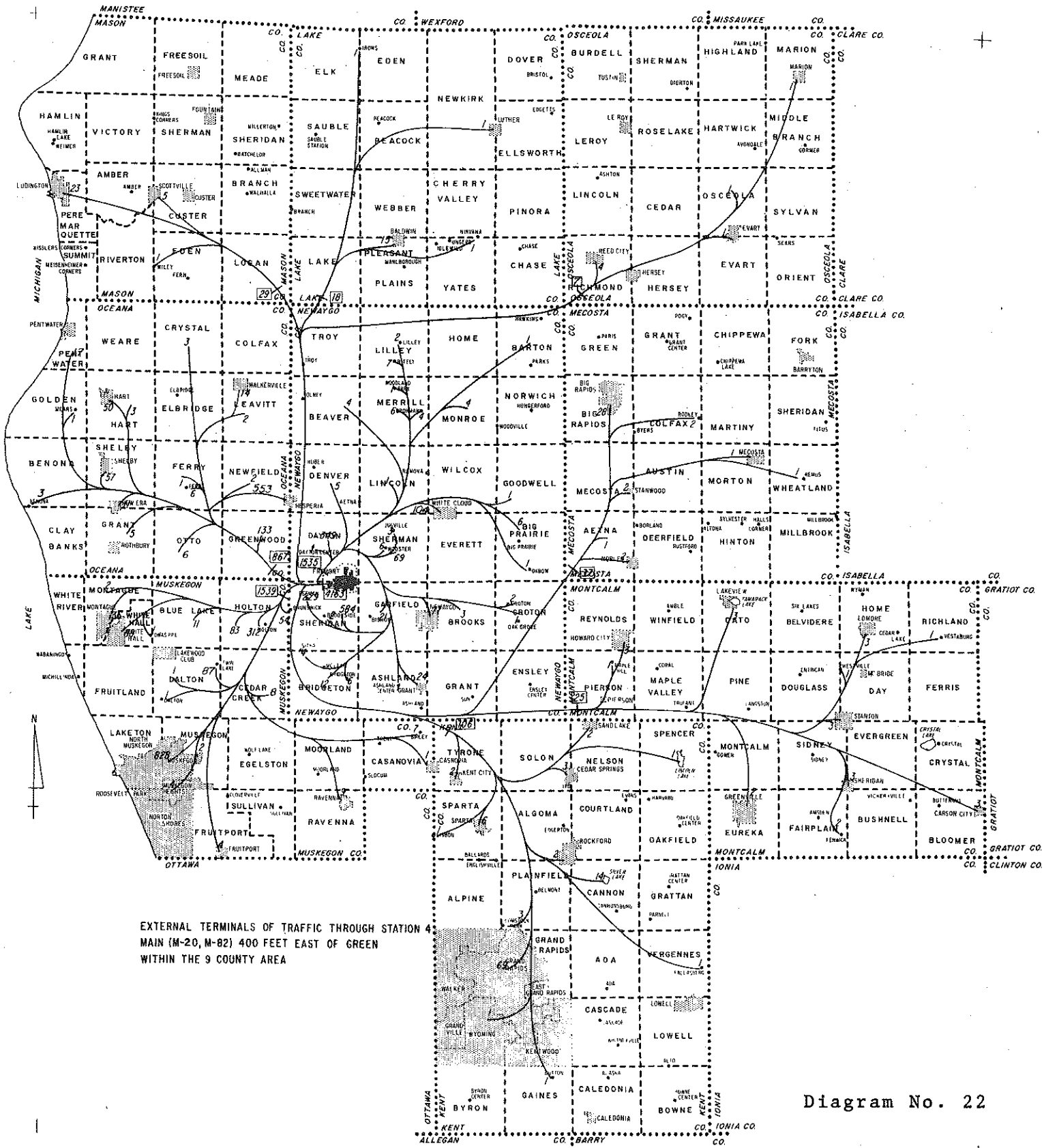
EXTERNAL TERMINALS OF TRAFFIC THROUGH STATION 2
 MAIN (M-20) 0.2 MILE WEST OF LUCE
 WITHIN THE 9 COUNTY AREA

Diagram No. 20



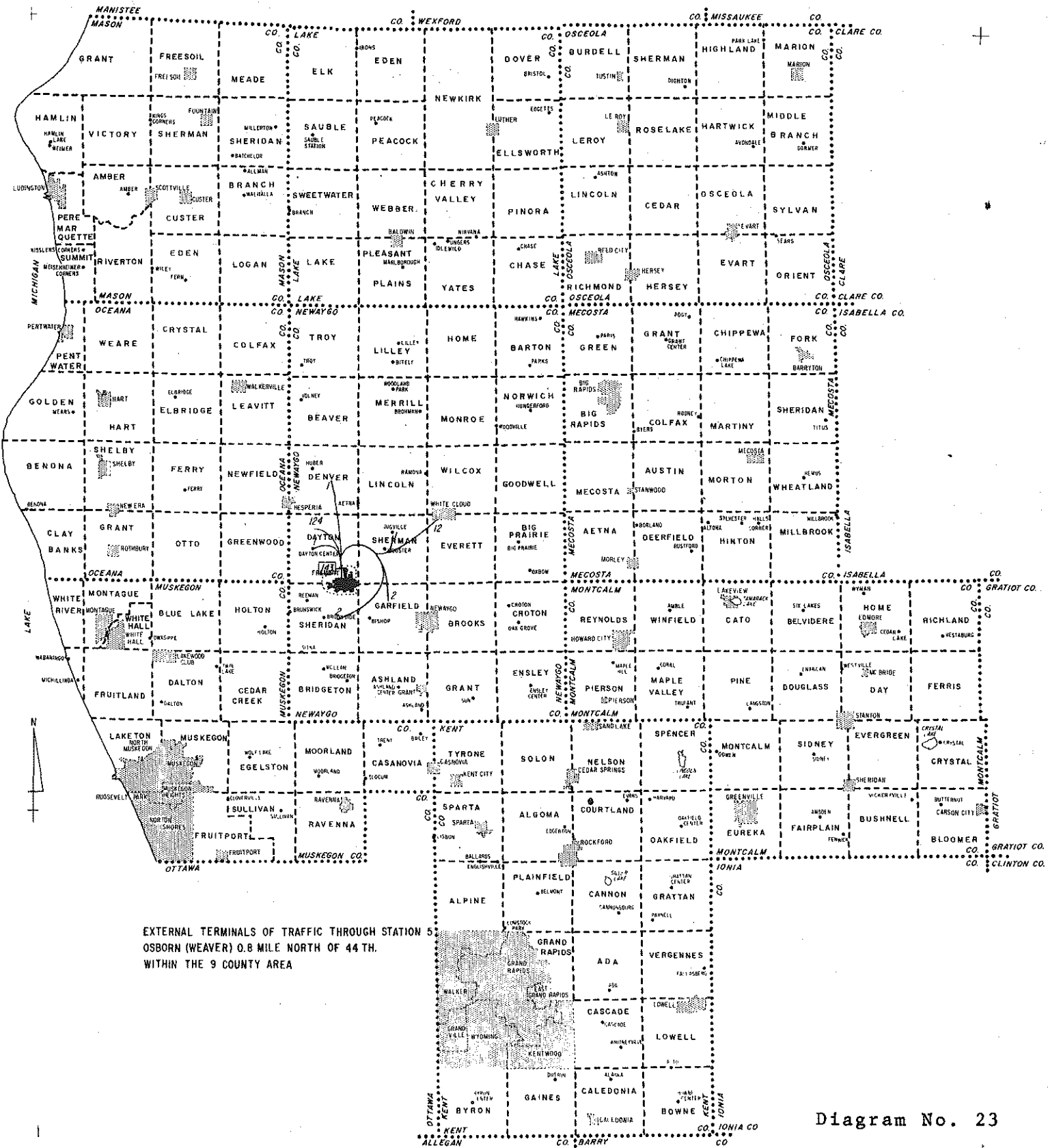
EXTERNAL TERMINALS OF TRAFFIC THROUGH STATION 3
 STEWART (M-82) 0.2 MILE SOUTH OF 56TH.
 WITHIN THE 9 COUNTY AREA

Diagram No. 21



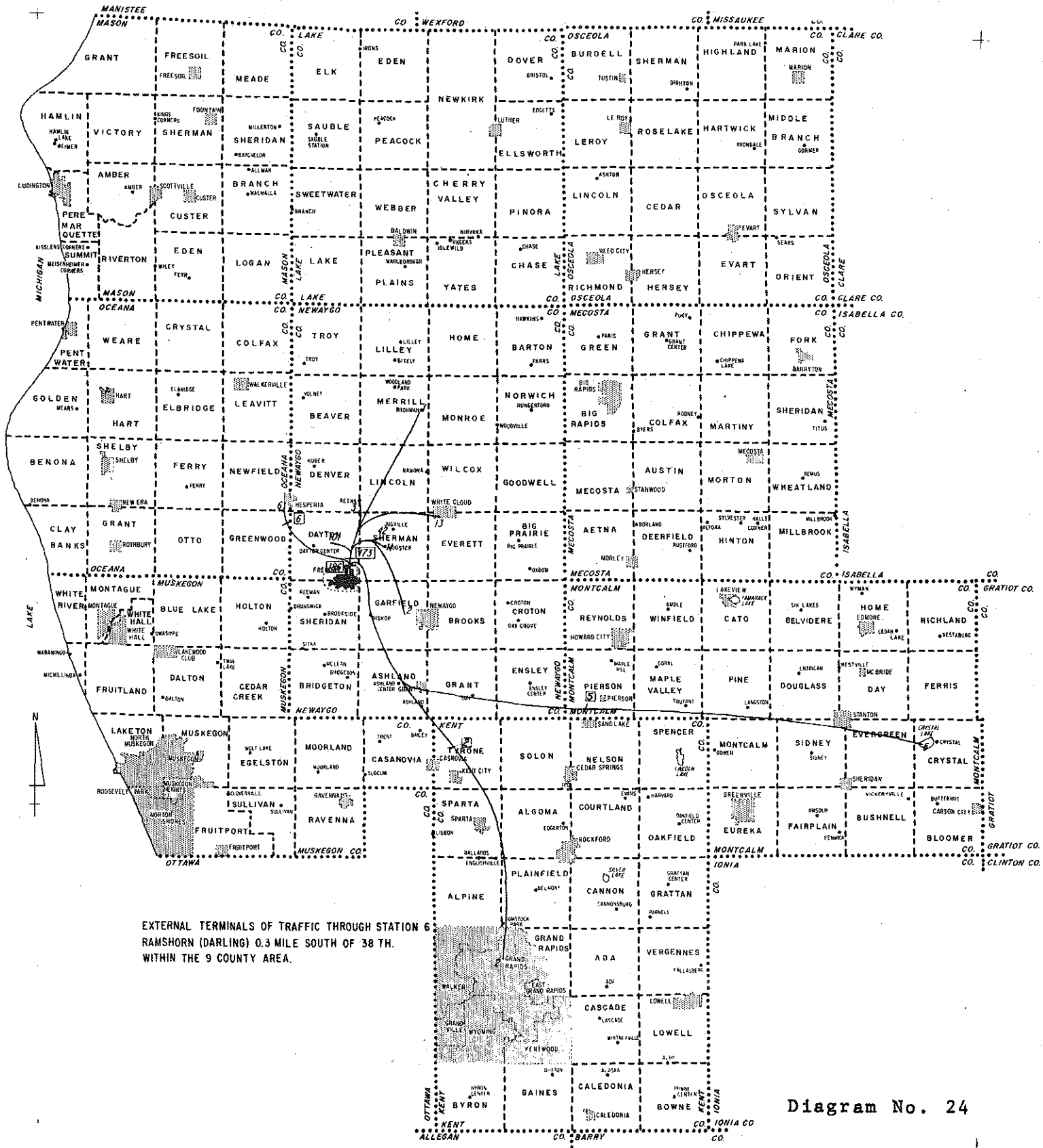
EXTERNAL TERMINALS OF TRAFFIC THROUGH STATION 4
 MAIN (M-20, M-82) 400 FEET EAST OF GREEN
 WITHIN THE 9 COUNTY AREA

Diagram No. 22



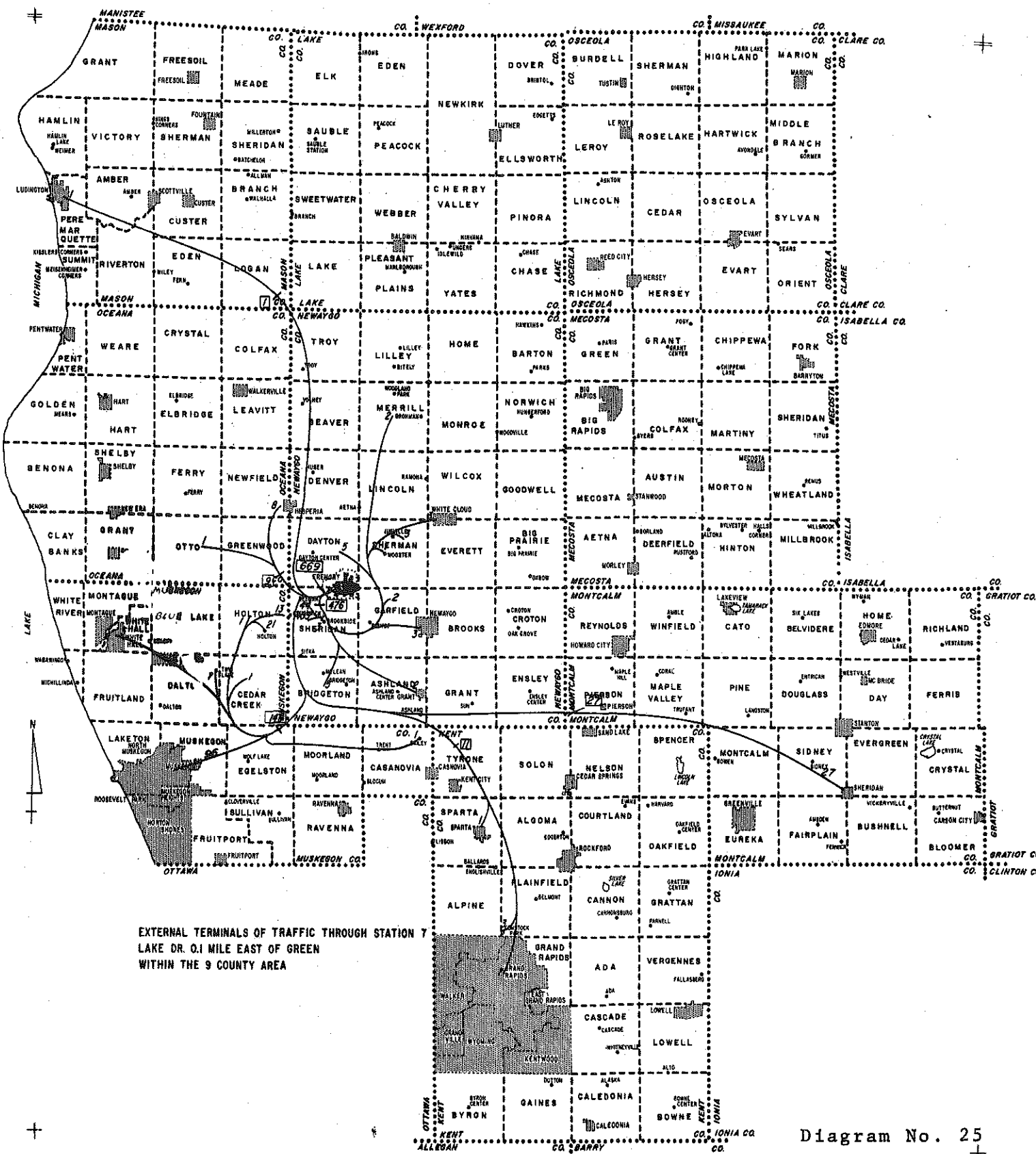
EXTERNAL TERMINALS OF TRAFFIC THROUGH STATION 5
 OSBORN (WEAVER) 0.8 MILE NORTH OF 44 TH.
 WITHIN THE 9 COUNTY AREA

Diagram No. 23



EXTERNAL TERMINALS OF TRAFFIC THROUGH STATION 6
 RAMSHORN (DARLING) 0.3 MILE SOUTH OF 38 TH.
 WITHIN THE 9 COUNTY AREA.

Diagram No. 24



EXTERNAL TERMINALS OF TRAFFIC THROUGH STATION 7
 LAKE DR. 0.1 MILE EAST OF GREEN
 WITHIN THE 9 COUNTY AREA

APPENDIX

APPENDIX A

INTERVIEW FORMS

EXTERNAL TRIP
REPORT

STATE OF MICHIGAN
DEPARTMENT OF STATE HIGHWAYS

Fremont Area
Transportation Study-1969

City Number			Form Number			Hour Period Ending () AM or () PM				In Bound		Station				Day of Travel																	
1		2	3		4	5		6		7		8		9		10		11		12		13		14									
1	2	3	4	5				6	7				8	9	10	11		12	13	14													
Interview Number	State of Registration	Veh. Type	No. in Vehicle	Where did this trip begin? Origin				Land Use	Where will this trip end? Destination				Where is vehicle garaged?	Trip Purpose	Screen	Route of Exit or Ent.		Stops in area	Purpose	Stop Location													
	1 Mich. 2 Other																	1 Yes 2 No															
	1 Mich. 2 Other																	1 Yes 2 No															
	1 Mich. 2 Other																	1 Yes 2 No															
	1 Mich. 2 Other																	1 Yes 2 No															
	1 Mich. 2 Other																	1 Yes 2 No															
	1 Mich. 2 Other																	1 Yes 2 No															
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

app. 2

DESTINATION

Vehicle Garaged At

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

1. Within the cordon
2. Outside the cordon at origin
3. Outside the cordon at destination
4. Outside the cordon at neither origin or destination

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

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

DAY OF TRAVEL

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

EXTERNAL TRIP
REPORT

STATE OF MICHIGAN
DEPARTMENT OF STATE HIGHWAYS

Fremont Area
Transportation Study - 1969

City Number		Form Number		Hour Period		Out Bound		Station		Day of Travel																							
1	2	3	4	5	6	7	8	9	10	11	12	13	14																				
Interview Number	State of Registration	Veh. Type	No. in Vehicle	Where did this trip begin? Origin	Land Use	Where will this trip end? Destination	Where is vehicle garaged?	Trip Purpose	Screen	Route of Exit or Ent.	Stops in area	Purpose	Stop Location																				
	1 Mich. 2 Other										1 Yes 2 No																						
	1 Mich. 2 Other										1 Yes 2 No																						
	1 Mich. 2 Other										1 Yes 2 No																						
	1 Mich. 2 Other										1 Yes 2 No																						
	1 Mich. 2 Other										1 Yes 2 No																						
	1 Mich. 2 Other										1 Yes 2 No																						
	1 Mich. 2 Other										1 Yes 2 No																						
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

app. 3

ORIGIN

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

Vehicle Garaged At

1. Within the cordon
2. Outside the cordon at origin
3. Outside the cordon at destination
4. Outside the cordon at neither origin or destination

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

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

DAY OF TRAVEL

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

APPENDIX B

TRIP TABLES

TABLE S-1

This trip table tabulates all trips by passenger car, truck and taxi drivers for a 24-hour period. The origin zone is listed down the left hand margin. The destination zone is listed horizontally.

In this table trip volumes are given directionally. Therefore, to find the total movements between two zones, it will be necessary to use each zone once as an origin and once as a destination and then total the two volumes.

As there were no home interviews taken during this study, the trips with an internal origin and an internal destination do not appear in this Trip Table.

FREMONT
METROPOLITAN AREA TRAFFIC STUDY

TABLE S-1

TOTAL TRIPS BY PASSENGER CAR, TRUCK AND TAXI DRIVERS FOR A 24-HOUR WEEKDAY IN JULY AND AUGUST 1969

DESTINATIONS

ORIGIN	1	2	3	4	5	6	7	11	12	13
1		26	65	36				14	179	8
2	28		94	394	3	6	9	23	242	28
3	53	77		197	1	2	8	35	232	22
4	37	414	192		2		1	32	239	29
5		2	2	2					13	
6		4	2	3				4	5	
7		8	3	1	1			6	14	3
SUB-TOT	118	531	358	633	7	8	18	114	924	90
11	8	37	37	28		1	4			
12	181	233	225	305	15	2	19			
13	12	32	14	28	1		1			
14	77	105	87	150	1	10	7			
15	56	121	64	104	3	3	11			
16	2	3	3	4			4			
17	119	426	284	373	22	19	68			
18	3	22	29	35		1				
19	8	27	33	33		1	3			
20		1		2						
21	12	33	21	33		1	2			
22	4	19	17	10		2	4			
23	12	68	43	54	3		22			
24	3	18	18	24	2		8			
25	21	57	58	44	2	10	23			
26	2	25	15	29		2	8			
27		1		1						
28	21	77	55	54	8		17			
29	2	5	1	8		1	16			
30	9	12	18	34	1	1	4			
31	5	21	17	33		3	19			
32	5	29	44	36	1		4			
33	1		2				25			
34		13	16	21			27			
35		2	5	1			3			

app. 6

FREMONT
METROPOLITAN AREA TRAFFIC STUDY

TABLE S-1

TOTAL TRIPS BY PASSENGER CAR, TRUCK AND TAXI DRIVERS FOR A 24-HOUR WEEKDAY IN JULY AND AUGUST 1969

DESTINATIONS

ORIGIN	1	2	3	4	5	6	7	11	12	13
36	1	7	11	6	1		12			
37			2							
38	10	35	57	38	1		5			
39	7	21	40	8			3			
40	1	12	9	10		7	1			
41	14		5	5						
42	8	6	11	3		1				
43			1	2	1	1				
44		2		3		4				
45	7	14	11	31		4				
46	1	4	2	4		7	1			
47	1		1	1						
48	7	40	23	31	1	1	1			
49	1	7	3	6						
50	5	20	27	26	2	2				
51	13	20	21	36	2		6			
SUB-TOT	639	1577	1330	1654	67	84	328			
FIN-TOT	757	2108	1688	2287	74	92	346	114	924	90

app. 7

FREMONT
METROPOLITAN AREA TRAFFIC STUDY

TABLE S-1

TOTAL TRIPS BY PASSENGER CAR, TRUCK AND TAXI DRIVERS FOR A 24-HOUR WEEKDAY IN JULY AND AUGUST 1969

DESTINATIONS

ORIGIN	14	15	16	17	18	19	20	21	22	23
1	66	58	1	123	5	9		13	6	10
2	117	95	4	390	24	27	5	36	17	53
3	43	69	5	356	28	36		15	29	51
4	162	117	5	387	15	20	5	28	11	43
5	1	1		20				2	1	5
6	9	1		21	1	1			1	1
7	12	27	15	55	3	3			3	18
TOT	410	368	30	1352	76	96	10	94	68	181

app. 8

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FREMONT
METROPOLITAN AREA TRAFFIC STUDY

TABLE S-1

TOTAL TRIPS BY PASSENGER CAR, TRUCK AND TAXI DRIVERS FOR A 24-HOUR WEEKDAY IN JULY AND AUGUST 1969

DESTINATIONS

ORIGIN	24	25	26	27	28	29	30	31	32	33
1	4	12	2		16		4	10	7	1
2	20	56	19		56	3	16	18	24	3
3	12	68	20	1	55	9	13	17	25	5
4	26	47	22		42	6	22	42	72	1
5	2	2	1		6		1		2	
6	1	5	2		2	2		2		
7	7	18	3		8	9	1	17	9	37
TOT	72	208	69	1	185	29	57	106	139	47

FREMONT
METROPOLITAN AREA TRAFFIC STUDY

TABLE S-1

TOTAL TRIPS BY PASSENGER CAR, TRUCK AND TAXI DRIVERS FOR A 24-HOUR WEEKDAY IN JULY AND AUGUST 1969

DESTINATIONS

ORIGIN	34	35	36	37	38	39	40	41	42	43
1		2	1		6	10		4	3	
2	8	1	9	1	26	19	10	3	3	
3	10	2	9	1	62	37	4	3	16	1
4	21	1	2		19	13	1	4	1	
5	1					2				1
6					1		7			
7	21		8		4	1			1	
TOT	61	6	29	2	118	82	22	14	24	2

FREMONT
METROPOLITAN AREA TRAFFIC STUDY

TABLE S-1

TOTAL TRIPS BY PASSENGER CAR, TRUCK AND TAXI DRIVERS FOR A 24-HOUR WEEKDAY IN JULY AND AUGUST 1969

DESTINATIONS

ORIGIN	44	45	46	47	48	49	50	51
1		4			11	4	5	13
2	1	16	3		37	6	20	21
3		20	6	3	33	3	25	28
4	2	23	2		21	3	24	30
5							1	1
6	1	1	9		1	2	3	2
7		.1			4	1		4
TOT	4	65	20	3	107	19	78	99

FREMONT
METROPOLITAN AREA TRAFFIC STUDY

TABLE S-1

TOTAL TRIPS BY PASSENGER CAR, TRUCK AND TAXI DRIVERS FOR A 24-HOUR WEEKDAY IN JULY AND AUGUST 1969

	SUB-TOT	SUB-TOT	FIN-TOT
1	127	611	738
2	534	1460	1994
3	338	1409	1747
4	646	1540	2186
5	6	63	69
6	9	85	94
7	13	313	326
SUB-TOT	1673	5481	7154
11	115		115
12	980		980
13	88		88
14	437		437
15	362		362
16	16		16
17	1311		1311
18	90		90
19	105		105
20	5		5
21	102		102
22	56		56
23	202		202
24	73		73
25	215		215
26	81		81
27	2		2
28	232		232
29	33		33
30	79		79
31	98		98
32	119		119
33	28		28
34	77		77
35	11		11

app. 12

FREMONT
METROPOLITAN AREA TRAFFIC STUDY

TABLE S-1

TOTAL TRIPS BY PASSENGER CAR, TRUCK AND TAXI DRIVERS FOR A 24-HOUR WEEKDAY IN JULY AND AUGUST 1969

	SUB-TOT	SUB-TOT	FIN-TOT
36	38		38
37	2		2
38	146		146
39	79		79
40	40		40
41	24		24
42	29		29
43	5		5
44	9		9
45	67		67
46	19		19
47	3		3
48	104		104
49	17		17
50	82		82
51	98		98
SUB-TOT	5679		5679
FIN-TOT	7352	5481	12833

app. 13

TABLE S-2

This trip table tabulates all trips by combination truck drivers for a 24-hour period. The origin zone is listed down the left hand margin. The destination zone is listed horizontally.

In this table trip volumes are given directionally. Therefore, to find the total movements between two zones, it will be necessary to use each zone once as an origin, and once as a destination and then total the two volumes.

As there were no home interviews taken during this study, the trips with an internal origin and an internal destination do not appear in this Trip Table.

FREMONT
METROPOLITAN AREA TRAFFIC STUDY

TABLE S-2

TOTAL TRIPS BY COMBINATION TRUCK DRIVERS FOR A 24-HOUR WEEKDAY IN JULY AND AUGUST 1969

DESTINATIONS

ORIGIN	1	2	3	4	5	6	7	11	12	13
1		1	1	1						
2	1		1	9						
3	1	1		9				1	21	
4	1	8	8						8	
5										
6										
7										
SUB-TOT	3	10	10	19				1	29	
11	1		1							
12		1	13	9						
13										
14		1	4	2						
15	2	3	2	11						
16										
17		5	4	11			1			
18			3	3						
19										
20										
21				3						
22										
23				1						
24										
25		1		1						
26				2						
27										
28										
29				1						
30			1	1						
31				8						
32										
33										
34		1		1						
35										

app. 15

FREMONT
METROPOLITAN AREA TRAFFIC STUDY

TABLE S-2

TOTAL TRIPS BY COMBINATION TRUCK DRIVERS FOR A 24-HOUR WEEKDAY IN JULY AND AUGUST 1969

DESTINATIONS

ORIGIN	1	2	3	4	5	6	7	11	12	13
36										
37										
38										
39				1						
40										
41										
42										
43										
44										
45										
46										
47										
48										
49										
50			2	1						
51										
SUB-TOT	3	12	30	56			1			
FIN-TOT	6	22	40	75			1	1	29	

FREMONT
METROPOLITAN AREA TRAFFIC STUDY

TABLE S-2

TOTAL TRIPS BY COMBINATION TRUCK DRIVERS FOR A 24-HOUR WEEKDAY IN JULY AND AUGUST 1969

DESTINATIONS

ORIGIN	14	15	16	17	18	19	20	21	22	23
1		1								
2		1		2	1					
3		13		7	2				1	
4	5	10		7	4			2		
5										1
6										
7		1		1						
TOT	5	26		17	7			2	1	1

FREMONT
METROPOLITAN AREA TRAFFIC STUDY

TABLE S-2

TOTAL TRIPS BY COMBINATION TRUCK DRIVERS FOR A 24-HOUR WEEKDAY IN JULY AND AUGUST 1969

DESTINATIONS

ORIGIN	24	25	26	27	28	29	30	31	32	33
1										
2										
3			1							
4						1			2	
5										
6										
7										
TOT			1			1			2	

FREMONT
 METROPOLITAN AREA TRAFFIC STUDY

TABLE S-2

TOTAL TRIPS BY COMBINATION TRUCK DRIVERS FOR A 24-HOUR WEEKDAY IN JULY AND AUGUST 1969

DESTINATIONS

ORIGIN	34	35	36	37	38	39	40	41	42	43
1										
2										
3										
4										
5						1				
6						3				
7										
TOT						4				

FREMONT
METROPOLITAN AREA TRAFFIC STUDY

TABLE S-2

TOTAL TRIPS BY COMBINATION TRUCK DRIVERS FOR A 24-HOUR WEEKDAY IN JULY AND AUGUST 1969

DESTINATIONS

ORIGIN	44	45	46	47	48	49	50	51
1								
2								
3								
4								4
5		2						3
6								
7								
TOT		2						7

FREMONT
METROPOLITAN AREA TRAFFIC STUDY

TABLE 5-2

TOTAL TRIPS BY COMBINATION TRUCK DRIVERS FOR A 24-HOUR WEEKDAY IN JULY AND AUGUST 1969

	SUB-TOT	SUB-TOT	FIN-TOT
1	3	1	4
2	11	4	15
3	11	51	62
4	17	47	64
5		1	1
6			
7		2	2
	SUB-TOT	106	148
11	2		2
12	23		23
13			
14	7		7
15	18		18
16			
17	21		21
18	6		6
19			
20			
21	3		3
22			
23	1		1
24			
25	2		2
26			
27	2		2
28			
29	1		1
30	2		2
31			
32	8		8
33			
34	2		2
35			

app. 21

FREMONT
METROPOLITAN AREA TRAFFIC STUDY

TABLE S-2

TOTAL TRIPS BY COMBINATION TRUCK DRIVERS FOR A 24-HOUR WEEKDAY IN JULY AND AUGUST 1969

	SUB-TOT	SUB-TOT	FIN-TOT
36			
37			
38			
39	1		1
40			
41			
42			
43			
44			
45			
46			
47			
48			
49			
50	3		3
51			
SUB-TOT	102		102
FIN-TOT	144	106	250

app. 22

TABLE S-3

This trip table tabulates all trips by single unit truck-drivers for a 24-hour period. The origin zone is listed down the left hand margin. The destination zone is listed horizontally.

In this table trip volumes are given directionally. Therefore, to find the total movements between two zones, it will be necessary to use each zone once as an origin and once as a destination and then total the two volumes.

As there were no home interviews taken during this study, the trips with an internal origin and an internal destination do not appear in this Trip Table.

FREMONT
METROPOLITAN AREA TRAFFIC STUDY

TABLE S-3

TOTAL TRIPS BY SINGLE-UNIT TRUCK DRIVERS FOR A 24-HOUR WEEKDAY IN JULY AND AUGUST 1969

DESTINATIONS

ORIGIN	1	2	3	4	5	6	7	11	12	13
1		6	15	9				3	34	3
2	10		28	58		2	2	5	37	5
3	13	18		42		1	1	10	21	4
4	7	57	35				1	8	31	3
5				1						
6		1						1		
7		2	1						2	
SUB-TOT	30	84	79	110		3	4	27	125	15
11		15	15	3						
12	33	28	34	42	1		4			
13	7	6	4	3						
14	8	9	12	23	1					
15	16	34	20	38	2	1	3			
16		1	1							
17	11	68	49	57	6	6	12			
18	1		9	4						
19		5	5	8						
20				1						
21	3	8	7	15			1			
22		1	3	5						
23	1	5	2	9	2		1			
24		5	2	3	1					
25		8	8	6			1			
26		5	4	4						
27				1						
28	2	4	2	6			2			
29	1			3		1				
30	5	2	6	10	1	1	1			
31		6	1	8			4			
32	2	3	17	9						
33	1						1			
34		4	5	13			4			
35			1							

FREMONT
METROPOLITAN AREA TRAFFIC STUDY

TABLE S-3

TOTAL TRIPS BY SINGLE-UNIT TRUCK DRIVERS FOR A 24-HOUR WEEKDAY IN JULY AND AUGUST 1969

DESTINATIONS

ORIGIN	1	2	3	4	5	6	7	11	12	13
36		1	1	2			1			
37										
38	3	8	15	9						
39		3	9	2						
40	1	1		2		3				
41	4		1							
42	4		4							
43										
44										
45	1	1	1	4						
46	1									
47										
48		3	6	1						
49										
50	1	8	2	9	2					
51	1	2	2	9						
SUB-TOT	107	244	248	311	16	12	35			
FIN-TOT	137	328	327	421	16	15	39	27	125	15

app. 25

FREMONT
METROPOLITAN AREA TRAFFIC STUDY

TABLE S-3

TOTAL TRIPS BY SINGLE-UNIT TRUCK DRIVERS FOR A 24-HOUR WEEKDAY IN JULY AND AUGUST 1969.

DESTINATIONS

ORIGIN	14	15	16	17	18	19	20	21	22	23
1	7	14		20	2			4		1
2	4	26		60	1		1	12		5
3	2	19	4	57	5	5		7	4	5
4	21	38		71		2	3	14		6
5		1		6				1	1	
6				4						
7		9		18						1
TOT	34	107	4	236	8	7	4	38	5	18

FREMONT
METROPOLITAN AREA TRAFFIC STUDY

TABLE S-3

TOTAL TRIPS BY SINGLE-UNIT TRUCK DRIVERS FOR A 24-HOUR WEEKDAY IN JULY AND AUGUST 1969

DESTINATIONS

ORIGIN	24	25	26	27	28	29	30	31	32	33
1			1				2	3	3	
2	2	8	3		3	2	1	2	4	
3	3	8	3		4	1	2	2	5	3
4	2	8	7		7	2	3	6	18	
5							1			
6					1	1				
7		3				1	1		4	2
TOT	7	27	14		15	7	10	13	34	5

FREMONT
METROPOLITAN AREA TRAFFIC STUDY

TABLE S-3

TOTAL TRIPS BY SINGLE-UNIT TRUCK DRIVERS FOR A 24-HOUR WEEKDAY IN JULY AND AUGUST 1969

DESTINATIONS

ORIGIN	34	35	36	37	38	39	40	41	42	43
1					1			1	3	
2	2		2		4	6	2		1	
3	2		1		15	5	1	1	1	
4	11				7	2				
5						1				
6							3			
7	2		1							
TOT	17		4		27	14	6	2	5	

FREMONT
METROPOLITAN AREA TRAFFIC STUDY

TABLE S-3

TOTAL TRIPS BY SINGLE-UNIT TRUCK DRIVERS FOR A 24-HOUR WEEKDAY IN JULY AND AUGUST 1969

DESTINATIONS

ORIGIN	44	45	46	47	48	49	50	51
1					1		1	3
2		1	1		1		8	5
3		1			3		7	5
4		3			2	1	8	9
5							1	1
6		1						1
7					1			
TOT		6	1		8	1	25	24

FREMONT
METROPOLITAN AREA TRAFFIC STUDY

TABLE S-3

TOTAL TRIPS BY SINGLE-UNIT TRUCK DRIVERS FOR A 24-HOUR WEEKDAY IN JULY AND AUGUST 1969

	SUB-TOT	SUB-TOT	FIN-TOT
1	30	107	137
2	100	214	314
3	75	217	292
4	100	292	392
5	1	13	14
6	1	12	13
7	3	45	48
SUB-TOT	310	900	1210
11	33		33
12	144		144
13	20		20
14	53		53
15	114		114
16	2		2
17	209		209
18	14		14
19	18		18
20	1		1
21	34		34
22	9		9
23	20		20
24	11		11
25	23		23
26	13		13
27	1		1
28	16		16
29	5		5
30	26		26
31	19		19
32	31		31
33	2		2
34	26		26
35	1		1

app. 30

FREMONT
METROPOLITAN AREA TRAFFIC STUDY

TABLE S-3

TOTAL TRIPS BY SINGLE-UNIT TRUCK DRIVERS FOR A 24-HOUR WEEKDAY IN JULY AND AUGUST 1969

	SUB-TOT	SUB-TOT	FIN-TOT
36	5		5
37			
38	35		35
39	14		14
40	7		7
41	5		5
42	8		8
43			
44			
45	7		7
46	1		1
47			
48	10		10
49	22		22
50			
51	14		14
SUB-TOT	973		973
FIN-TOT	1283	900	2183

app: 21

TABLE S-4

This trip table tabulates all trips by passenger car and taxi-drivers for a 24-hour period. The origin zone is listed down the left hand margin. The destination zone is listed horizontally.

In this table trip volumes are given directionally. Therefore, to find the total movements between two zones, it will be necessary to use each zone once as an origin and once as a destination and then total the two volumes.

As there were no home interviews taken during this study, the trips with an internal origin and an internal destination do not appear in this Trip Table.

FREMONT
METROPOLITAN AREA TRAFFIC STUDY

TABLE S-4

TOTAL TRIPS BY PASSENGER CAR AND TAXI DRIVERS FOR A 24-HOUR WEEKDAY IN JULY AND AUGUST 1969

ORIGIN	DESTINATIONS										
	1	2	3	4	5	6	7	11	12	13	
1		18	48	26				10	145	5	
2	18		64	329	3	4	7	18	205	23	
3	40	59		148	1	2	7	23	189	18	
4	29	347	147		2			24	200	26	
5		2	2	1					13		
6		3	1	3				2	5		
7		6	2	1	1			6	12	3	
	SUB-TOTAL	87	435	264	508	7	6	14	83	769	75
11		8	22	22	25		2	4			
12	148	204	179	252	14	2	15				
13	5	26	10	25	1		1				
14	68	95	71	126		10	7				
15	38	83	42	56	1	2	8				
16		2	2	4			5				
17	108	353	231	305	16	13	55				
18	2	22	18	28		1					
19	8	22	28	25		1	3				
20		3		1							

FREMONT
METROPOLITAN AREA TRAFFIC STUDY

TABLE S-4

TOTAL TRIPS BY PASSENGER CAR AND TAXI DRIVERS FOR A 24-HOUR WEEKDAY IN JULY AND AUGUST 1969

DESTINATIONS

ORIGIN	1	2	3	4	5	6	7	11	12	13
21	9	24	14	15		1	1			
22	4	18	15	6		2	4			
23	10	62	41	44	1		21			
24	3	13	15	21	1		8			
25	21	48	51	37	2	10	21			
26	2	20	12	22		2	8			
27		1								
28	19	73	53	48	8		15			
29	1	5	1	4			16			
30	4	10	11	22			3			
31	5	16	16	17		3	15			
32	3	25	27	28	1		4			
33			2				24			
34		8	11	7			23			
35		2	4	1			3			

FREMONT
METROPOLITAN AREA TRAFFIC STUDY

TABLE S-4

TOTAL TRIPS BY PASSENGER CAR AND TAXI DRIVERS FOR A 24-HOUR WEEKDAY IN JULY AND AUGUST 1969

ORIGIN	DESTINATIONS									
	1	2	3	4	5	6	7	11	12	13
36	1	6	10	4	1		11			
37			2							
38	7	26	42	28	1		5			
39	7	18	31	5			3			
40		10	9	8		4	1			
41	10		4	5						
42	4	6	7	3		1				
43			1	2	1	1				
44		2		3		4				
45	6	13	10	26		4				
46		4	2	4		7	1			
47	1		1	1						
48	7	38	17	30	1	1	1			
49	1	7	3	6						
50	4	12	23	15		2				
51	12	18	19	27	2		6			
SUB-TOTAL	528	1317	1057	1286	51	73	292			
FIN-TOTAL	615	1752	1321	1794	58	79	306	83	769	75

FREMONT
METROPOLITAN AREA TRAFFIC STUDY

TABLE S-4

TOTAL TRIPS BY PASSENGER CAR AND TAXI DRIVERS FOR A 24-HOUR WEEKDAY IN JULY AND AUGUST 1969
DESTINATIONS

ORIGIN	14	15	16	17	18	19	20	21	22	23
1	60	43	1	103	3	9		9	6	10
2	113	69	4	328	22	27	4	25	17	49
3	41	37	1	292	20	31		8	23	46
4	135	68	5	309	11	18	2	12	10	37
5	1			14				1		4
6	9	1		17	1	1			1	1
7	12	17	14	36	3	3			3	17
TOTAL	371	235	25	1099	60	89	6	55	60	164

FREMONT
METROPOLITAN AREA TRAFFIC STUDY

TABLE S-4

TOTAL TRIPS BY PASSENGER CAR AND TAXI DRIVERS FOR A 24-HOUR WEEKDAY IN JULY AND AUGUST 1969

DESTINATIONS

ORIGIN	24	25	26	27	28	29	30	31	32	33
1	4	12	1		16		2	7	4	1
2	18	48	16		53	1	15	15	21	3
3	10	59	15	1	51	8	11	15	20	2
4	24	39	16		35	3	20	34	53	1
5	2	2	1		6				2	
6	1	5	2		1	1		2		
7	7	16	3		8	8		17	5	35
TOTAL	66	181	54	1	170	21	48	90	105	42

FREMONT
METROPOLITAN AREA TRAFFIC STUDY

TABLE S-4

TOTAL TRIPS BY PASSENGER CAR AND TAXI DRIVERS FOR A 24-HOUR WEEKDAY IN JULY AND AUGUST 1969

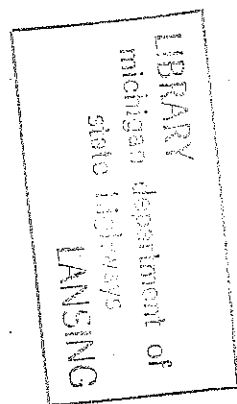
ORIGIN	DESTINATIONS									
	34	35	36	37	38	39	40	41	42	43
1		2	1		5	10		3		
2	6	1	7	1	23	13	9	3	2	
3	8	2	8	1	47	31	3	2	15	1
4	10	1	2		13	8	1	4	1	
5	1					1				1
6					1		4			
7	19		7		4	1			1	
TOTAL	44	6	25	2	93	64	17	12	19	2

FREMONT
METROPOLITAN AREA TRAFFIC STUDY

TABLE S-4

TOTAL TRIPS BY PASSENGER CAR AND TAXI DRIVERS FOR A 24-HOUR WEEKDAY IN JULY AND AUGUST 1969

ORIGIN	DESTINATIONS							
	44	45	46	47	48	49	50	51
1		4			10	4	4	10
2	1	15	2		35	6	12	16
3		19	6	3	30	2	14	23
4	2	19	1		19	3	14	21
5								
6	1		9		1	2	3	1
7		1			3	1		4
TOTAL	4	58	19	3	98	18	47	75



FREMONT
METROPOLITAN AREA TRAFFIC STUDY

TABLE S-4

TOTAL TRIPS BY PASSENGER CAR AND TAXI DRIVERS FOR A 24-HOUR WEEKDAY IN JULY AND AUGUST 1969

	SUB-TOTAL	SUB-TOTAL	FIN-TOTAL
1	92	504	596
2	425	1246	1671
3	257	1136	1393
4	525	1202	1727
5	5	49	54
6	7	72	79
7	10	266	276
SUB-TOTAL	1321	4475	5796
11	83		83
12	814		814
13	68		68
14	377		377
15	230		230
16	15		15
17	1081		1081
18	71		71
19	87		87
20	4		4
21	64		64
22	49		49
23	179		179
24	61		61
25	190		190

app. 40

FREMONT
METROPOLITAN AREA TRAFFIC STUDY

TABLE S-4

TOTAL TRIPS BY PASSENGER CAR AND TAXI DRIVERS FOR A 24-HOUR WEEKDAY IN JULY AND AUGUST 1969

	SUB-TOTAL	SUB-TOTAL	FIN-TOTAL
26	66		66
27	1		1
28	216		216
29	27		27
30	50		50
31	72		72
32	88		88
33	26		26
34	49		49
35	10		10
36	33		33
37	2		2
38	109		109
39	64		64
40	32		32
41	19		19
42	21		21
43	5		5
44	9		9
45	59		59
46	18		18
47	3		3
48	95		95
49	17		17
50	56		56
51	84		84
SUB-TOTAL	4604		4604
FIN-TOTAL	5925	4475	10,400

app. 41

SINGLE ZONE TRIP TABLE
BY DESTINATION PURPOSE

This trip table is tabulated by O-D zone of origin, listed in the upper left hand corner, and by O-D zones of destination, listed down the left hand margin. The external stations are numbered 1-7 and the internal zones are numbered 11-51.

In addition to total vehicle trips, this table includes a listing of all driver trips by destination purposes.

In this table trip volumes are given directionally. Therefore, to find the total movements between two zones, it will be necessary to use each zone once as an origin and once as a destination and then total the two volumes.

As there were no home interviews taken during this study, the trips with an internal origin and an internal destination do not appear in this Trip Table.

FREMONT

SINGLE ZONE TRIP TABLE BY DESTINATION PURPOSE

ORIGIN ZONE 1

DEST. ZONE	WORK	BUSINESS	SHOPPING	SOCIAL REC.	TOTAL TRIPS
2	12	1		13	26
3	21	2	5	37	65
4	17	1	2	16	36
11	2	10	1	1	14
12	158	5	9	7	179
13	5		2	1	8
14	5	3	52	6	66
15	23		20	15	58
16	1				1
17	30	32	26	35	123
18				5	5
19	1			8	9
21	5	1		7	13
22				6	6
23	1			9	10
24	3			1	4
25	4	4		4	12
26	2				2
28	5	2		9	16
30	1		1	2	4
31	2	3		5	10
32	1		5	1	7
33				1	1
35				2	2
36				1	1
38	5			1	6
39	1		6	3	10
41	1			3	4
42	2		1		3
45				4	4
48	4			7	11
49	3			1	4
50	5				5
51	3	1		9	13
TOTAL	323	65	130	220	738

FREMONT

SINGLE ZONE TRIP TABLE BY DESTINATION PURPOSE

ORIGIN ZONE 2

DEST. ZONE	WORK	BUSINESS	SHOPPING	SOCIAL REC.	TOTAL TRIPS
1	12	4	1	11	28
3	44	3	2	45	94
4	156	21	19	198	394
5	2			1	3
6	5			1	6
7	3			6	9
11	4	7	3	9	23
12	197	3	10	32	242
13	14	1	2	11	28
14	16	6	83	12	117
15	49	11	14	21	95
16	3			1	4
17	135	75	87	93	390
18	8		3	13	24
19	5	1		21	27
20	2			3	5
21	20	8	2	6	36
22	3			14	17
23	21	1	5	26	53
24	12	3		5	20
25	18	12	4	22	56
26	11	2	1	5	19
28	18	11	3	24	56
29	3				3
30	14		1	1	16
31	8	1	2	7	18
32	12	1	8	3	24
33	1			2	3
34	1			7	8
35				1	1
36	6		2	1	9
37				1	1
38	10	1	13	2	26
39	10		4	5	19
40	3			7	10
41	3				3
42	1			2	3
44				1	1
45	2			14	16
46	1			2	3
48	19	2	3	13	37
49	5			1	6
50	15		1	4	20
51	11	2		8	21
TOTAL	883	176	273	662	1994

FREMONT

SINGLE ZONE TRIP TABLE BY DESTINATION PURPOSE

ORIGIN ZONE 3

DEST. ZONE	WORK	BUSINESS	SHOPPING	SOCIAL REC.	TOTAL TRIPS
1	19	2	4	28	53
2	27	3		47	77
4	103	3	8	83	197
5	1				1
6				2	2
7	4			4	8
11	15	7	5	8	35
12	192	3	3	34	232
13	12	2		8	22
14	6		28	9	43
15	38	7	7	17	69
16	3		1	1	5
17	124	79	71	82	356
18	10	2	1	15	28
19	10	2		24	36
21	10		2	3	15
22	10	1	2	16	29
23	13	4	3	31	51
24	3	2	1	6	12
25	21	4	1	42	68
26	13	2	3	2	20
27	1				1
28	18	5	1	31	55
29	6	1		2	9
30	4		5	4	13
31	8	3	1	5	17
32	9	3	8	5	25
33	2	1		2	5
34				10	10
35				2	2
36	2			7	9
37				1	1
38	20		36	6	62
39	18	2	1	16	37
40	1			3	4
41				3	3
42	6		1	9	16
43				1	1
45	1			19	20
46		1		5	6
47	2			1	3
48	8	1	4	20	33
49				3	3
50	22			3	25
51	10		4	14	28
TOTAL	772	140	201	634	1747

FREMONT

SINGLE ZONE TRIP TABLE BY DESTINATION PURPOSE

ORIGIN ZONE 4

DEST. ZONE	WORK	BUSINESS	SHOPPING	SOCIAL REC.	TOTAL TRIPS
1	18	1	2	16	37
2	145	24	16	229	414
3	82	9	6	95	192
5	2				2
6					
7	1				1
11	9	16	2	5	32
12	188	4	9	38	239
13	14		5	10	29
14	42	9	92	19	162
15	51	21	20	25	117
16			1	4	5
17	145	90	93	59	387
18	9		1	5	15
19	3	1	2	14	20
20	2			3	5
21	16	9		3	28
22	3		1	7	11
23	21	6	2	14	43
24	13			13	26
25	21	3		23	47
26	14	3	3	2	22
28	11	5		26	42
29	6				6
30	12	1	3	6	22
31	26	7		9	42
32	38	20	11	3	72
33				1	1
34	12			9	21
35				1	1
36	1			1	2
38	16		2	1	19
39	6	1		6	13
40				1	1
41	3			1	4
42		1			1
44			2		2
45	2	1	1	19	23
46	2				2
48	12	3	2	4	21
49	3				3
50	21	1	1	1	24
51	17	2	1	10	30
TOTAL	987	238	278	683	2186

FREMONT

SINGLE ZONE TRIP TABLE BY DESTINATION PURPOSE

ORIGIN ZONE 5

DEST. ZONE	WORK	BUSINESS	SHOPPING	SOCIAL REC.	TOTAL TRIPS
2				2	2
3				2	2
4			2		2
12	13				13
14			1		1
15	1				1
17	9	5	3	3	20
21	1			1	2
22	1				1
23	3		1	1	5
24	1			1	2
25	1			1	2
26	1				1
28	1			5	6
30		1			1
32	1			1	2
34	1				1
39	2				2
43	1				1
50	1				1
51	1				1
TOTAL	39	6	7	17	69

FREMONT

SINGLE ZONE TRIP TABLE BY DESTINATION PURPOSE

ORIGIN ZONE 6

DEST. ZONE	WORK	BUSINESS	SHOPPING	SOCIAL REC.	TOTAL TRIPS
2	4				4
3	2				2
4				3	3
11	3	1			4
12	3			2	5
14	5		4		9
15				1	1
17	7	11	2	1	21
18				1	1
19	1				1
22	1				1
23				1	1
24				1	1
25	4			1	5
26			2		2
28		1		1	2
29	2				2
31				2	2
38			1		1
40	6			1	7
44	2				1
45				1	1
46	5			4	9
48			1		1
49	2				2
50	2			1	3
51	1			1	2
TOTAL	49	13	10	22	94

FREMONT

SINGLE ZONE TRIP TABLE BY DESTINATION PURPOSE

ORIGIN ZONE 7

DEST. ZONE	WORK	BUSINESS	SHOPPING	SOCIAL REC.	TOTAL TRIPS
2	2	1	1	4	8
3				3	3
4				1	1
5	1				1
11	3	3			6
12	14				14
13			1	2	3
14	1		11		12
15	17		9	1	27
16	4			11	15
17	25	6	14	10	55
18	2			1	3
19	2	1			3
22	2			1	3
23	10		1	7	18
24	6	1			7
25	6	2	1	9	18
26	2		1		3
28	1		1	6	8
29	7		1	1	9
30	1				1
31	8	1	2	6	17
32	2	1	5	1	9
33	7	2	7	21	37
34	13		2	6	21
36	3		2	3	8
38	2		1	1	4
39			1		1
42				1	1
45				1	1
48	4				4
49				1	1
51			1	3	4
TOTAL	145	18	62	101	326

FREMONT

SINGLE ZONE TRIP TABLE BY DESTINATION PURPOSE

ORIGIN ZONE 11

DEST. ZONE	WORK	BUSINESS	SHOPPING	SOCIAL REC.	TOTAL TRIPS
1	3	3	2		8
2	14	10	6	7	37
3	18	9	5	5	37
4	8	15	3	2	28
6	1				1
7	3			1	4
TOTAL	47	37	16	15	115

ORIGIN ZONE 12

1	148	2	11	20	181
2	184	5	12	32	233
3	155	4	10	56	225
4	236	6	15	48	305
5	12		1	2	15
6	1			1	2
7	17	1		1	19
TOTAL	753	18	49	160	980

ORIGIN ZONE 13

1	7		1	4	12
2	15	4	3	10	32
3	6		1	7	14
4	12		4	12	28
5			1		1
7		1			1
TOTAL	40	5	10	33	88

ORIGIN ZONE 14

1	8	1	61	7	77
2	17	3	76	9	105
3	24	7	47	9	87
4	28	11	97	14	150
5			1		1
6	1		8	1	10
7	1		6		7
TOTAL	79	22	296	40	437

FREMONT

SINGLE ZONE TRIP TABLE BY DESTINATION PURPOSE

ORIGIN ZONE 15

DEST. ZONE	WORK	BUSINESS	SHOPPING	SOCIAL REC.	TOTAL TRIPS
1	26	1	20	9	56
2	50	8	27	36	121
3	39	1	7	17	64
4	60	1	22	21	104
5	2	1			3
6	2			1	3
7	11				11
TOTAL	190	12	76	84	362

ORIGIN ZONE 16

1	2				2
2	1			2	3
3	3				3
4	1			3	4
7				4	4
TOTAL	7			9	16

ORIGIN ZONE 17

1	27	14	35	43	119
2	151	78	136	61	426
3	100	64	70	50	284
4	134	67	96	76	373
5	10	7	3	2	22
6	9	7	1	2	19
7	35	17	14	2	68
TOTAL	466	254	355	236	1311

ORIGIN ZONE 18

1			1	2	3
2	11	1		10	22
3	14	1	3	11	29
4	13	1	1	20	35
6				1	1
TOTAL	38	3	5	44	90

FREMONT

SINGLE ZONE TRIP TABLE BY DESTINATION PURPOSE

ORIGIN ZONE 19

DEST. ZONE	WORK	BUSINESS	SHOPPING	SOCIAL REC.	TOTAL TRIPS
1	1	2		5	8
2	6		1	20	27
3	12	1	2	18	33
4	10	3		20	33
6			1		1
7		1		2	3
TOTAL	29	7	4	65	105

ORIGIN ZONE 20

2				3	3
4				2	2
TOTAL				5	5

ORIGIN ZONE 21

1	8	1		3	12
2	15	13		5	33
3	7	1	1	12	21
4	18	12		3	33
6				1	1
7	1	1			2
TOTAL	49	28	1	24	102

ORIGIN ZONE 22

1				4	4
2	1	1		17	19
3	4	1	1	11	17
4	3		1	6	10
6	2				2
7				4	4
TOTAL	10	2	2	42	56

FREMONT

SINGLE ZONE TRIP TABLE BY DESTINATION PURPOSE

ORIGIN ZONE 23

DEST. ZONE	WORK	BUSINESS	SHOPPING	SOCIAL REC.	TOTAL TRIPS
1	1		4	7	12
2	24		7	37	68
3	17		5	21	43
4	21	1	4	28	54
5	2		1		3
7	7	2	1	12	22
TOTAL	72	3	22	105	202

ORIGIN ZONE 24

1	2			1	3
2	13	1		4	18
3	8			10	18
4	12	1		11	24
5	1			1	2
7	6			2	8
TOTAL	42	2		29	73

ORIGIN ZONE 25

1	5	5		11	21
2	18	7	3	29	57
3	18	2	2	36	58
4	22	3	5	14	44
5				2	2
6	8			2	10
7	3	1		19	23
TOTAL	74	18	10	113	215

ORIGIN ZONE 26

1				2	2
2	16	2		7	25
3	9	1	1	4	15
4	20	2		7	29
6		2			2
7	6	1		1	8
TOTAL	51	8	1	21	81

FREMONT

SINGLE ZONE TRIP TABLE BY DESTINATION PURPOSE

ORIGIN ZONE 27

DEST. ZONE	WORK	BUSINESS	SHOPPING	SOCIAL REC.	TOTAL TRIPS
2				1	1
4				1	1
TOTAL				2	2

ORIGIN ZONE 28

1	5	1		15	21
2	28	16	1	32	77
3	15	7	4	29	55
4	14	10		30	54
5	2	1	1	4	8
7	6	3	1	7	17
TOTAL	70	38	7	117	232

ORIGIN ZONE 29

1			1	1	2
2	3	1		1	5
3				1	1
4	8				8
6	1				1
7	7	1	2	6	16
TOTAL	19	2	3	9	33

ORIGIN ZONE 30

1	4	1	1	3	9
2	8		2	2	12
3	7		6	5	18
4	21		2	11	34
5	1				1
6			1		1
7	3			1	4
TOTAL	44	1	12	22	79

FREMONT

SINGLE ZONE TRIP TABLE BY DESTINATION PURPOSE

ORIGIN ZONE 31

DEST. ZONE	WORK	BUSINESS	SHOPPING	SOCIAL REC.	TOTAL TRIPS
1	2			3	5
2	10	3		8	21
3	7	2	2	6	17
4	26		3	4	33
6	2			1	3
7	14	1		4	19
TOTAL	61	6	5	26	98

ORIGIN ZONE 32

1	1		1	3	5
2	21	2	6		29
3	16	1	22	5	44
4	20	3	4	9	36
5	1				1
7	3	1			4
TOTAL	62	7	33	17	119

ORIGIN ZONE 33

1	1				1
3	1			1	2
7	9	4	4	8	25
TOTAL	11	4	4	9	28

ORIGIN ZONE 34

2	8			5	13
3	2		2	12	16
4	13	1		7	21
7	8		5	14	27
TOTAL	31	1	7	38	77

FREMONT

SINGLE ZONE TRIP TABLE BY DESTINATION PURPOSE

ORIGIN ZONE 35

DEST. ZONE	WORK	BUSINESS	SHOPPING	SOCIAL REC.	TOTAL TRIPS
2				2	2
3	2		1	2	5
4				1	1
7				3	3
TOTAL	2		1	8	11

ORIGIN ZONE 36

1				1	1
2	4			3	7
3	7			4	11
4	2			4	6
5				1	1
7	8		1	3	12
TOTAL	21		1	16	38

ORIGIN ZONE 37

3				2	2
TOTAL				2	2

ORIGIN ZONE 38

1	5		1	4	10
2	11	1	20	3	35
3	22		28	7	57
4	17	1	13	7	38
5			1		1
7			3	2	5
TOTAL	55	2	66	23	146

FREMONT

SINGLE ZONE TRIP TABLE BY DESTINATION PURPOSE

ORIGIN ZONE 39

DEST. ZONE	WORK	BUSINESS	SHOPPING	SOCIAL REC.	TOTAL TRIPS
1	2	2	2	1	7
2	9	1	3	8	21
3	16		5	19	40
4	6		1	1	8
7			1	2	3
TOTAL	33	3	12	31	79

ORIGIN ZONE 40

1	1				1
2	2			10	12
3				9	9
4	1	1		8	10
6	6			1	7
7				1	1
TOTAL	10	1		29	40

ORIGIN ZONE 41

1	6			8	14
3	3		1	1	5
4	3		1	1	5
TOTAL	12		2	10	24

ORIGIN ZONE 42

1	4			4	8
2		1	1	4	6
3	4		3	4	11
4	2		1		3
6	1				1
TOTAL	11	1	5	12	29

FREMONT

SINGLE ZONE TRIP TABLE BY DESTINATION PURPOSE

ORIGIN ZONE 43

DEST. ZONE	WORK	BUSINESS	SHOPPING	SOCIAL REC.	TOTAL TRIPS
3				1	1
4	2				2
5				1	1
6	1				1
TOTAL	3			2	5

ORIGIN ZONE 44

2		2			2
4				3	3
6	1			3	4
TOTAL	1	2		6	9

ORIGIN ZONE 45

1	1			6	7
2	2			12	14
3				11	11
4	1			30	31
6				4	4
TOTAL	4			63	67

ORIGIN ZONE 46

1				1	1
2				4	4
3	1			1	2
4	1			3	4
6	4			3	7
7				1	1
TOTAL	6			13	19

FREMONT

SINGLE ZONE TRIP TABLE BY DESTINATION PURPOSE

ORIGIN ZONE 47

DEST. ZONE	WORK	BUSINESS	SHOPPING	SOCIAL REC.	TOTAL TRIPS
1				1	1
3			1		1
4	1				1
TOTAL	1		1	1	3

ORIGIN ZONE 48

1	1	1	1	4	7
2	11	5	4	20	40
3	6	1		16	23
4	14	1	2	14	31
5				1	1
6				1	1
7	1				1
TOTAL	33	8	7	56	104

ORIGIN ZONE 49

1	1				1
2	4	2		1	7
3	1			2	3
4			2	4	6
TOTAL	6	2	2	7	17

ORIGIN ZONE 50

1	5				5
2	16		2	2	20
3	22			5	27
4	20		1	5	26
5	2				2
6	2				2
TOTAL	67		3	12	82

FREMONT

SINGLE ZONE TRIP TABLE BY DESTINATION PURPOSE

ORIGIN ZONE 51

DEST. ZONE	WORK	BUSINESS	SHOPPING	SOCIAL REC.	TOTAL TRIPS
1	2	1	2	8	13
2	12		2	6	20
3	9		1	11	21
4	17	2	6	11	36
5			1	1	2
7	3			3	6
TOTAL	43	3	12	40	98
TOTAL ALL ZONES	<u>5751</u>	<u>1156</u>	<u>1991</u>	<u>3935</u>	<u>12,833</u>