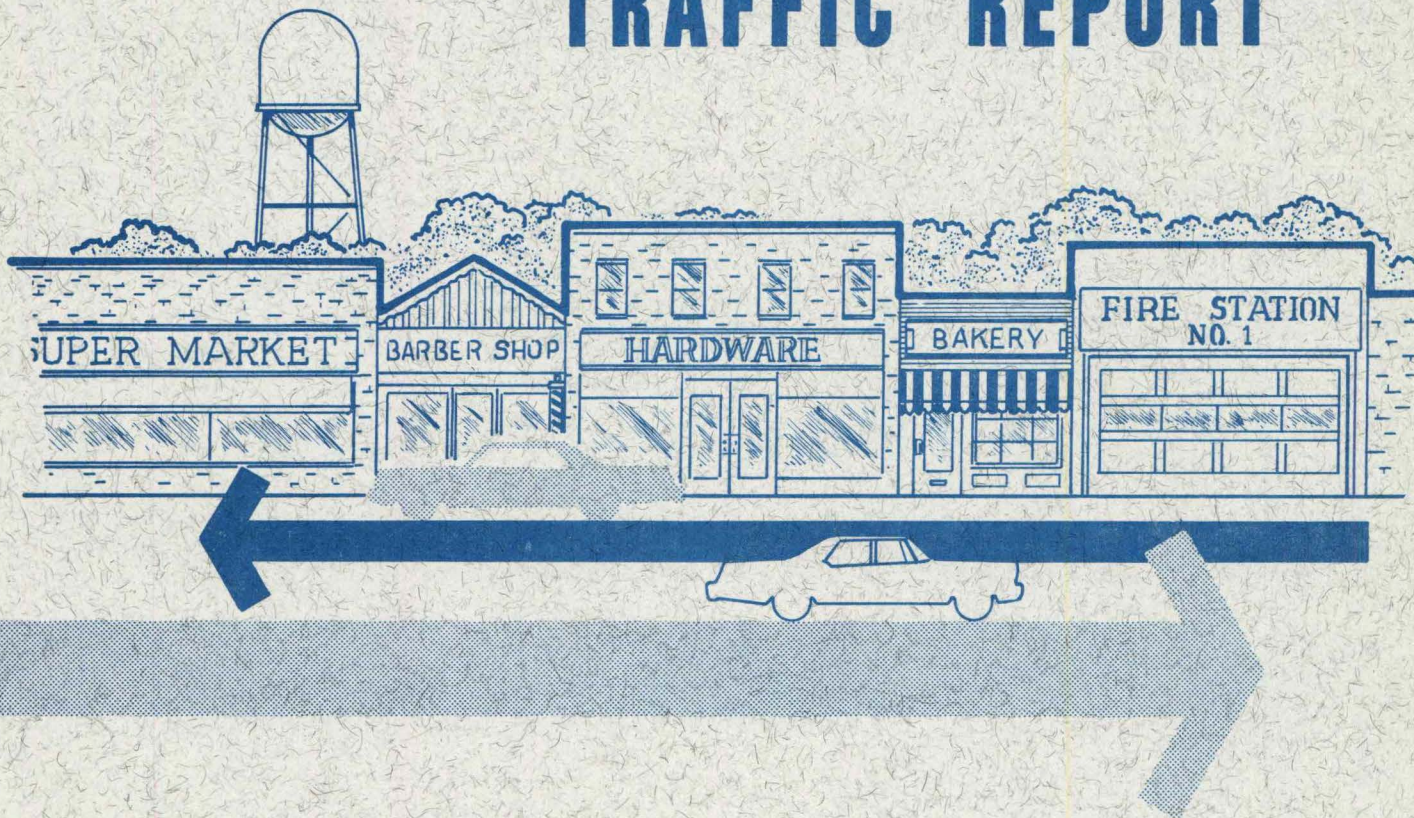


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STORM LAKE

ORIGIN and DESTINATION TRAFFIC REPORT



IOWA

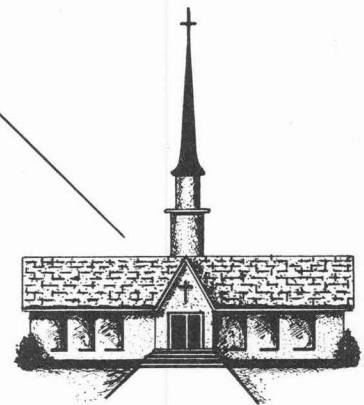
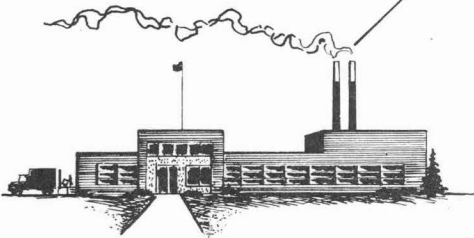
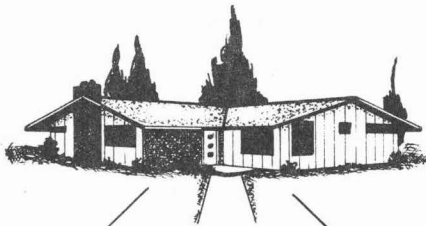
SUMMER 1967

State of Iowa STORM LAKE

Origin and Destination
Traffic Study

Data Gathered Summer 1967

Published May 1968



PREPARED BY

HIGHWAY PLANNING SURVEYS DEPARTMENT

DIVISION OF PLANNING

IOWA STATE HIGHWAY COMMISSION

IN COOPERATION WITH THE

UNITED STATES DEPARTMENT OF TRANSPORTATION

FEDERAL HIGHWAY ADMINISTRATION

BUREAU OF PUBLIC ROADS

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INTRODUCTION

During the summer of 1967, the Iowa State Highway Commission, in cooperation with the United States Bureau of Public Roads, conducted an external origin and destination traffic survey in Storm Lake, Iowa. The purpose of this survey was to determine the total number and type of vehicles entering or leaving the study area and to obtain origin and destination data from a representative sample of those vehicles.

In order to accurately evaluate traffic conditions, it is first essential that accurate and complete data be obtained. The purpose of this report is to summarize this data and to present the findings of the survey in a manner which will implement the determination of traffic needs, and thereby provide a sound basis for street and highway planning.

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DEFINITIONS OF TECHNICAL TERMS

Central Business District	The major business district of a city
Code Station	A location on a minor road at the point where it crosses the cordon line and at which no interviews were taken
Cordon Line	A hypothetical line determined by the location of traffic interview stations and used to delimit the area under study
Destination	The location of the objective of a trip
Desire Line	A straight line between the point of origin and point of destination without regard to routes of travel
External Local Trip	A trip having <u>either</u> origin or destination within the study area and which passes through only one interview station in the cordon line enroute to its destination
External Through Trip	A trip having <u>neither</u> origin nor destination within the study area but which passes through it enroute to its destination
Internal Trip	A trip having both origin and destination within the study area
Interview Station	A location at which vehicle drivers are stopped and interviewed
Origin	The location from which a driver started a trip
Study Area	The total area enclosed by a cordon line of interview stations
Traffic	The total number of vehicles passing a given point
Trip	The one-way travel between point of origin and point of destination



Significant Facts



Part One

SUMMARY

The chart at left graphically illustrates some of the more significant traffic volumes derived from the Storm Lake origin and destination traffic survey. An average of 10,853 trips per day passed through the external cordon line of interview stations surrounding the study area during the survey period.

2,727 trips or 25.12 percent of the total number of trips were between external areas and the central business district.

6,429 trips or 59.24 percent of the total number of trips were between external and internal areas exclusive of the central business district.

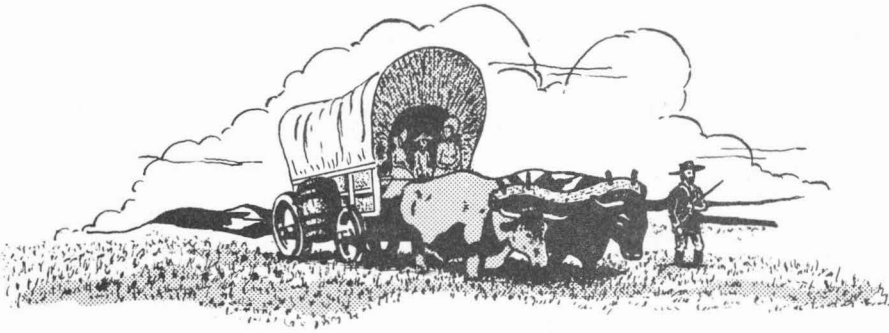
1,697 trips or 15.64 percent of the total number of trips were through trips which passed through the Storm Lake area enroute to another destination.

Of the total number of trips which passed through interview stations, 18.05 percent began or ended at work, 23.81 percent were for social or recreational purposes, 21.81 percent were during work, 12.95 percent were for personal business, 13.77 percent were for shopping, and the remaining 9.61 percent were for other purposes.

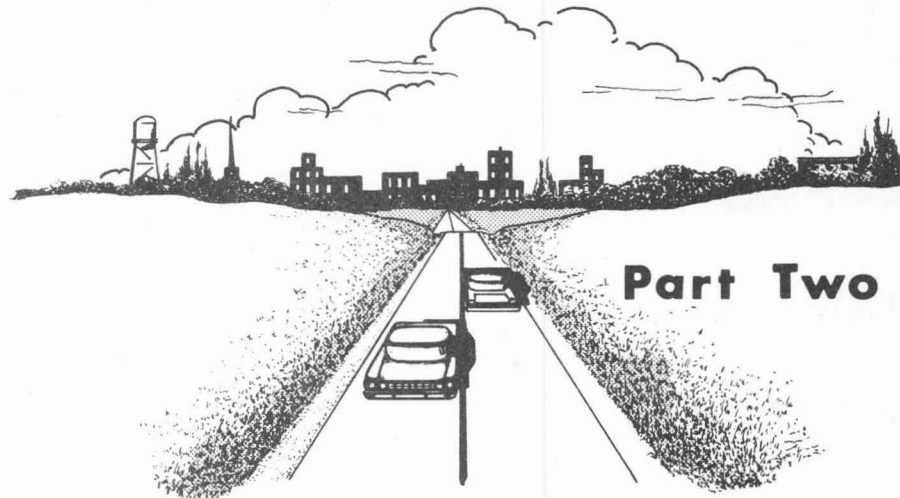
Table 1-1
REGIONAL INFLUENCE OF THE STORM LAKE STUDY AREA

Expanded to Average Summer Weekday Traffic 1967

Miles from Study Area		Number of Trips	Percent of Total Trips Within a Fifty-Mile Radius
North	0 - 10	297	4.09
	10 - 20	960	13.21
	20 - 30	108	1.48
	30 - 40	297	4.09
	40 - 50	46	.63
North Total		1,708	23.50
East	0 - 10	642	8.83
	10 - 20	479	6.59
	20 - 30	238	3.28
	30 - 40	58	.80
	40 - 50	36	.50
East Total		1,453	20.00
South	0 - 10	458	6.30
	10 - 20	512	7.04
	20 - 30	204	2.81
	30 - 40	34	.47
	40 - 50	92	1.27
South Total		1,300	17.89
West	0 - 10	1,596	21.96
	10 - 20	998	13.73
	20 - 30	147	2.02
	30 - 40	34	.47
	40 - 50	31	.43
West Total		2,806	38.61
Grand Total		7,267	100.00



*History
and
Development*



Part Two

HISTORY

Storm Lake, the seat of Buena Vista County, is located in Northwest Iowa, 75 miles east of Sioux City. It was originally settled in the late 1850's. By 1870 the area was prospering, rail connections had been completed, and a newspaper was being published. Storm Lake was incorporated in 1873 and has grown to be a thriving community of approximately 8,000.

The city is located on the north shore of Storm Lake, a natural body of water having approximately 3,200 surface acres. There have been parks along the lake front since the early days of development and in 1885, a city park system was initiated. Chataqua Park is a very popular area used extensively on weekends by residents of the entire state. There are also three other parks and one playground.

The Storm Lake Library was originally organized in 1876, and in 1904 approval was gained to establish a Carnegie Public Library. Today the library houses more than 25,000 volumes and has an annual circulation in excess of 54,000.

Storm Lake is the home of Buena Vista College, a four-year, coeducational liberal arts college which was established in 1891. By 1970 the college anticipates an enrollment of 1,200. In addition to its academic buildings and dormitories, the college also has a chapel, library, theater, and gymnasium.

An extensive food processing industry is an important asset to the economy of the area. Several firms engage in the processing or packing of meat, poultry, and vegetables. Approximately 30 percent of the labor force is engaged in retail or wholesale trade, 26 percent in services, 15 percent in manufacturing, and 29 percent in other miscellaneous industries.

Transportation facilities in Storm Lake include services for both passenger and freight, and a municipal airport with hard-surface runways capable of handling multi-engine corporate aircraft. Highways serving the area include U.S. Highway 71 and Iowa Highways 5 and 110.

FIGURE 2-2

STUDY AREA POSITION IN IOWA

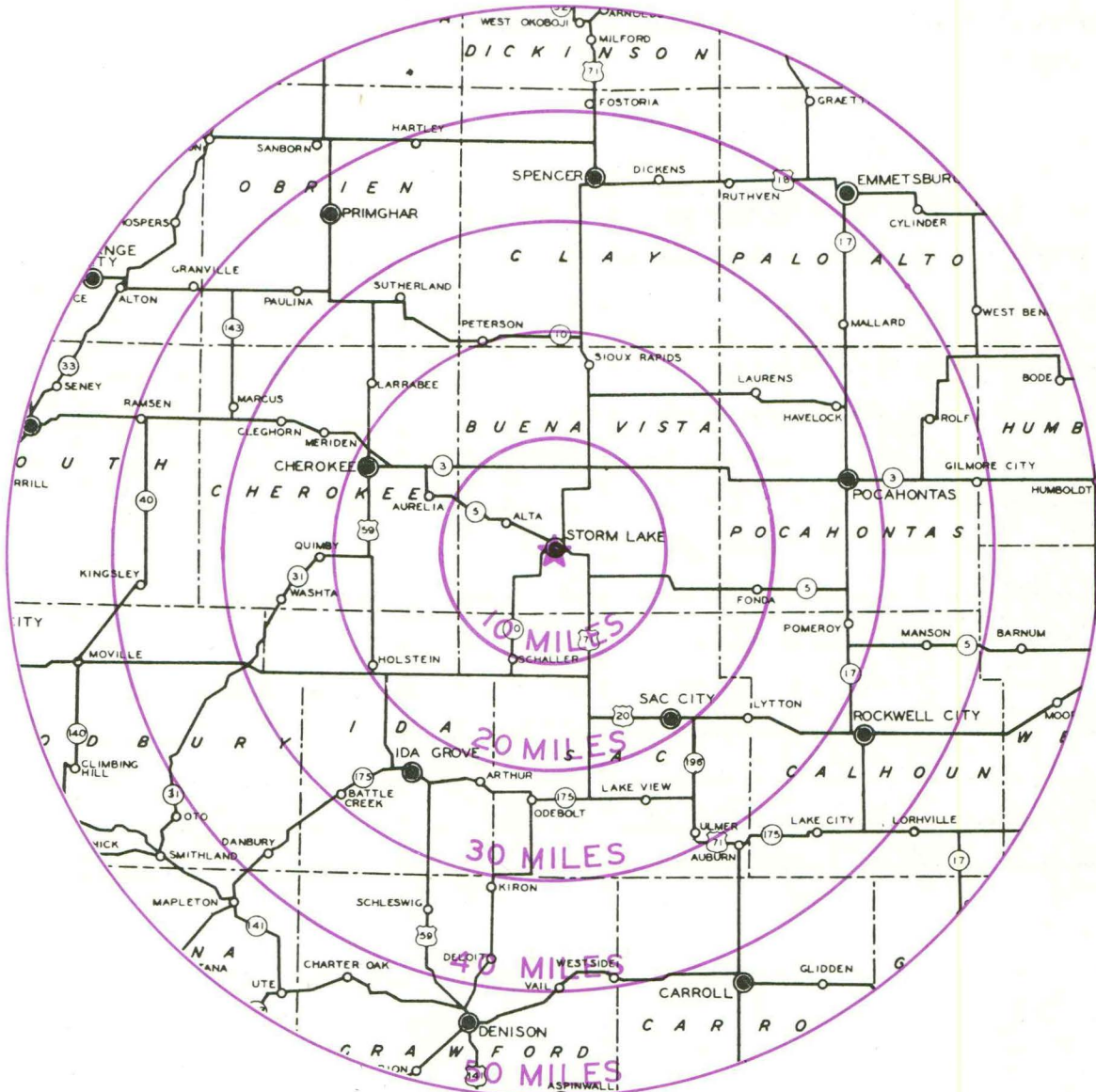
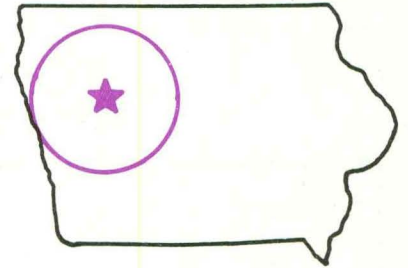


FIGURE 2-3
POPULATION TRENDS

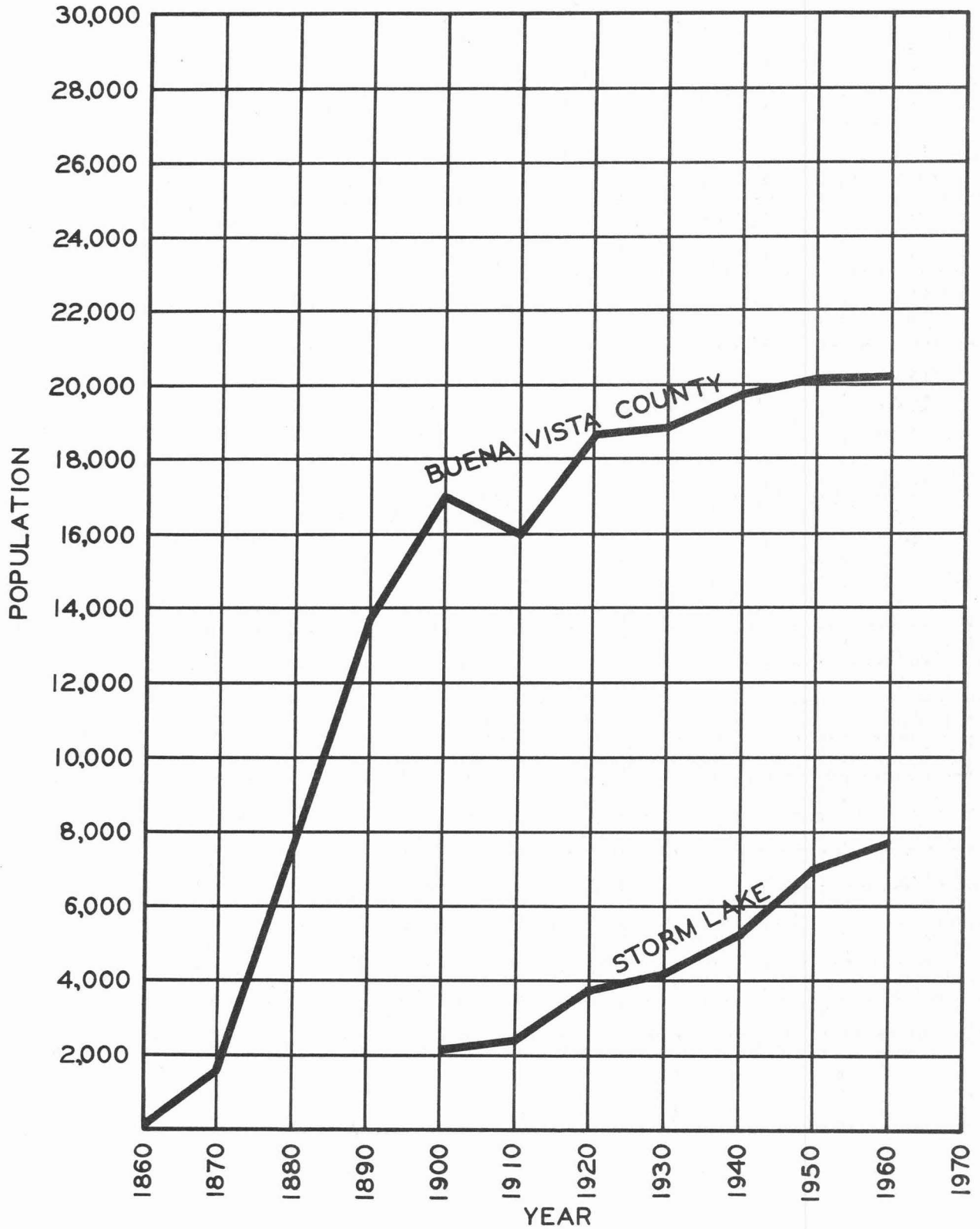
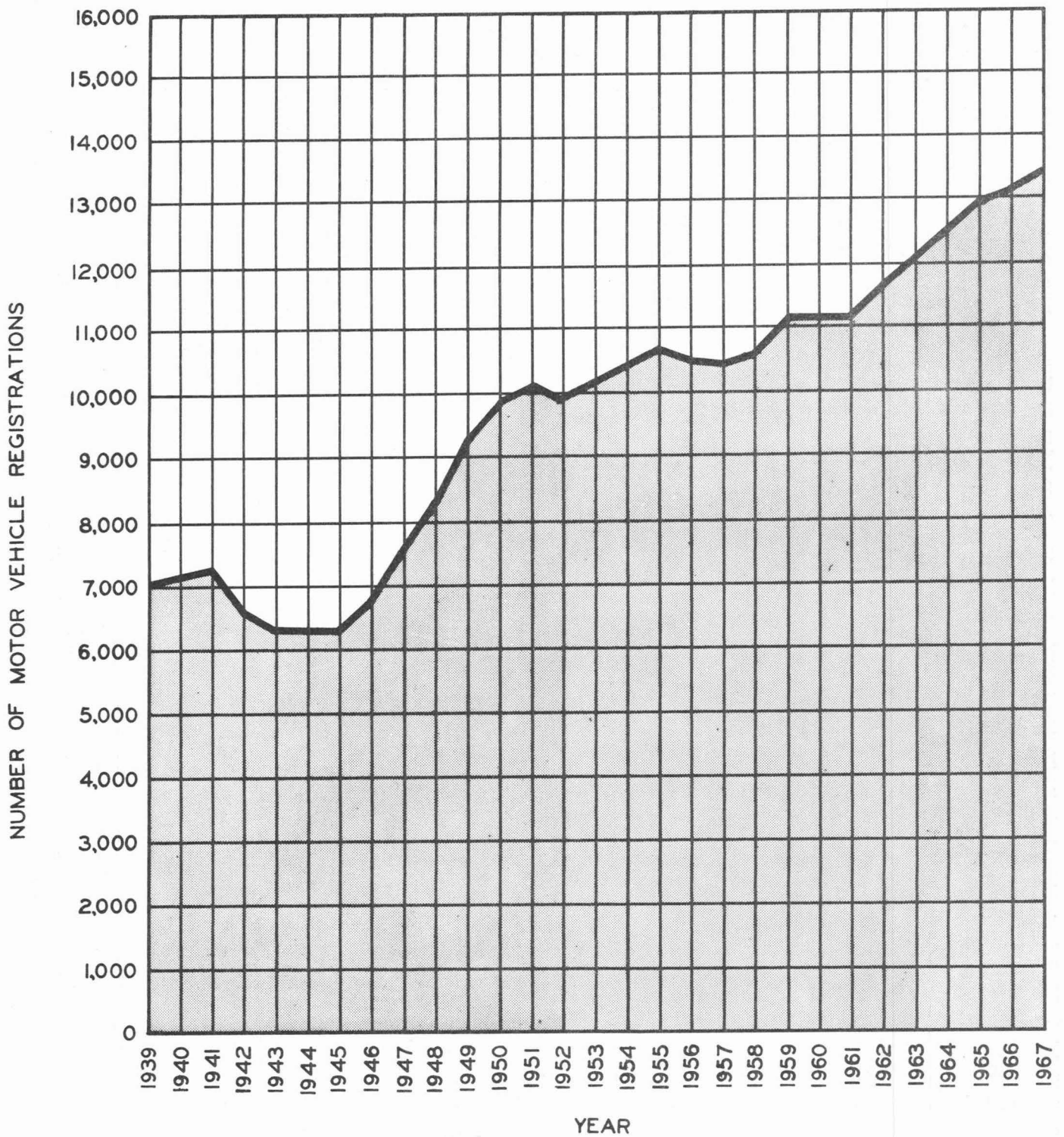
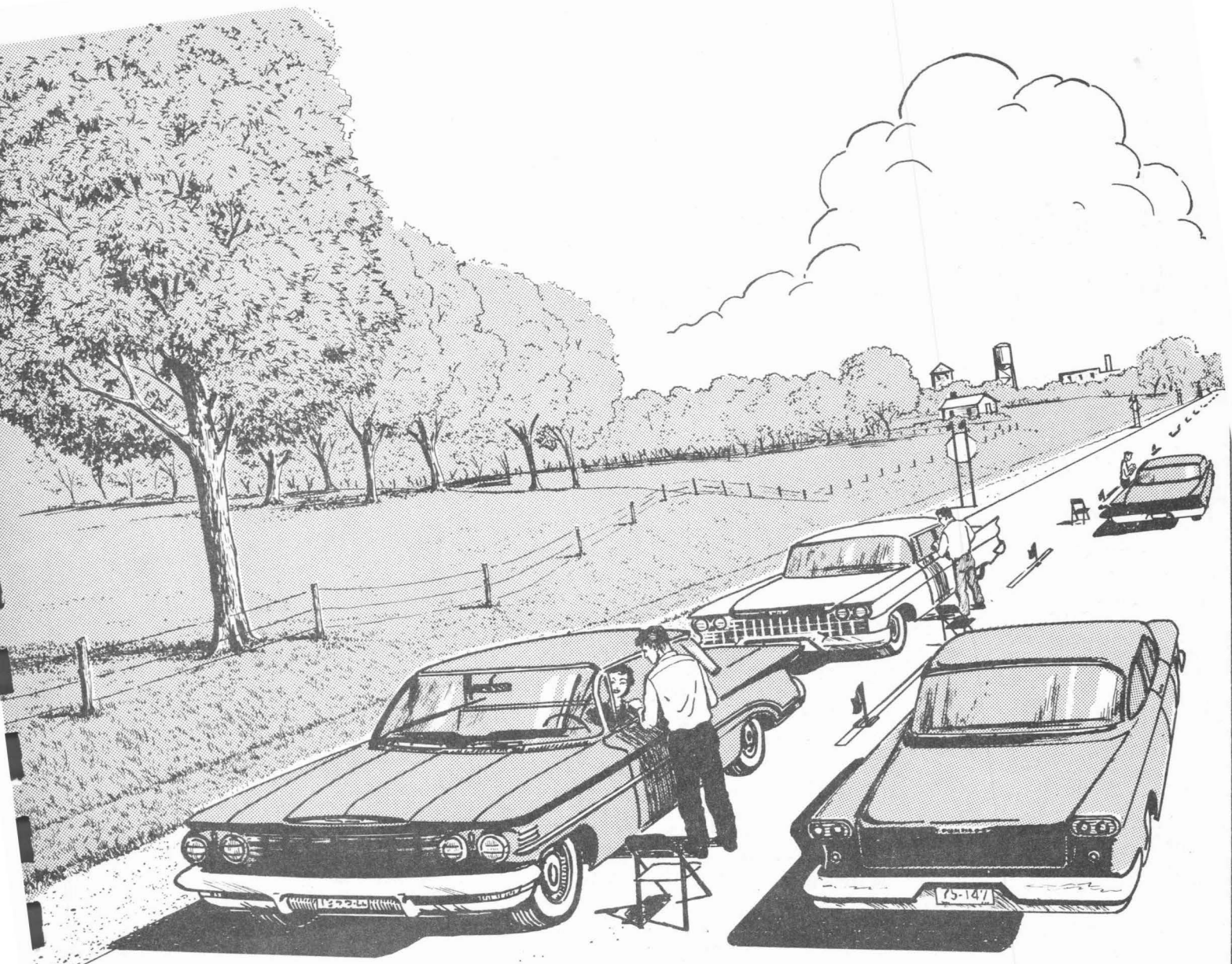


FIGURE 2-4
MOTOR VEHICLE REGISTRATION IN BUENA VISTA COUNTY
FROM 1939 THROUGH 1967





Survey

Procedure

Part Three

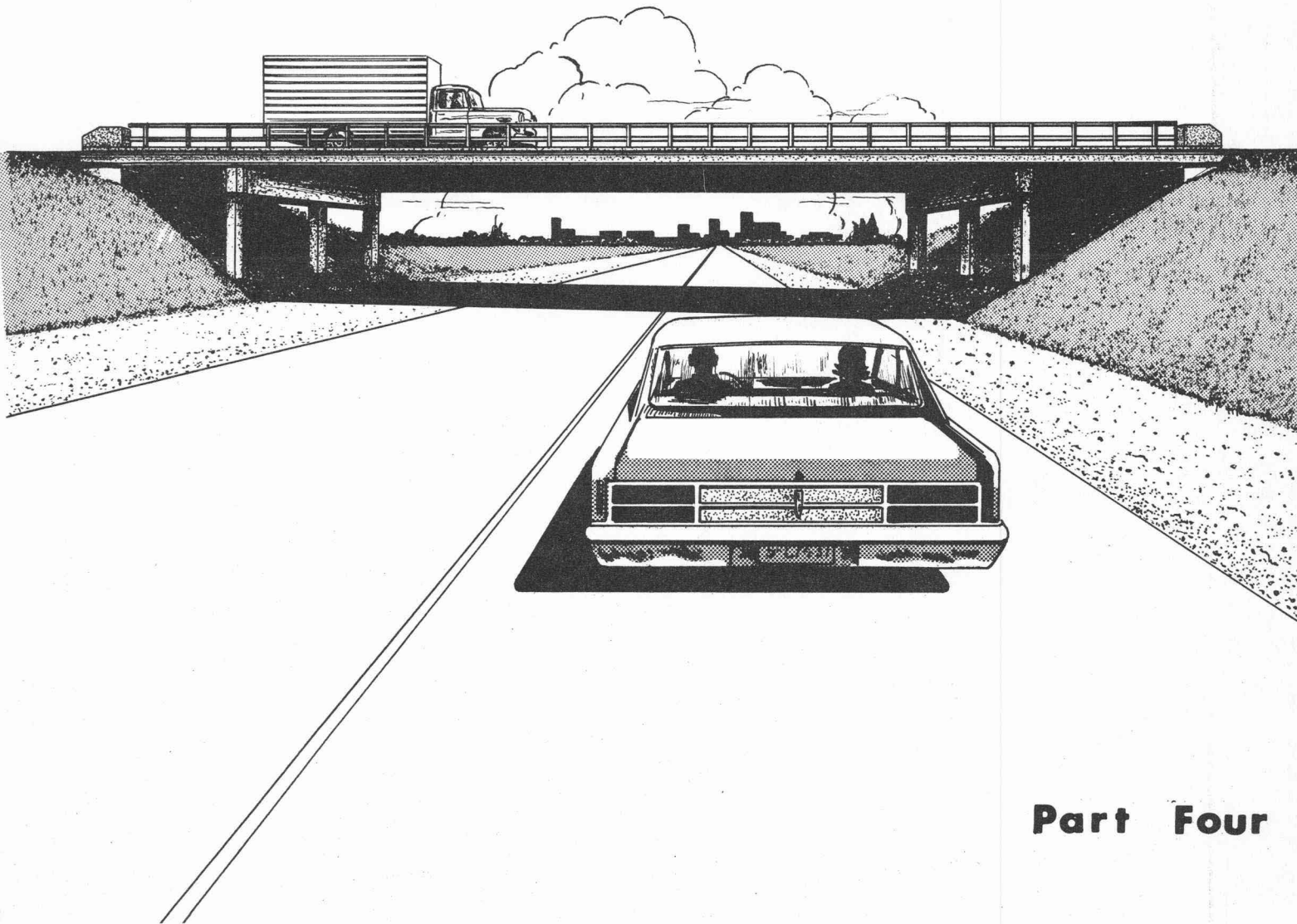
At the conclusion of the field work, the data pertaining to each trip were coded and punched on tabulating cards. These cards were then sorted and tabulated by machine according to the tract of origin or destination and the station or stations through which each trip passed.

In an external survey of this type, all trips are placed in two main categories which are composed of "external local trips" and "external through trips." External local trips have only one terminal (which may be either origin or destination) within the study area and, therefore, pass through only one interview station while enroute to their destination. Trips which have neither origin nor destination within the study area, but must pass through it enroute to another destination, are classified as external through trips. Trips in this category must cross the cordon line at least twice while enroute to their destination.

Traffic flow charts indicating trip termini by tract of origin or destination are included in this report along with a series of desire line charts showing desired routes of travel in straight lines between interview stations and internal tracts.

Traffic

Movements



Part Four

FIGURE 4-1
 INTERNAL DISPERSION OF
 ALL VEHICULAR TRIPS PASSING THROUGH
 STATION 701-U.S. 71 NORTH
 OF THE
 STORM LAKE STUDY AREA

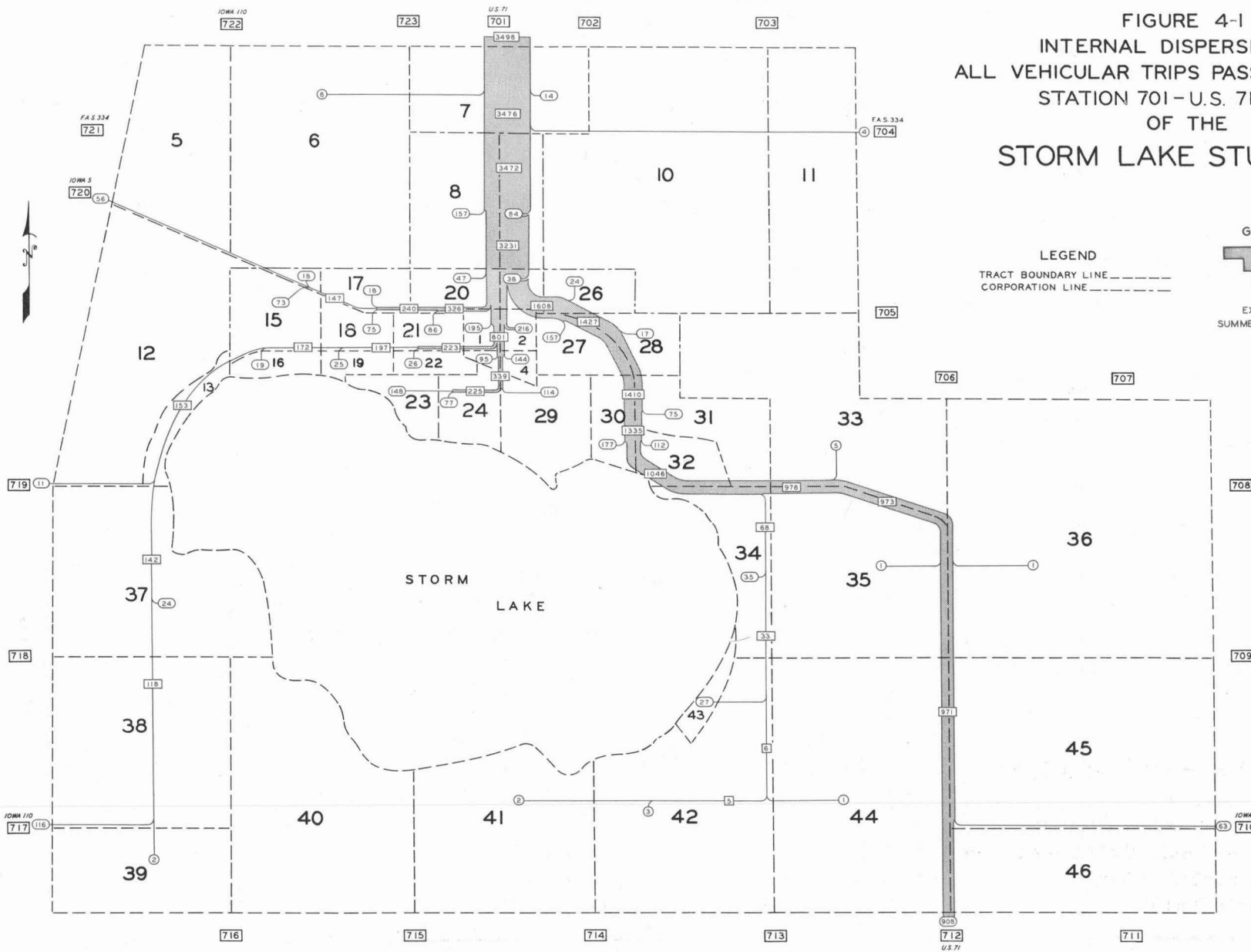
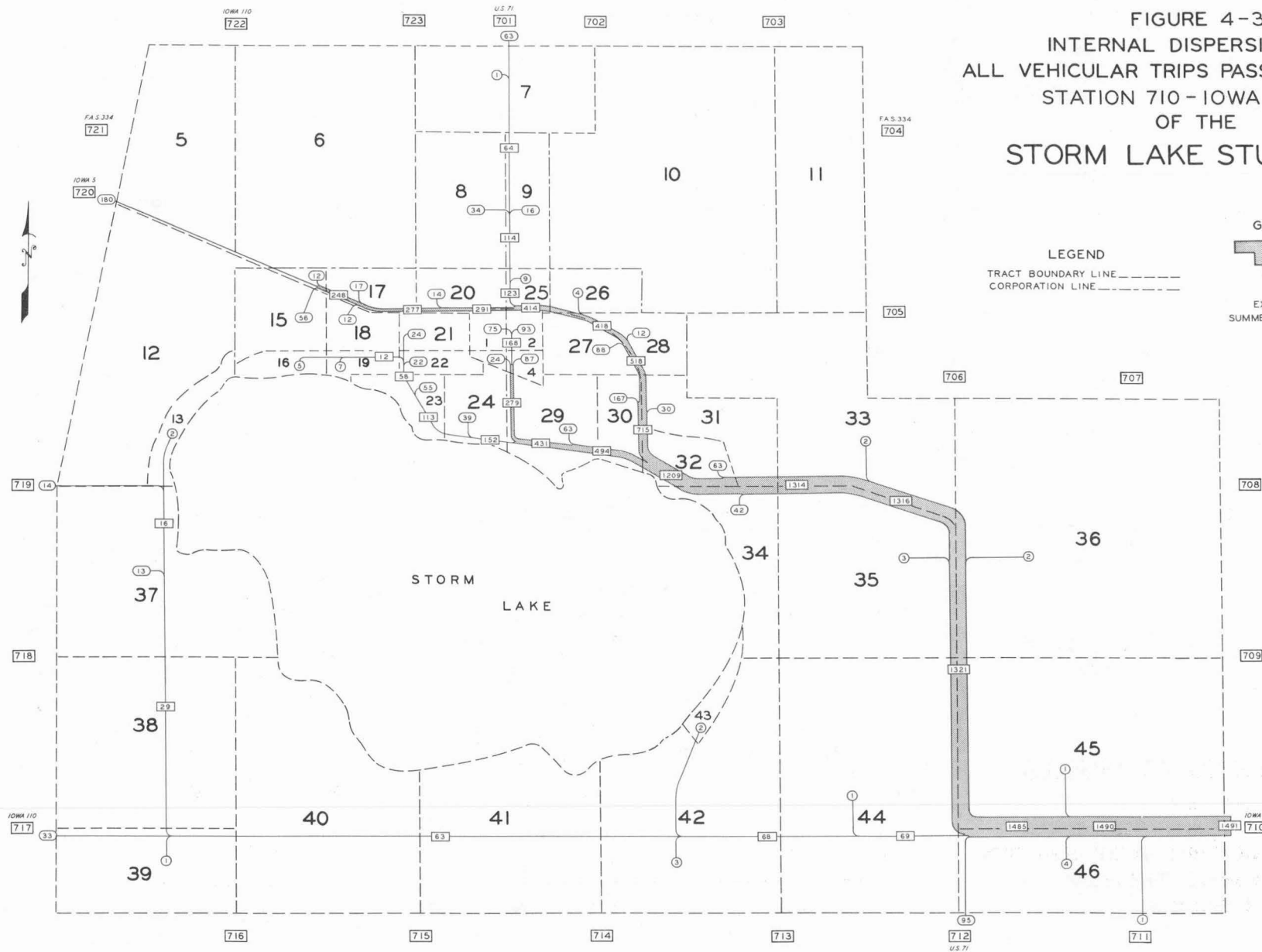


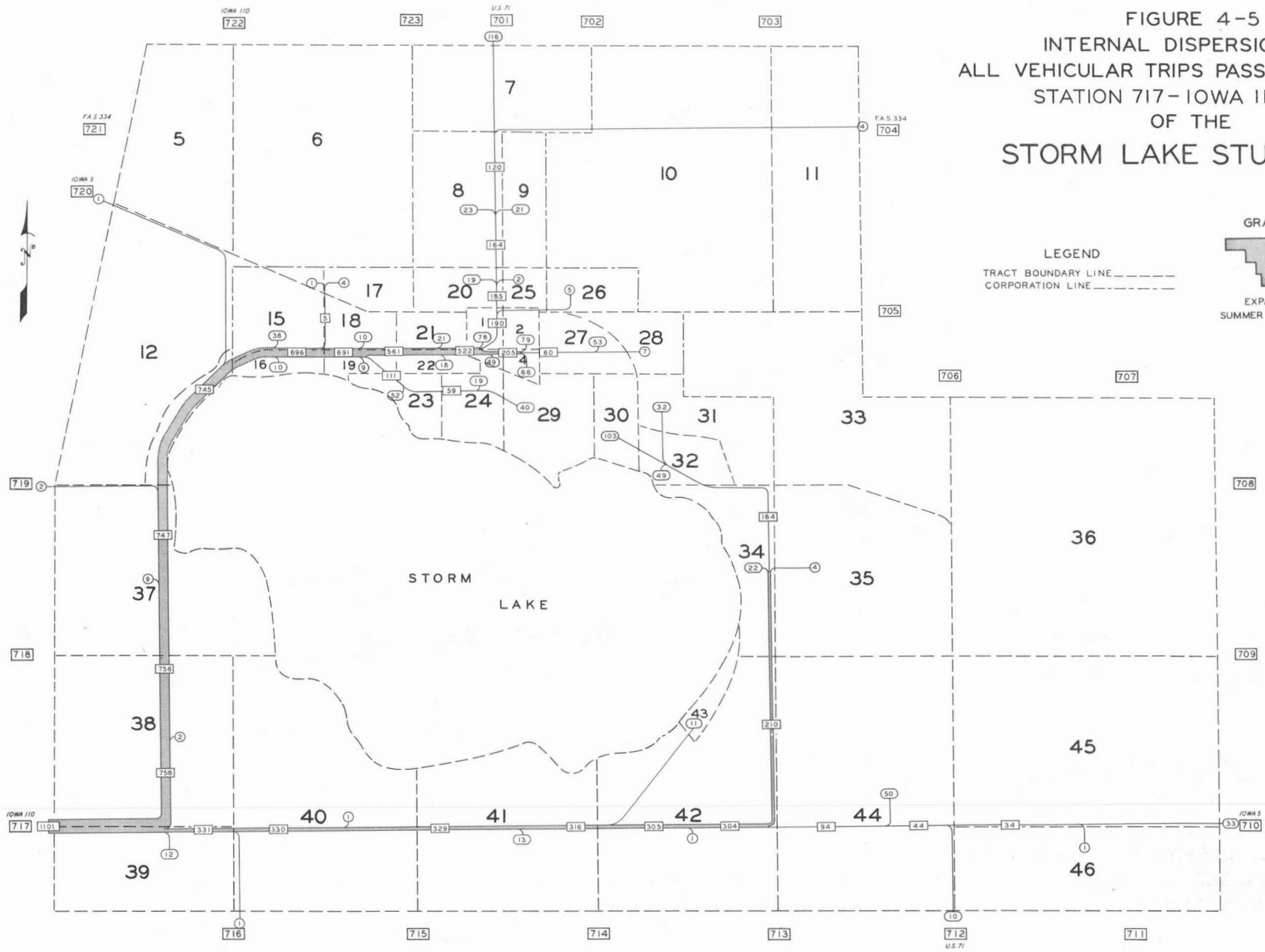
FIGURE 4-3
 INTERNAL DISPERSION OF
 ALL VEHICULAR TRIPS PASSING THROUGH
 STATION 710 - IOWA 5 EAST
 OF THE
 STORM LAKE STUDY AREA



GRAPHIC SCALE
 6000 TRIPS
 3000 TRIPS
 1500 TRIPS
 750 TRIPS
 EXPANDED TO AVERAGE
 SUMMER WEEKDAY TRAFFIC 1967

LEGEND
 TRACT BOUNDARY LINE
 CORPORATION LINE

FIGURE 4-5
 INTERNAL DISPERSION OF
 ALL VEHICULAR TRIPS PASSING THROUGH
 STATION 717-IOWA 110 WEST
 OF THE
 STORM LAKE STUDY AREA



GRAPHIC SCALE

8000 TRIPS
 3000 TRIPS
 1500 TRIPS
 750 TRIPS

EXPANDED TO AVERAGE
 SUMMER WEEKDAY TRAFFIC 1967

LEGEND
 TRACT BOUNDARY LINE - - - - -
 CORPORATION LINE - - - - -

FIGURE 4-7
 INTERNAL DISPERSION OF
 ALL VEHICULAR TRIPS PASSING THROUGH
 STATION 720-IOWA 5 WEST
 OF THE
 STORM LAKE STUDY AREA

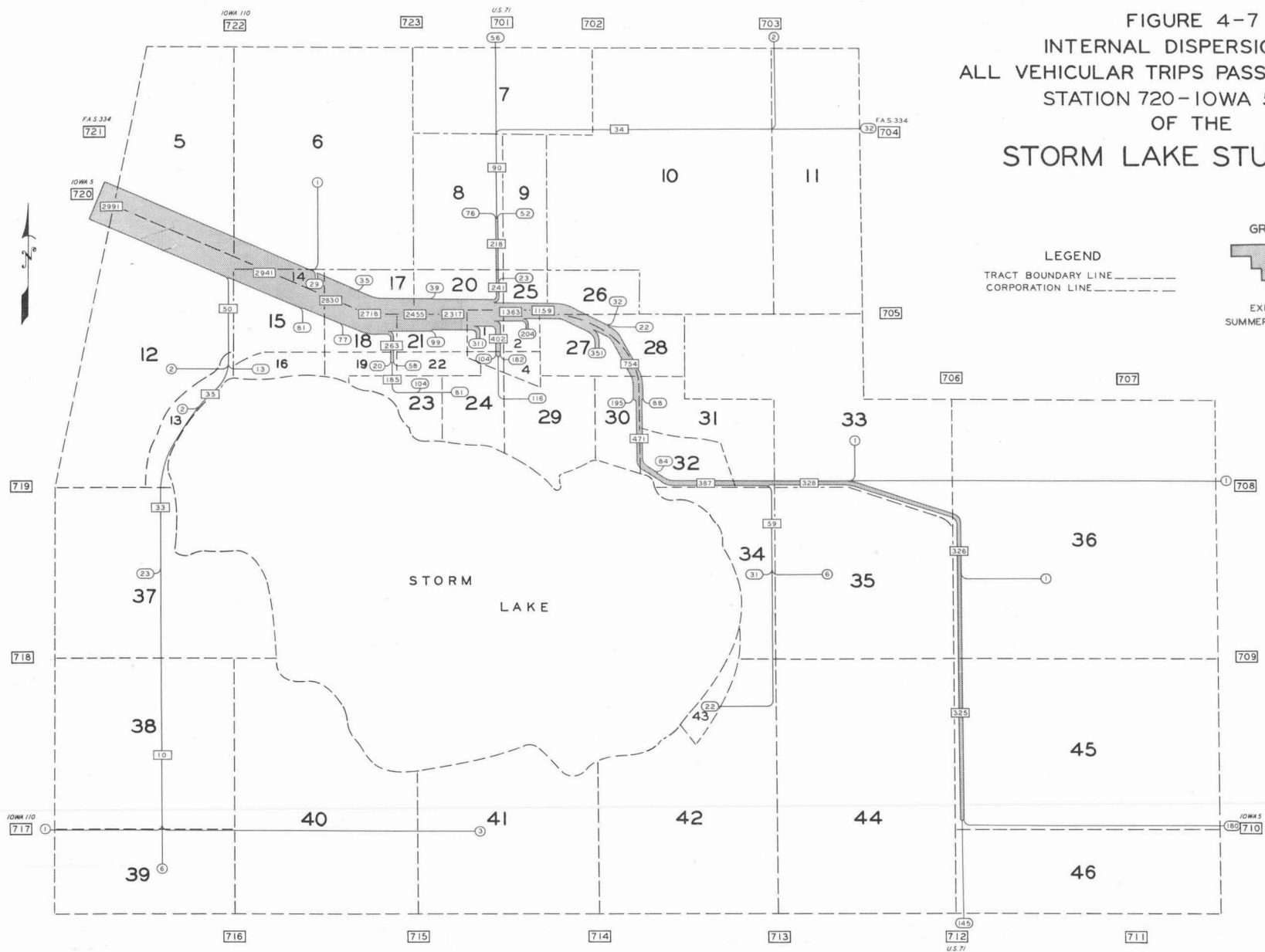


FIGURE 4-8

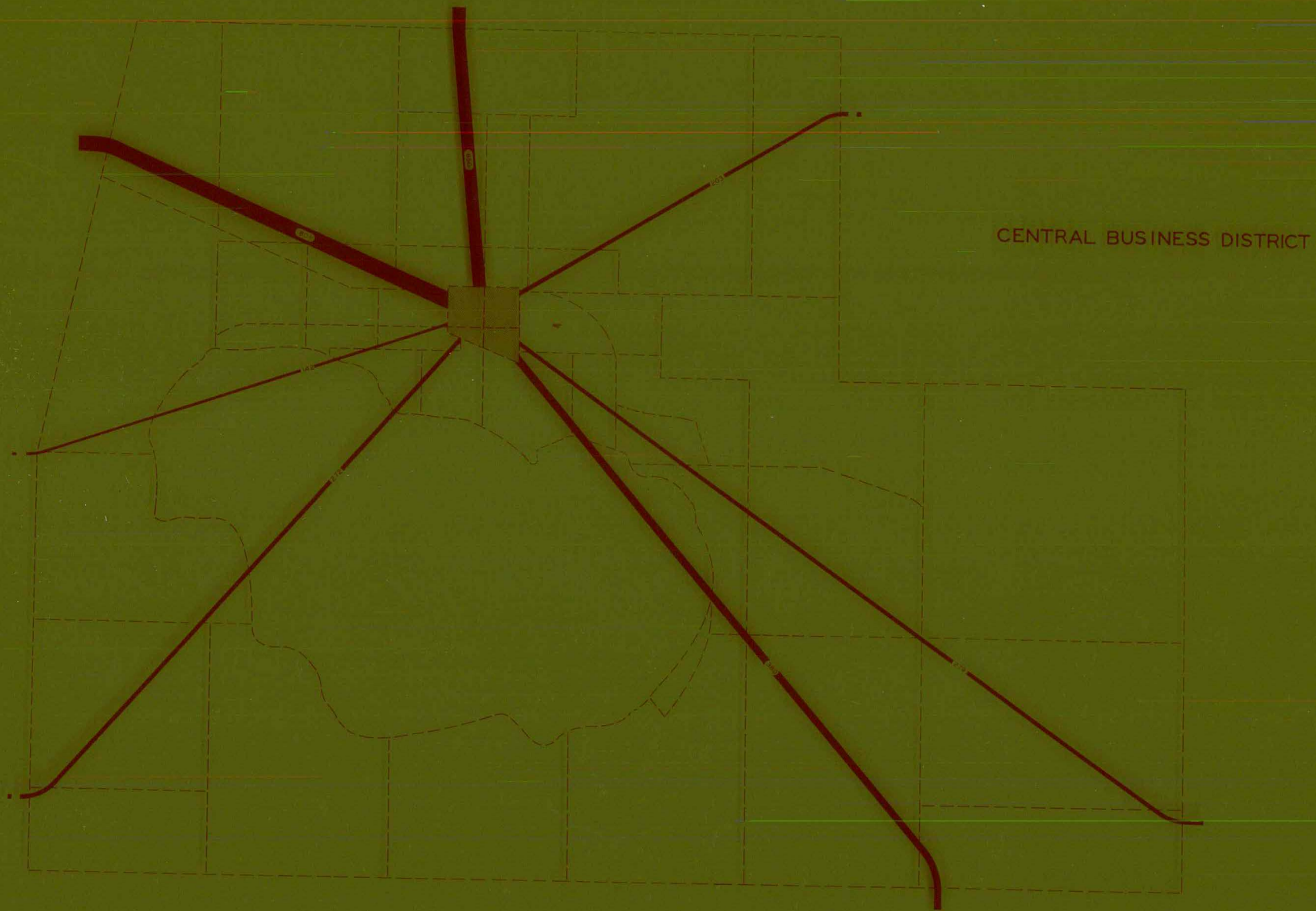
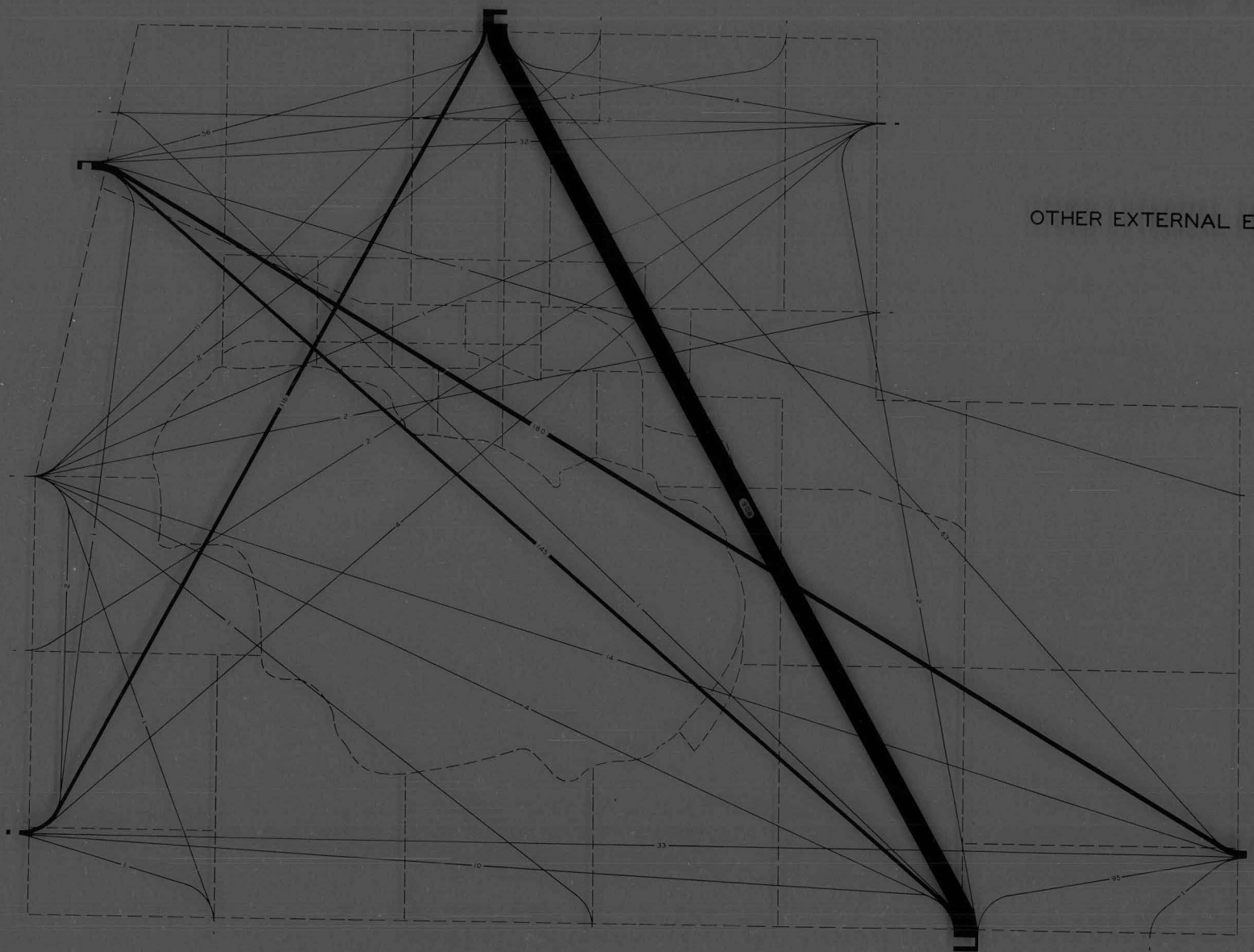


FIGURE 4-9



OTHER EXTERNAL ENTRANCES

FIGURE 4-10
 DESIRE LINES OF TRAVEL OF TRIPS
 TO OR FROM
 EXTERNAL ENTRANCES OF THE
 STORM LAKE STUDY AREA
 AND
 INTERNAL TRACTS

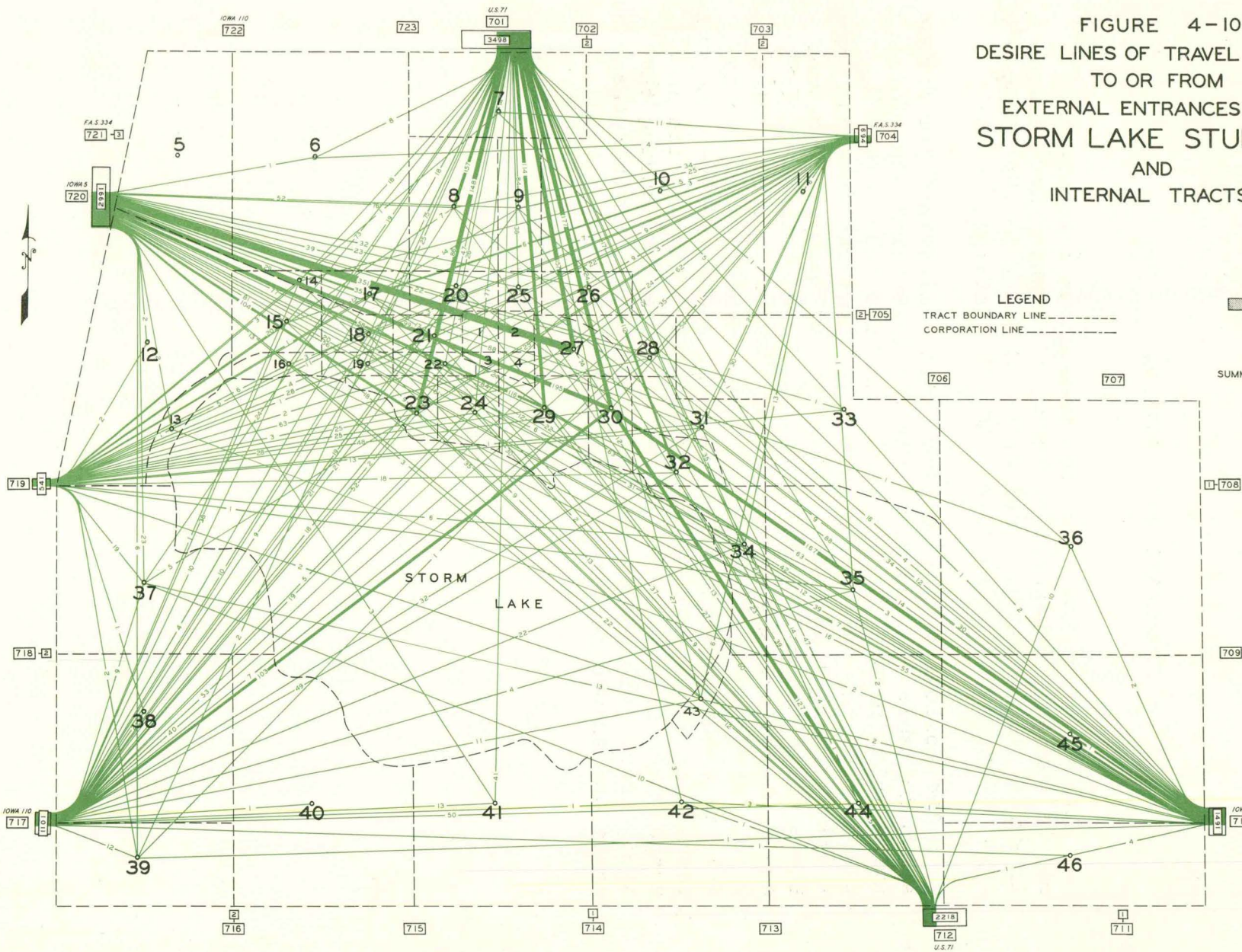


TABLE 4-1

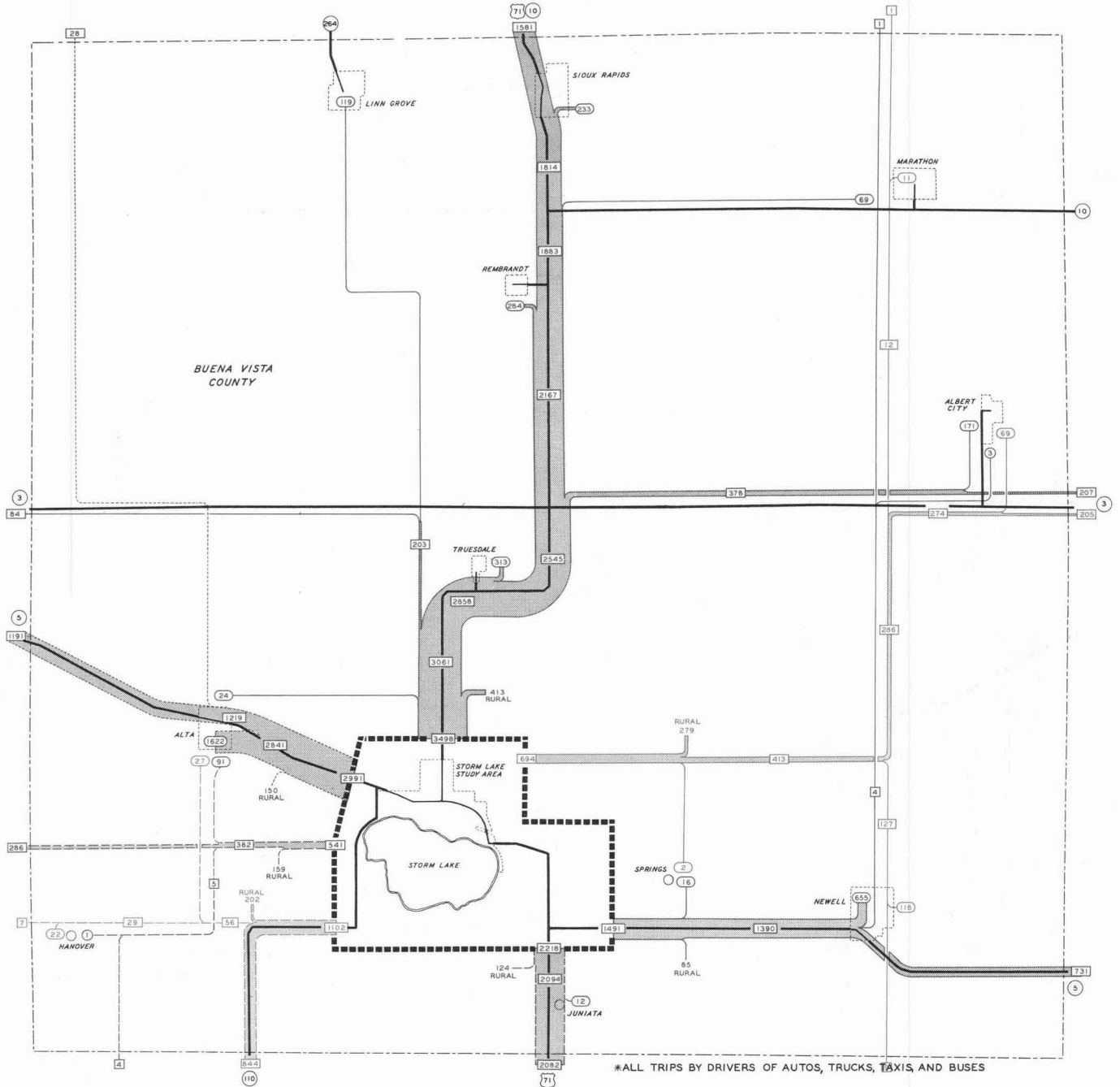
SUMMARY OF TRIPS ENTERING OR LEAVING

THE STORM LAKE STUDY AREA

EXPANDED TO AVERAGE SUMMER WEEKDAY TRAFFIC 1967

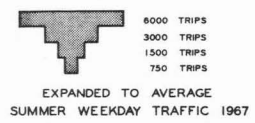
Origin or Destination	U.S. 71 North		F.A.S. 334 East		Iowa 5 East		U.S. 71 South		Iowa 110 West		F.A.S. 1574 West		Iowa 5 West	
	Station 701		Station 704		Station 710		Station 712		Station 717		Station 719		Station 720	
	Vol.	%	Vol.	%	Vol.	%	Vol.	%	Vol.	%	Vol.	%	Vol.	%
Albert City	171	4.89	69	9.94	3	.21								
Alta	24	.69							27	2.45	91	16.82	1,622	54.23
Hanover									22	2.00	1	.18		
Juniata							12	54						
Linn Grove	119	3.40												
Marathon	69	1.97	11	1.59										
Newell			118	17.00	655	43.93								
Rembrandt	284	8.12												
Sioux Rapids	233	6.66												
Sulpher Springs			2	.29	16	1.07								
Truesdale	313	8.95												
Total to Towns	1,213	34.68	200	28.82	674	45.21	12	.54	49	4.45	92	17.00	1,622	54.23
Rural Buena Vista Co.	413	11.81	279	40.20	85	5.70	124	5.59	202	18.33	159	29.39	150	5.02
Other Counties	1,524	43.56	214	30.84	705	47.28	1,590	71.69	802	72.77	289	53.43	1,171	39.15
Out-of-State	348	9.95	1	.14	27	1.81	492	22.18	49	4.45	1	.18	48	1.60
Grand Total	3,498	100.00	694	100.00	1,491	100.00	2,218	100.00	1,102	100.00	541	100.00	2,991	100.00

FIGURE 4-12
EXTERNAL DISPERSION OF TRIPS
PASSING THROUGH INTERVIEW STATIONS
IN STORM LAKE TO OR FROM
POINTS WITHIN BUENA VISTA COUNTY*



*ALL TRIPS BY DRIVERS OF AUTOS, TRUCKS, TAXIS, AND BUSES

GRAPHIC SCALE



LEGEND

TRAFFIC THROUGH INTERVIEW STATIONS

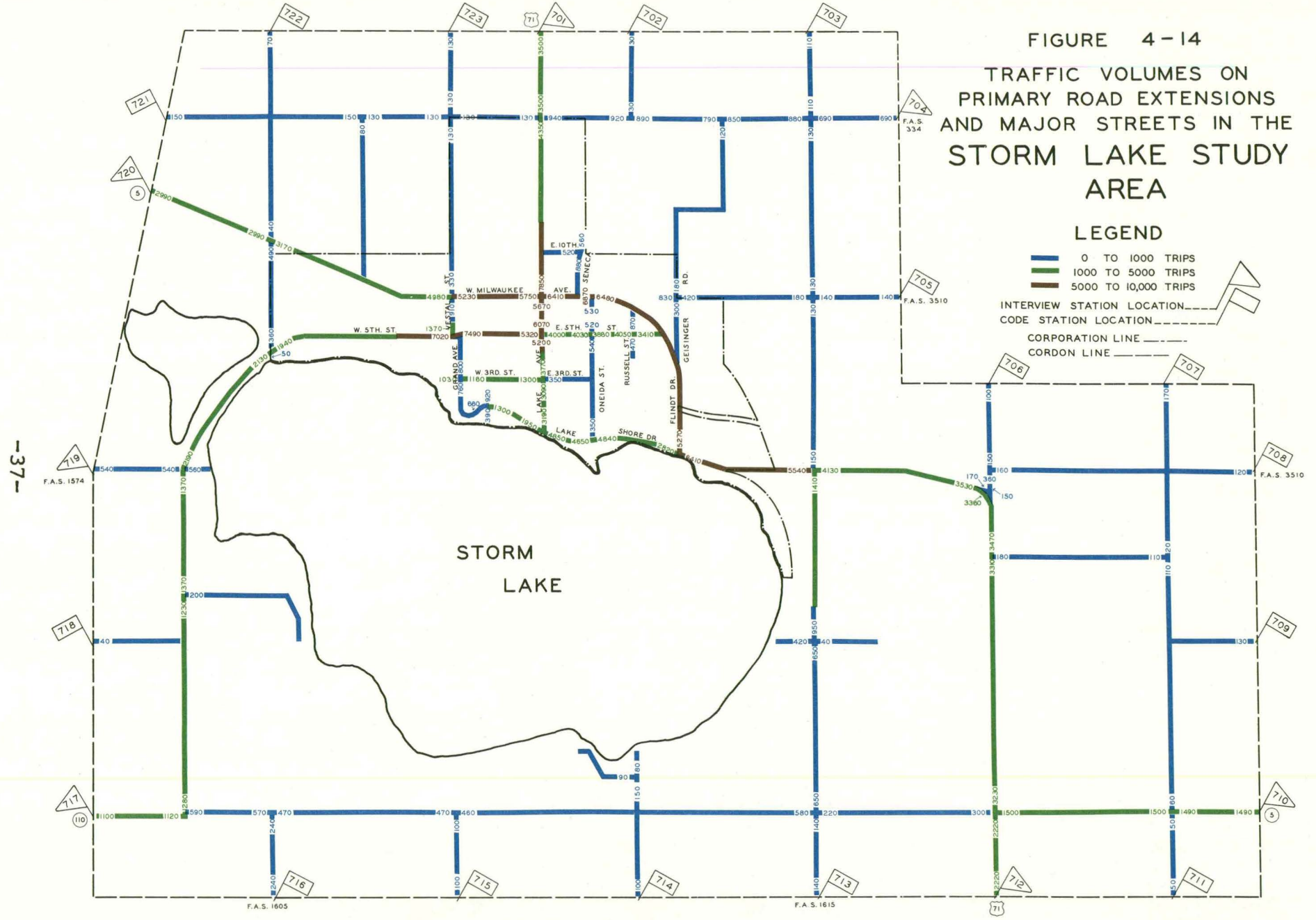
- STATIONS 701 - U.S. 71 NORTH
- STATIONS 712 - U.S. 71 SOUTH
- STATIONS 704 - F.A.S. 334 EAST
- STATIONS 717 - IOWA 110 WEST
- STATIONS 710 - IOWA 5 EAST
- STATIONS 719 - F.A.S. 1574 WEST
- STATIONS 720 - IOWA 5 WEST
- CORPORATION LINE - - - - -
- CORDON LINE - - - - -

FIGURE 4-14
 TRAFFIC VOLUMES ON
 PRIMARY ROAD EXTENSIONS
 AND MAJOR STREETS IN THE
 STORM LAKE STUDY
 AREA

LEGEND

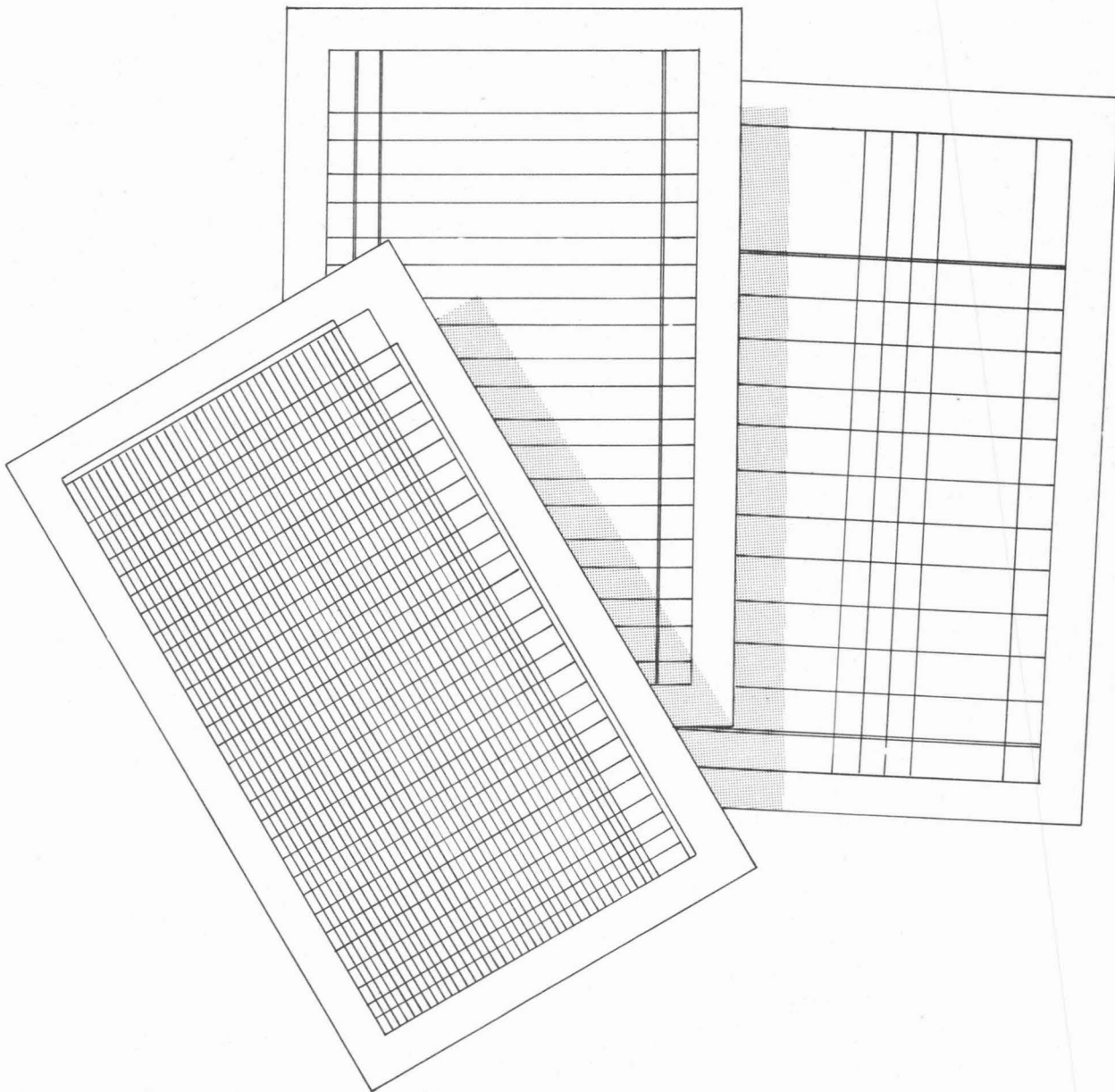
- 0 TO 1000 TRIPS
- 1000 TO 5000 TRIPS
- 5000 TO 10,000 TRIPS

- INTERVIEW STATION LOCATION
- CODE STATION LOCATION
- CORPORATION LINE
- CORDON LINE



EXPANDED TO AVERAGE SUMMER WEEKDAY TRAFFIC 1967

Appendix



AVERAGE CAR OCCUPANCY BY TRIP PURPOSE
STORM LAKE STUDY AREA
EXPANDED TO AVERAGE SUMMER WEEKDAY TRAFFIC 1967

EXTERNAL LOCAL TRIPS

Table B-3a(1)

Trip Purpose Origin	TRIP PURPOSE DESTINATION										Average Occupancy
	Work	Personal Business	During Work	Medical or Dental	School	Social or Recreation	Eat	Shop	Serve Passengers	Home	
Work	1.000	2.146	1.318	1.000	1.000	1.443	1.150	1.481	4.316	1.368	1.395
Personal Business	1.678	1.639		2.000	3.662	1.703	1.749	3.000	2.675	1.692	1.719
During Work	2.006	2.000	1.294			1.000		1.000		1.188	1.293
Medical or Dental		1.507				1.976				2.100	2.088
School		4.000			3.211	1.000	1.000		4.000	1.309	1.652
Social or Recreation	1.861	1.732	1.000	3.291	5.000	3.082	3.003	2.238	1.404	2.301	2.420
Eat	1.403	1.000	1.106			2.774		2.000	3.000	2.439	2.252
Shop	1.000	2.620	1.318			2.390		2.536	1.969	2.182	2.195
Serve Passengers	3.473			2.000		2.664		3.000	6.166	2.063	2.383
Home	1.362	1.817	1.192	2.403	1.396	2.333	2.643	2.271	2.426		1.707
Average Occupancy	1.395	1.824	1.282	2.403	1.745	2.386	2.449	2.271	2.589	1.850	1.897

EXTERNAL THROUGH-TRIPS

Table B-3a(2)

Trip Purpose Origin	TRIP PURPOSE DESTINATION										Average Occupancy
	Work	Personal Business	During Work	Medical or Dental	School	Social or Recreation	Eat	Shop	Serve Passengers	Home	
Work			2.067			1.000				1.618	1.642
Personal Business		1.585				1.543				2.226	2.080
During Work	1.000		1.371							1.247	1.359
Medical or Dental										2.489	2.489
School					2.938	1.000				2.191	2.222
Social or Recreation	2.000	1.472	1.000	1.000		3.176			2.707	2.950	2.981
Eat		2.000				2.972				3.500	3.146
Shop						6.000				3.385	3.690
Serve Passengers						2.000				2.289	2.263
Home	1.696	2.096	1.327	2.520	2.972	2.991	3.000	2.264	3.555		2.753
Average Occupancy	1.687	2.027	1.379	2.335	2.961	3.022	3.000	2.264	3.276	2.695	2.571

SUMMARY - ALL EXTERNAL TRIPS

Table B-3a(3)

Trip Purpose Origin	TRIP PURPOSE DESTINATION										Average Occupancy
	Work	Personal Business	During Work	Medical or Dental	School	Social or Recreation	Eat	Shop	Serve Passengers	Home	
Work	1.000	2.146	1.376	1.000	1.000	1.434	1.150	1.481	4.316	1.382	1.410
Personal Business	1.678	1.629		2.000	3.662	1.681	1.749	3.000	2.675	1.747	1.758
During Work	1.913	2.000	1.310			1.000		1.000		1.202	1.306
Medical or Dental		1.507				1.976				2.109	2.097
School		4.000			3.192	1.000	1.000		4.000	1.334	1.674
Social or Recreation	1.869	1.718	1.000	2.994	5.000	3.123	3.003	2.238	1.701	2.589	2.652
Eat	1.403	1.330	1.106			2.797		2.000	3.000	2.471	2.285
Shop	1.000	2.620	1.318			2.460		2.536	1.969	2.192	2.208
Serve Passengers	3.473			2.000		2.629		3.000	6.166	2.083	2.374
Home	1.374	1.851	1.211	2.406	1.434	2.546	2.645	2.271	2.476		2.098
Average Occupancy	1.405	1.849	1.300	2.401	1.781	2.588	2.452	2.271	2.622	1.981	2.001