KNOXVILLE

ORIGIN   and
DESTINATION

TRAFFIC REPORT

PER MARKET   BARBER SHOP   HARDWARE INC.   BAKERY   FIRE STATION NO.1
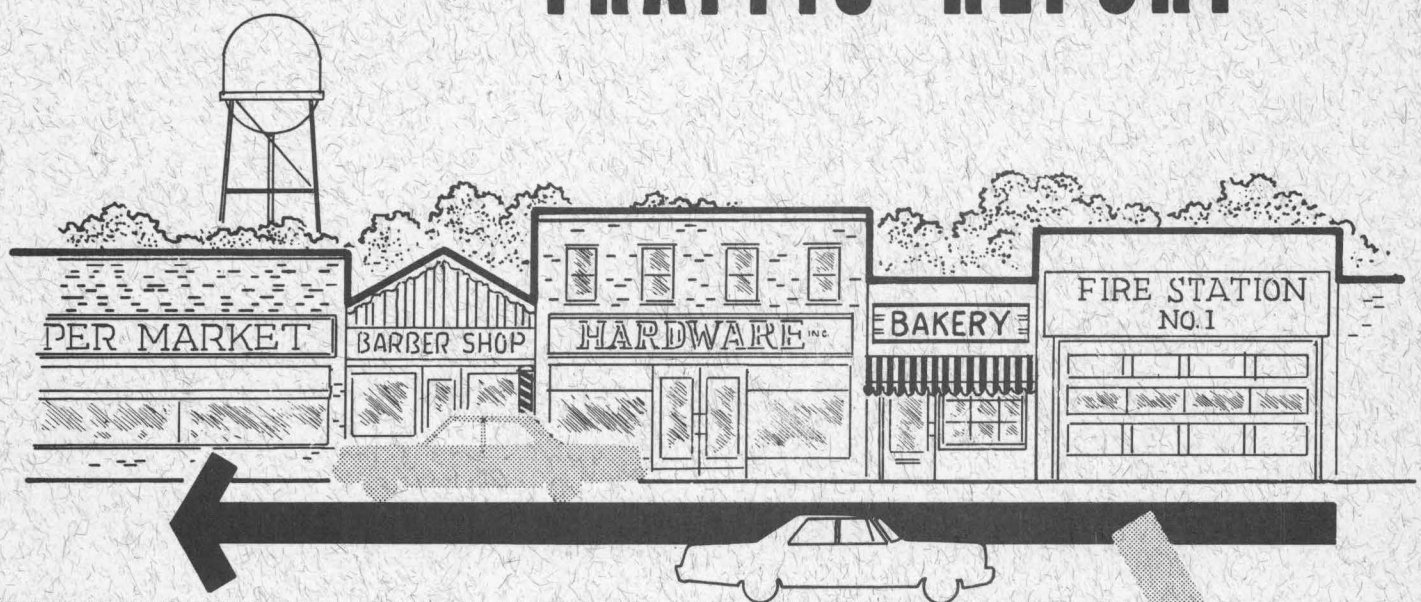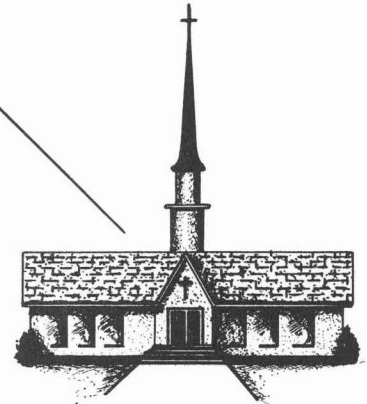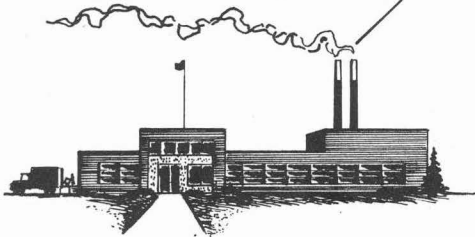
IOWA

JULY   1966

State of Iowa
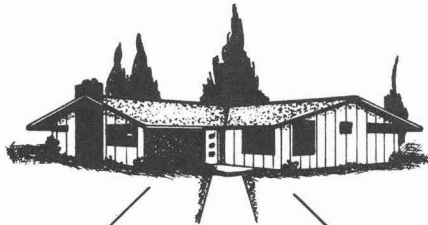# KNOXVILLE

Origin and Destination
Traffic Study

Data Gathered July 1966
Published October 1967

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

Reproduction Cost ___$3.25___

INTRODUCTION

This report is based on an external origin-destination traffic survey which was made in Knoxville by the Iowa State Highway Commission in July of 1966. The survey was conducted in cooperation with the United States Bureau of Public Roads and was made to determine the total number and type of vehicles entering or leaving the study area along with specific origin-destination data from a representative sample of vehicle operators.

The purpose of this report is to summarize the data gathered in Knoxville and to present this data 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 either 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 neither 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

Significant Facts

FIGURE 1-1
DISTRIBUTION OF TRIPS
KNOXVILLE STUDY AREA

INTERNAL TRACTS

THROUGH TRIPS

CENTRAL BUSINESS DISTRICT

6,011

2,528

1,742

10,281

EXPANDED TO AVERAGE JULY
WEEKDAY TRAFFIC 1966

EXTERNAL

–2–
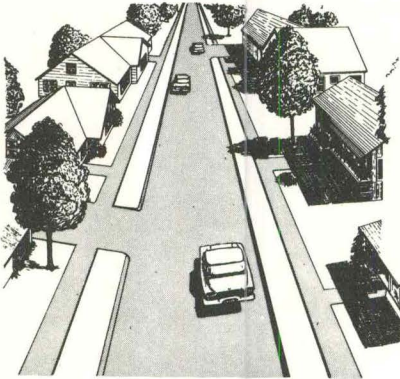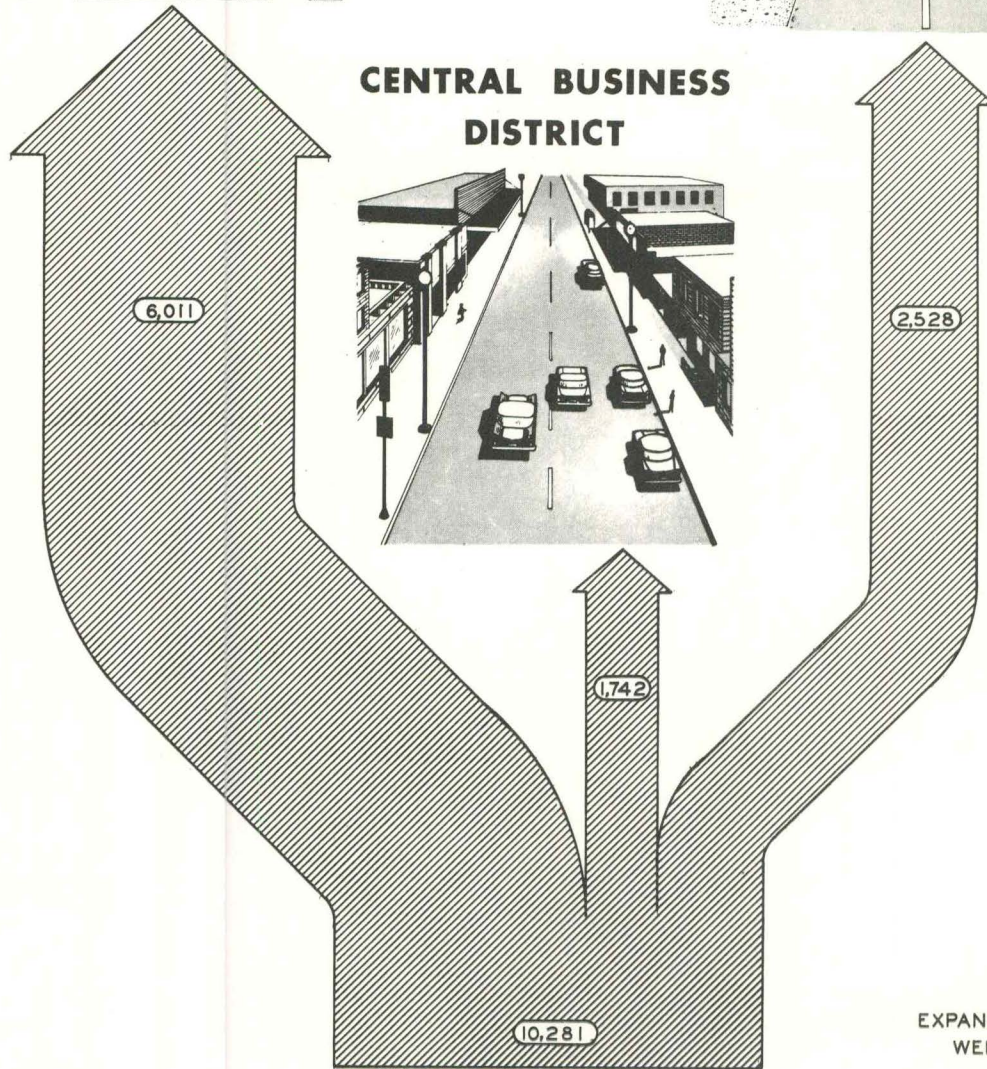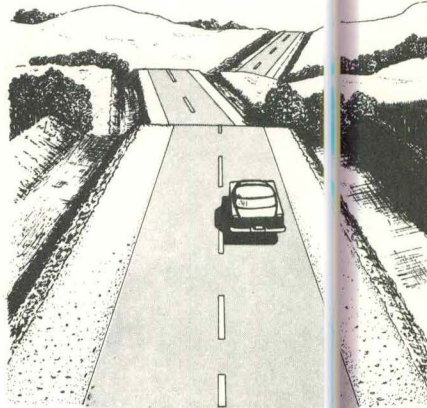
SIGNIFICANT FACTS

The chart at left graphically illustrates some of the more significant traffic volumes derived from the Knoxville origin-destination traffic survey. An average of 10,281 trips per day passed through the external cordon line of interview stations surrounding the study area during the survey period.

1,742 trips or 16.94 percent of the total number of trips were between external areas and the central business district.

6,011 trips or 58.47 percent of the total number of trips were between external and internal areas exclusive of the central business district.

2,528 trips or 24.59 percent of the total number of trips were through trips which passed through Knoxville enroute to another destination.

Of the total number of trips which passed through interview stations, 20.55 percent began or ended at work, 30.14 percent were for social or recreational purposes, 18.88 percent were during work, 12.39 percent were for personal business, 12.51 percent were for shopping, and the remaining 5.53 percent were for other purposes.

FIGURE 1-2
REGIONAL INFLUENCE
OF THE KNOXVILLE STUDY AREA
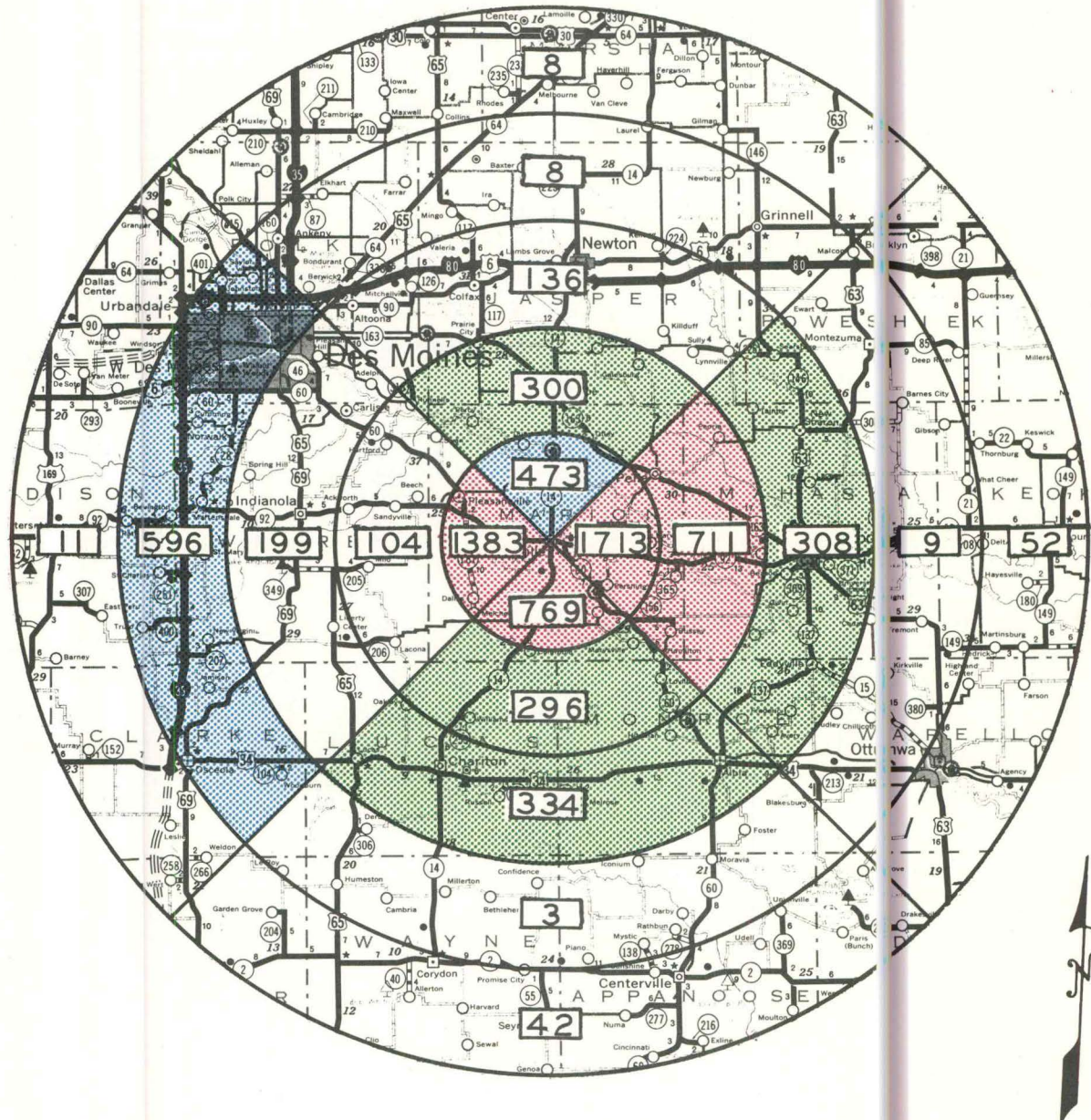
LEGEND

0 TO 200 TRIPS

200 TO 400 TRIPS

400 TO 600 TRIPS

600 TRIPS OR MORE

EXPANDED TO AVERAGE
JULY WEEKDAY TRAFFIC - 1966

Table 1-1
REGIONAL INFLUENCE OF THE STUDY AREA

Expanded to Average July Weekday Traffic - 1966

Miles from Study Area		Number of Trips	Percent of Total Trips Within a Fifty-Mile Radius
North	0 - 10	473	6.34
	10 - 20	300	4.03
	20 - 30	136	1.82
	30 - 40	8	.11
	40 - 50	8	.11
North Total		925	12.41
East	0 - 10	1,713	22.98
	10 - 20	711	9.54
	20 - 30	308	4.13
	30 - 40	9	.12
	40 - 50	52	.69
East Total		2,793	37.46
West	0 - 10	1,383	18.55
	10 - 20	104	1.40
	20 - 30	199	2.67
	30 - 40	596	7.99
	40 - 50	11	.15
West Total		2,293	30.76
South	0 - 10	769	10.32
	10 - 20	296	3.97
	20 - 30	334	4.48
	30 - 40	3	.04
	40 - 50	42	.56
South Total		1,444	19.37
Grand Total		7,455	100.00

Table 1-2
VEHICLE TYPE SUMMARY
KNOXVILLE STUDY AREA

Expanded to Average July Weekday Traffic - 1966

Station	Location	Passenger Cars	Pickups and Panels	Single Unit Trucks	Truck Combinations	Total
701	Iowa 14 North	1,929	321	203	109	2,562
705	Iowa 92 East	2,286	427	312	75	3,100
706	Iowa 60 South	1,739	312	142	55	2,248
709	Iowa 14 South	1,652	253	141	73	2,119
711	Iowa 60 & 92 West	2,123	347	205	78	2,753
Total		9,729	1,660	1,003	390	12,782
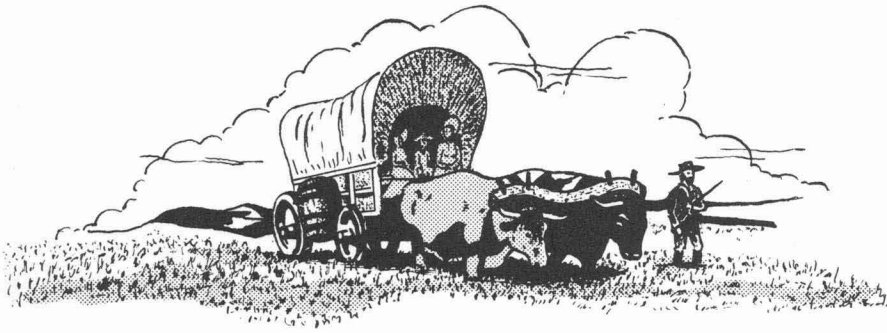
History

and

Development
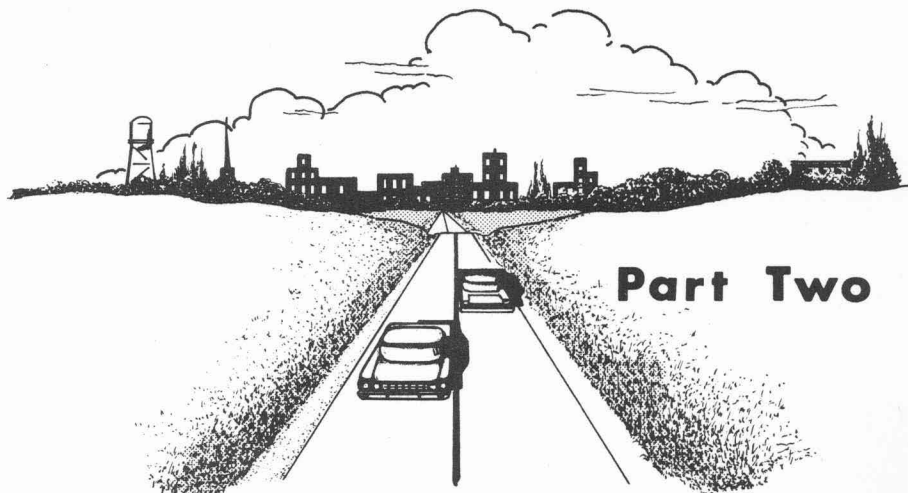
Part Two

HISTORY

Founded in 1845, the city of Knoxville is named for General Henry Knox, an officer in the Revolutionary War who later became Secretary of War and the first Secretary of the Navy.

Knoxville is the birthplace of the Iowa flag. In 1921, Iowa's General Assembly adopted a state flag which had been designed by Mrs. Dixie Cornell Gebhardt of Knoxville.

Located at the western edge of Knoxville is a 1500-bed neuro-psychiatric hospital operated by the Veterans' Administration. The hospital, which has a permanent staff of more the 1,000, directs much of its attention toward the vocational rehabilitation of its patients.

The Red Rock Dam, presently under construction on the Des Moines River northeast of Knoxville, will form the largest body of water in the state of Iowa. The dam, which is expected to cost nearly 80 million dollars, will create a permanent lake of 9,000 acres. It is estimated that nearly a million visitors per year will be attracted to this area and it is certain to become one of the major recreational areas of the midwest.

Knoxville is widely known for its auto races which are held at the Marion County Fairgrounds. The race track has been called one of the fastest half-mile dirt tracks in the nation and attracts crowds of 5,000 to 7,500 each week during the racing season.

There are presently six manufacturing plants in Knoxville which employ about 140 persons. Manufactured products include clothing, aluminum products, gun cabinets, window platforms, cement building blocks, and ready-mix concrete.

Marion County, of which Knoxville is the county seat, produces more coal than any other county in the

state. Shaft, slope, and strip mines produce 55 per-
cent of the state's total coal.

The city of Knoxville is served by three state
highways; Iowa 14, 60, and 92. The historic Pioneer
Trail runs through this area and Interstates 35 and
80 are close by. The longest bridge in the midwest
is located on Iowa 14 north of Knoxville and stretches
more than a mile across the future site of Lake Red
Rock.
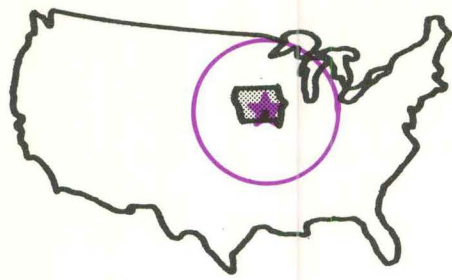
STUDY AREA POSITION
IN THE MIDWEST

FIGURE 2–1

STUDY AREA POSITION
IN IOWA

N

STATE CENTER

30

14

TAMA

COLLINS

64

LAUREL

GILMAN

65

HUXLEY

GRID

80

GRIMES

ANKENY

65

NEWTON

6

GRINNELL

8

MALCOM

21

63

ANKENY

6

80

90

COLFAX

J A S P E R

P O W E S H I E K

DALLAS CENTER

URBANDALE

ALTOONA

MONTEZUMA

ADEL

DES MOINES

PRAIRIE CITY

163

SEARSBORO

KESWICK

22

BOONEVILLE

60

MONROE

NEW SHARON

THORNBURG

21

WHAT CHEER

149

35

NORWALK

65

60

OTLEY

M A H A S K A

K E O

DISON

28

SUMMERSET JUNCTION

69

PELLA

63

SIG

BEVINGTON

ACKWORTH

92

PLEASANTVILLE

14

KNOXVILLE

RSET

92

PATTERSON

INDIANOLA

92

163

OSKALOOSA

92

W A R R E N

69

10 MILES

M A R I O N

137

FREMONT

MARTINSBURG

169

LIBERTY CENTER

85

HAMILTON

EDDYVILLE

20 MILES

LOVILIA

60

15

63

W A P E L L O

OSCEOLA

LUCAS

L U C A S

ALBIA

34

34

CHARITON

34

OTTUMWA AGENCY

L A R K E

65

30 MILES

M O N R O E

34

HUMESTON

14

MORAVIA

A P P A N O O S E

D A

69

W A Y N E

80

2

CORYDON

40 MILES

SUNSHINE

2

65

PROMISE CITY

CENTERVILLE

WES

50 MILES

60

CINCINNATI

FIGURE 2-2

POPULATION TRENDS

Table 2-1   Knoxville Population

Census Year	Knoxville Population	Volume Increase or Decrease	Percent Change 10 Year Period
1900	3,131		
1910	3,190	59	1.88
1920	3,523	333	10.44
1930	4,697	1,174	33.32
1940	6,936	2,239	47.57
1950	7,625	689	9.93
1960	7,817	192	2.52

Table 2-2   Marion County Population

Census Year	Marion Co. Population	Volume Increase or Decrease	Percent Change 10 Year Period
1850	5,482		
1860	16,813	11,331	206.69
1870	24,436	7,623	45.34
1880	25,111	675	2.76
1890	23,058	− 2,053	− 8.18
1900	24,159	1,101	4.77
1910	22,995	− 1,164	− 4.82
1920	24,957	1,962	8.53
1930	25,727	770	3.09
1940	27,019	1,292	5.09
1950	25,930	− 1,089	− 4.03
1960	25,886	− 44	− .17

FIGURE 2-3

POPULATION TRENDS
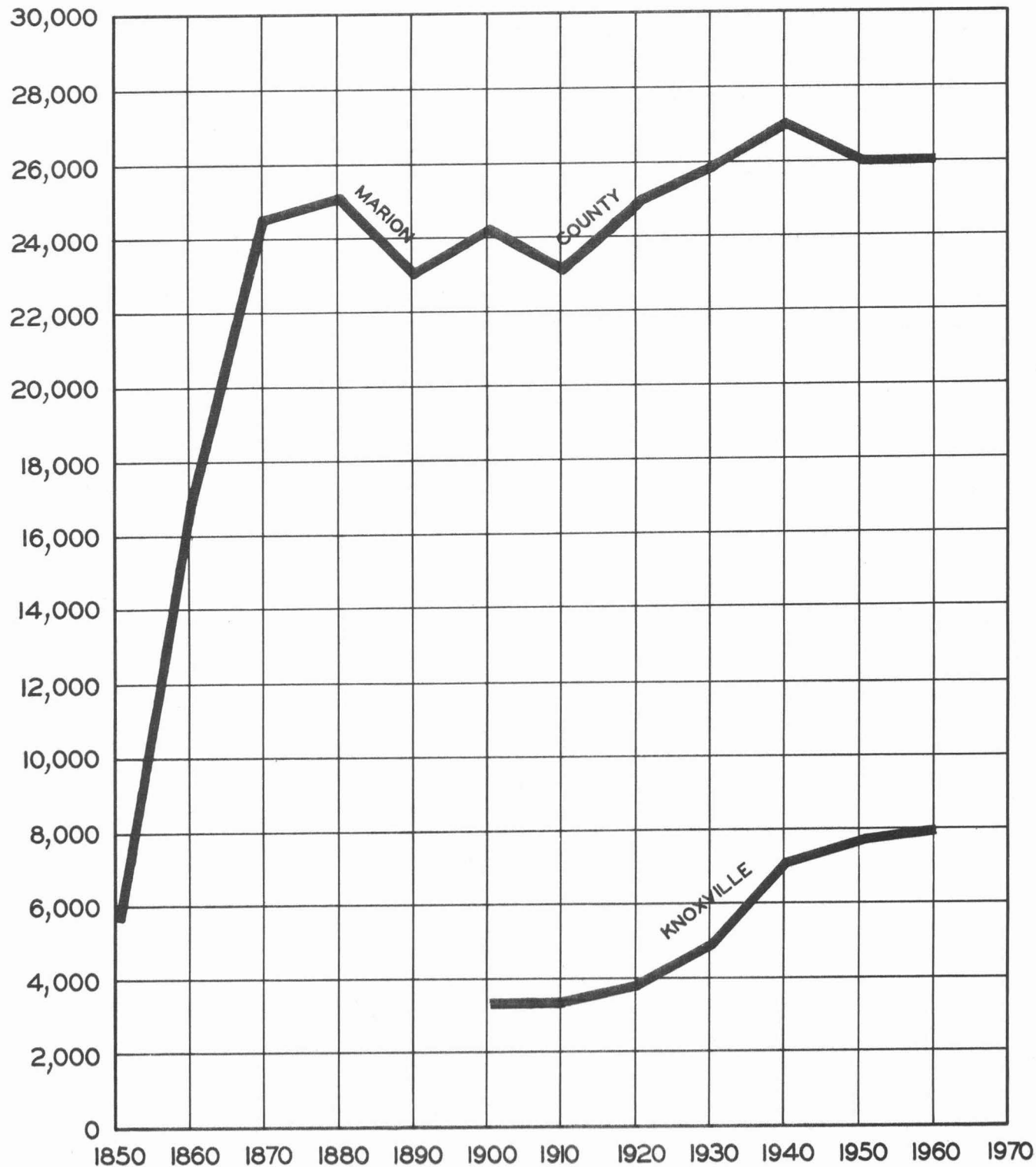
Table 2-3
MOTOR VEHICLE REGISTRATION
IN MARION COUNTY FROM 1939 THROUGH 1966

Year	Autos	Trucks	Motorcycles	Total	Percent Change
1939	6,046	865	26	6,937	
1940	6,191	971	21	7,183	3.55
1941	6,262	1,039	12	7,313	1.81
1942	5,848	964	15	6,827	− 6.65
1943	5,449	944	14	6,407	− 6.15
1944	5,375	926	12	6,313	− 1.47
1945	5,310	952	14	6,276	− .59
1946	5,537	1,082	41	6,660	6.12
1947	5,833	1,184	53	7,070	6.16
1948	6,314	1,352	73	7,739	9.46
1949	6,893	1,582	75	8,550	10.48
1950	7,562	1,695	73	9,330	9.12
1951	7,761	1,726	62	9,549	2.35
1952	7,640	1,746	59	9,445	− 1.09
1953	7,696	1,809	53	9,558	1.20
1954	7,923	1,805	59	9,787	2.40
1955	8,240	1,865	64	10,169	3.90
1956	8,354	1,892	69	10,315	1.44
1957	8,551	1,927	67	10,545	2.23
1958	8,688	1,997	75	10,760	2.04
1959	9,050	2,128	97	11,275	4.79
1960	9,220	2,161	101	11,482	1.84
1961	9,481	2,214	109	11,804	2.80
1962	9,760	2,280	106	12,146	2.90
1963	10,045	2,391	113	12,549	3.32
1964	10,404	2,525	146	13,075	4.19
1965	10,792	2,705	182	13,679	4.62
1966	11,071	2,887	250	14,208	3.87

FIGURE 2-4

MOTOR VEHICLE REGISTRATION IN MARION COUNTY FROM 1939 THROUGH 1966
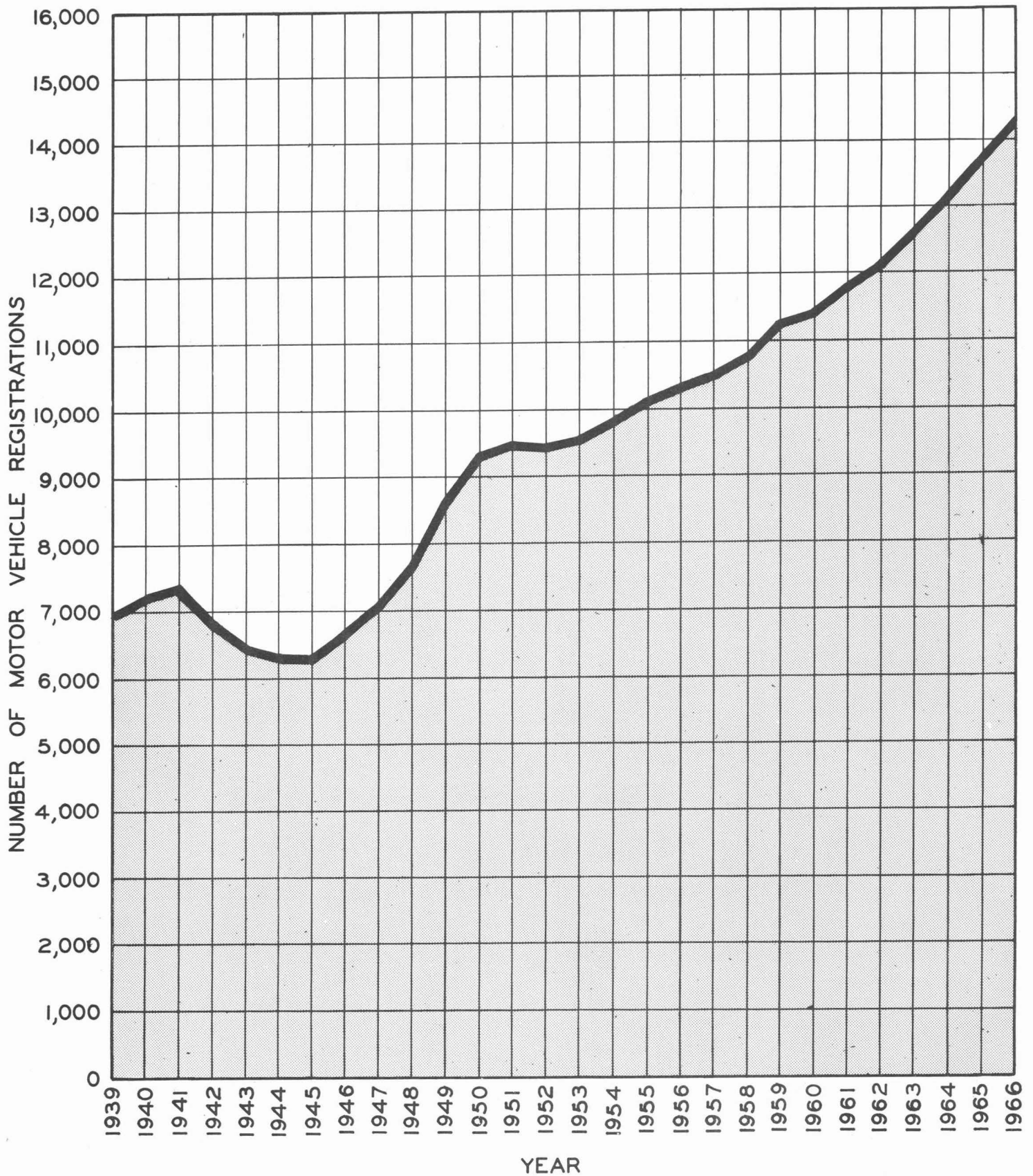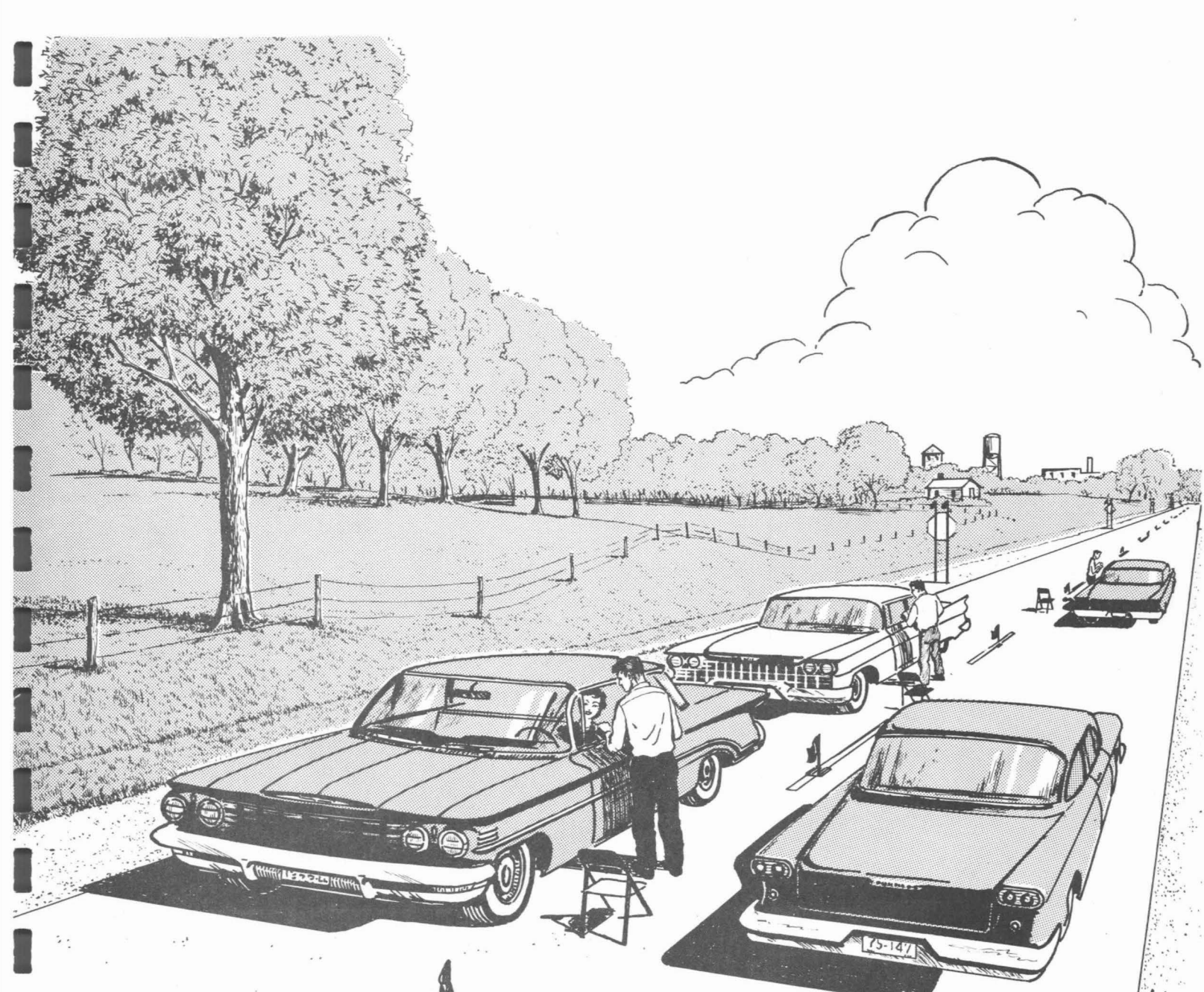
Survey

Procedure

An external origin-destination traffic survey, of the type conducted in Knoxville, is designed primarily to determine the origin, destination, and purpose of travel along with the number and type of all vehicles entering or leaving the study area in a given period of time.

It has been demonstrated that travel is an expression of behavior and as such, tends to be repetitive. It is this repetition which enables the statistician and the highway planner to expand and project current data for the prediction of future needs.

In order to obtain accurate information upon which to base an analysis, it is necessary to interview vehicle drivers at strategically located interview stations. A cordon line composed of interview stations and code stations was located around the perimeter of the study area. Interview stations were located on all major roads entering the study area and all other roads were assigned station code numbers to facilitate the organization of interview data for those through trips which passed through only one interview station. The study area was divided into 29 tracts, and all trips which had either origin or destination within the study area were traced to one of these tracts.

Interviewing for the Knoxville survey was done between July 5th and 8th in 1966. All vehicles passing through interview stations during a 16-hour period from 6 a.m. to 10 p.m. were stopped briefly for interviews in which vehicle operators were questioned concerning the origin, destination, and purpose of the trip in progress. In addition, the vehicle type was recorded along with the location where it was normally kept or garaged, the place of registration, direction of travel, and number of occupants.

Mechanical traffic recorders were placed at the location of each interview station and were operated continuously for a period of five weekdays, including the day on which the interviewing was done. Manual vehicle classification counts were also taken and, together with the data provided by mechanical recorders, were used to expand the interview data to 24-hour average July weekday traffic for 1966.

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, there-fore, 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.
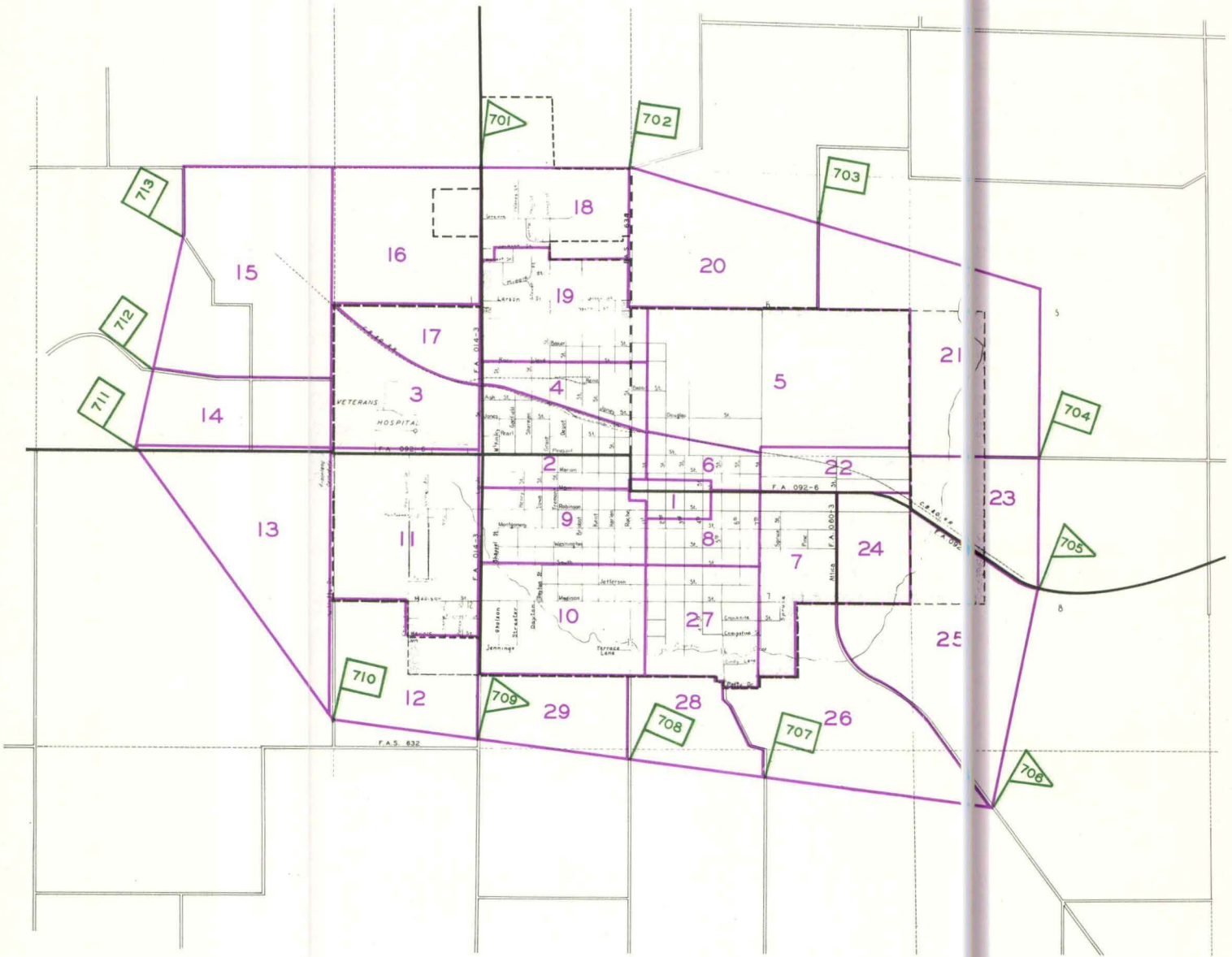
FIGURE 3-1
TRACT MAP OF THE
KNOXVILLE STUDY AREA
WITH EXTERNAL STATION LOCATIONS
JULY 1966

LEGEND

TRACT NUMBER
TRACT BOUNDARY LINE
INTERVIEW STATION LOCATIONS
CORPORATION LINE
CODE STATIONS
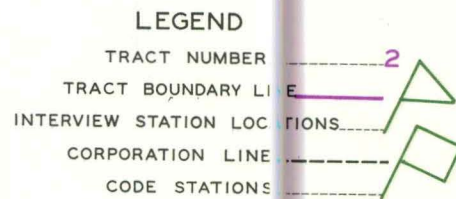
Traffic

Movements
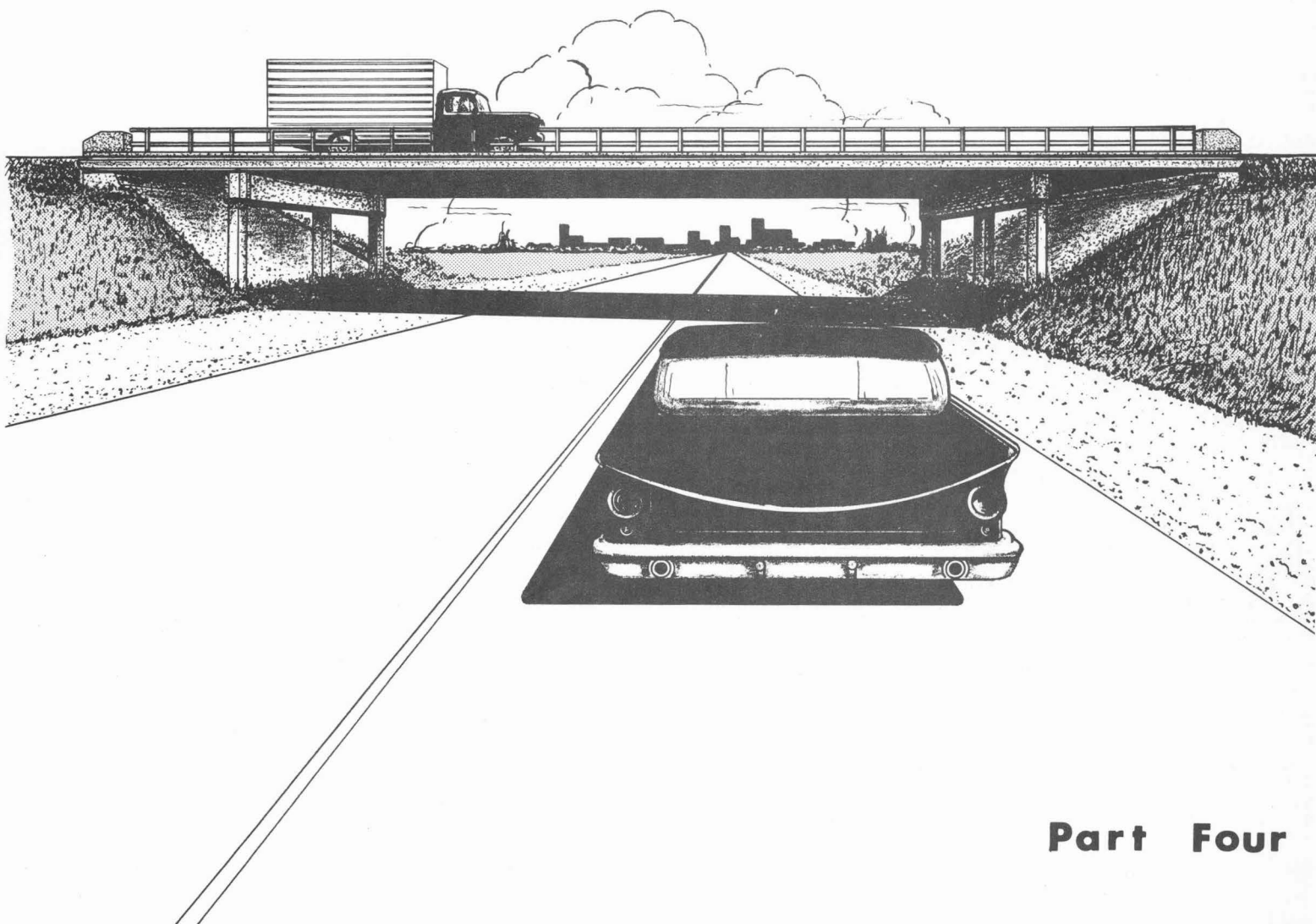
Part Four

TRAFFIC FLOW CHARTS

The following traffic flow charts illustrate the internal dispersion of trips between points of origin and/or destination through the stations indicated. These charts <u>are</u> <u>not</u> intended to show exact routes, but rather to show trip volume by tract of origin or destination and the number of trips passing through each external interview station. Trip origins and destinations are not differentiated and the tract or station totals shown may be considered as either origin or destination.
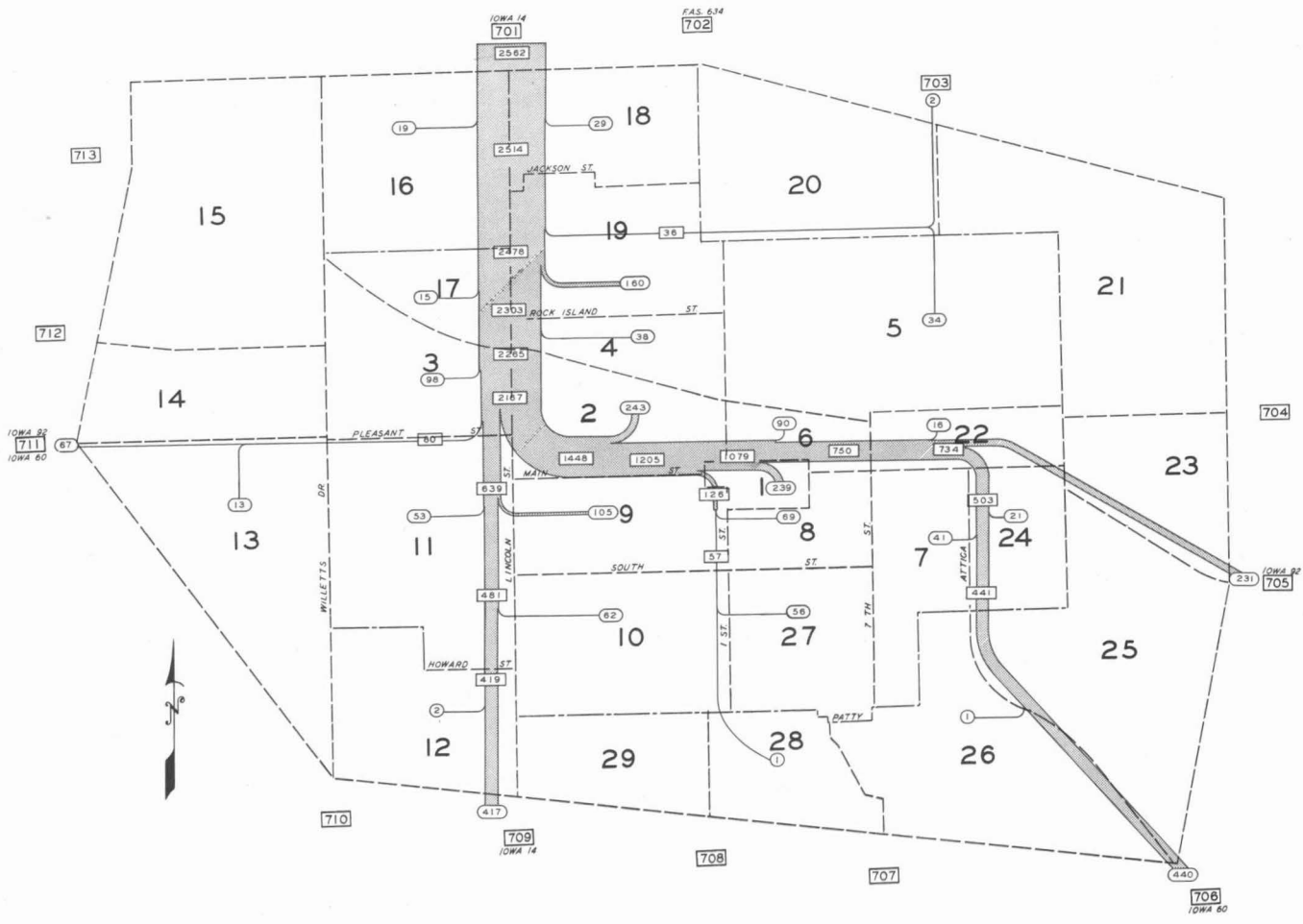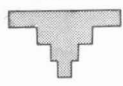
FIGURE 4-1
INTERNAL DISPERSION OF
ALL VEHICULAR TRIPS PASSING THROUGH
STATION 701-IOWA 14 NORTH
OF THE
KNOXVILLE STUDY AREA
(ALL TRIPS BY DRIVERS OF AUTOS, TRUCKS, TAXIS AND BUSES)
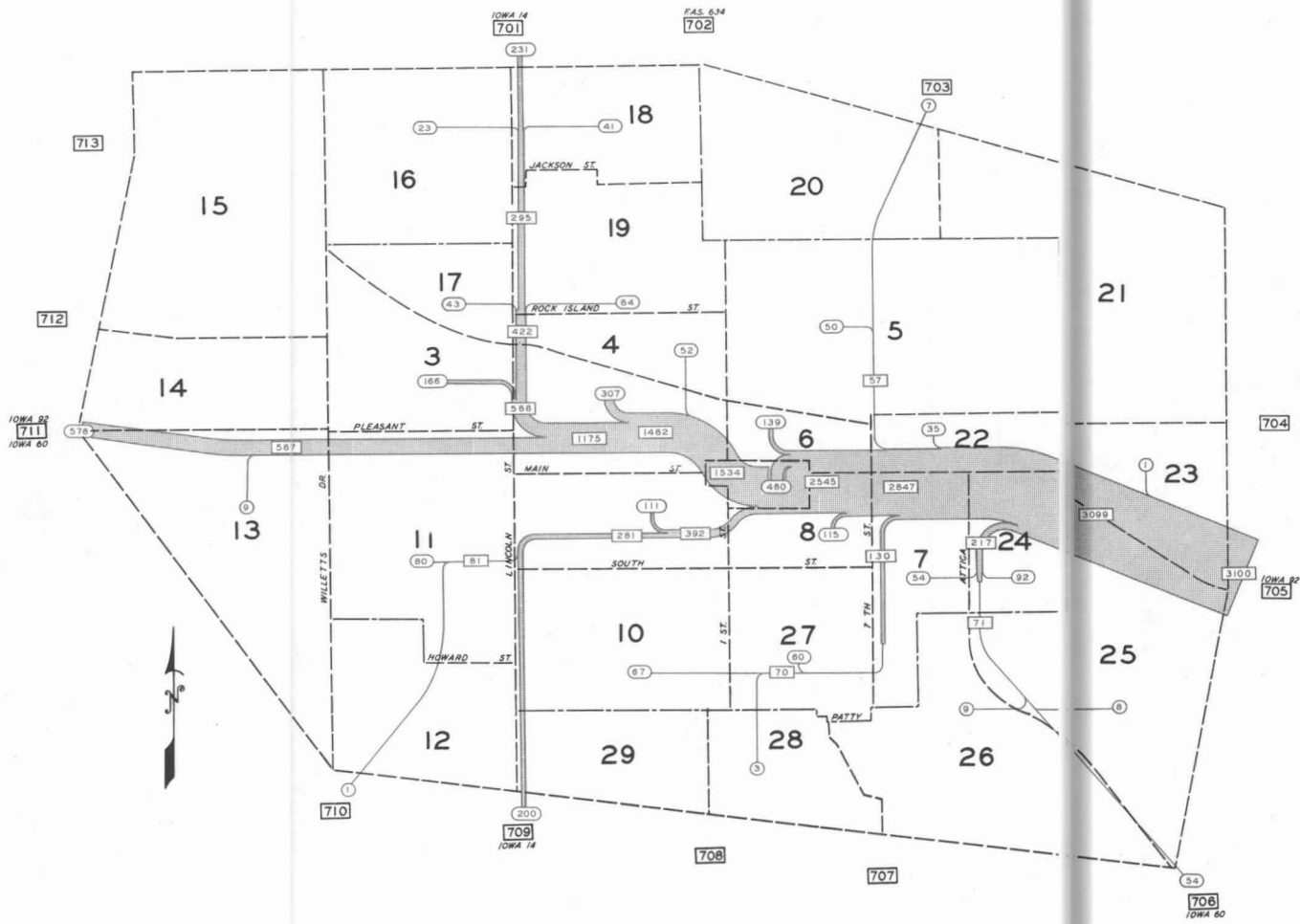
GRAPHIC SCALE

4000 TRIPS
2000 TRIPS
1000 TRIPS
500 TRIPS

EXPANDED TO AVERAGE
JULY WEEKDAY TRAFFIC - 1966

FIGURE 4-2
INTERNAL DISPERSION OF
ALL VEHICULAR TRIPS PASSING THROUGH
STATION 705- IOWA 92 EAST
OF THE
KNOXVILLE STUDY AREA
(ALL TRIPS BY DRIVERS OF AUTOS, TRUCKS, TAXIS AND BUSES)

-24-

LEGEND

TRACT BOUNDARY LINE ————————
CORPORATION LINE ——·———·——

GRAPHIC SCALE

4000 TRIPS
2000 TRIPS
1000 TRIPS
500 TRIPS

EXPANDED TO AVERAGE
JULY WEEKDAY TRAFFIC - 1966

FIGURE 4-4
INTERNAL DISPERSION OF
ALL VEHICULAR TRIPS PASSING THROUGH
STATION 709- IOWA 14 SOUTH
OF THE
KNOXVILLE STUDY AREA
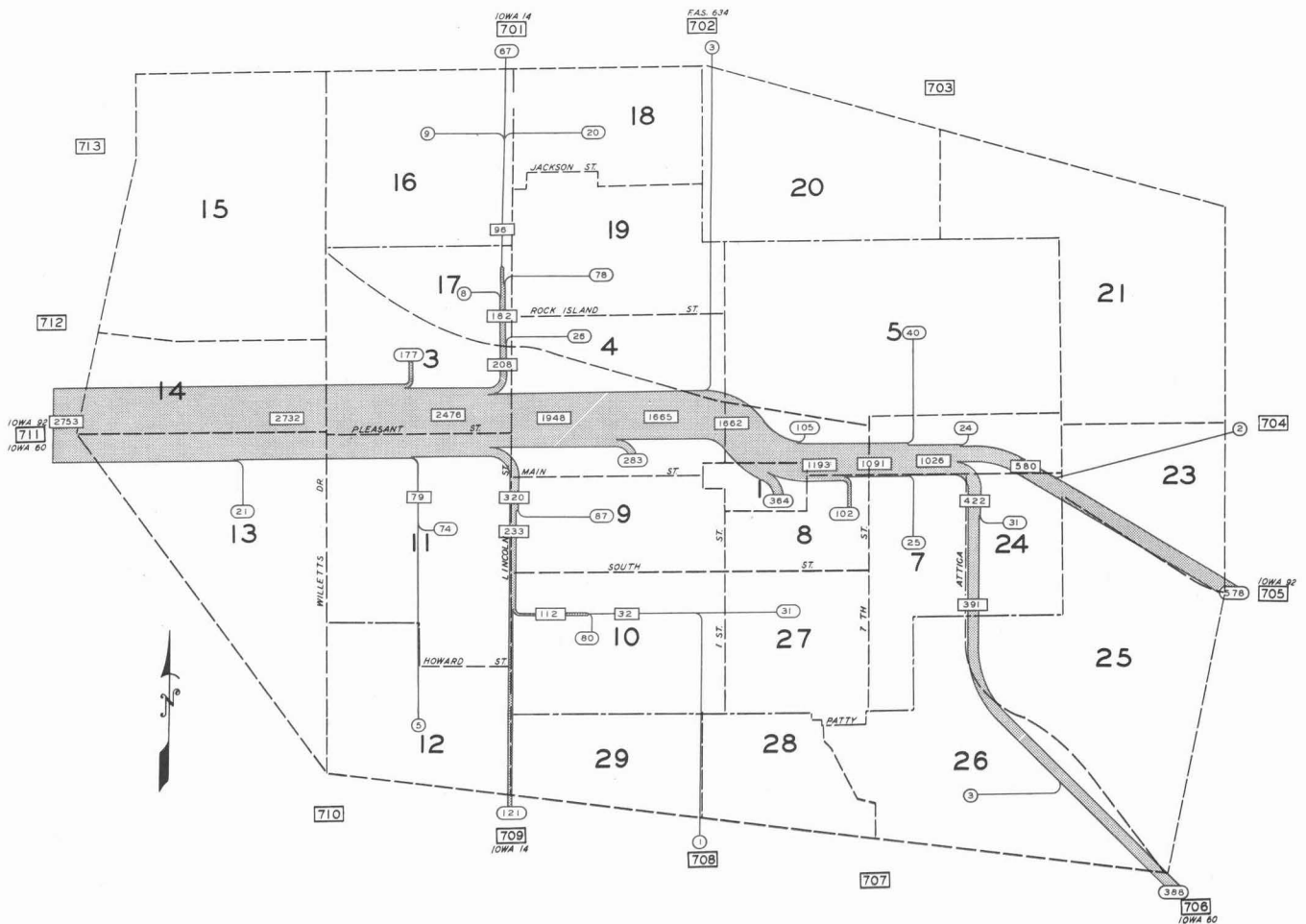
(ALL TRIPS BY DRIVERS OF AUTOS, TRUCKS, TAXIS AND BUSES)

FIGURE 4-5
INTERNAL DISPERSION OF
ALL VEHICULAR TRIPS PASSING THROUGH
STATION 711-IOWA 60 & 92 WEST
OF THE
KNOXVILLE STUDY AREA
(ALL TRIPS BY DRIVERS OF AUTOS, TRUCKS, TAXIS AND BUSES)
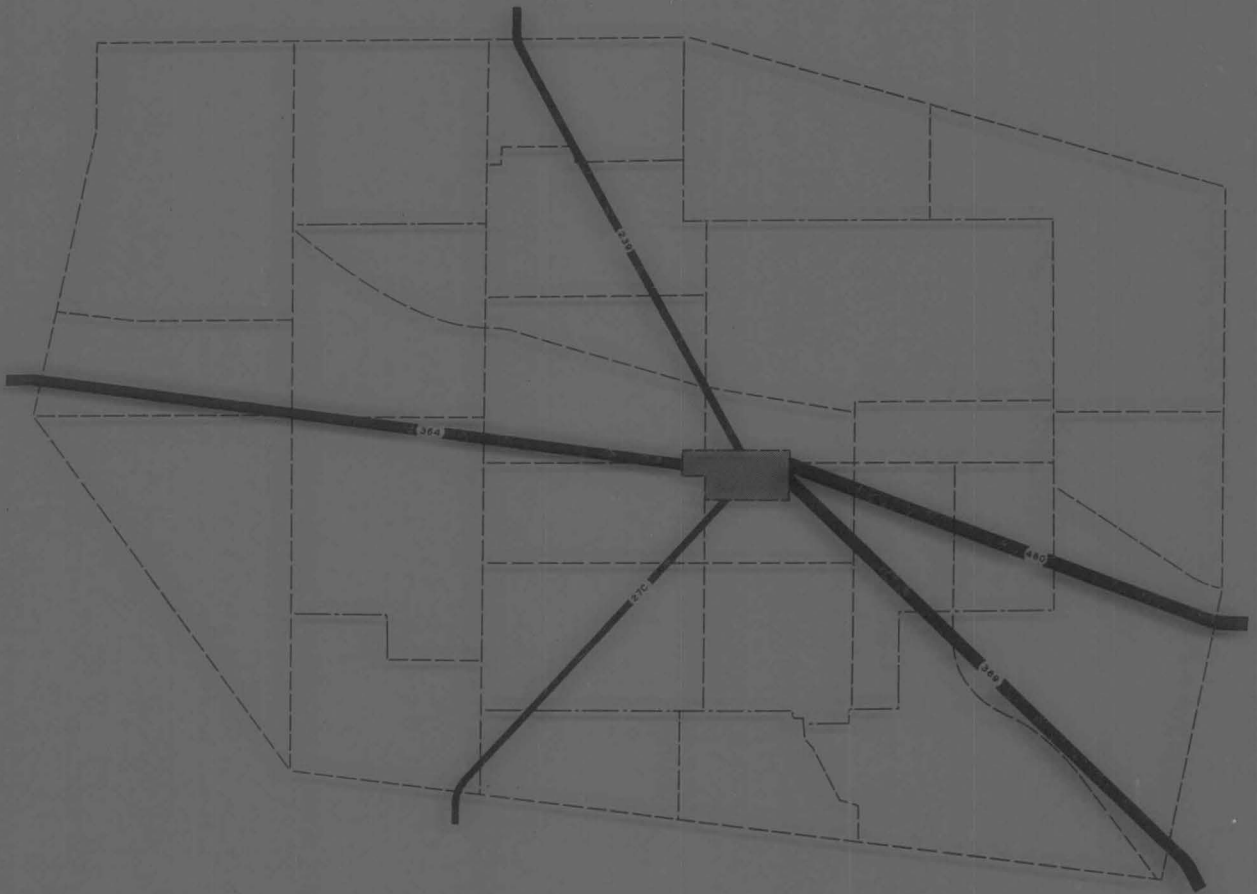
FIGURE 4-6

CENTRAL BUSINESS DISTRICT

OTHER EXTERNAL ENTRANCES

FIGURE 4-7
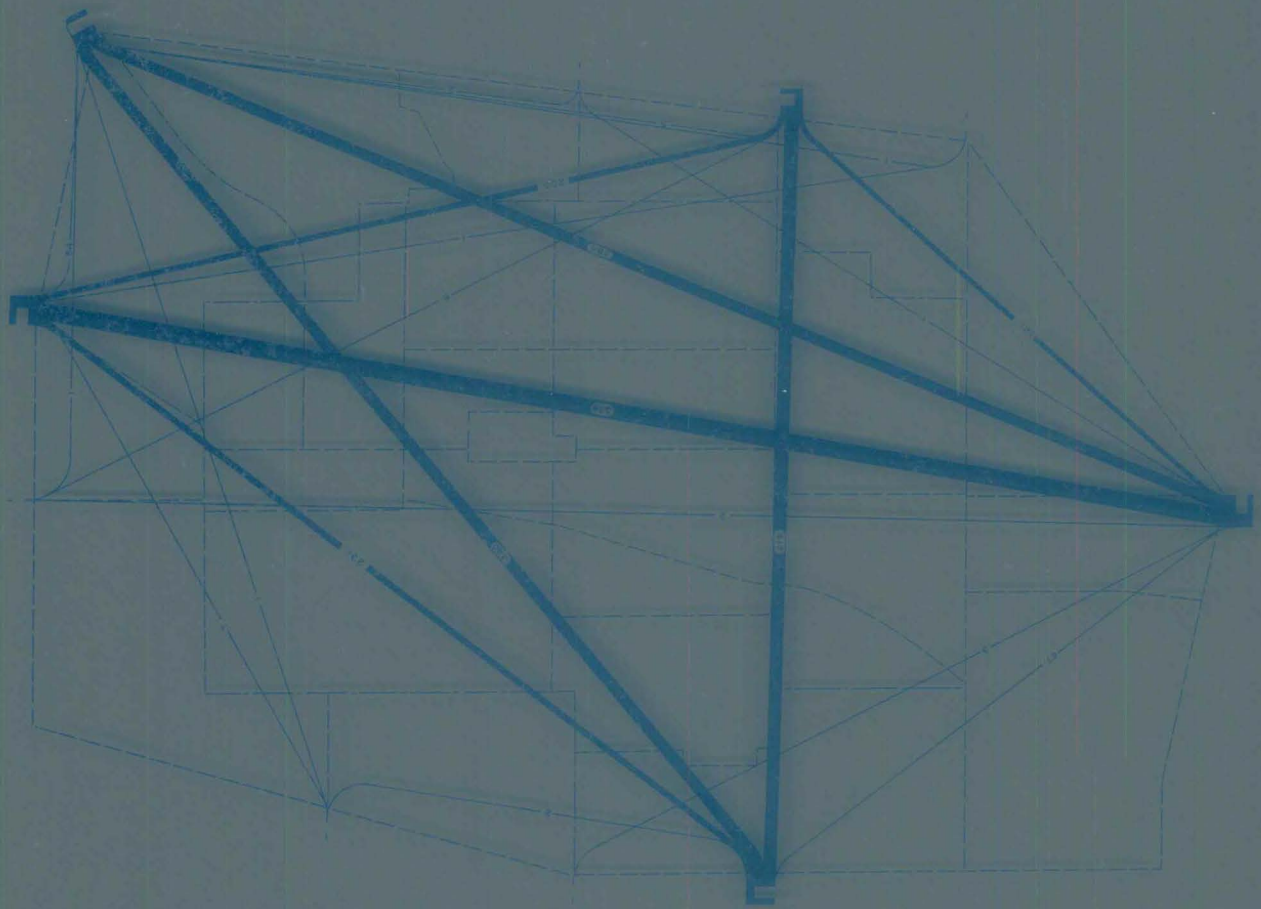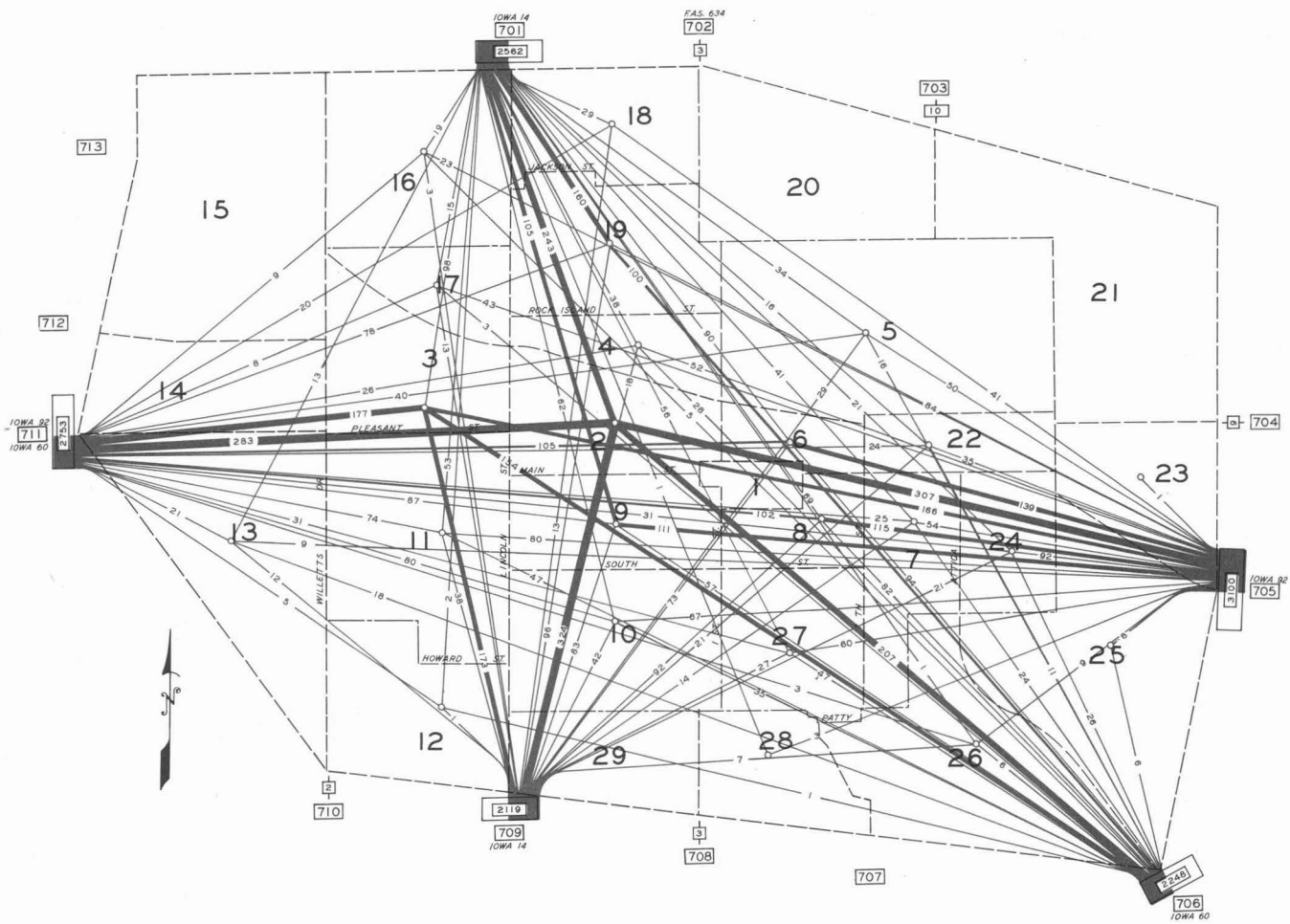
FIGURE 4-8
DESIRE LINES OF TRAVEL OF TRIPS
TO OR FROM
EXTERNAL ENTRANCES OF THE
KNOXVILLE STUDY AREA
AND
INTERNAL TRACTS

LEGEND

TRACT BOUNDARY LINE ————————
CORPORATION LINE —— · —— · ——

GRAPHIC SCALE

4000 TRIPS
2000 TRIPS
1000 TRIPS
500 TRIPS

EXPANDED TO AVERAGE
JULY WEEKDAY TRAFFIC – 1966

EXTERNAL TRIP TERMINI

Table 4-1 on the adjoining page shows a tabulation of
the number and percent of those trips which had termini in
Marion County, rural areas adjacent to the study area,
other counties in Iowa, and other states.

The following traffic flow charts illustrate the data
shown in Table 4-1 and point out the Iowa terminals of all
trips which passed through the Knoxville study area during
the time of the survey. Figure 4-9 shows the external ter-
mini of all trips which originated or terminated beyond
Marion County. Those trips which had termini in other states
are shown entering or leaving Iowa on routes which appear to
be most direct to the study area. All routes shown are
approximate rather than exact and should be interpreted as
such. Figure 4-10 is a continuation of Figure 4-9 and shows
the external termini of those trips which originated or term-
inated in Marion County beyond the cordon line surrounding
Knoxville.

Table 4-1

Expanded to Average July Weekday Traffic - 1966

Origin or Destination	Iowa 14 North Station 701		Iowa 92 East Station 705		Iowa 60 South Station 706		Iowa 14 South Station 709		Iowa 60 & 92 West Station 711	
	Vol.	%	Vol.	%	Vol.	%	Vol.	%	Vol.	%
Attica			4	.13	272	12.10	13	.61		
Bussey					260	11.57	1	.05		
Columbia					3	.13	156	7.36		
Cordova	2	.08								
Dallas					1	.04	75	3.54	9	.33
Hamilton					68	3.03	1	.05		
Harvey			396	12.77	2	.09				
Marysville					23	1.02				
Melcher					2	.09	387	18.26	27	.98
Otley	37	1.44	2	.07						
Pella	33	1.29	496	16.00						
Percy	5	.20							2	.07
Pershing			15	.48	218	9.70	3	.14		
Pleasantville	39	1.52							672	24.41
Swan									18	.65
Tracy			172	5.55	9	.40				
Red Rock Dam	4	.15	195	6.29						
Total to Towns	120	4.68	1,280	41.29	858	38.17	636	30.01	728	26.44
Rural Marion Co.	616	24.05	848	27.36	477	21.22	619	29.21	541	19.65
Other Counties	1,746	68.15	892	28.77	788	35.05	730	34.45	1,390	50.49
Out-of-State	80	3.12	80	2.58	125	5.56	134	6.33	94	3.42
Grand Total	2,562	100.00	3,100	100.00	2,248	100.00	2,119	100.00	2,753	100.00

FIGURE 4-9
DISPERSION OF EXTERNAL TRIPS
BETWEEN THE KNOXVILLE STUDY AREA AND
POINTS IN IOWA BEYOND MARION COUNTY*

GRAPHIC SCALE

4000 TRIPS
2000 TRIPS
1000 TRIPS
500 TRIPS

EXPANDED TO AVERAGE
JULY WEEKDAY TRAFFIC 1966

LEGEND

TRAFFIC THROUGH INTERVIEW STATIONS

701 - IOWA 14 NORTH
705 - IOWA 92 EAST
STATIONS 706 - IOWA 60 SOUTHEAST
711 - IOWA 92 WEST

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

-32-
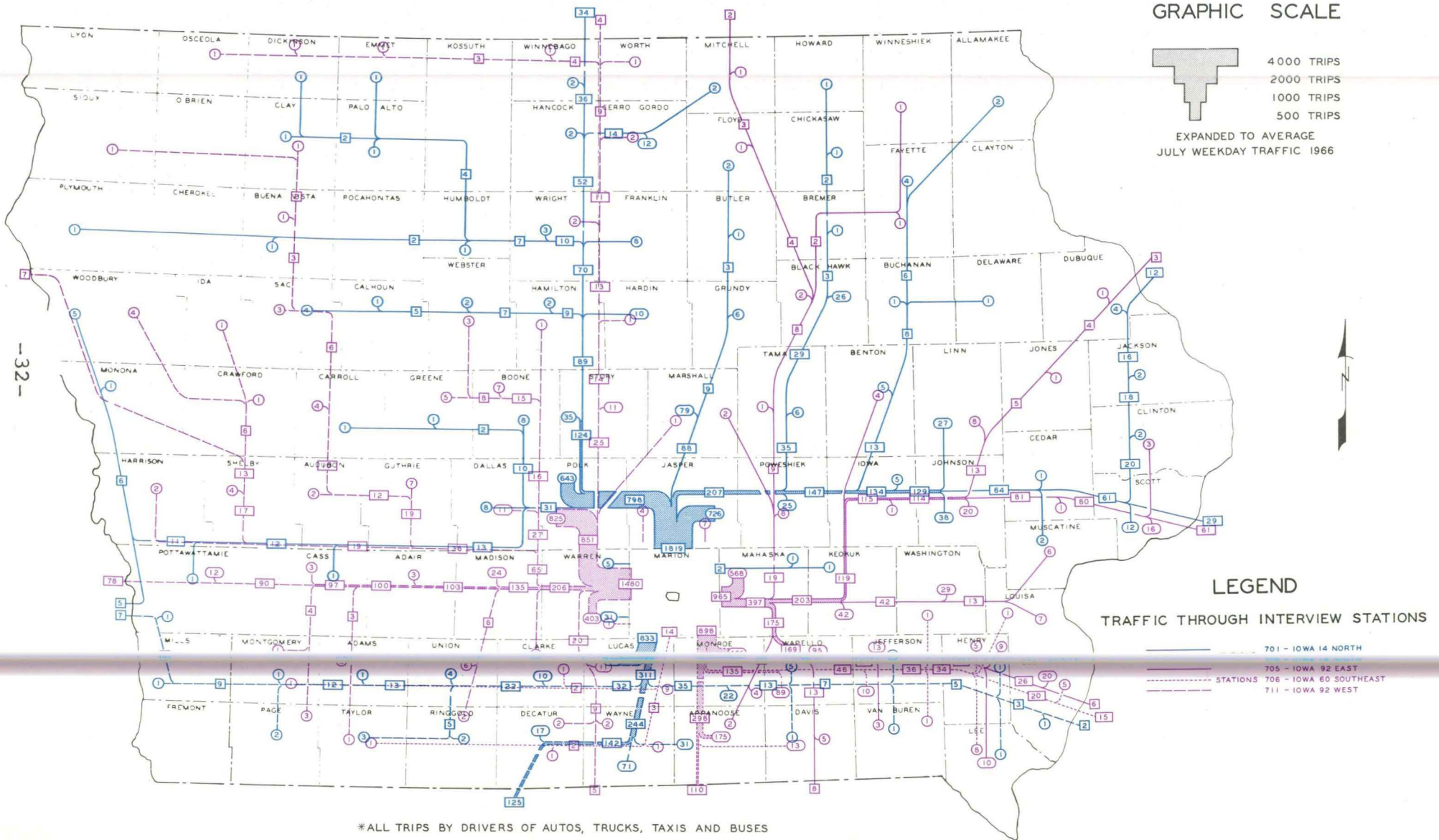
FIGURE 4-10
DISPERSION OF EXTERNAL TRIPS
BETWEEN THE KNOXVILLE STUDY AREA AND
POINTS WITHIN MARION COUNTY*
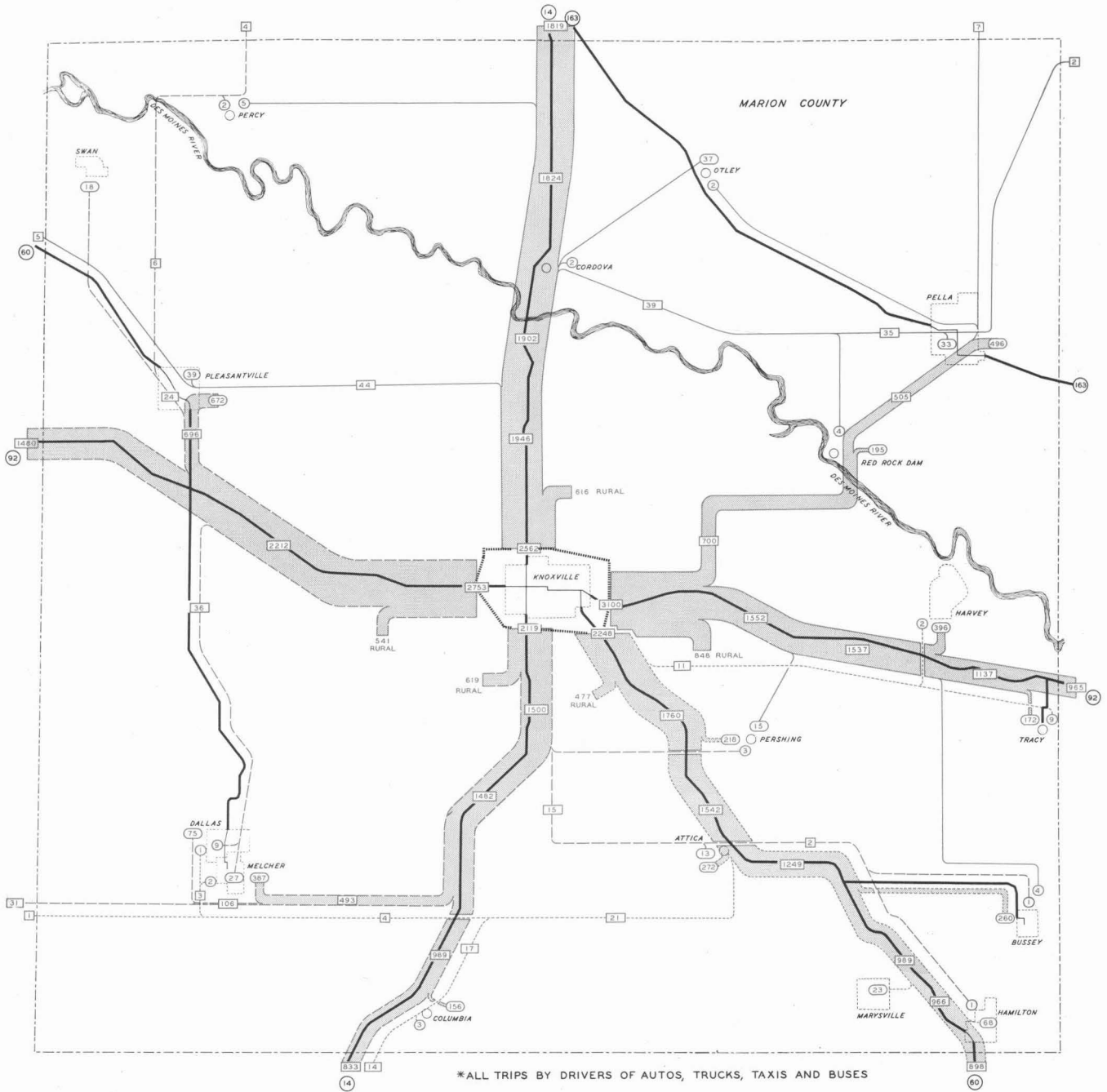
*ALL TRIPS BY DRIVERS OF AUTOS, TRUCKS, TAXIS AND BUSES

GRAPHIC SCALE

4000 TRIPS
2000 TRIPS
1000 TRIPS
500 TRIPS
EXPANDED TO AVERAGE
JULY WEEKDAY TRAFFIC 1966
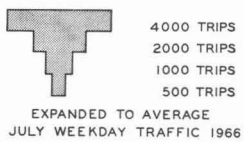
LEGEND

TRAFFIC THROUGH INTERVIEW STATIONS

STATIONS 701 - IOWA 14 NORTH
709 - IOWA 14 SOUTH
705 - IOWA 92 EAST
STATIONS 708 - IOWA 60 SOUTHEAST
711 - IOWA 92 WEST

CORPORATION LINE ------------
CORDON LINE

-33-
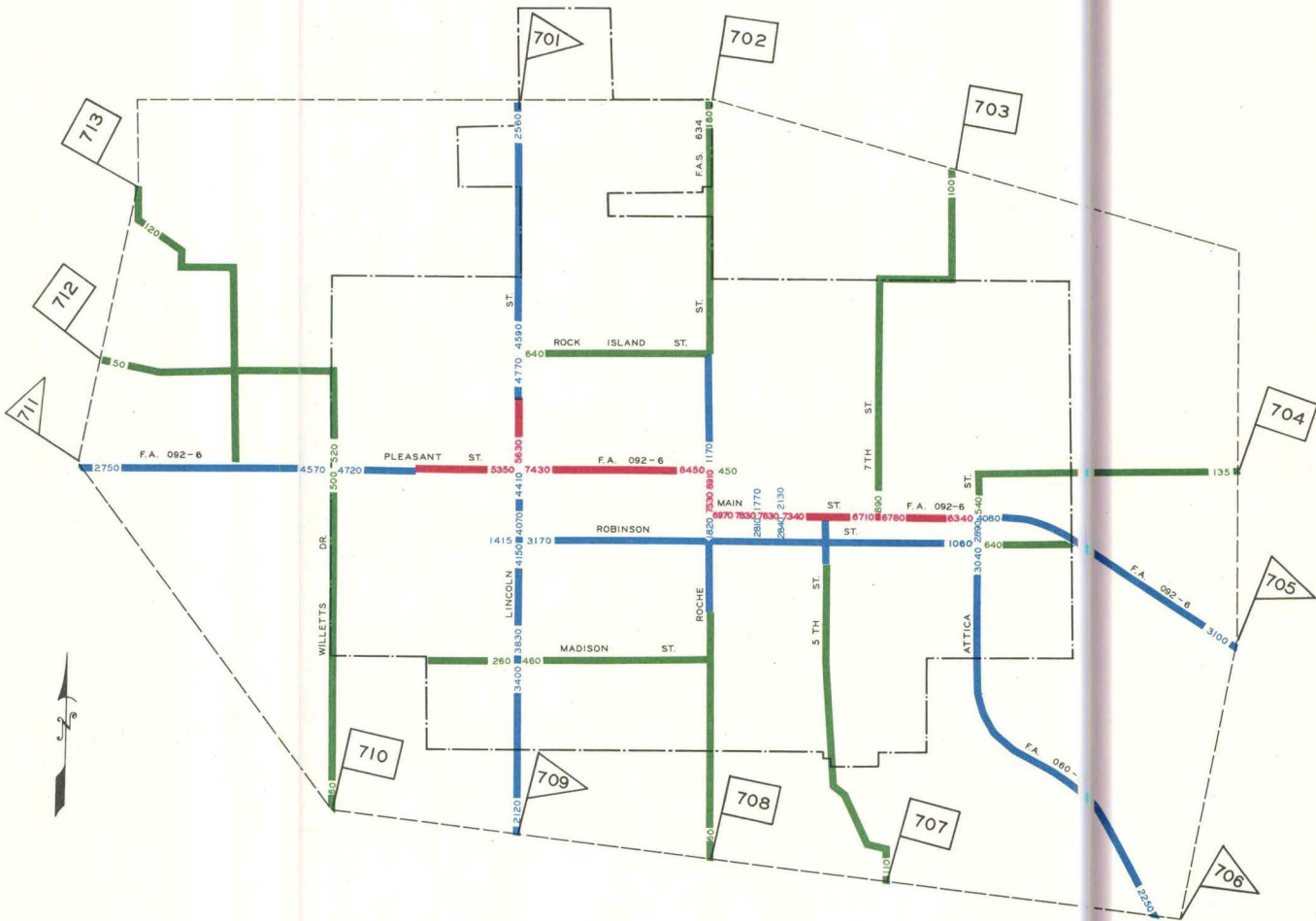
LEGEND

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

CORDON LINE _ _ _ _ _ _ _ _ _ _
CORPORATION LINE _ _ _ _ _ _ _

_ _ _ INTERVIEW STATION

_ _ _ _ _ CODE STATION

FIGURE 4-11
TRAFFIC VOLUMES ON PRIMARY
ROAD EXTENSIONS AND MAJOR STREETS
KNOXVILLE STUDY AREA

EXPANDED TO AVERAGE JULY
WEEKDAY TRAFFIC – 1966

-34-

FIGURE 4-12
TRAFFIC VOLUMES
ON RURAL PRIMARY HIGHWAYS

IN MARION COUNTY

AVERAGE ANNUAL DAILY TRAFFIC – 1966

DES MOINES

MARION COUNTY

RIVER

PELLA

PLEASANTVILLE

KNOXVILLE

DALLAS

MELCHER

MARYVILLE

60
1920
1790
92
1480
1300
2320
2790
480
1900
1780
1300
1130
1130
930
700
14
14
163
2820
2210
2210
2350
2490
2460
2490
1430
2750
2770
2980
3280
1240
3150
163
2490
100
120
2660
2420
2620
92
500
2130
2130
1900
1890
420
700
156
1230
1190
1220
1660
60

LEGEND

0 TO 2000 – – – –
2000 TO 4000 – – –

N

GRAPHIC SCALE

4000   VEHICLES
2000   VEHICLES
1000   VEHICLES

Appendix

KNOXVILLE STUDY AREA

ORIGIN AND DESTINATION OF TRIPS
BY AUTOS, TRUCKS, TAXIS, AND BUSES

EXPANDED TO AVERAGE
JULY WEEKDAY TRAFFIC - 1966

TABLE E-1

DESTINATION — ORIGIN

Station key: 701 Iowa 14 North · 702 Local Road North · 703 Local Road North · 704 Local Road East · 705 Iowa 92 East · 706 Iowa 60 South · 707 Fifth Street South · 708 Roche Street South · 709 Iowa 14 South · 710 Willetts Drive South · 711 Iowa 92 & 60 West · 712 Local Road Northwest · 713 Local Road Northwest. Column 1 = C.B.D.

Tract or Station	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	Knoxville Total	701	702	703	704	705	706	707	708	709	710	711	712	713	External Total	Grand Total	Tract or Station
1																															109				214	201			109		155			788	788	1
2																															135				153	97			172		148			705	705	2
3																															44				87	83			91		89			394	394	3
4																															17				27	18			9		12			83	83	4
5																															18				27	9			11		19			84	84	5
6																															36				82	49			38		55			260	260	6
7																															24				30	7			6		12			79	79	7
8																															24				63	42			37		51			217	217	8
9																															48				58	35			44		50			235	235	9
10																															28				32	21			22		39			142	142	10
11																															22				39	22			17		30			130	130	11
12																															1					1					2			4	4	12
13																															7				4	1			5		11			28	28	13
14																																														14
15																																														15
16																															5				9	1			3		2			20	20	16
17																															8				21	2			7		4			42	42	17
18																															14				21				4		14			53	53	18
19																															80				44	41			54		43			262	262	19
20																																														20
21																																														21
22																															9				14	6			8		12			49	49	22
23																																														23
24																															7				44	10			14		15			90	90	24
25																																			1	3								4	4	25
26																																			5	3			3		1			12	12	26
27																															21				35	25			16		19			116	116	27
28																																			1									1	1	28
29																																														29
Knoxville Total																														657					1011	677			670		783			3798	3798	Total
701 Iowa 14 North	130	108	54	21	16	54	17	45	57	34	31	1	6			14	7	15	80			7		14		1	35	1		748					130	186			228		35			579	1327	701
702 Local Road North																																									2			2	2	702
703 Local Road North																															2				5	1								8	8	703
704 Local Road East																																								1	1			2	2	704
705 Iowa 92 East	266	154	79	25	23	57	24	52	53	35	41		5			14	22	20	40			21	1	48	7	4	25	2		1018	101		2			28			105	1	313			550	1568	705
706 Iowa 60 South	188	110	71	10	7	45	17	40	22	14	25		17				4	1	59			5		16	3	3	22			679	254			1	26			1	4	1	212			499	1178	706
707 Fifth Street South																																														707
709 Iowa 14 South	161	152	82	9	18	35	8	55	39	20	21	1	7				6	9	42			13		7		4	11			700	189			5	95	1					67			357	1057	709
710 Willetts Drive South																																														710
711 Iowa 92 & 60 West	209	135	88	14	21	50	13	51	37	41	44	3	10			7	4	6	35			12		16		2	12			810	32	1		1	265	176			54					529	1339	711
712 Local Road Northwest																																														712
713 Local Road Northwest																																														713
External Total	954	659	374	79	85	241	79	243	208	144	162	5	45			39	40	50	256			58	1	101	10	14	105	3		3955	578	1	2	7	521	393		1	392	2	631			2528	6483	Ext. T
Grand Total	954	659	374	79	85	241	79	243	208	144	162	5	45			39	40	50	256			58	1	101	10	14	105	3		3955	1235	1	2	7	1532	1070		1	1062	2	1414			6326	10281	G.T.
Tract or Station	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	Total	701	702	703	704	705	706	707	708	709	710	711	712	713	Ext. T	Grand Total	

KNOXVILLE STUDY AREA

ORIGIN AND/OR DESTINATION OF TRIPS
BY AUTOS, TRUCKS, TAXIS, AND BUSES*

EXPANDED TO AVERAGE
JULY WEEKDAY TRAFFIC – 1966

TABLE E-2

The numbered origin columns 1–29 (C.B.D. tracts) are present but blank throughout. Data appears in the destination-station columns shown below.

Tract or Station		Knoxville Total	701 Iowa 14 North	702 Local Road North	703 Local Road North	704 Local Road East	705 Iowa 92 East	706 Iowa 60 South	707 Fifth Street South	708 Roche Street South	709 Iowa 14 South	710 Willetts Drive South	711 Iowa 92 & 60 West	712 Local Road Northwest	713 Local Road Northwest	External Total	Grand Total	Tract or Station
C.B.D.	1	239					480	389			270		364			1742	1742	1
	2	243					307	207			324		283			1364	1364	2
	3	98					166	154			173		177			768	768	3
	4	38					52	28			18		26			162	162	4
	5	34					50	16			29		40			169	169	5
	6	90					139	94			73		105			501	501	6
	7	41					54	24			14		25			158	158	7
	8	69					115	82			92		102			460	460	8
	9	105					111	57			83		87			443	443	9
	10	62					67	35			42		80			286	286	10
	11	53					80	47			38		74			292	292	11
	12	2						1			1		5			9	9	12
	13	13					9	18			12		21			73	73	13
	14																	14
	15																	15
	16	19					23	5			3		9			59	59	16
	17	15					43	3			13		8			82	82	17
	18	29					41				13		20			103	103	18
	19	160					84	100			96		78			518	518	19
	20																	20
	21																	21
	22	16					35	11			21		24			107	107	22
	23						1									1	1	23
	24	21					92	26			21		31			191	191	24
	25						8	6								14	14	25
	26	1					9	6			7		3			26	26	26
	27	56					60	47			27		31			221	221	27
	28	1					3									4	4	28
	29																	29
Knoxville Total		1405					2029	1356			1370		1593			7753	7753	Total
701 Iowa 14 North				2			231	440			417		67			1157	2562	701
702 Local Road North													3			3	3	702
703 Local Road North							7	1								10	10	703
704 Local Road East										1	6		2			9	9	704
705 Iowa 92 East								54			200	1	578			1071	3100	705
706 Iowa 60 South										2	5	1	388			892	2248	706
707 Fifth Street South																		707
708 Roche Street South													1			3	3	708
709 Iowa 14 South													121			749	2119	709
710 Willetts Drive South																2	2	710
711 Iowa 92 & 60 West																1160	2753	711
712 Local Road Northwest																		712
713 Local Road Northwest																		713
External Total																5056	12809	Ext. T
Grand Total																	20562	G.T.
Tract or Station	1–29 / Total	701	702	703	704	705	706	707	708	709	710	711	712	713	Ext.T	Grand Total		

* Trip and Trip Ends

KNOXVILLE STUDY AREA

TRIP PURPOSE OF EXTERNAL TRIPS

EXPANDED TO AVERAGE JULY WEEKDAY TRAFFIC - 1966

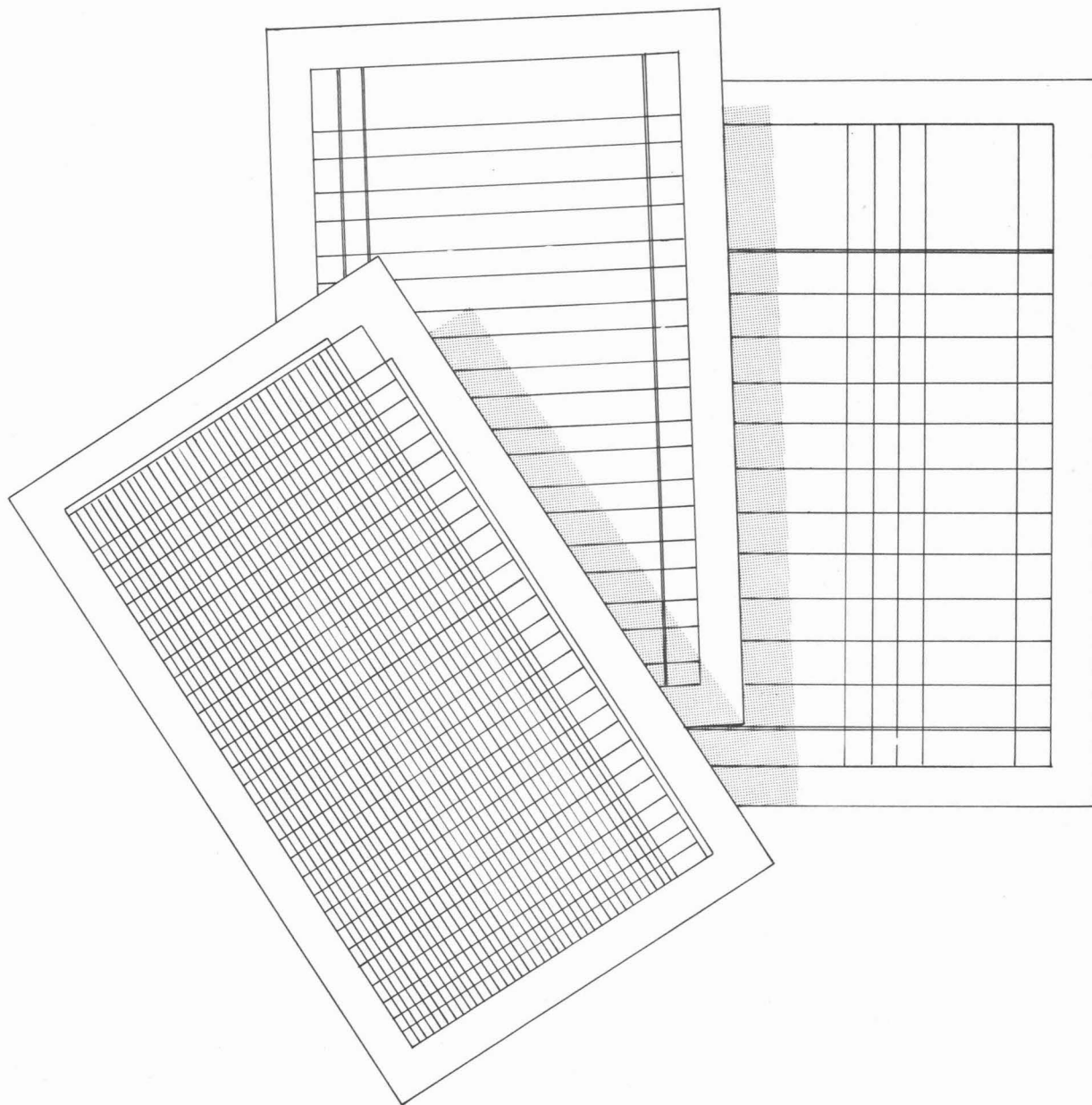Table B-2a (1) External Local Trips

Trip Purpose \ Station	701 Iowa 14 North	705 Iowa 92 East	706 Iowa 60 South	709 Iowa 14 South	711 Iowa 60 & 92 West	Total Traffic	Total Trips
Work	312	434	336	273	379	1734	1734
Personal Business	163	278	295	125	192	1053	1053
During Work	258	368	139	171	313	1249	1249
Medical or Dental	25	33	39	37	38	172	172
School	1	12	1	3	3	20	20
Social or Recreation	412	537	251	358	409	1967	1967
Eat	12	87	27	25	21	172	172
Shop	205	234	258	347	197	1241	1241
Serve Passengers	17	46	10	31	41	145	145
Total Traffic	1405	2029	1356	1370	1593	7753	
Total Trips	1405	2029	1356	1370	1593		7753

Table B-2a (2) External Through Trips

Trip Purpose \ Station	701 Iowa 14 North	705 Iowa 92 East	706 Iowa 60 South	709 Iowa 14 South	711 Iowa 60 & 92 West	Total Traffic	Total Trips
Work	166	139	160	105	182	752	378
Personal Business	85	79	92	68	116	440	221
During Work	325	389	170	185	308	1377	692
Medical or Dental	5	5	4	2	7	23	12
School	14	3	13	5	3	38	19
Social or Recreation	532	431	420	365	503	2251	1132
Eat	1	1				2	1
Shop	18	13	20	11	28	90	45
Serve Passengers	11	11	13	8	13	56	28
Total Traffic	1157	1071	892	749	1160	5029	
Total Trips	579	540	449	377	583		2528

Table B-2a (3) Summary - All External Trips

Trip Purpose \ Station	701 Iowa 14 North	705 Iowa 92 East	706 Iowa 60 South	709 Iowa 14 South	711 Iowa 60 & 92 West	Total Traffic	Total Trips
Work	478	573	496	378	561	2486	2112
Personal Business	248	357	387	193	308	1493	1274
During Work	583	757	309	356	621	2626	1941
Medical or Dental	30	38	43	39	45	195	184
School	15	15	14	8	6	58	39
Social or Recreation	944	968	671	723	912	4218	3099
Eat	13	88	27	25	21	174	173
Shop	220	247	278	358	225	1331	1286
Serve Passengers	28	57	23	39	54	201	173
Total Traffic	2562	3100	2248	2119	2753	12782	
Total Trips	1984	2569	1805	1747	2176		10281

KNOXVILLE STUDY AREA

AVERAGE CAR OCCUPANCY BY TRIP PURPOSE

EXPANDED TO AVERAGE JULY WEEKDAY TRAFFIC - 1966

Table B-3a (1)   EXTERNAL LOCAL TRIPS

Trip Purpose Origin	TRIP PURPOSE DESTINATION
	Work	Personal Business	During Work	Medical or Dental	School	Social or Recreation	Eat	Shop	Serve Passengers	Home	Average Occupancy
Work		2.008	1.296			1.709	1.255	1.668	1.000	1.550	1.548
Personal Business	1.968	1.605	1.000			2.210		3.014		1.685	1.715
During Work	1.998	1.000	1.318			1.000	1.000		1.332	1.581	1.336
Medical or Dental		2.000				2.000		1.000		2.130	2.109
School										1.287	1.287
Social or Recreation	2.513	1.901	1.648		1.000	2.517	2.948	2.824		2.426	2.439
Eat	2.340	1.377	1.254			2.958			2.000	2.787	2.658
Shop	1.493	4.000				3.132		2.013	2.000	2.333	2.353
Serve Passengers	1.595					2.130	2.000	2.000	1.972	2.480	2.329
Home	1.488	1.739	1.549	2.314	3.077	2.472	2.552	2.280	2.555		2.079
Average Occupancy	1.506	1.747	1.324	2.314	2.881	2.470	2.414	2.290	2.443	2.067	2.034

Table B-3a (2)   EXTERNAL THROUGH TRIPS

Trip Purpose Origin	TRIP PURPOSE DESTINATION
	Work	Personal Business	During Work	Medical or Dental	School	Social or Recreation	Eat	Shop	Serve Passengers	Home	Average Occupancy
Work	1.000	1.000	1.209			3.086				1.655	1.618
Personal Business		1.000		1.000		1.000				1.759	1.722
During Work	1.000	1.000	1.332						2.000	1.236	1.327
Medical or Dental										3.456	3.456
School						4.000			6.000	1.560	2.121
Social or Recreation	1.476	2.000		4.000	3.496	2.850			1.000	2.791	2.803
Eat										2.911	2.911
Shop										2.266	2.266
Serve Passengers			7.000			2.000				2.759	2.957
Home	1.697	1.697	1.465	2.006	1.893	2.699	0.000	2.805	2.953		2.345
Average Occupancy	1.685	1.682	1.350	2.078	2.034	2.731	0.000	2.805	2.947	2.431	2.283

Table B-3a (3)   SUMMARY - ALL EXTERNAL TRIPS

Trip Purpose Origin	TRIP PURPOSE DESTINATION
	Work	Personal Business	During Work	Medical or Dental	School	Social or Recreation	Eat	Shop	Serve Passengers	Home	Average Occupancy
Work	1.000	1.939	1.260			1.802	1.255	1.668	1.000	1.567	1.560
Personal Business	1.968	1.525	1.000	1.000		2.161		3.014		1.698	1.716
During Work	1.772	1.000	1.323			1.000	1.000		1.431	1.482	1.333
Medical or Dental		2.000				2.000		1.000		2.191	2.168
School						4.000			6.000	1.398	1.664
Social or Recreation	2.316	1.904	1.648	4.000	2.203	2.705	2.948	2.824	1.000	2.560	2.580
Eat	2.340	1.377	1.254			2.958			2.000	2.790	2.661
Shop	1.493	4.000				3.132		2.013	2.000	2.331	2.350
Serve Passengers	1.595		7.000			2.108	2.000	2.000	1.972	2.549	2.463
Home	1.527	1.730	1.514	2.297	2.484	2.552	2.552	2.295	2.596		2.139
Average Occupancy	1.539	1.734	1.333	2.299	2.458	2.566	2.414	2.305	2.498	2.145	2.094