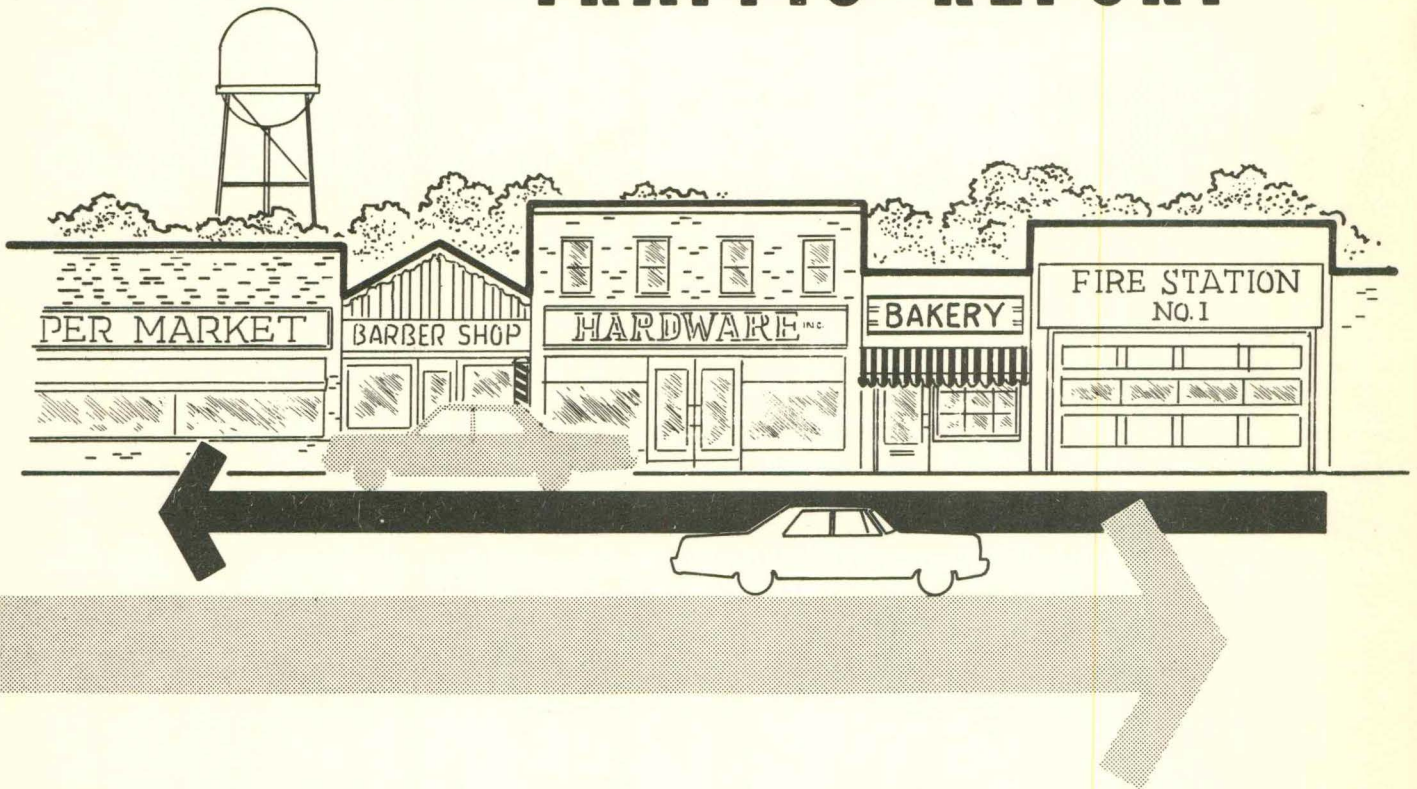


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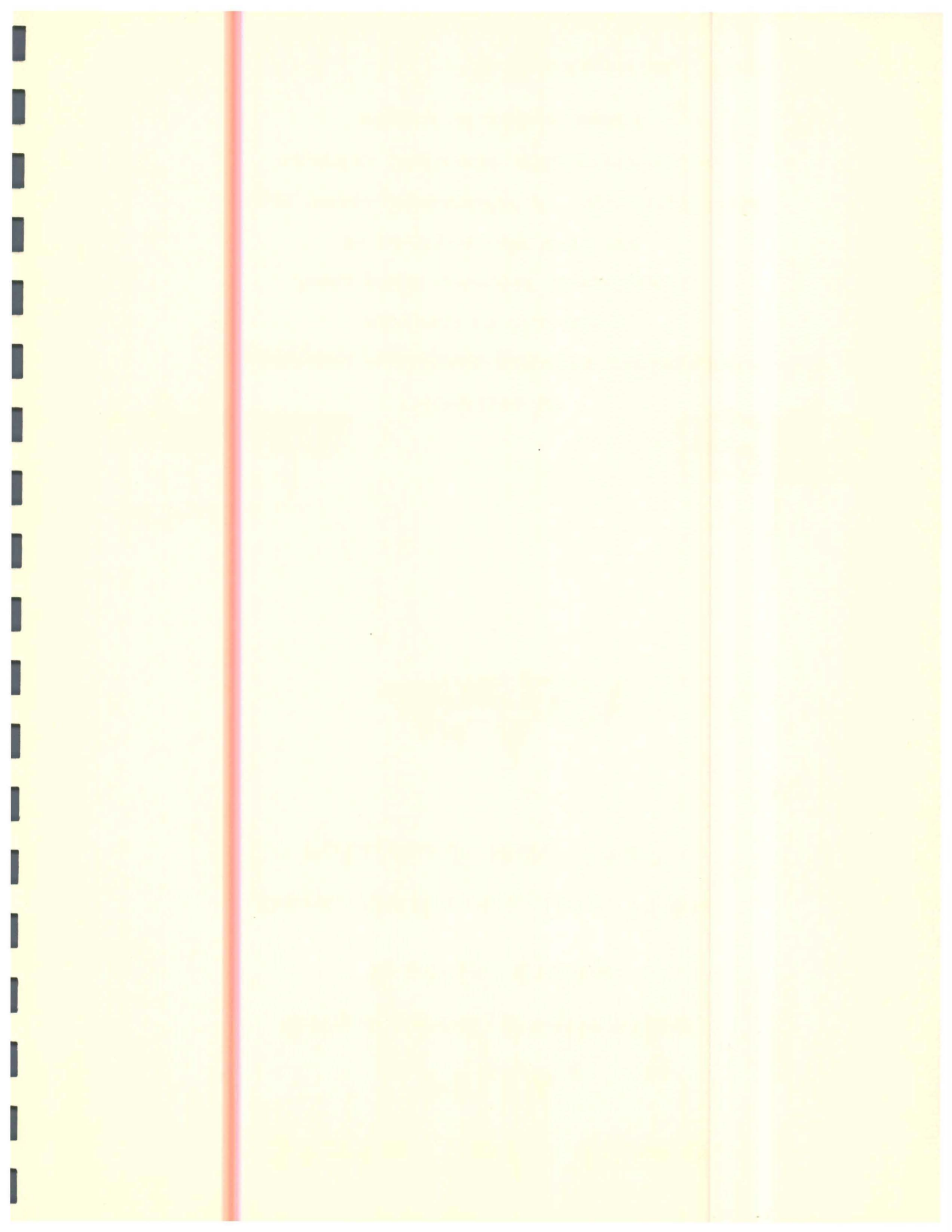
# PELLA

## ORIGIN and DESTINATION TRAFFIC REPORT



**IOWA**

JULY 1966



# State of Iowa

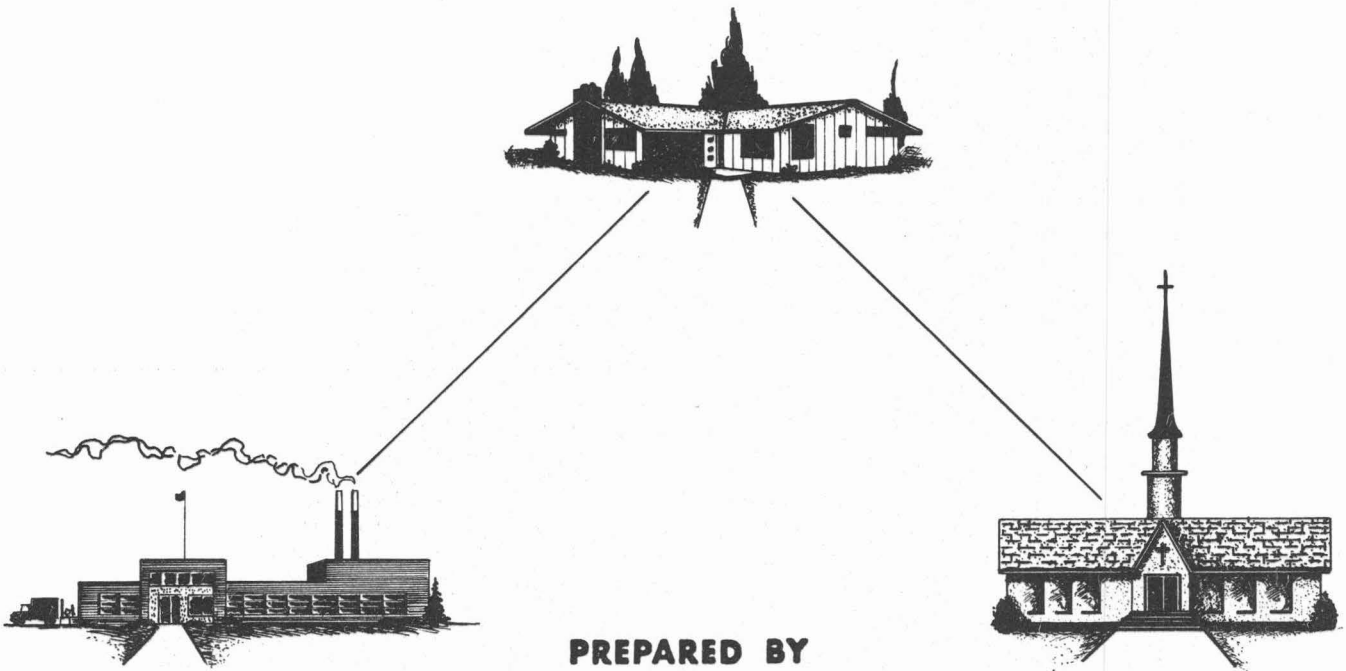
## PELLA

Origin and Destination

Traffic Study

Data Gathered July 1966

Published May 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

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## INTRODUCTION

This report is based on an external origin-destination traffic survey which was made in Pella 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 Pella 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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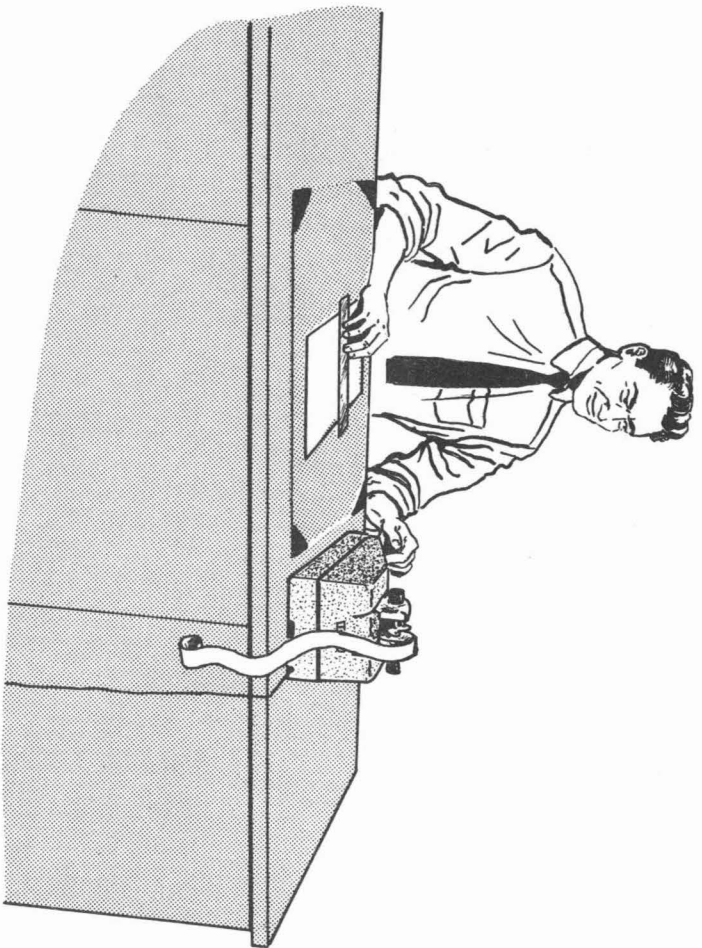
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## DEFINITIONS OF TECHNICAL TERMS

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



# Summary

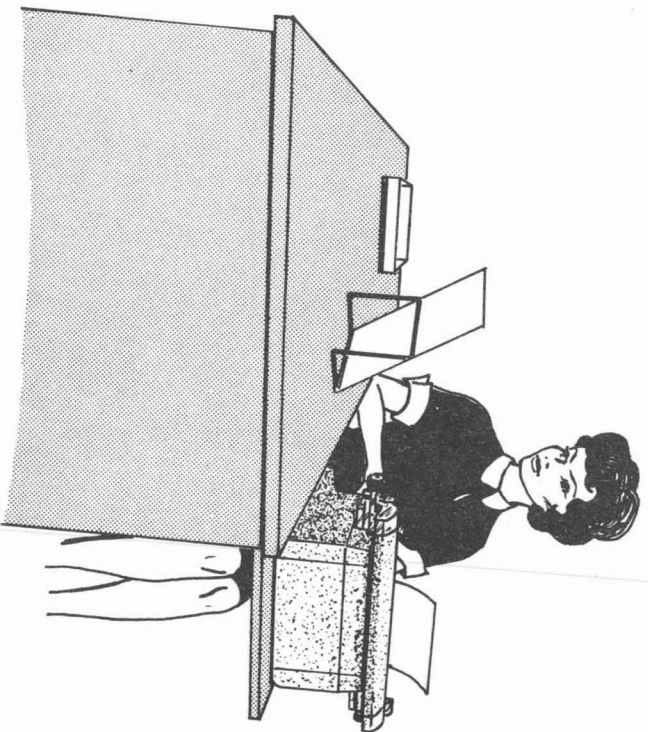
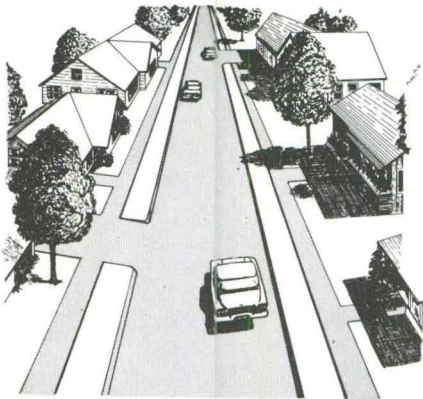


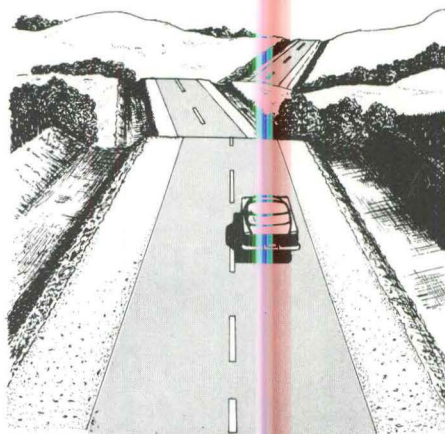
FIGURE 1-1

# DISTRIBUTION OF TRIPS

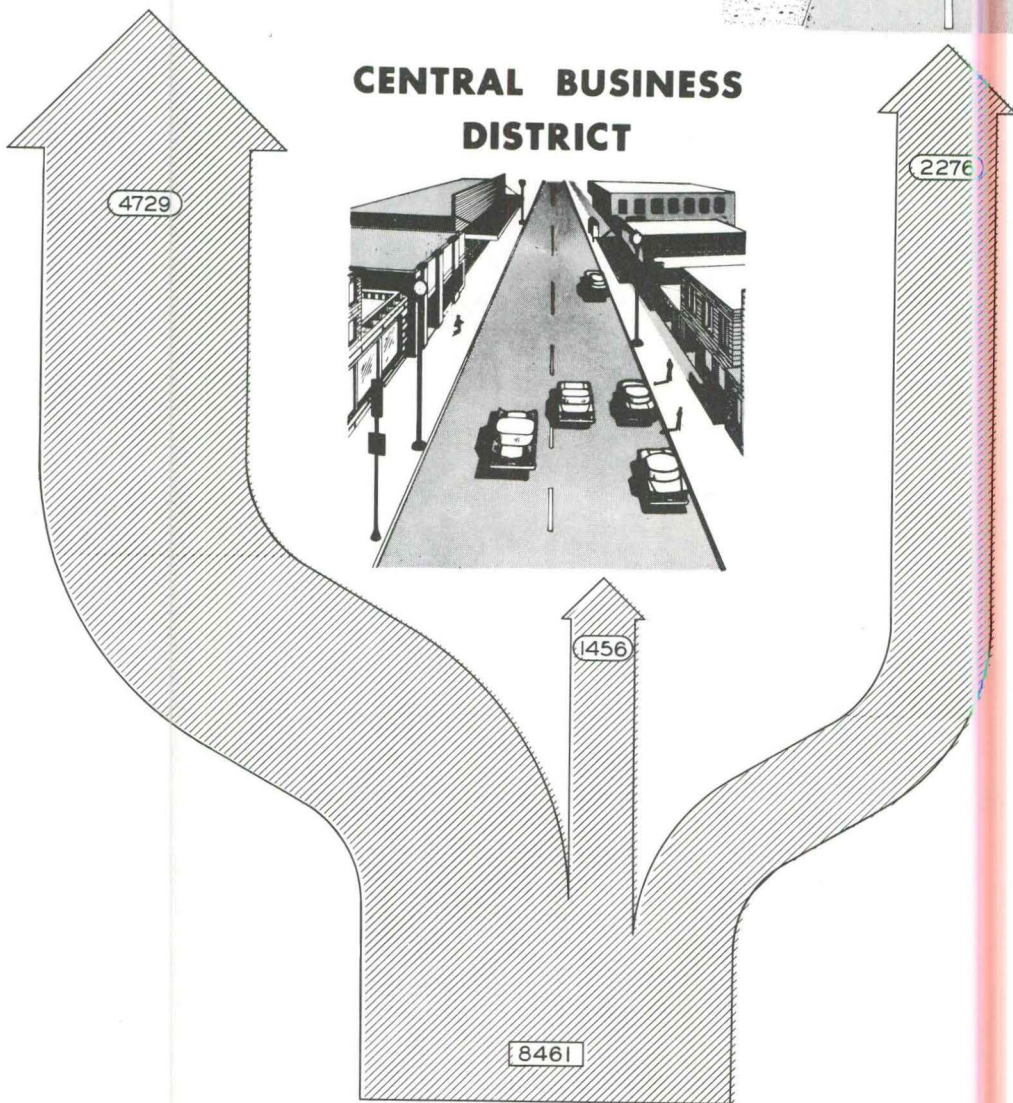
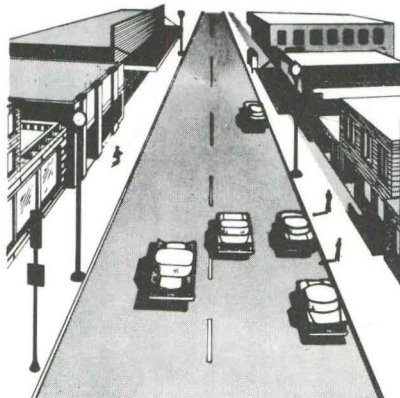
**INTERNAL TRACTS**



**THROUGH TRIPS**



**CENTRAL BUSINESS DISTRICT**



**EXTERNAL**

## SUMMARY OF MAJOR TRAFFIC MOVEMENTS

The chart at left graphically illustrates some of the more significant traffic volumes derived from the Pella origin-destination traffic survey. An average of 8,461 trips per day passed through the external cordon line of interview stations surrounding the study area during the survey period.

1,456 trips or 17.21 percent of the total number of trips were between external areas and the central business district.

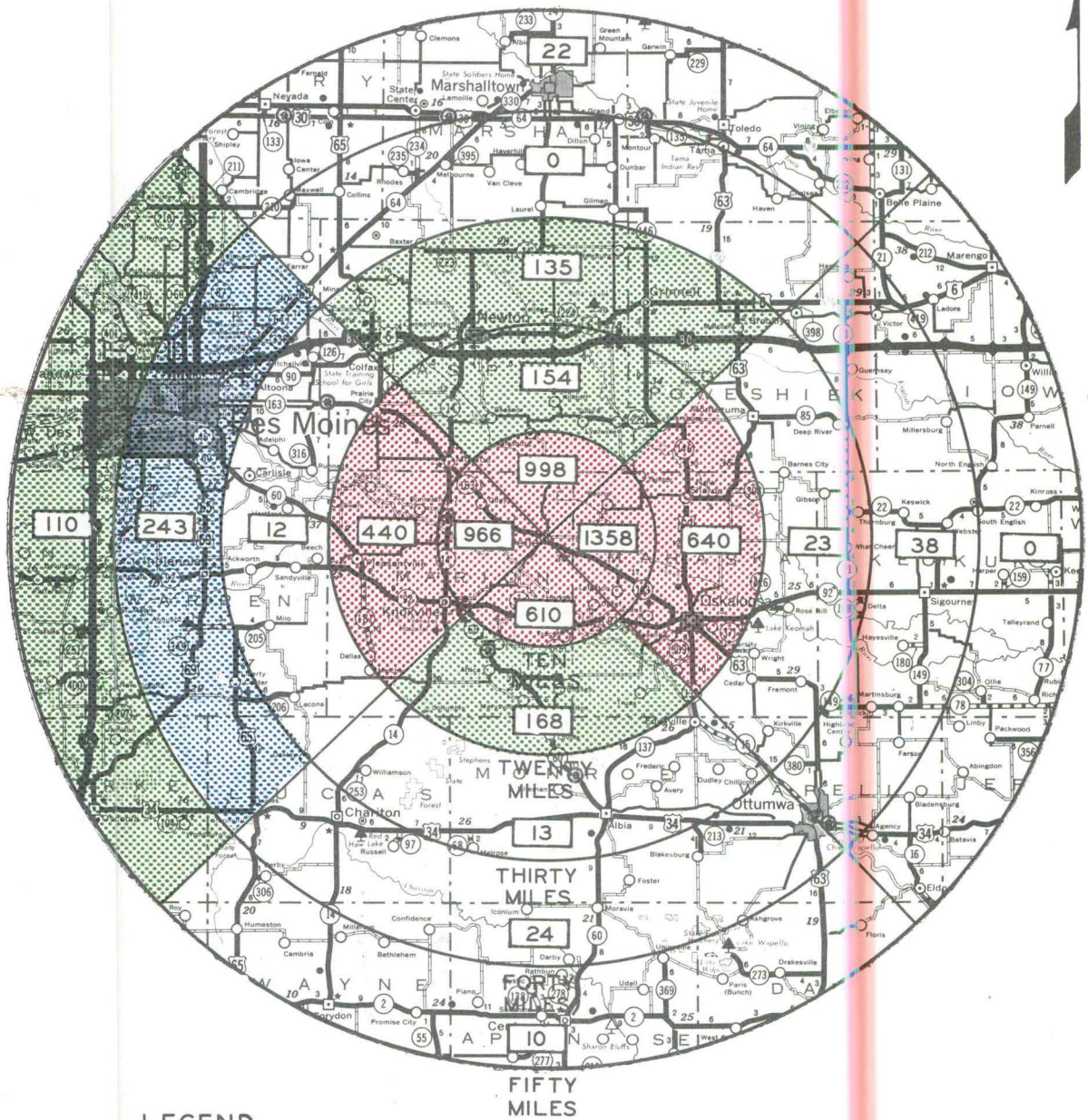
4,729 trips or 55.89 percent of the total number of trips were between external and internal areas exclusive of the central business district.

2,276 trips or 26.90 percent of the total number of trips were through trips which passed through Pella enroute to another destination.

Of the total number of trips which passed through interview stations, 19.56 percent began or ended at work, 26.62 percent were for social or recreational purposes, 26.58 percent were during work, 12.18 percent were for personal business, 6.70 percent were for shopping, and the remaining 7.36 percent were for other purposes.



FIGURE 1-2  
 SUMMARY OF TRIPS  
 BETWEEN THE PELLA STUDY AREA  
 AND OTHER MUNICIPALITIES  
 WITHIN A FIFTY-MILE RADIUS OF THE STUDY AREA



LEGEND

0 TO 100 TRIPS	
100 TO 200 TRIPS	
200 TO 400 TRIPS	
400 AND OVER	

EXPANDED TO AVERAGE  
 JULY WEEKDAY TRAFFIC - 1966



Table 1-1  
SUMMARY OF TRIPS  
BETWEEN PELLA AND OTHER MUNICIPALITIES  
WITHIN A FIFTY-MILE RADIUS 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	998	16.74
	10 - 20	154	2.58
	20 - 30	135	2.26
	30 - 40	0	.00
	40 - 50	22	.37
North Total		1309	21.95
East	0 - 10	1358	22.77
	10 - 20	640	10.73
	20 - 30	23	.38
	30 - 40	38	.64
	40 - 50	0	.00
East Total		2059	34.52
West	0 - 10	610	10.23
	10 - 20	168	2.81
	20 - 30	13	.22
	30 - 40	24	.40
	40 - 50	10	.17
West Total		825	13.83
South	0 - 10	966	16.20
	10 - 20	440	7.38
	20 - 30	12	.20
	30 - 40	243	4.08
	40 - 50	110	1.84
South Total		1771	29.70
Grand Total		5964	100.00

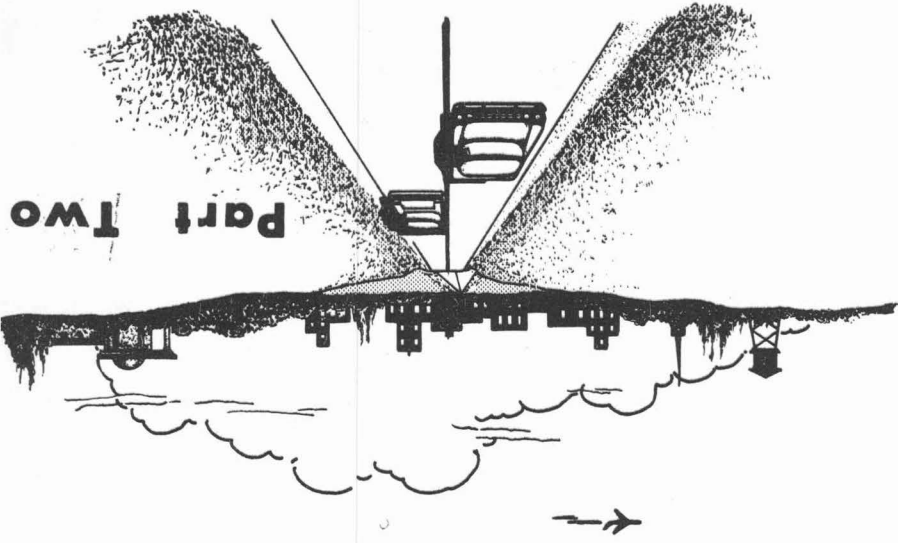
Table 1-2  
 VEHICLE TYPE SUMMARY  
 PELLA STUDY AREA

Average July Weekday Traffic - 1966

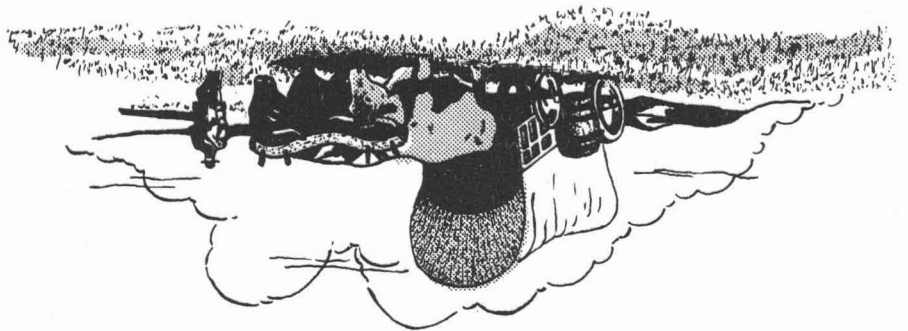
Station	Location	Passenger Cars and Pickup	Single Unit Trucks	Truck Combi- nations	Total
701	F.A.S. 639 N	1354	167	19	1540
702	F.A.S. 620 E	649	73	1	723
703	Iowa 163 East	2398	246	316	3460
704	Local Road	300	84		384
705	F.A.S. 636 SW	1228	101	9	1338
706	F.A.S. 669 W *				
707	Iowa 163 NW	2690	268	329	3287
Grand Total		9119	944	674	10,737

\* Closed at time of survey.

Part Two



# History and Development



## HISTORY

The city of Pella was named by Dutch settlers, more than 700 of whom, headed by Henry Peter Scholte, fled religious intolerance in their native country and came to Iowa in 1847. They adopted for a city seal the motto "In Deo Spes Nostra et Refugium" (In God is our hope and refuge).

After landing on the Atlantic coast, this company of Dutch people went to Saint Louis, where they were met by their overseer who had gone in advance to buy land. The families came up from Saint Louis in a group, and landed at Keokuk, where they bought wagons and oxen. Soon the procession was on its way to the Des Moines River Valley where a large tract of land had been purchased by their leader.

Altogether, more than 700 immigrants helped to establish the original settlement at Pella. Today, Pella's population numbers more than 5,000.

The first house in the new Dutch village was built of slab lumber which the men brought from a distant saw mill. The house was a long structure of several rooms in which a number of persons could live. Some of the men made dugouts in the hillsides, placing green rafters over the top and covering these with slough grass for thatching.

Central College was opened here in 1853. Dominie Scholte donated a large piece of land to the college when the first building was erected. The entire male student body of 122 enlisted in the Union Army when the Civil War broke out. Today the college is a 4-year coeducational institution with an enrollment of approximately 600. The college is a member of the North Central Association and affiliated with the Reform Church.

Noted for its beauty and cleanliness, Pella annually pays tribute to her founders by staging a three-day Tulip Festival, usually during the second week in May. During this period, residents dress in the traditional costumes of their native land and relive their heritage amid thousands of blooming tulips.

Located in a prosperous agricultural area in Marion County southeast of Des Moines, Pella's future is full of great expectations. In addition to agricultural products, major industrial products include roll screens, window casings, folding doors, ditching and stump removal machines, farm implements, and men's work clothes. The construction of the Red Rock Dam on the Des Moines River near Pella will impound the largest body of water in Iowa (more than 9,000 acres) and will, undoubtedly, have a tremendous affect on the future economy of the entire area.



# STUDY AREA POSITION IN THE MIDWEST

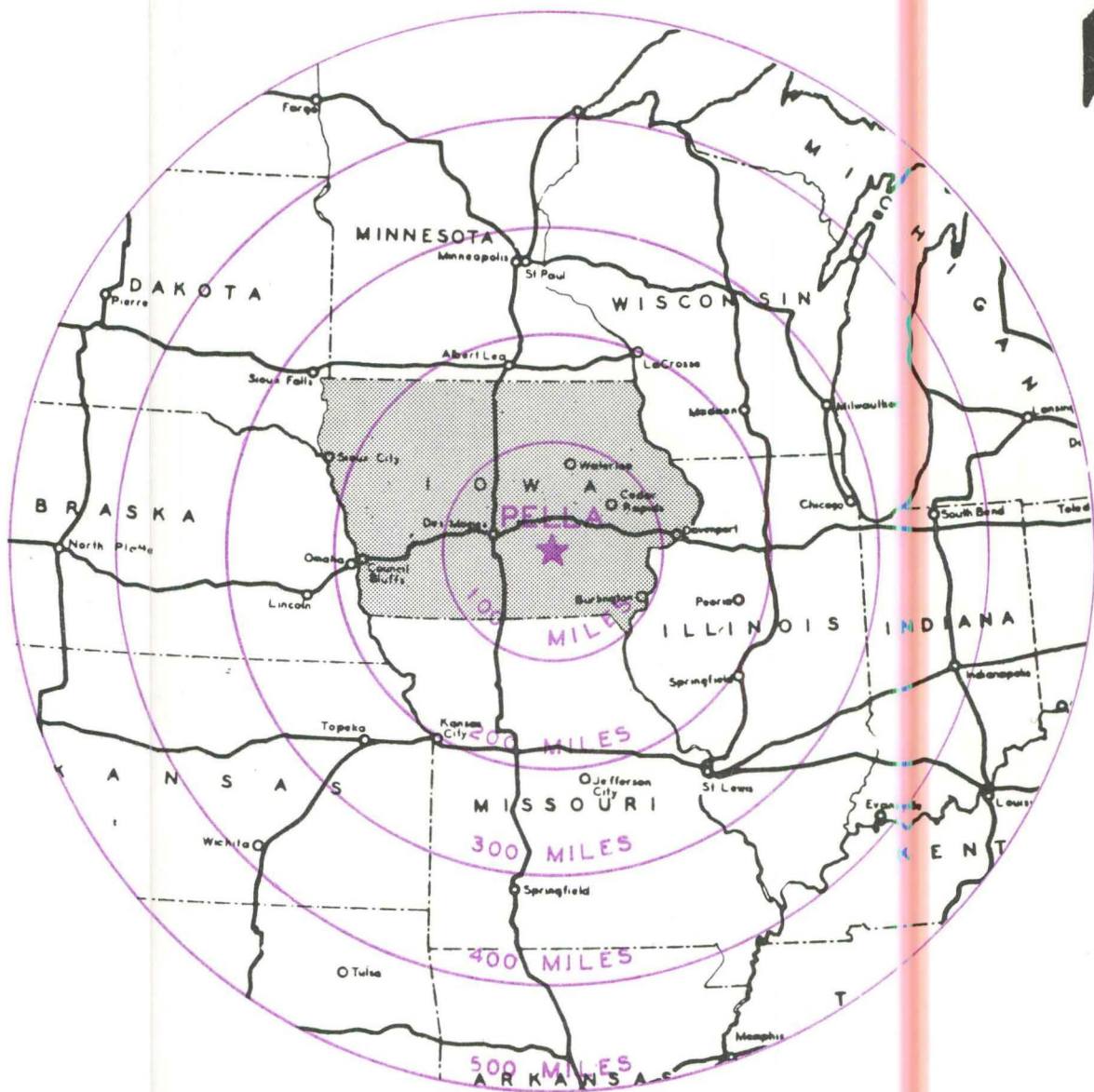
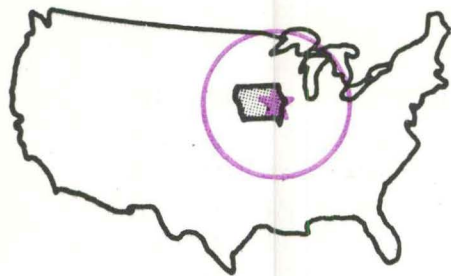


FIGURE 2-1

# STUDY AREA POSITION IN IOWA

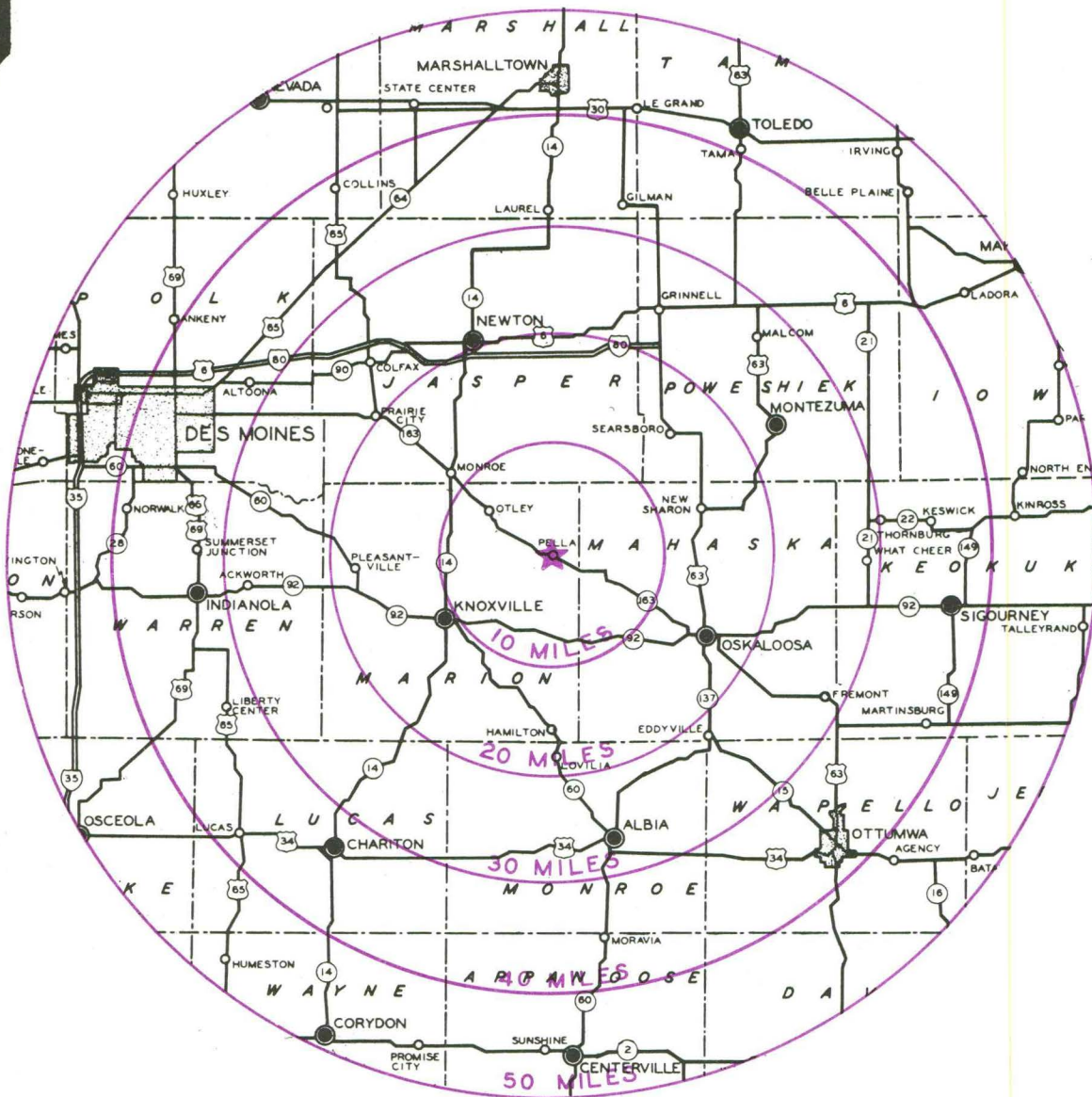
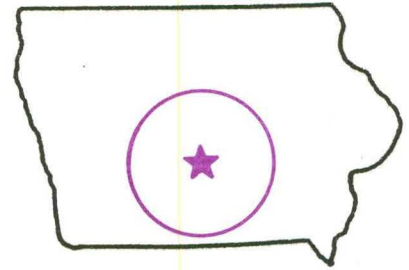


FIGURE 2-2

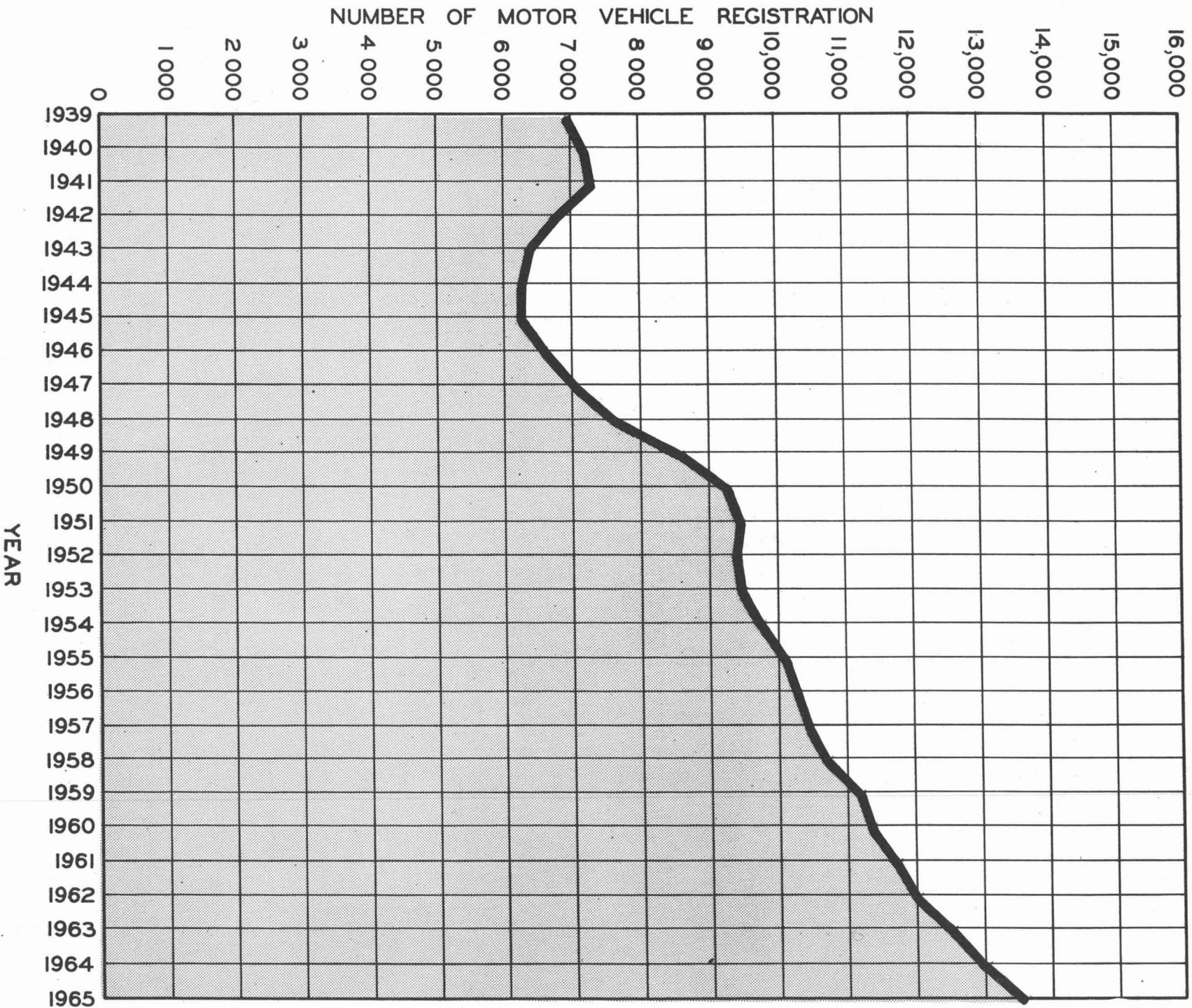
Table 2-1  
MOTOR VEHICLE REGISTRATION  
IN MARION COUNTY FROM 1939 THROUGH 1965

Year	Autos	Trucks	Motorcycles	Total	Percent Change
1939	6046	865	26	6937	
1940	6191	971	21	7183	3.55
1941	6262	1039	12	7313	1.81
1942	5848	964	15	6827	- 6.65
1943	5449	944	14	6407	- 6.15
1944	5375	926	12	6313	- 1.47
1945	5310	952	14	6276	- .59
1946	5537	1082	41	6660	6.12
1947	5833	1184	53	7070	6.16
1948	6314	1352	73	7739	9.46
1949	6893	1582	75	8550	10.48
1950	7562	1695	73	9330	9.12
1951	7761	1726	62	9549	2.35
1952	7640	1746	59	9445	- 1.09
1953	7696	1809	53	9558	1.20
1954	7923	1805	59	9787	2.40
1955	8240	1865	64	10169	3.90
1956	8354	1892	69	10315	1.44
1957	8551	1927	67	10545	2.23
1958	8688	1997	75	10760	2.04
1959	9050	2128	97	11275	4.79
1960	9220	2161	101	11482	1.84
1961	9481	2214	109	11804	2.80
1962	9760	2280	106	12146	2.90
1963	10045	2391	113	12549	3.32
1964	10404	2525	146	13075	4.19
1965	10792	2705	182	13679	4.62



MOTOR VEHICLE REGISTRATION IN MARION COUNTY  
FROM 1939 THROUGH 1965

FIGURE 2-3



## POPULATION TRENDS

Table 2-2

PELLA POPULATION

Census Year	Pella Population	Volume Increase or Decrease	Percent Change 10 Year Period
1900	2623		
1910	3021	398	15.17
1920	3338	317	10.49
1930	3326	-12	-.36
1940	3638	312	9.38
1950	4427	789	21.69
1960	5198	771	17.42
1966*	6087	889	17.10

\* Special Census

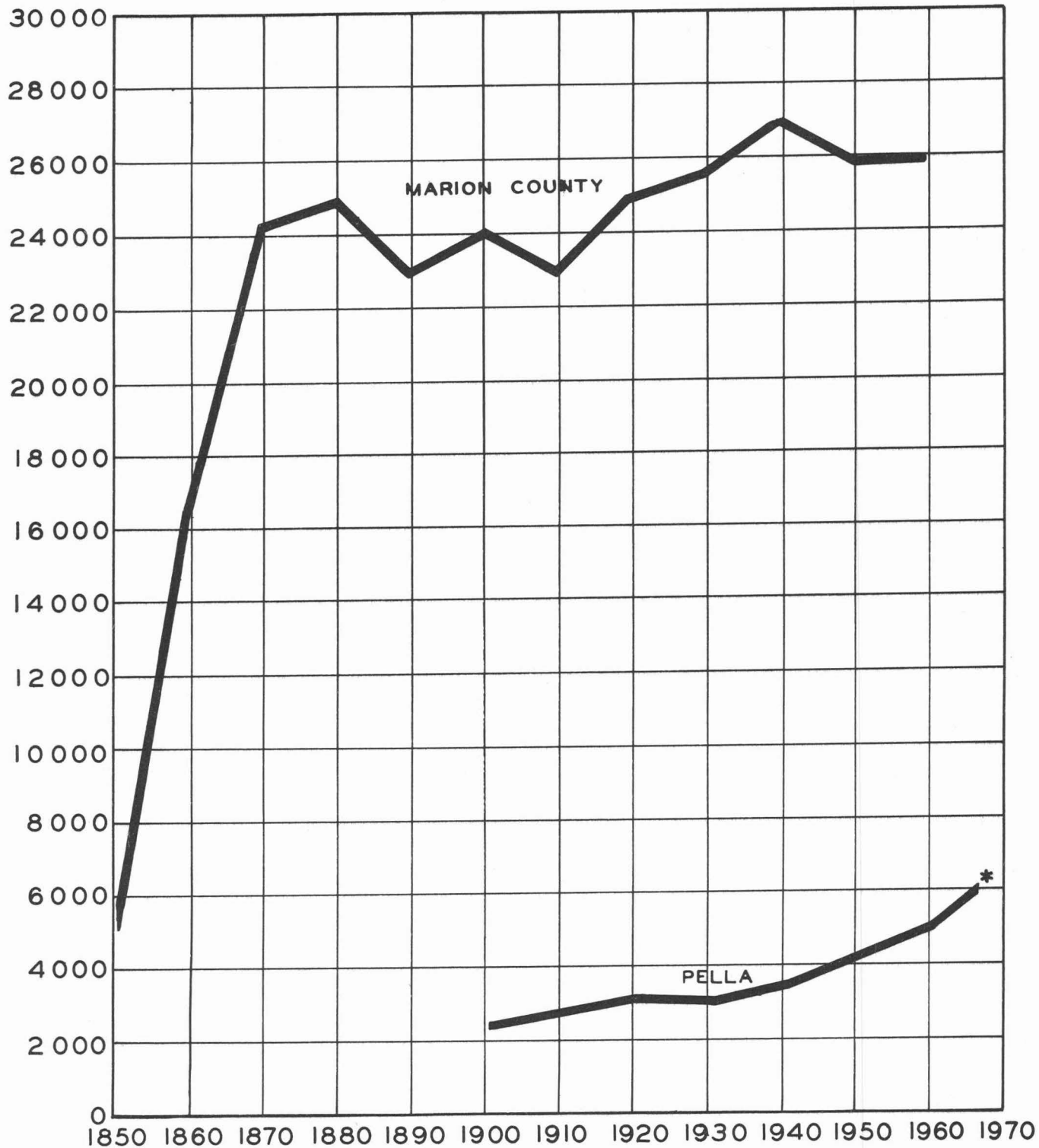
Table 2-3

MARION COUNTY POPULATION

Census Year	Marion Co. Population	Volume Increase or Decrease	Percent Change 10 Year Period
1850	5482		
1860	16813	11331	206.69
1870	24436	7623	45.34
1880	25111	675	2.76
1890	23058	-2053	- 8.18
1900	24159	1101	4.77
1910	22995	-1164	- 4.82
1920	24957	1962	8.53
1930	25727	770	3.09
1940	27019	1292	5.09
1950	25930	-1089	- 4.03
1960	25886	- 44	- .17



FIGURE 2-4  
POPULATION TRENDS

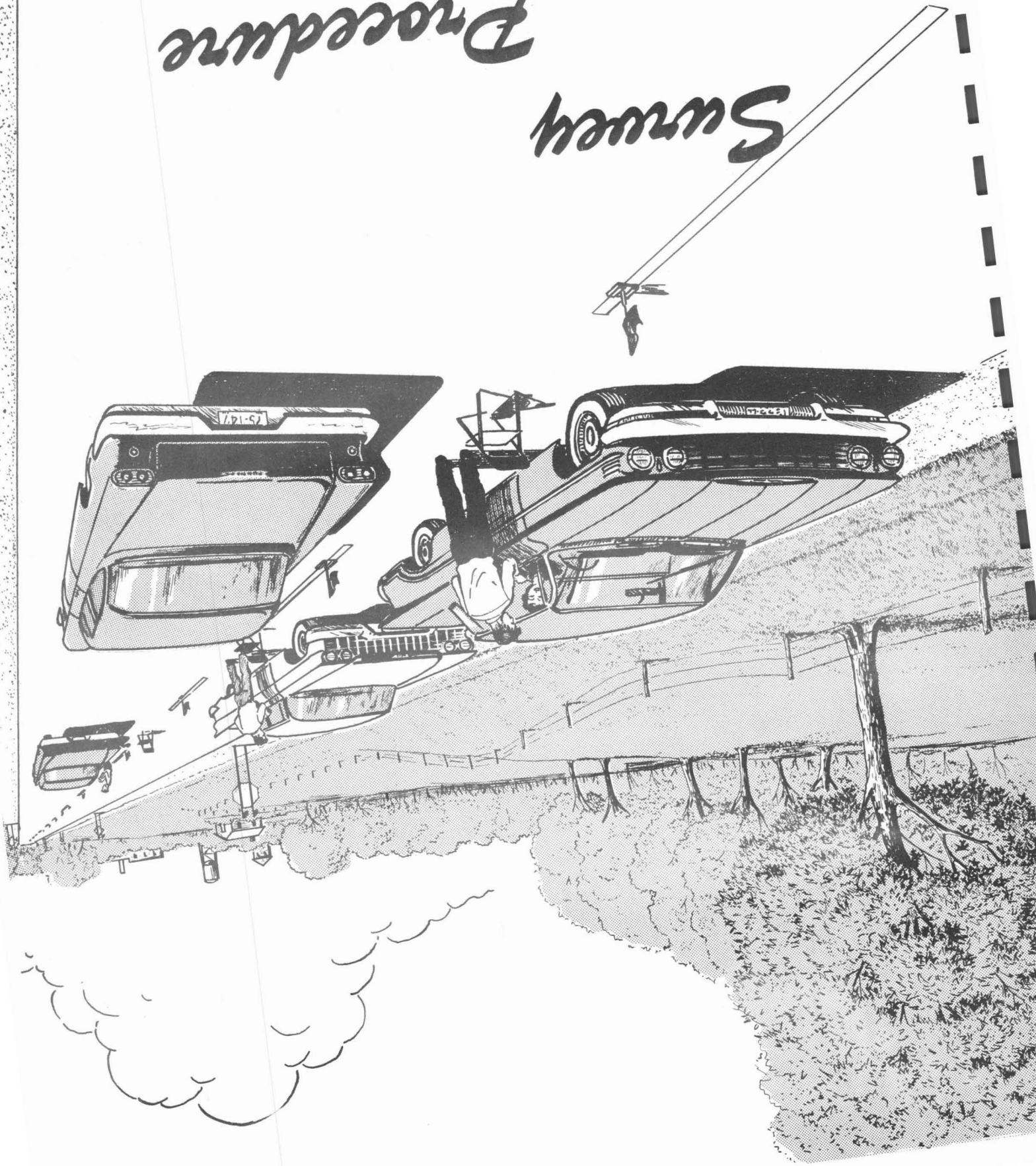


\* Special Census - 1966



# Procedure

# Survey



## THE SURVEY

An external origin-destination traffic survey of the type conducted in Pella 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 of seven interview stations was located on primary highways and major secondary roads on the perimeter of the study area beyond the corporate limits of Pella. Station 706 on F.A.S. 569 west was not operated due to the fact that this road was closed for construction at the time of the survey. The study area was divided into 24 tracts and all trips which had either origin or destination within the study area were traced to one of these tracts.

Interviewing for the Pella survey was done during the last two weeks of July 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 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.

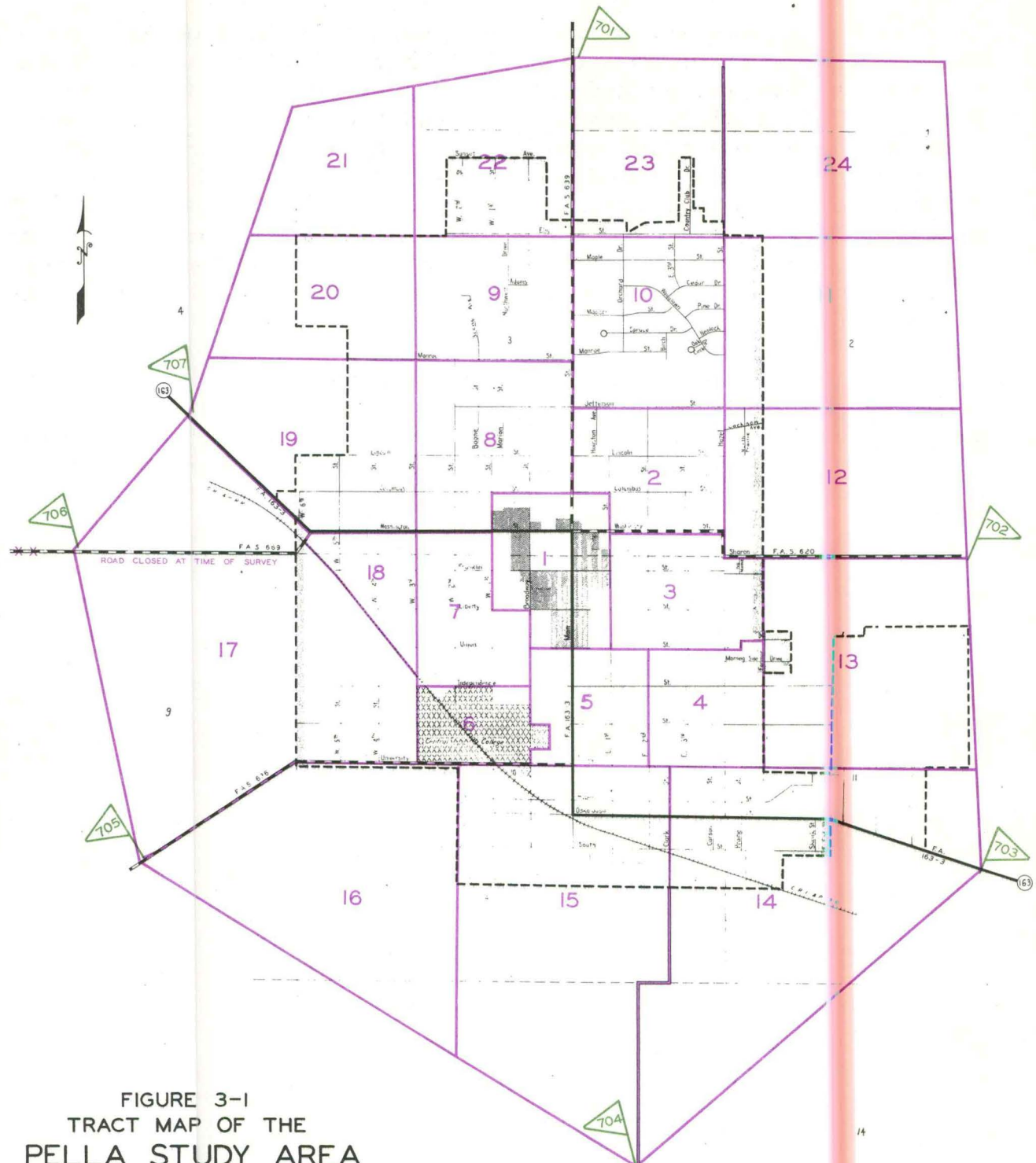


FIGURE 3-1  
 TRACT MAP OF THE  
 PELLA STUDY AREA  
 WITH EXTERNAL STATION LOCATIONS  
 JULY 1966

**LEGEND**

TRACT NUMBER 2

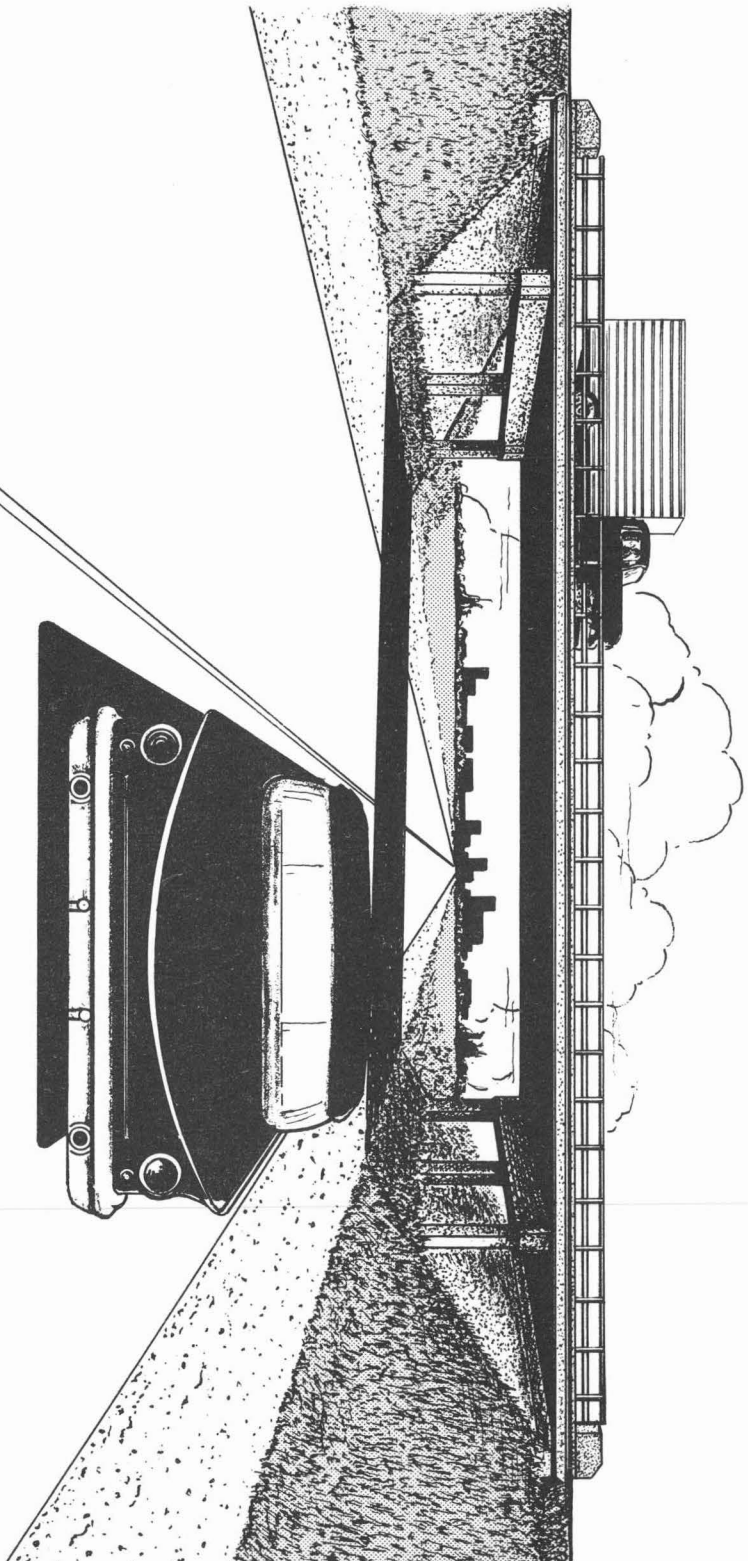
TRACT BOUNDARY LINE ———

INTERVIEW STATION LOCATIONS ———

CORPORATION LINE - - - - -

*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 are not 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.

The adjoining tables of statistics across from Figures 4-1 through 4-6 show the number of trips to or from each external interview station and tracts within the study area along with the percent of the total number of trips to each area.

Table 4-1  
INTERNAL DISPERSION OF ALL VEHICULAR TRIPS PASSING THROUGH  
STATION 701, F.A.S. 639 SOUTH  
OF THE PELLA STUDY AREA

(Average July Weekday Traffic - 1966)

	Trips	Percent
External-local trips . . . . .	1225	79.55
External-through trips . . . . .	<u>315</u>	<u>20.45</u>
Grand total, Station 701 . . . . .	1540	100.00

External-Local Trips

Tract	Trips	Percent	Tract	Trips	Percent
1	314	20.39	14	116	7.53
2	50	3.25	15	143	9.29
3	82	5.32	16		
4	34	2.21	17	35	2.27
5	56	3.64	18	33	2.14
6	10	.65	19	41	2.66
7	56	3.64	20	2	.13
8	47	3.05	21		
9	22	1.43	22	22	1.43
10	105	6.82	23	20	1.30
11	2	.13	24		
12	11	.71			
13	24	1.56	Total	1225	79.55

External-Through Trips

Station	Trips	Percent
701		
702	39	2.53
703	113	7.34
704	24	1.56
705	59	3.83
706		
707	80	5.19
Total	315	20.45

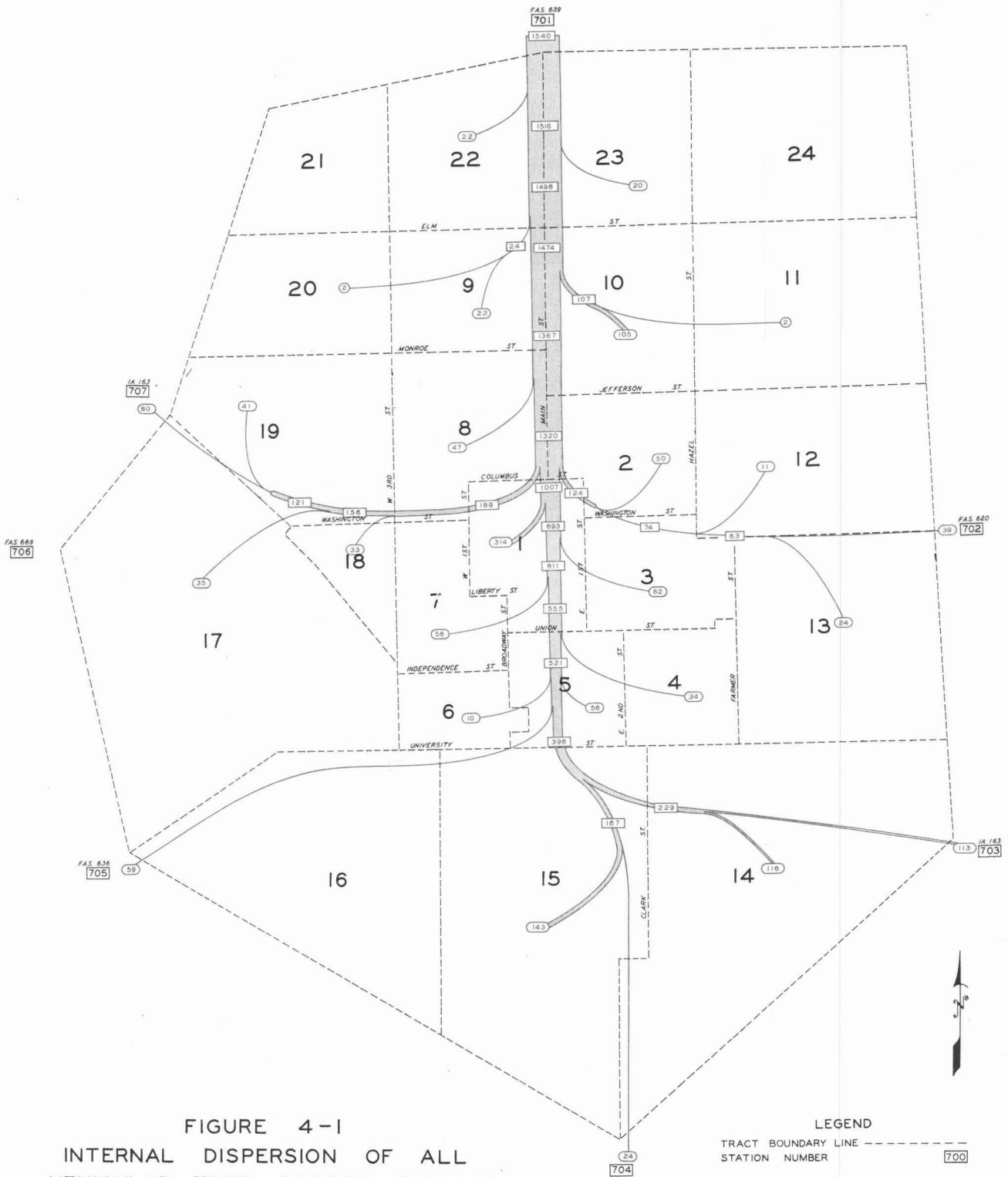


FIGURE 4-1  
 INTERNAL DISPERSION OF ALL  
 VEHICULAR TRIPS PASSING THROUGH  
 STATION 701-F.A.S.639 EAST  
 OF THE  
**PELLA STUDY AREA**  
 (ALL TRIPS BY DRIVERS OF AUTOS, TRUCKS, TAXIS, AND BUSES)

**LEGEND**  
 TRACT BOUNDARY LINE - - - - -  
 STATION NUMBER 700

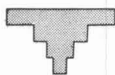
**GRAPHIC SCALE**  

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

Table 4-2  
INTERNAL DISPERSION OF ALL VEHICULAR TRIPS PASSING THROUGH  
STATION 702, F.A.S. 620 EAST  
OF THE PELLA STUDY AREA

(Average July Weekday Traffic - 1966)

	Trips	Percent
External-local trips . . . . .	593	81.46
External-through trips . . . . .	<u>135</u>	<u>18.54</u>
Grand total, Station 702 . . . . .	728	100.00

External-Local Trips

Tract	Trips	Percent	Tract	Trips	Percent
1	189	25.97	14	48	6.60
2	19	2.61	15	51	7.00
3	48	6.60	16		
4	5	.69	17	27	3.70
5	38	5.22	18	17	2.34
6	17	2.34	19	6	.82
7	30	4.12	20		
8	9	1.24	21		
9	12	1.65	22	3	.41
10	56	7.69	23	2	.27
11			24	1	.13
12	8	1.10			
13	7	.96	Total	593	81.46

External-Through Trips

Station	Trips	Percent
701	39	5.35
702		
703	3	.41
704	17	2.34
705	21	2.89
706		
707	55	7.55
Total	135	18.54



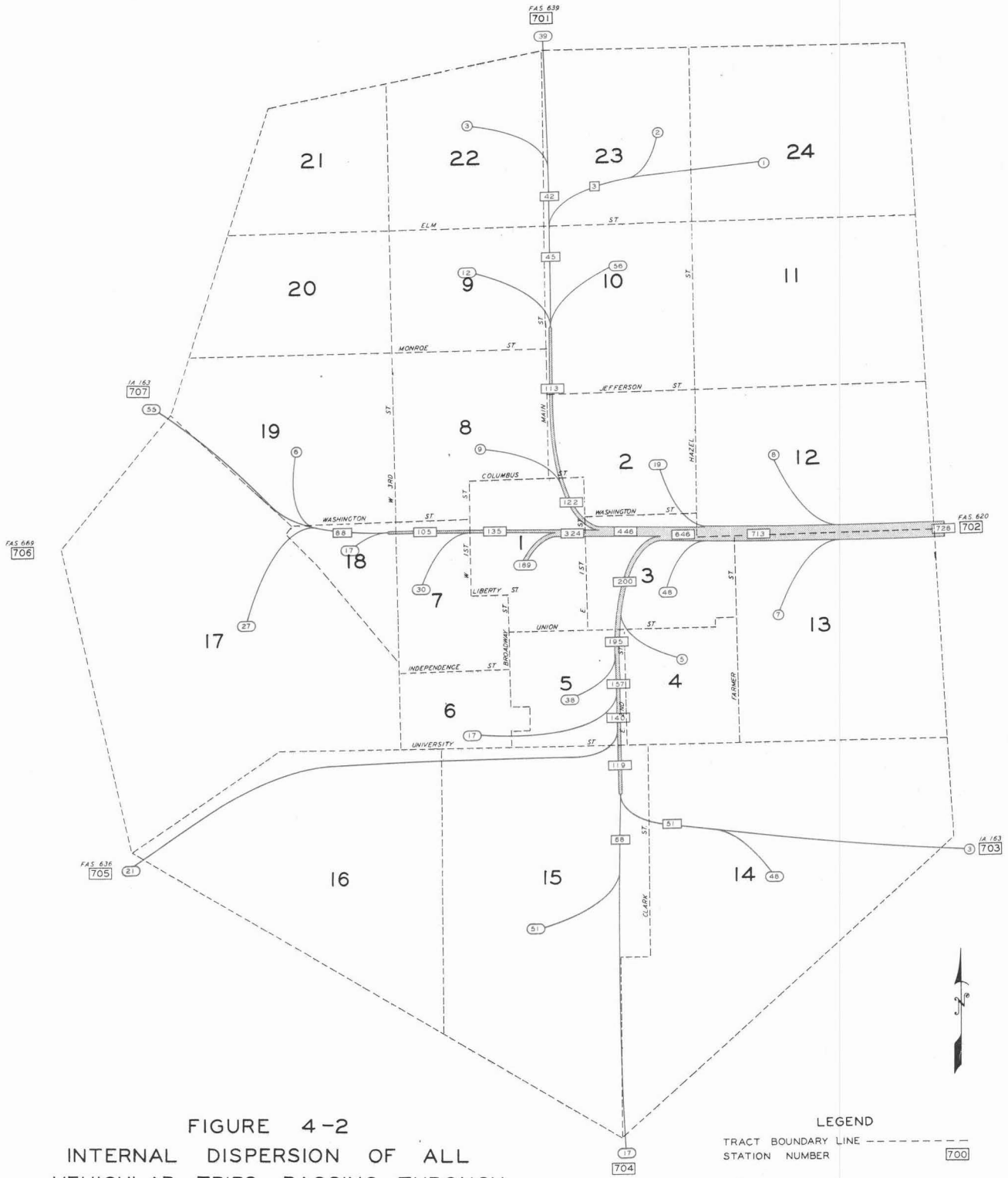


FIGURE 4-2  
 INTERNAL DISPERSION OF ALL  
 VEHICULAR TRIPS PASSING THROUGH  
 STATION 702 - F.A.S. 620 EAST  
 OF THE  
 PELLA STUDY AREA  
 (ALL TRIPS BY DRIVERS OF AUTOS, TRUCKS, TAXIS, AND BUSES)

**LEGEND**  
 TRACT BOUNDARY LINE - - - - -  
 STATION NUMBER 700

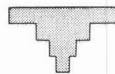
**GRAPHIC SCALE**  

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

Table 4-3  
INTERNAL DISPERSION OF ALL VEHICULAR TRIPS PASSING THROUGH  
STATION 703, IOWA 163 SOUTHWEST  
OF THE PELLA STUDY AREA

(Average July Weekday Traffic - 1966)

	Trips	Percent
External-local trips . . . . .	1572	45.43
External-through trips . . . . .	<u>1888</u>	<u>54.57</u>
Grand total, Station 703 . . . . .	3460	100.00

External-Local Trips

Tract	Trips	Percent	Tract	Trips	Percent
1	340	9.83	14	247	7.14
2	48	1.39	15	288	8.32
3	68	1.96	16		
4	36	1.04	17	42	1.21
5	113	3.27	18	18	.52
6	58	1.68	19	40	1.16
7	49	1.42	20	3	.09
8	62	1.79	21		
9	9	.26	22	24	.69
10	78	2.25	23	16	.46
11	1	.03	24		
12	10	.29			
13	22	.63	Total	1572	45.43

External-Through Trips

Station	Trips	Percent
701	113	3.27
702	3	.09
703		
704	15	.43
705	73	2.11
706		
707	1684	48.67
Total	1888	54.57

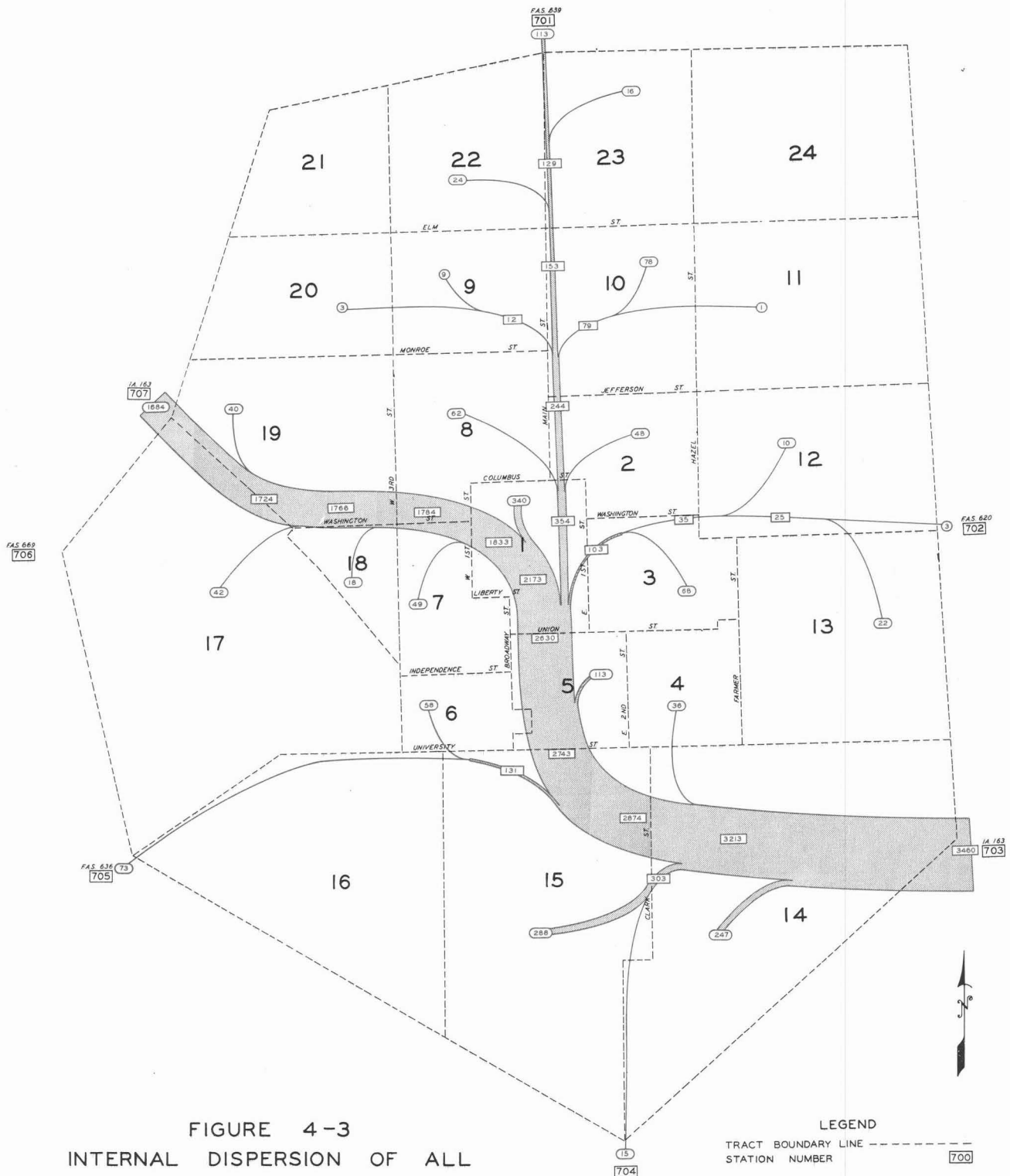


FIGURE 4-3  
 INTERNAL DISPERSION OF ALL  
 VEHICULAR TRIPS PASSING THROUGH  
 STATION 703-IOWA 163 SOUTHEAST  
 OF THE  
 PELLA STUDY AREA  
 (ALL TRIPS BY DRIVERS OF AUTOS, TRUCKS, TAXIS, AND BUSES)

**LEGEND**  
 TRACT BOUNDARY LINE - - - - -  
 STATION NUMBER 700

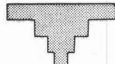
**GRAPHIC SCALE**  

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

Table 4-4  
INTERNAL DISPERSION OF ALL VEHICULAR TRIPS PASSING THROUGH  
STATION 704, LOCAL ROAD SOUTH  
OF THE PELLA STUDY AREA

(Average July Weekday Traffic - 1966)

	Trips	Percent
External-local trips . . . . .	303	78.90
External-through trips . . . . .	81	<u>21.10</u>
Grand total, Station 704 . . . . .	384	100.00

External-Local Trips

Tract	Trips	Percent	Tract	Trips	Percent
1	55	14.33	14	41	10.68
2	2	.52	15	97	25.26
3	12	3.13	16		
4	4	1.04	17	5	1.30
5	31	8.07	18	1	.26
6	9	2.34	19	6	1.56
7	13	3.39	20		
8	9	2.34	21		
9	7	1.82	22	3	.78
10	6	1.56	23		
11			24		
12	2	.52			
13			Total	303	78.90

External-Through Trips

Station	Trips	Percent
701	24	6.25
702	17	4.43
703	15	3.91
704		
705	3	.78
706		
707	22	5.73
Total	81	21.10



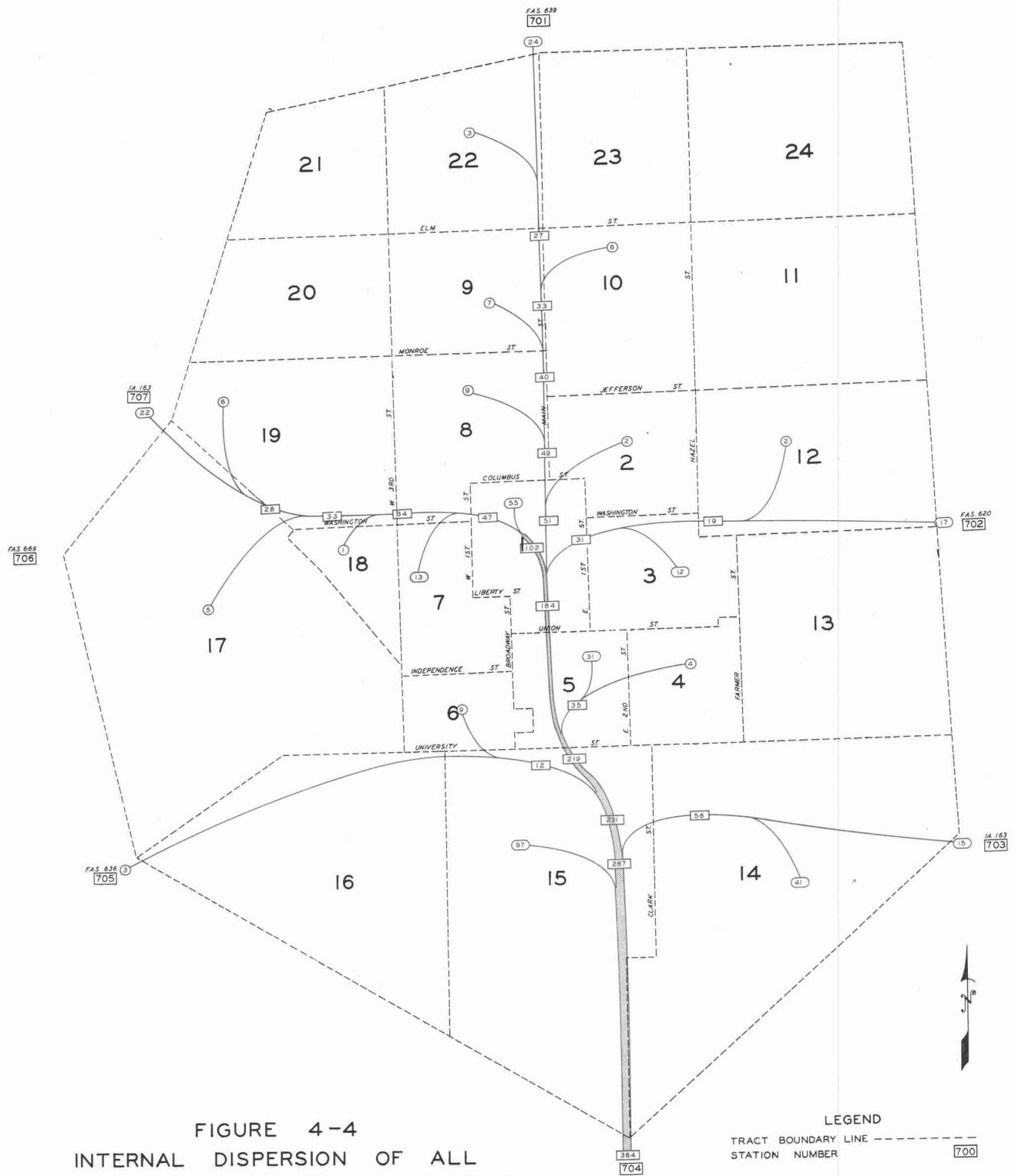


FIGURE 4-4  
 INTERNAL DISPERSION OF ALL  
 VEHICULAR TRIPS PASSING THROUGH  
 STATION 704 - LOCAL ROAD SOUTH  
 OF THE  
 PELLA STUDY AREA  
 (ALL TRIPS BY DRIVERS OF AUTOS, TRUCKS, TAXIS, AND BUSES)

LEGEND  
 TRACT BOUNDARY LINE - - - - -  
 STATION NUMBER [700]

GRAPHIC SCALE  
 4000 TRIPS  
 2000 TRIPS  
 1000 TRIPS  
 500 TRIPS

EXPANDED TO AVERAGE  
 JULY WEEKDAY TRAFFIC - 1966

Table 4-5  
INTERNAL DISPERSION OF ALL VEHICULAR TRIPS PASSING THROUGH  
STATION 705, F.A.S. 636 SOUTHWEST  
OF THE PELLA STUDY AREA

(Average July Weekday Traffic - 1966)

	Trips	Percent
External-local trips . . . . .	1114	83.26
External-through trips . . . . .	<u>224</u>	<u>16.74</u>
Grand total, Station 705 . . . . .	1338	100.00

External-Local Trips

Tract	Trips	Percent	Tract	Trips	Percent
1	234	17.49	14	123	9.20
2	36	2.69	15	270	20.18
3	67	5.01	16	1	.07
4	36	2.69	17	44	3.29
5	55	4.11	18	10	.75
6	19	1.42	19	29	2.17
7	41	3.06	20		
8	40	2.99	21		
9	12	.90	22	6	.45
10	68	5.08	23	6	.45
11	1	.07	24		
12	3	.22			
13	13	.97	Total	1114	83.26

External-Through Trips

Station	Trips	Percent
701	59	4.41
702	21	1.57
703	73	5.46
704	3	.22
705		
706		
707	68	5.03
Total	224	16.74

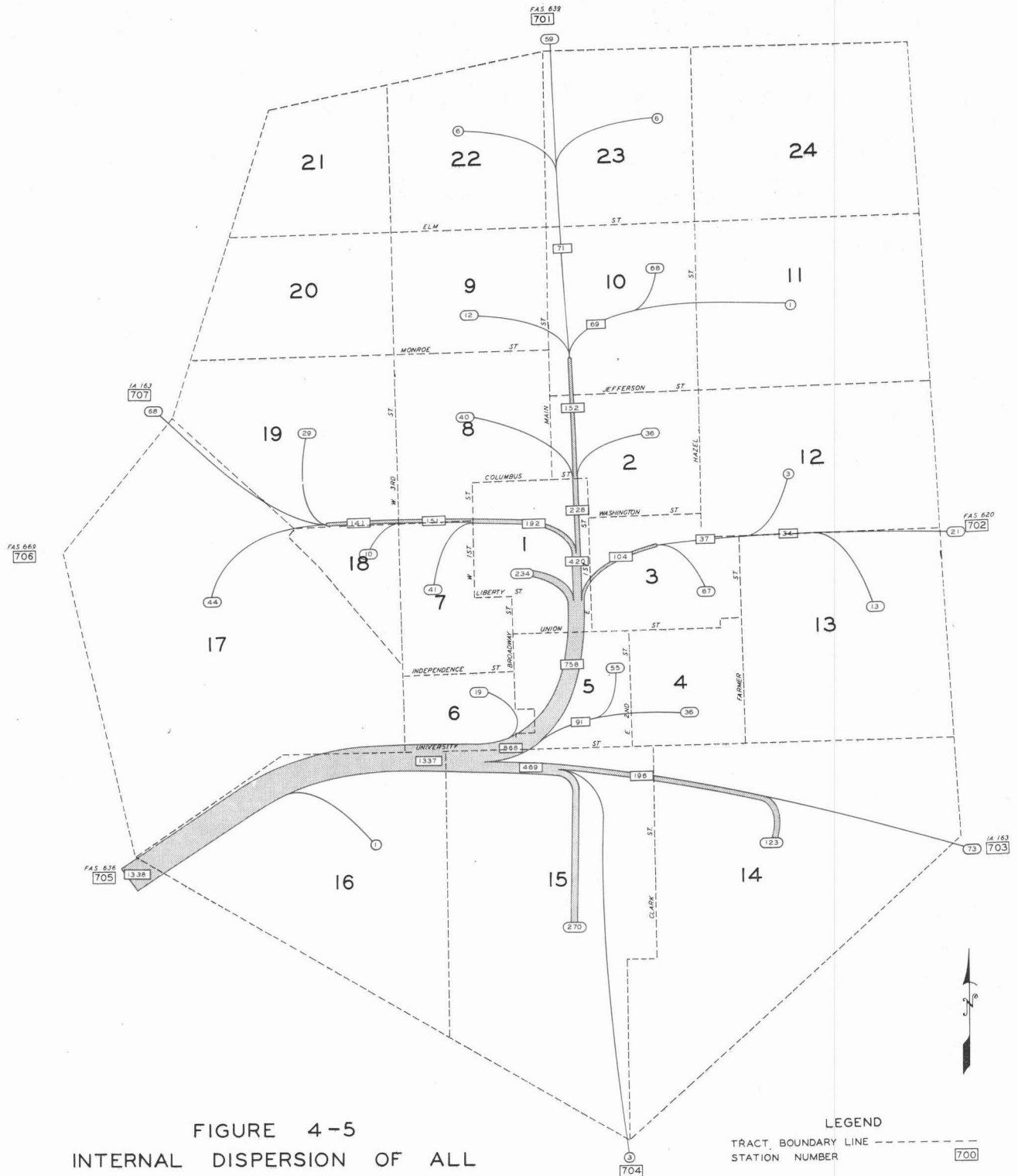


FIGURE 4-5  
 INTERNAL DISPERSION OF ALL  
 VEHICULAR TRIPS PASSING THROUGH  
 STATION 705-F.A.S. 636 SOUTHWEST  
 OF THE  
 PELLA STUDY AREA  
 (ALL TRIPS BY DRIVERS OF AUTOS, TRUCKS, TAXIS, AND BUSES)

LEGEND

TRACT, BOUNDARY LINE - - - - -

STATION NUMBER [700]

GRAPHIC SCALE

[Shaded bar] 4000 TRIPS

[Shaded bar] 2000 TRIPS

[Shaded bar] 1000 TRIPS

[Shaded bar] 500 TRIPS

EXPANDED TO AVERAGE  
 JULY WEEKDAY TRAFFIC - 1966

Table 4-6  
INTERNAL DISPERSION OF ALL VEHICULAR TRIPS PASSING THROUGH  
STATION 707, IOWA 163 NORTHWEST  
OF THE PELLA STUDY AREA

(Average July Weekday Traffic - 1966)

	Trips	Percent
External-local trips . . . . .	1378	41.92
External-through trips . . . . .	<u>1909</u>	<u>58.08</u>
Grand total, Station 707 . . . . .	3287	100.00

External-Local Trips

Tract	Trips	Percent	Tract	Trips	Percent
1	324	9.86	14	148	4.50
2	36	1.10	15	192	5.84
3	75	2.28	16		
4	54	1.64	17	53	1.61
5	81	2.46	18	24	.73
6	82	2.49	19	49	1.49
7	43	1.31	20		
8	51	1.55	21		
9	20	.61	22	13	.40
10	83	2.53	23	14	.43
11	1	.03	24		
12	5	.15			
13	30	.91	Total	1378	41.92

External-Through Trips

Station	Trips	Percent
701	80	2.44
702	55	1.67
703	1684	51.23
704	22	.67
705	68	2.07
706		
707		
Total	1909	58.08





## DESIRE LINE CHARTS

The following desire line charts illustrate desired routes of travel between external stations and internal tracts without regard to existing streets or actual routes traveled. Charts such as these graphically illustrate the travel desires of motorists and may point out the need for improvement of existing routes or construction of new ones to satisfy the demands of traffic.

This series of desire line charts illustrates the travel desires of external local trips and external through trips. The top overlay shows travel desires of trips between external stations and commercial areas. The second overlay shows the travel desires of through trips between external stations. The base map shows travel desires between external stations and internal tracts other than the central business district.

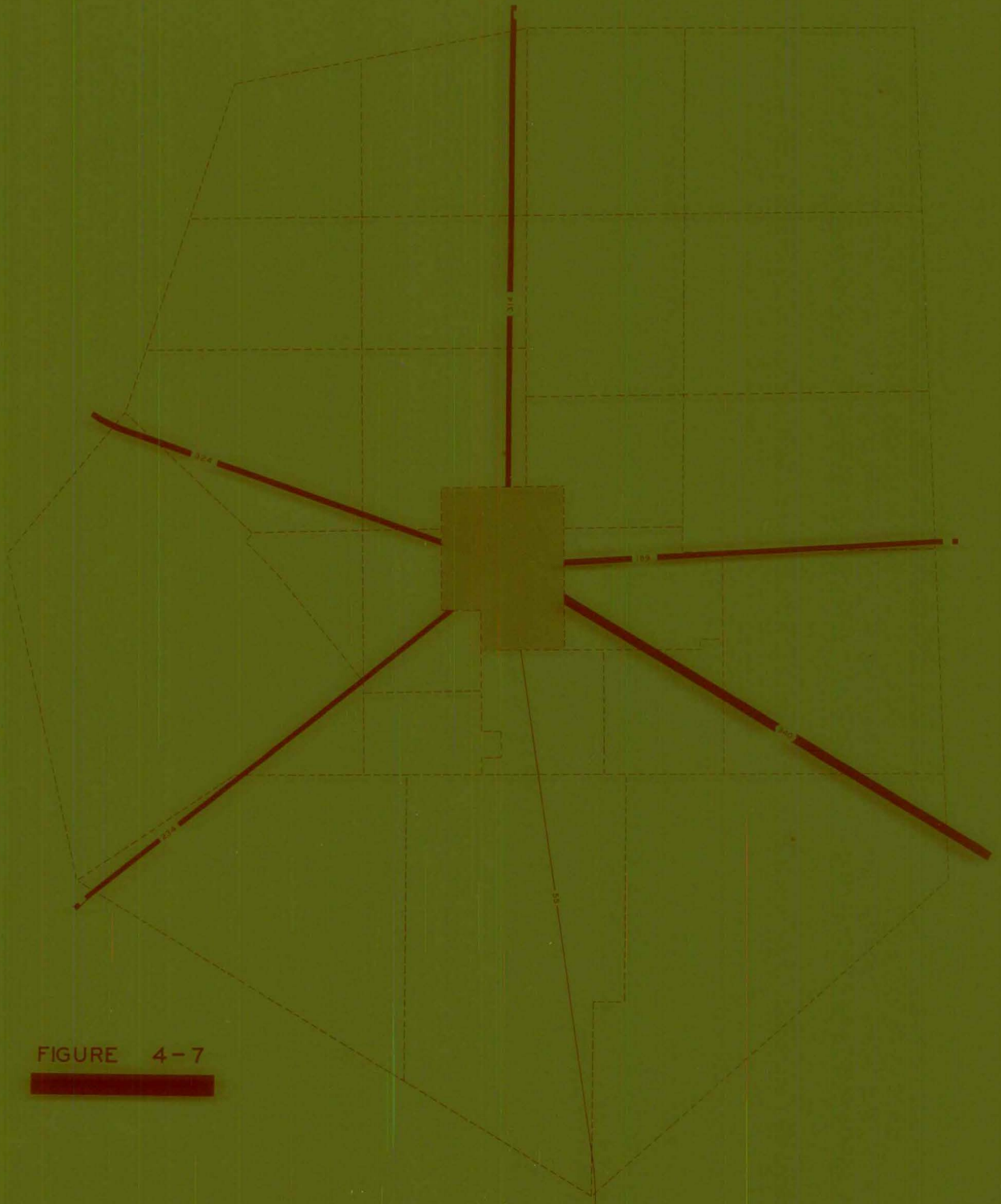


FIGURE 4-7

[Redacted]

[Redacted]

CENTRAL BUSINESS DISTRICT







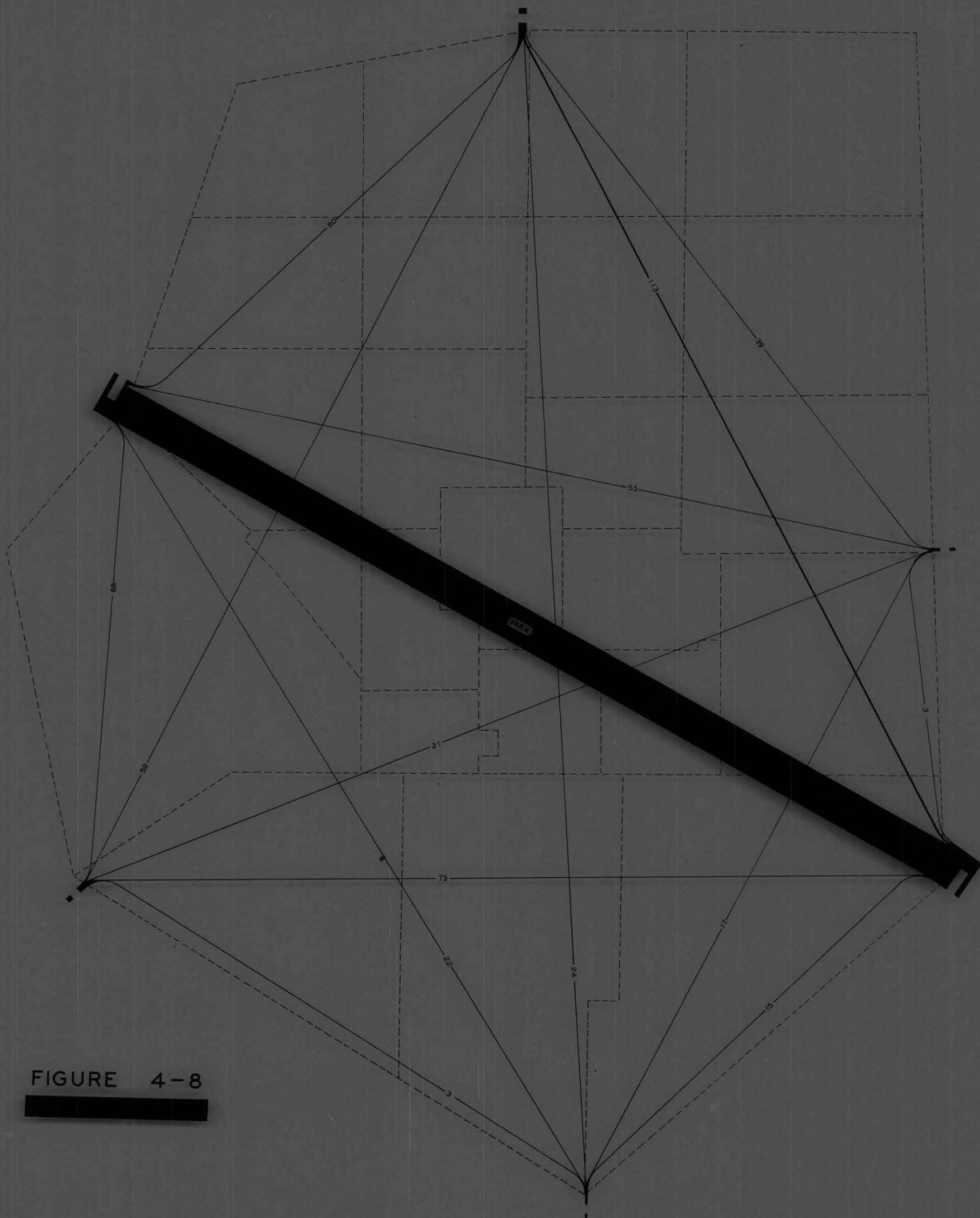
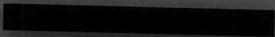
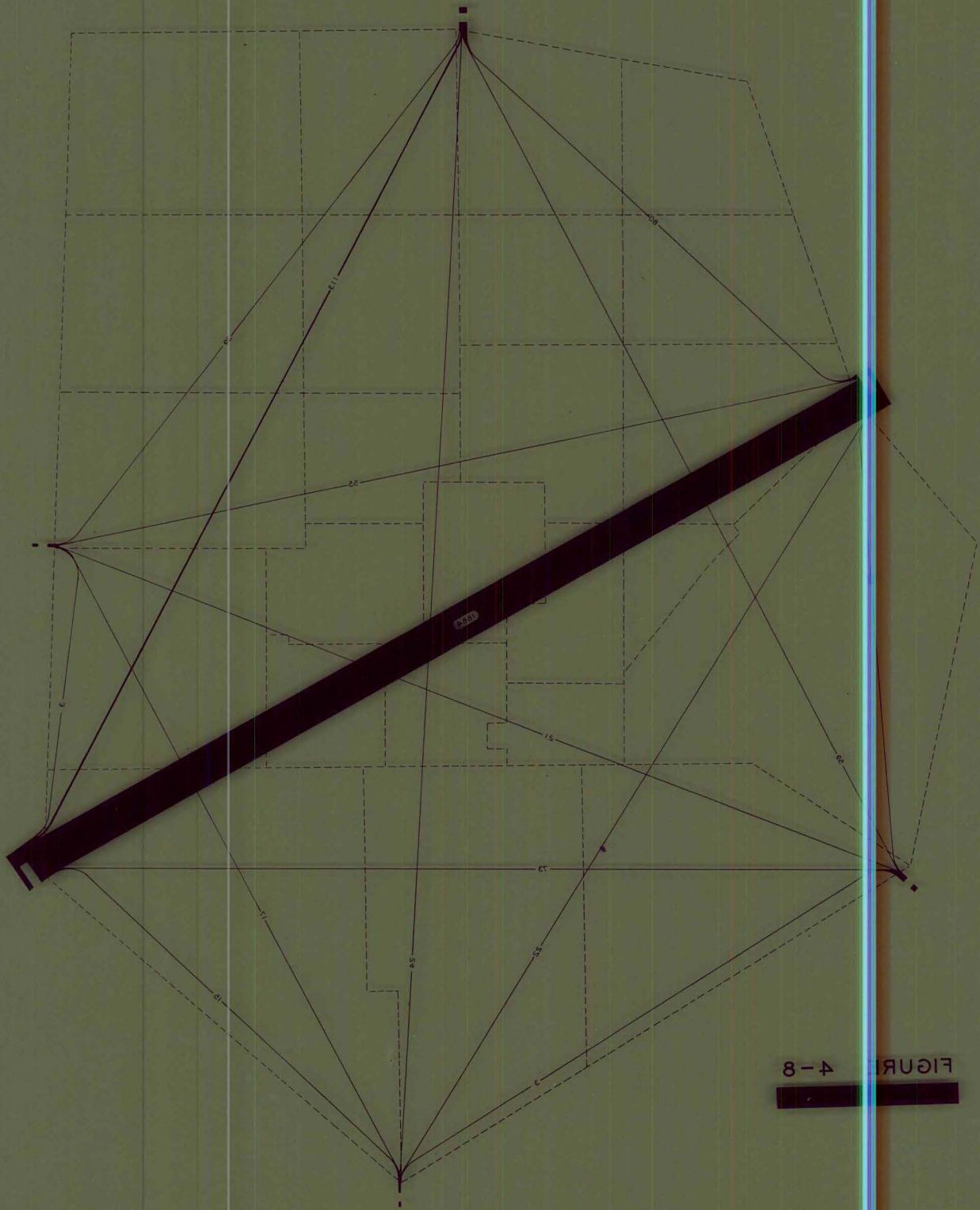


FIGURE 4-8



  
OTHER EXTERNAL ENTRANCES



8-4  
[REDACTED]

[REDACTED]  
OTHER EXTERNAL ENTRANCES

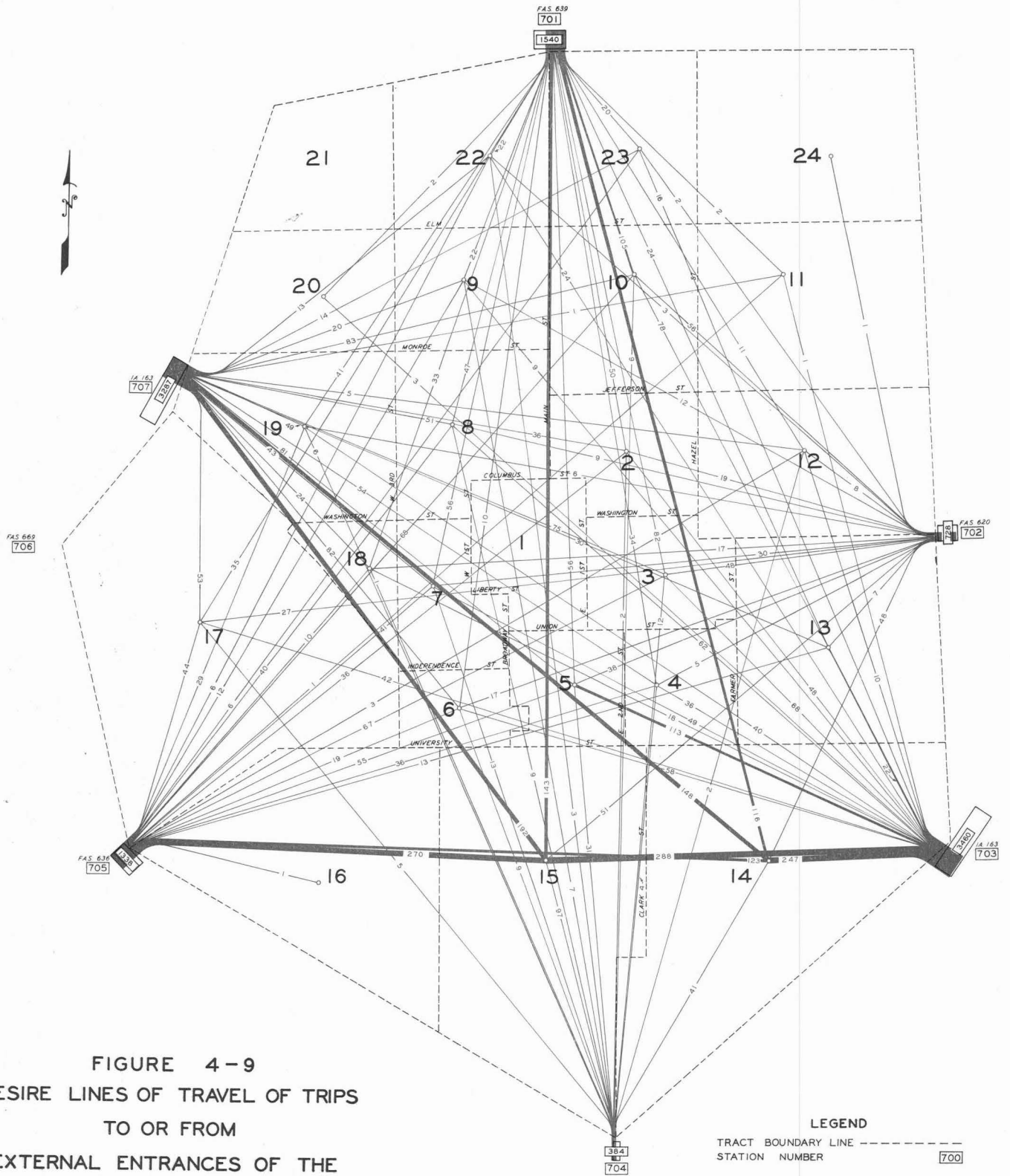


FIGURE 4-9  
 DESIRE LINES OF TRAVEL OF TRIPS  
 TO OR FROM  
 EXTERNAL ENTRANCES OF THE  
 PELLA STUDY AREA  
 AND  
 INTERNAL TRACTS

**LEGEND**

TRACT BOUNDARY LINE - - - - -

STATION NUMBER 700

**GRAPHIC SCALE**

4000 TRIPS  
 2000 TRIPS  
 1000 TRIPS  
 500 TRIPS

EXPANDED TO AVERAGE  
 JULY WEEKDAY TRAFFIC - 1966



## EXTERNAL TRIP TERMINI

Table 4-7 on the adjoining page shows a tabulation of the number and percent of those trips which had termini in municipalities in Marion and Mahaska Counties, rural areas within these counties, other counties in Iowa, and other states.

The following traffic flow charts illustrate the external termini of all trips which passed through interview stations in Pella during the 1966 origin-destination survey.

Figure 4-7 shows the external termini of all trips which originated or terminated beyond Marion and Mahaska Counties. Those trips having terminal points in other states are shown as entering or leaving Iowa on routes which are most direct to the study area. All routes shown are approximate rather than exact and should be interpreted as such.

Figure 4-8 is a continuation of Figure 4-7 and shows the external termini of those trips which originated or terminated in Marion and Mahaska Counties beyond the cordon line surrounding the study area.



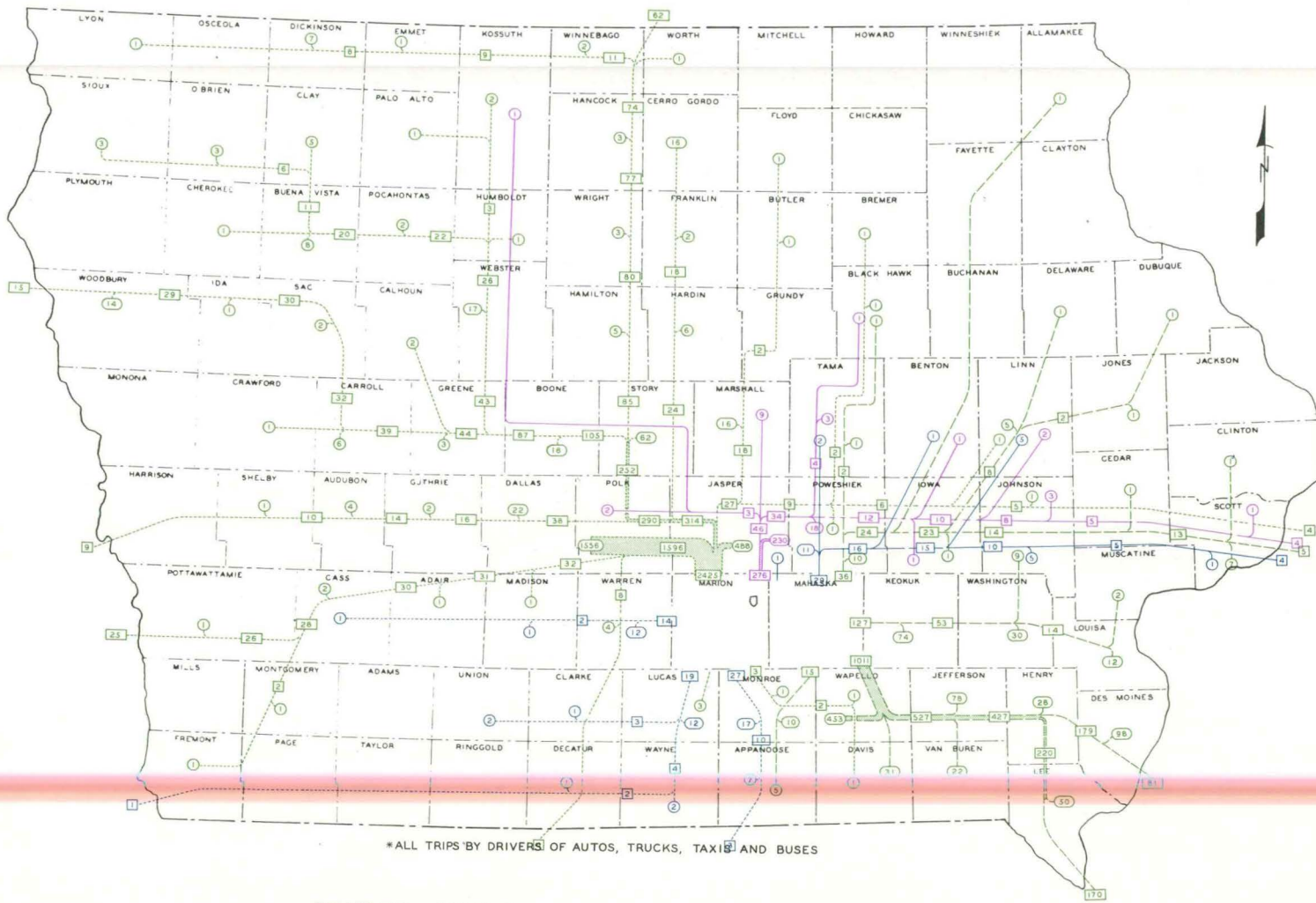
# SUMMARY OF EXTERNAL TRIPS ENTERING OR LEAVING THE PELLA STUDY AREA

TABLE 4-7

EXPANDED TO AVERAGE JULY WEEKDAY TRAFFIC-1966

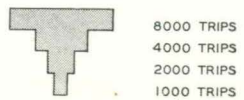
Origin or Destination	F.A.S. 639 North		F.A.S. 620 East		Iowa 163 Southeast		Local Road South		F.A.S. 636 Southwest		Iowa 163 Northwest	
	Station 701		Station 702		Station 703		Station 704		Station 705		Station 707	
	Vol.	%	Vol.	%	Vol.	%	Vol.	%	Vol.	%	Vol.	%
Attica									2	.15		
Bussey					1	.03			13	.97		
Columbia									4	.30		
Harvey									54	4.03		
Knoxville									495	36.96	26	.79
Marysville									2	.15		
Melcher									5	.37	1	.03
Otley	2	.13									351	10.68
Percy											1	.03
Pershing									17	1.27	1	.03
Pleasantville									3	.23	8	.24
Red Rock Dam									132	9.86	1	.03
Swan											2	.06
Tracy			1	.14	2	.06			38	2.84		
<b>Marion County Total</b>	<b>2</b>	<b>.13</b>	<b>1</b>	<b>.14</b>	<b>3</b>	<b>.09</b>			<b>765</b>	<b>57.13</b>	<b>391</b>	<b>11.89</b>
<b>Mahaska County</b>												
Barnes City			3	.41	1	.03						
Beacon					2	.06						
Cedar					3	.09						
Fremont					16	.46						
Leighton			1	.14	227	6.56	2	.52				
New Sharon			81	11.12	40	1.15						
Oskaloosa			8	1.10	1170	33.81	2	.52	3	.23		
Rose Hill					8	.23						
Taintor			5	.69	3	.09						
University Park					1	.03						
Wright					2	.06						
<b>Mahaska County Total</b>			<b>98</b>	<b>13.46</b>	<b>1473</b>	<b>42.57</b>	<b>4</b>	<b>1.04</b>	<b>3</b>	<b>.23</b>		
<b>Total To Towns</b>												
	<b>2</b>	<b>.13</b>	<b>99</b>	<b>13.60</b>	<b>1476</b>	<b>42.66</b>	<b>4</b>	<b>1.04</b>	<b>768</b>	<b>57.40</b>	<b>391</b>	<b>11.89</b>
Rural	1262	81.95	599	82.28	795	22.98	380	98.96	510	38.12	465	14.15
Other Counties	272	17.66	26	3.57	933	26.96			56	4.18	2312	70.34
Out-of-State	4	.26	4	.55	256	7.40			4	.30	119	3.62
<b>Grand Total</b>	<b>1540</b>	<b>100.00</b>	<b>728</b>	<b>100.00</b>	<b>3460</b>	<b>100.00</b>	<b>384</b>	<b>100.00</b>	<b>1338</b>	<b>100.00</b>	<b>3287</b>	<b>100.00</b>

FIGURE 4-10  
DISPERSION OF EXTERNAL TRIPS BETWEEN  
THE PELLA STUDY AREA AND POINTS IN IOWA  
BEYOND MARION AND MAHASKA COUNTIES



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

GRAPHIC SCALE



EXPANDED TO AVERAGE  
JULY WEEKDAY TRAFFIC - 1966

LEGEND

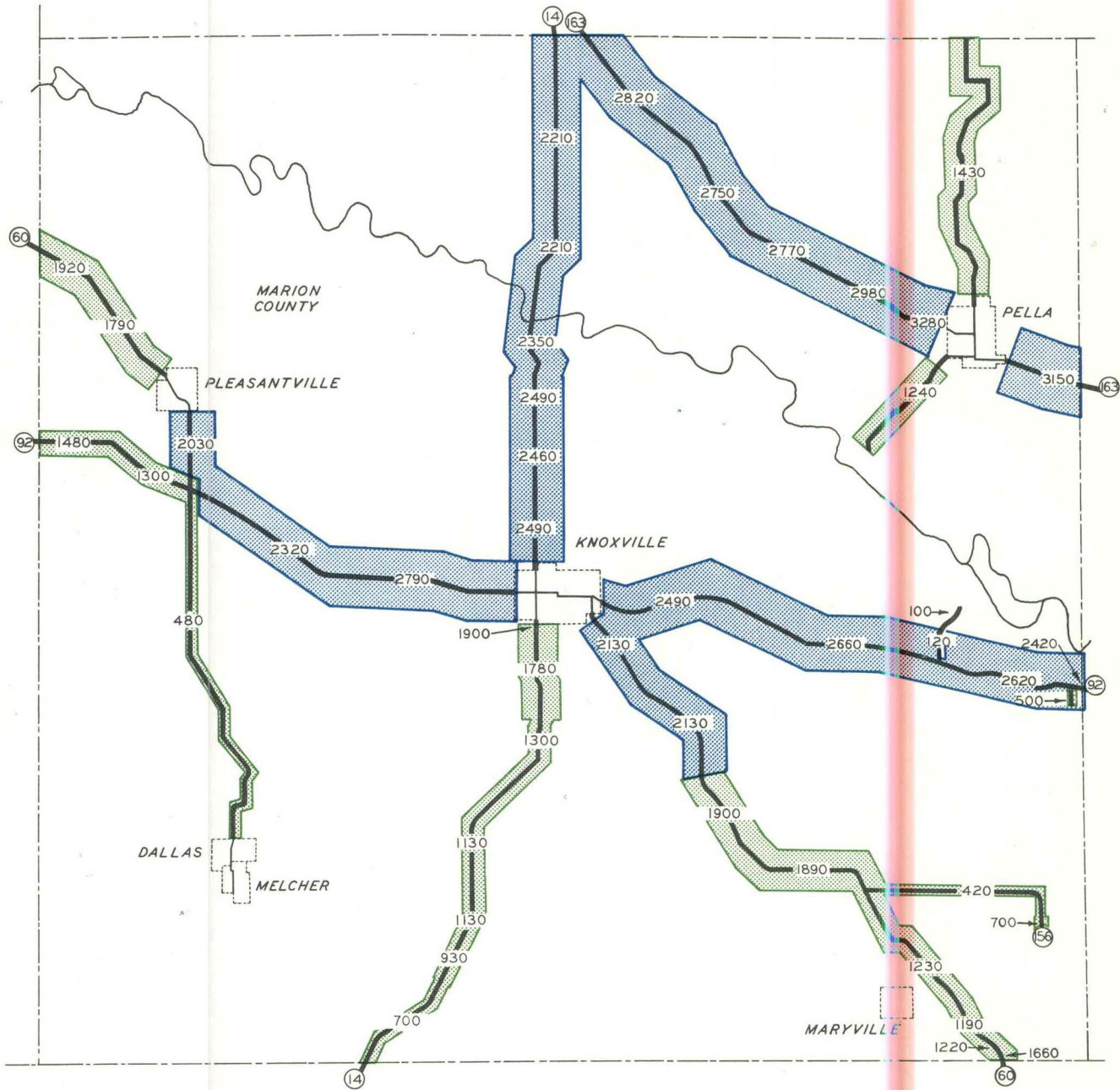
TRAFFIC THROUGH INTERVIEW STATIONS

- STATION 701 - F.A.S. 639 NORTH
- STATIONS 702 - F.A.S. 620 EAST
- STATIONS 705 - F.A.S. 636 SOUTHWEST
- STATIONS 703 - IOWA 163 SOUTHEAST
- STATIONS 707 - IOWA 163 NORTHWEST

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**FIGURE 4-12**  
**TRAFFIC VOLUMES**  
**ON RURAL PRIMARY HIGHWAYS**  
**ENTERING THE**  
**PELLA STUDY AREA**  
**AVERAGE ANNUAL DAILY TRAFFIC - 1966**



**LEGEND**

- 0 TO 2000 ————
- 2000 TO 4000 ————



**GRAPHIC SCALE**

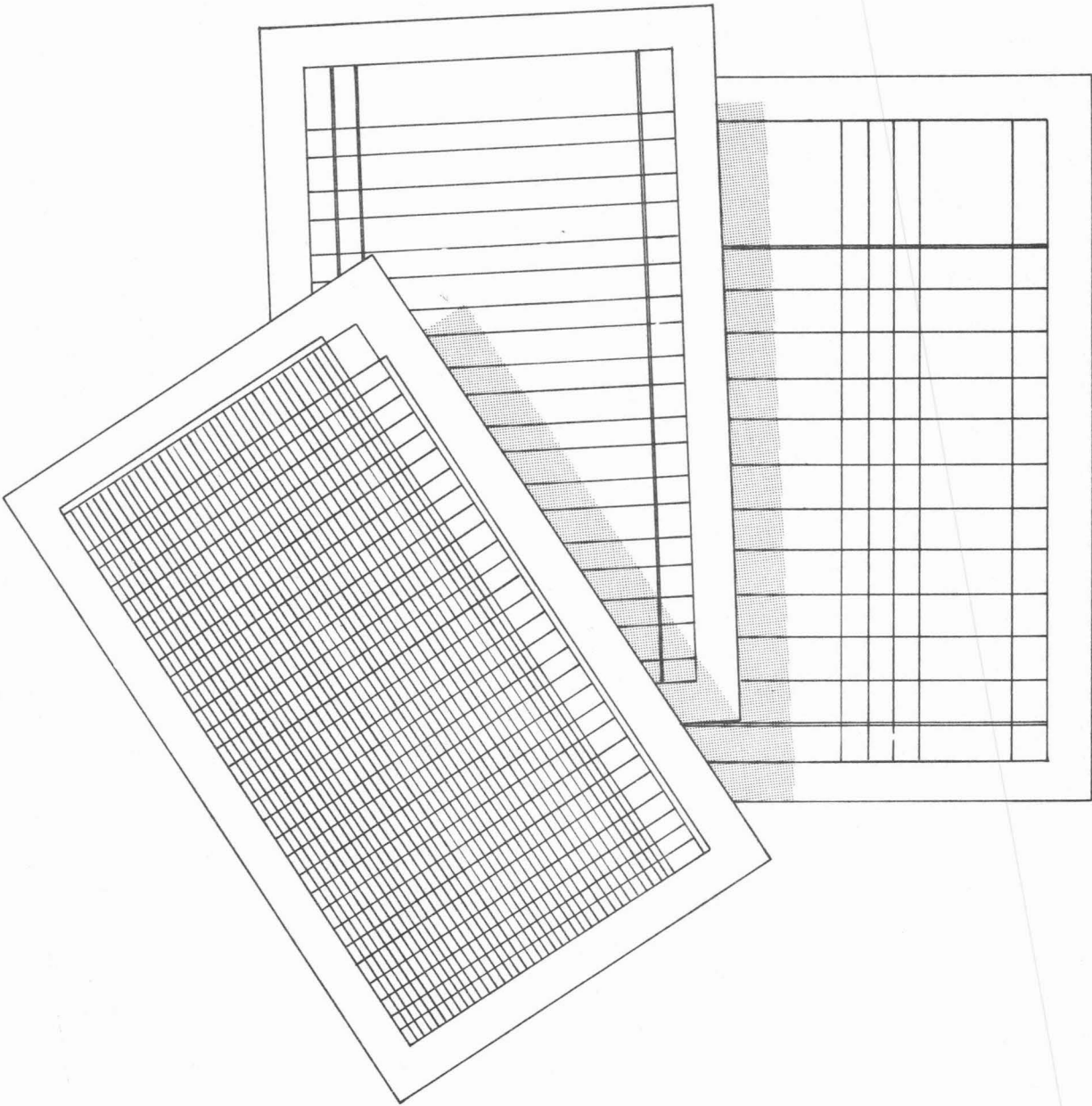
- 4000 VEHICLES
- 2000 VEHICLES
- 1000 VEHICLES







# Appendix







# PELLA STUDY AREA

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

EXPANDED TO AVERAGE JULY WEEKDAY TRAFFIC - 1966

TABLE E-2

Tract or Station	C.B.D.																								Pella Total	FAS 639 North	FAS 620 East	Iowa 163 Southeast	Local Road South	FAS 636 Southwest	FAS 669 West	Iowa 163 Northwest	External Total	Grand Total	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												
C.B.D.	1																									314	189	340	55	234			324	1456	1456	1
	2																									50	19	48	2	36			36	191	191	2
	3																									82	48	68	12	67			75	352	352	3
	4																									34	5	36	4	36			54	169	169	4
	5																									56	38	113	31	55			81	374	374	5
	6																									10	17	58	9	19			82	195	195	6
	7																									56	30	49	13	41			43	232	232	7
	8																									47	9	62	9	40			51	218	218	8
	9																									22	12	9	7	12			20	82	82	9
	10																									105	56	78	6	68			83	396	396	10
	11																									2		1		1			1	5	5	11
	12																									11	8	10	2	3			5	39	39	12
	13																									24	7	22		13			30	96	96	13
	14																									116	48	247	41	123			148	723	723	14
	15																									143	51	288	97	270			192	1041	1041	15
	16																												1				1	1	16	
	17																									35	27	42	5	44			53	206	206	17
	18																									33	17	18	1	10			24	103	103	18
	19																									41	6	40	6	29			49	171	171	19
	20																																			20
	21																									2		3					5	5	5	20
	22																																			21
	23																									22	3	24	3	6			13	71	71	22
	24																									20	2	16		6			14	58	58	23
																										1							1	1	1	24
Pella Total																										1225	593	1572	303	1114		1378	6185	6185	Total	
701, FAS 639 North																											39	113	24	59		80	315	1540	701	
702, FAS 620 East																													3	17	21	55	135	728	702	
703, Iowa 163 Southeast																													15	73	1684	1898	3460	703		
704, Local Road South																														3		22	81	384	704	
705, FAS 636 Southwest																															3				705	
706, FAS 669 West																															68	224	1338	706		
707, Iowa 163 Northwest																																			707	
External Total																																1909	3287	707		
Grand Total																																4552	10737	16922		
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	Total	701	702	703	704	705	706	707	Ext. Total	Grand Total		

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PELLA STUDY AREA

TRIP PURPOSE OF EXTERNAL TRIPS  
EXPANDED TO AVERAGE JULY WEEKDAY TRAFFIC - 1966

Table B-2a(1) External Local Trips

Station	701	702	703	704	705	706	707	Total Traffic	Total Trips
	F.A.S. 639 North	F.A.S. 620 East	Iowa 163 Southeast	Local Road South	F.A.S. 636 Southwest	F.A.S. 669 West	Iowa 163 Northwest		
Work	262	140	374	63	356		260	1455	1455
Personal Business	188	73	164	55	132		214	826	826
During Work	298	139	261	91	174		308	1271	1271
Medical or Dental	51	17	40	3	12		26	149	149
School	6	3	14	2	3		18	46	46
Social or Recreation	230	140	480	57	317		374	1598	1598
Eat	32	4	49	8	25		22	140	140
Shop	99	45	152	15	55		122	488	488
Serve Passengers	59	32	38	9	40		34	212	212
Total Traffic	1225	593	1572	303	1114		1378	6185	
Total Trips	1225	593	1572	303	1114		1378		6185

Table B-2a (2) External Through Trips

Station	701	702	703	704	705	706	707	Total Traffic	Total Trips
	F.A.S. 639 North	F.A.S. 620 East	Iowa 163 Southeast	Local Road South	F.A.S. 636 Southwest	F.A.S. 669 West	Iowa 163 Northwest		
Work	54	28	128	5	56		130	401	200
Personal Business	64	19	233	14	22		226	578	289
During Work	91	48	855	35	49		878	1956	978
Medical or Dental	2	1	14	1	2		11	31	16
School		1	22				23	46	23
Social or Recreation	66	32	551	21	82		556	1308	654
Eat	1		15	3	6		5	30	15
Shop	34	4	54	1	5		60	158	79
Serve Passengers	3	2	16	1	2		20	44	22
Total Traffic	315	135	1888	81	224		1909	4552	
Total Trips	157	68	944	40	112		955		2276

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

Station	701	702	703	704	705	706	707	Total Traffic	Total Trips
	F.A.S. 639 North	F.A.S. 620 East	Iowa 163 Southeast	Local Road South	F.A.S. 636 Southwest	F.A.S. 669 West	Iowa 163 Northwest		
Work	316	168	502	68	412		390	1856	1655
Personal Business	252	92	397	69	154		440	1404	1115
During Work	389	187	1116	126	223		1186	3227	2249
Medical or Dental	53	18	54	4	14		37	180	165
School	6	4	36	2	3		41	92	69
Social or Recreation	296	172	1031	78	399		930	2906	2252
Eat	33	4	64	11	31		27	170	155
Shop	133	49	206	16	60		182	646	567
Serve Passengers	62	34	54	10	42		54	256	234
Total Traffic	1540	728	3460	384	1338		3287	10737	
Total Trips	1382	661	2516	343	1226		2333		8461

PELLA 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	1.000	1.451	1.000	1.000		1.878	1.368	1.000	1.000	1.571	1.568
Personal Business	1.140	1.187	1.290	1.000		1.742	1.949	5.000		1.692	1.646
During Work		1.340	1.255			2.000	1.501			1.000	1.252
Medical or Dental	1.495								2.000	2.015	1.994
School		4.000			4.000	3.152			4.328	1.762	2.609
Social or Recreation	1.336	1.590			3.000	2.838	4.000	2.011	5.321	2.578	2.606
Eat	1.390		1.000			3.403				2.440	2.076
Shop			1.000			2.402		1.000		1.958	1.970
Serve Passengers	1.000	2.000				3.370			1.000	1.949	2.033
Home	1.462	1.637	1.370	2.188	1.620	2.624	2.248	2.148	2.652		2.083
Average Occupancy	1.454	1.621	1.253	2.157	1.893	2.633	2.011	2.148	2.714	2.010	1.990

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Table B-3a(2) EXTERNAL THROUGH TRIPS

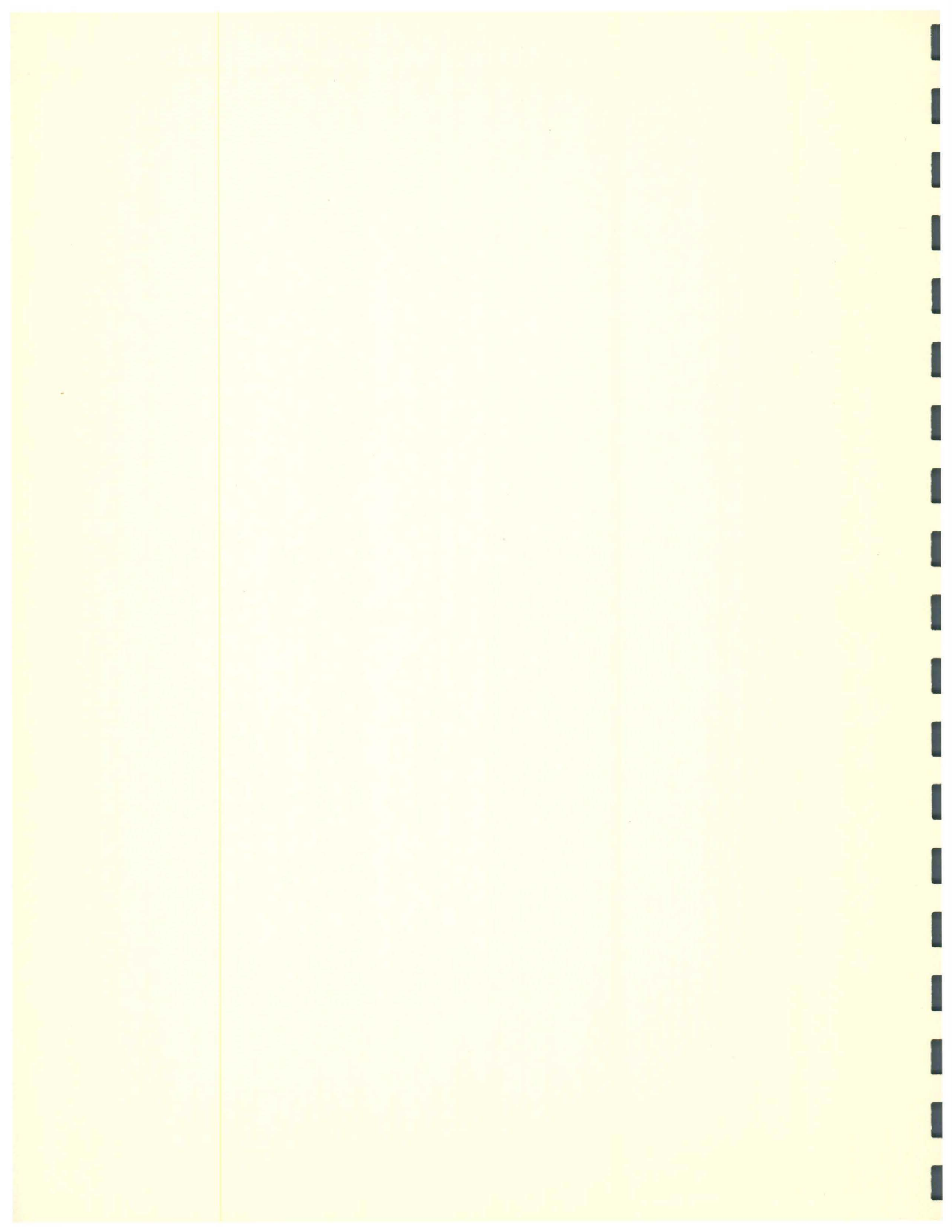
Trip Purpose Origin	TRIP PURPOSE DESTINATION										
	Work	Personal Business	During Work	Medical or Dental	School	Social or Recreation	Eat	Shop	Serve Passengers	Home	Average Occupancy
Work	1.000					2.000				1.496	1.499
Personal Business	1.508	1.437				6.000				1.794	1.782
During Work	1.000	1.331	1.326			1.000	1.668			1.306	1.325
Medical or Dental										1.917	1.917
School						1.788				1.502	1.559
Social or Recreation		1.000	1.000			2.775	4.000	6.000		2.626	2.667
Eat	3.000					5.000				2.622	2.894
Shop						2.000		2.508		2.586	2.569
Serve Passengers									6.000	3.092	3.371
Home	1.380	1.742	1.907	3.094	2.732	2.815	2.499	2.540	3.199		2.398
Average Occupancy	1.390	1.715	1.367	3.094	2.732	2.803	2.430	2.589	3.305	2.166	2.088

Table Ba(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	1.451	1.000	1.000		1.884	1.368	1.000	1.000	1.563	1.561
Personal Business	1.185	1.270	1.290	1.000		2.207	1.949	5.000		1.719	2.485
During Work	1.000	1.337	1.289			1.651	1.535			1.207	1.288
Medical or Dental	1.495								2.000	2.004	1.985
School		4.000			4.000	2.792			4.328	1.665	2.306
Social or Recreation	1.336	1.543	1.000		3.000	2.809	4.000	2.573	5.321	2.590	2.623
Eat	1.465		1.000			3.547				2.463	2.148
Shop			1.000			2.383		1.749		2.017	2.027
Serve Passengers	1.000	2.000				3.370			2.640	2.040	2.135
Home	1.454	1.668	1.673	2.268	2.008	2.680	2.277	2.210	2.708		2.153
Average Occupancy	1.448	1.648	1.307	2.239	2.159	2.684	2.054	2.218	2.771	2.041	2.014







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