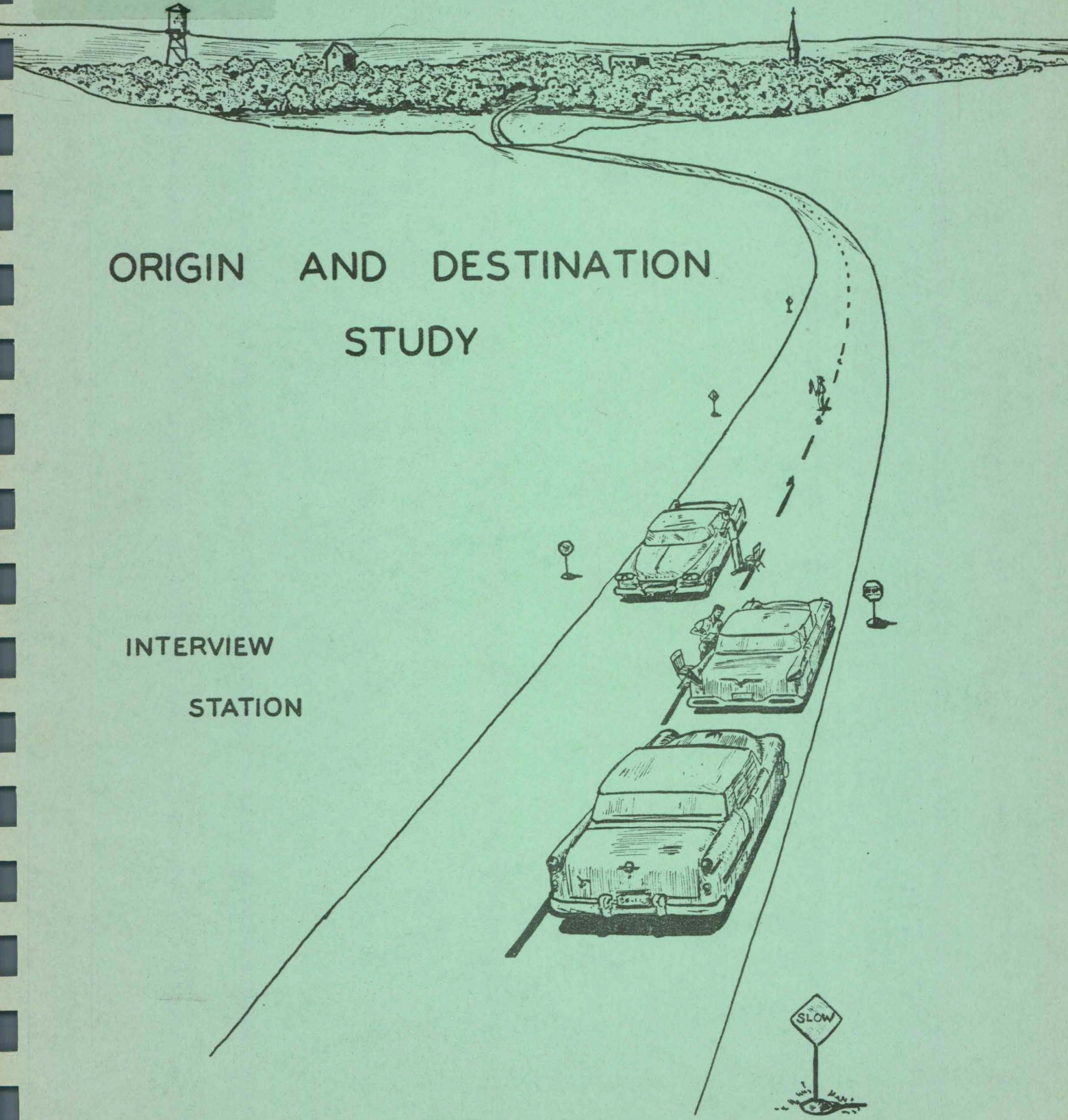


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ONAWA

ORIGIN AND DESTINATION STUDY

INTERVIEW
STATION



Onawa Corporate Area
Origin and Destination
Traffic Survey

May 1959

Prepared By
Highway Planning Section
Safety and Traffic Department
Iowa State Highway Commission
In Cooperation With the
United States Bureau of Public Roads

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DEFINITIONS

Urban Area

An area including and adjacent to a municipality or other urban place of 5,000 or more population as shown by the latest available census.

Corporation Line

A hypothetical line delimiting the municipal area and often called the City Limits.

Urban or Corporate Area Traffic Survey

A survey of highway travel designed to collect detailed information concerning trip origins and destinations within a selected urban or corporate area.

External Survey

A study in which trip data is obtained by interviewing motor vehicle operators intercepted at external stations.

External Station

An interview point located on a principal rural highway which crosses the corporation or urban area line. It is always set up outside of the urban or corporate area, but as close as is practical and possible to the line delimiting this area.

Tract

One of the several homogeneous sections into which the study area is divided.

Central Business District (CBD)

The section containing the concentrated commercial and retail business center, in most cases, tract 001.

Trip

A one-way journey between a point of origin and a point of destination.

Origin

The stated beginning point of a single trip.

Destination

The stated terminating point of a single trip.

External Local Trip

A trip with either the point of origin or the point of destination located within the corporate limits, the performance of which trip involves travel through an external interview station.

External Through Trip

A trip with both points of origin and destination located outside the corporate limits, the performance of which trip involves travel through an external interview station and into, through, and out of the corporate or urban area.

Duplicated Through Trips (Duplicates)

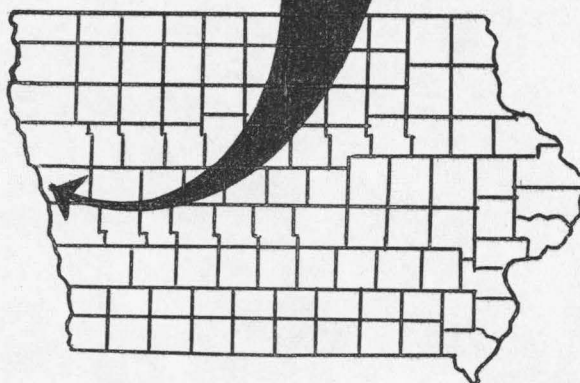
Trips traveling completely across the urban or corporate area, and thereby passing through two interview stations.

Average Weekday

This includes Monday through Friday inclusive.

PART I
SUMMARY

ONAWA

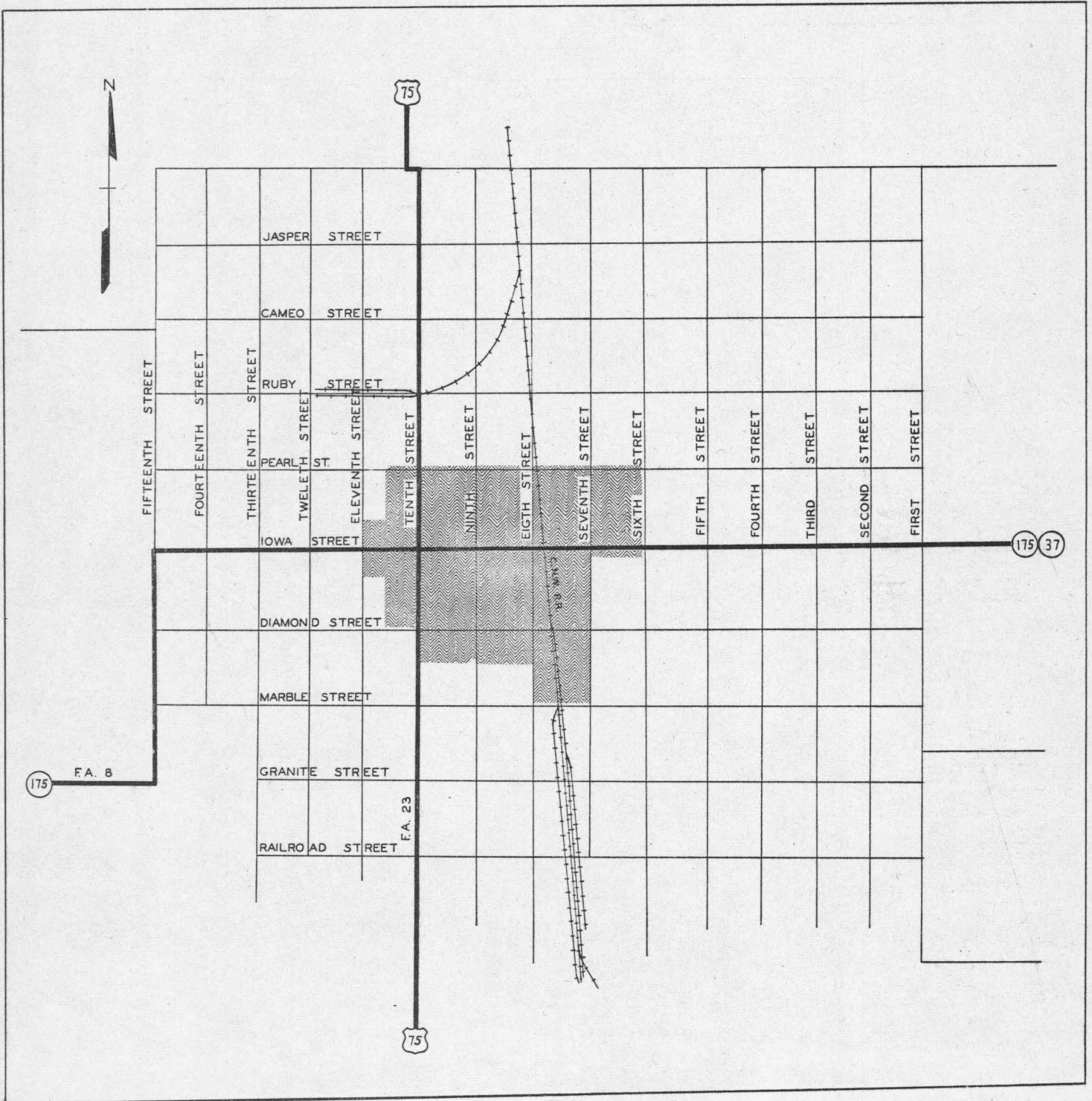


This report of the Onawa Corporate Area Traffic Survey describes briefly the characteristics of the corporate area pertinent to the local problem of highway transportation and presents and analyzes the data gathered in the survey. All trip data obtained in the survey are presented in terms of the number of trips per day. They are classified by the origins and destinations of these trips and by the areas within the city, to which and from which they were made. The only information obtained was from those trips crossing the city limits, and this was done by maintaining roadside interview stations at the entrances of the principal rural highways into the city. These trips, for which the data were obtained, may be defined as "rural trips." Knowledge of the number of "urban trips" or "intra-city trips" is not available in this external type survey.

For this particular study, information was gathered by interviewing 96.87 per cent of the average weekday traffic. After the expansion of this information it was found that for an average weekday in April 1959, a total of 4,911 trips crossed the Onawa city limits. Out of this total 33.02 per cent were classified as external through trips which passed via the central business district.

Of all trips passing through the interview stations 34.78 per cent had termini in the central business district. However, another 10.60 per cent of the total had termini in the residential and intermediate areas between the station and the central business district. In addition to this, 21.60 per cent of the total trips passing through the interview stations had routes via and termini beyond the central business district.

PART II
HISTORY AND CHARACTERISTICS
CITY OF ONAWA



A. HISTORY

A Mormon leader, Charles B. Thompson, and his charge of sixty families located near the Soldier River in 1854. They settled in Spring Valley Township about fifteen miles from the later-established Onawa town-site.

In 1857 Onawa was platted by the Monona Land Company. This group was organized for the purpose of "promoting the growth of Onawa, Monona County, Iowa, and establishing a ferry on the Missouri River." Its capital stock consisted of 250 shares at \$500 each, with each shareholder being bound under the articles of incorporation to build a frame house or store building with at least three windows and a shingle roof. Log or pole construction was not permitted. About 600 acres were included in the original town and an additional 600 acres of out-lots were outlined by the survey.

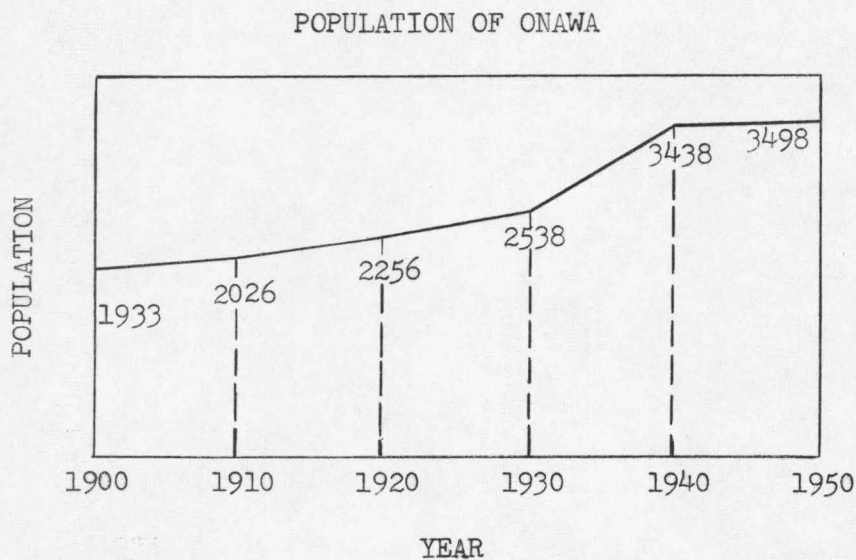
Timothy Elliott selected Onawa, and Indian word meaning "wide awake", as the town's name. Among the early settlers arriving in Onawa were R.G. Fairchild, J.E. Morrison, S.S. Pearse, and Judge C.E. Whiting. Many of them came from eastern Iowa and Illinois.

In July 1857 the first house in the community was erected by S.S. Pearse, and that same month the frame was raised for the Onawa House. This was the first hotel in town and was operated by J.E. Morrison. Also, in 1857, Charles B. Thompson published the first edition of the Onawa Adventure. Previous to this, Thompson published a newspaper called Zion's Harbinger and Weekly Messenger.

In 1858 the Monona County seat, originally located at Ashton, just north of Onawa, was moved to a new courthouse in Onawa. Valued at

\$7,000 and constructed a native cottonwood lumber, the courthouse was also used as a community meeting place.

The Congregational Church Society was organized in June 1858. Three years later the Monona Union Guards were organized to defend the community against Indian attack. On September 12, 1867, Vesper Lodge No. 223, AF and AM, organized and was the first fraternal organization in Onawa. Another community group, the Cornet Band, was organized in 1872. By 1900, there were 1933 residents in the town. Population growth since the turn of the century is illustrated below.



B. CHARACTERISTICS

Onawa is geographically located in west-central Iowa and is situated in the flat terrain of the Missouri River valley 36 miles south of Sioux City. The general configuration of the incorporated area of Onawa is a one and one-half mile by three mile rectangle with

the longer dimension running east and west. Onawa's central business district is located west of the center of the corporate boundaries. An outstanding characteristic of the city is the width of its originally platted streets. They were established 80 feet wide with Iowa Street platted 150 feet in width.

Onawa has a numerous variety of industries, both large and small. Some of the products manufactured are bow ties, fertilizers, gemstone jewelry, irrigation systems, leather goods, novelties, prefabricated buildings, and western ties.

Transportation facilities include the Chicago and Northwestern Railroad, which runs north and south across the central business district and connects the city with Omaha and Sioux City. A branch line runs from Onawa to Carroll. Highway U.S. 75 runs north and south across the city. It intersects east and west routes Ia. 175 and Ia. 37 in the west part of the central business district.

PART III SURVEY PRESENTATION

Municipal
Traffic Surveys
Origin and Destination Operations

Section I Procedures for collection of data
Instructions to Field Personnel

1. **Purpose and Scope**
The origin and destination traffic survey of sections of an urban area. Research in traffic this may be done by interviewing motor vehicle operators in the area, whether they are in the whole urban area. These instructions to field personnel in conducting the interview concern about the survey area.

2. **Location of Stations**
The origin and destination interviews will be conducted at stations on highways entering the area. The exact location of stations will be determined by the field supervisor in cooperation with the city engineer.

3. **Operating Schedule**
Each station will be open for 8 hour working periods, one or two days a week, during the survey period. All traffic passing the station during the survey period will be recorded. Both sides of the street will be covered. A portable external survey station is required to be used at each station.

4. **Summary**
A summary report should be prepared for each station. The report should include the number of vehicles observed, the number of vehicles entering the area, the number of vehicles leaving the area, and the number of vehicles making trips within the area.

IOWA STATE HIGHWAY COMMISSION
DEPARTMENT OF SAFETY AND TRAFFIC
QUESTIONNAIRE AND CODING SHEET FOR EXTERNAL ORIGIN AND DESTINATION DATA
URBAN AREA TRAFFIC SURVEYS

STATION NO. _____ DATE _____

CITY _____ OF _____

SHEET _____ OF _____

INTERVIEWER _____

ROAD NUMBER	TYPE OF VEHICLE	REGISTRATION		NUMBER OF OCCUPANTS	ORIGIN	DESTINATION	OLD AND NEW REGISTRATION	TYPE OF TRIP	PURPOSE	MOTOR USED
		Make	Classify							

ROAD NUMBER	TYPE OF VEHICLE	REGISTRATION		NUMBER OF OCCUPANTS	ORIGIN	DESTINATION	OLD AND NEW REGISTRATION	TYPE OF TRIP	PURPOSE	MOTOR USED
		Make	Classify							
100	Automobile	Chevrolet	Passenger	2	Des Moines	Des Moines	1958	Local	Business	Motor
101	Automobile	Ford	Passenger	1	Des Moines	Des Moines	1958	Local	Business	Motor
102	Automobile	Ford	Passenger	1	Des Moines	Des Moines	1958	Local	Business	Motor
103	Automobile	Ford	Passenger	1	Des Moines	Des Moines	1958	Local	Business	Motor
104	Automobile	Ford	Passenger	1	Des Moines	Des Moines	1958	Local	Business	Motor
105	Automobile	Ford	Passenger	1	Des Moines	Des Moines	1958	Local	Business	Motor
106	Automobile	Ford	Passenger	1	Des Moines	Des Moines	1958	Local	Business	Motor
107	Automobile	Ford	Passenger	1	Des Moines	Des Moines	1958	Local	Business	Motor
108	Automobile	Ford	Passenger	1	Des Moines	Des Moines	1958	Local	Business	Motor
109	Automobile	Ford	Passenger	1	Des Moines	Des Moines	1958	Local	Business	Motor
110	Automobile	Ford	Passenger	1	Des Moines	Des Moines	1958	Local	Business	Motor

Urban Area
Origin and Destination
Traffic Survey

FINAL REPORT

March 1959

Prepared by
Highway Planning Survey Division
Safety and Traffic Department
Iowa State Highway Commission
In Cooperation with the
United States Bureau of Public Roads

A. INTRODUCTION

Part III of this report describes briefly the purposes and objectives, procedures, and findings of the Onawa Corporate Area Traffic Survey. Summaries and illustrations of the significant data classifications are included. All information was collected during the period of April 21 to 24, 1959. It is reported in terms of the number of trips daily on an average April weekday in 1959 and classified by trip origins and destinations.

B. PURPOSES AND OBJECTIVES

The purposes of this survey were to determine the origin, destination, and number of daily trips into, out of, and through the corporate area. Ultimate objectives were to assemble and present, as clearly as possible, the traffic patterns and volumes as they exist. This presentation reveals the amount of street congestion which may be attributed to through highway travelers, and the exact routes by which these travelers enter and exit the corporate area. It will also assist city officials and highway administrators in determining the location and type of street or highway improvements necessary to alleviate particular traffic problems.

C. PROCEDURES

The data for the determination of the origin and destination of all trips were gathered through roadside interviews of motor vehicle operators. These interviews were obtained at the external stations located on each rural road entrance to the city. All vehicles were stopped as they passed through the station and the motor vehicle

operator was asked the purpose, origin, and destination of this particular trip. The interviewers also recorded for each vehicle, from visual inspection, other data such as the type, the place of registration, and the number of passengers.

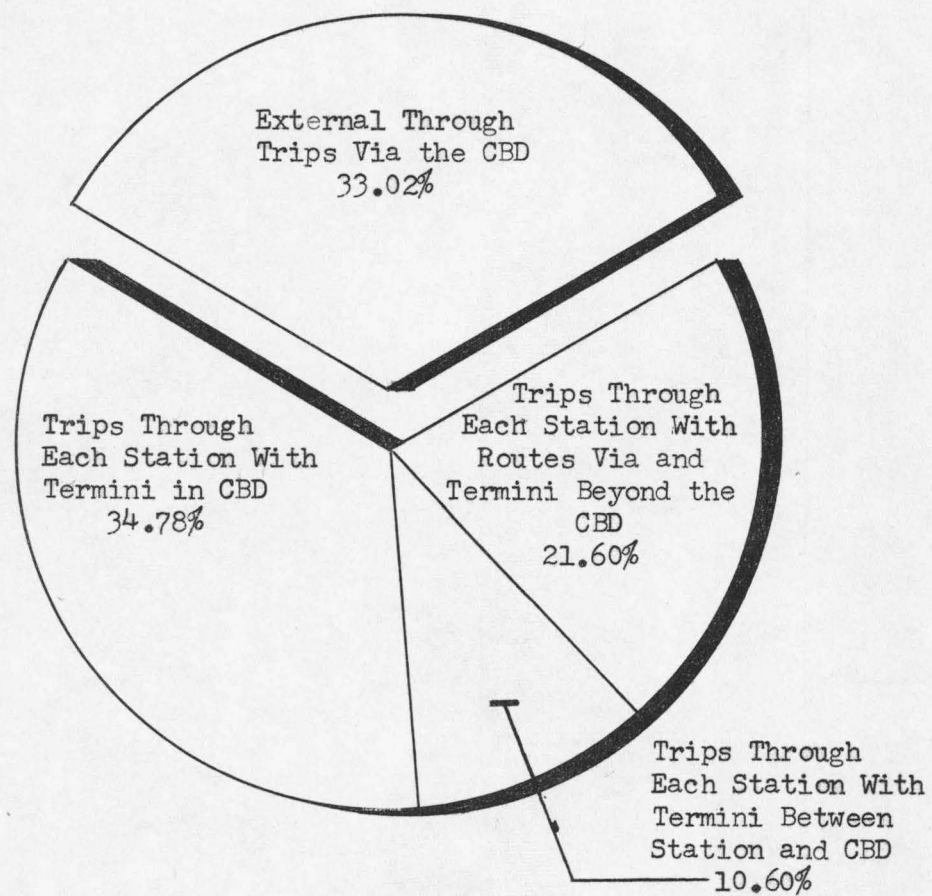
Each interview station was operated for 16 hours starting at 6 am and ending at 10 PM. This scheme of operation provided for coverage of all but a small portion of the trips passing through each station in the twenty-four hour day. This small portion of traffic was accounted for by portable automatic traffic recorders which were operated continuously at each station for the entire period of the survey. Factors obtained by using these recorder tapes provided means for converting all of the data to average twenty-four hour weekday values. The information gathered was then coded and punched on I.B.M. cards to expedite tabulation.

D. FINDINGS

Most of the significant findings of this survey have been summarized in the ensuing tables and charts. Any other combinations of related material may be found by referring to the trip tabulation sheet in the appendix.

Three traffic flow diagrams will be found in appropriate locations throughout the presentation of the findings. The first one encountered merely gives a pictorial view of the entire traffic pattern within the area. A traffic flow map depicting all external through trips will be found next, immediately following the external through trip table. The third and final flow diagram is found following the group of tables relating all of the external local trips to their termini.

The following illustration represents a net total trip summarization and percentage distribution of the termini for all trips passing through the external interview stations on an average weekday in April 1959. It should be noted that the few external through trips having termini on non-primary rural roads, as listed on the trip tabulation sheet in the appendix, are all included with the external local trips.



1. Traffic and Interview Summary:

By using the previously explained procedures, the information in the following table was obtained. The external stations are listed with the total traffic passing each station, the total number of interviews taken at each station, and the per cent that this interview figure is of the total traffic figure. This information is all based on the flow of traffic for an average weekday in April 1959.

Table 1 Traffic Entering or Leaving the Onawa Corporate Area by Way of the Principal Rural Road Entrances						
External Station Location	Average Weekday Traffic-April 1959				No. of Inter- views Taken	Per Cent Inter- viewed
	Passenger Cars and Pick-ups	Single Unit Trucks	Truck Combi- nations	Total		
US 75 N	1,866	195	332	2,393	2,262	94.53
Ia 39-175 E	1,051	155	42	1,248	1,161	93.03
US 75 S	1,420	196	293	1,909	1,793	93.92
Ia 175 W	574	120	20	714	852	119.33
Total	4,911	666	687	6,264	6,068	96.87

5

2393

PEARL

ST.

ST.

ST.

ST.

ST.

COURT HOUSE SQUARE

4973

2561

4498

4382

3829

3602

3250

1248

175

37

175

714

3810

9 TH.

8 TH.

7 TH.

6 TH.

GRANITE

2291

ST.

2071

CORP.

LINE

1909

75

TOWN OF ONAWA

APRIL AVERAGE WEEKDAY TRAFFIC 1959

MONONA COUNTY



-14-

LINE

CORP.

LINE

CORP.

2. External Through Trips Via
the Central Business District:

Table 2 presents a very good comparison between the total trips passing through each external station and the number or per cent of these trips which pass directly through the corporate area via the central business district. This same relationship is again presented both numerically and on a percentage basis for the summation of all trips through all stations. From this presentation it is shown in the following table that 1,555 trips, or 33.02 per cent of the total trips passing through all external stations, were external through trips traveling via the central business district.

External Station Location	Total Trips Through Station	Through Trips Via the CBD	
		Number	Per Cent of Total
US 75 N	2,393	1,366	57.08
Ia 37-175 E	1,248	434	34.78
US 75 S	1,909	1,131	59.25
IA 175 W	714	179	25.07
Less Duplicates	1,555	1,555	100.00
Total	4,709	1,555	33.02

-16-

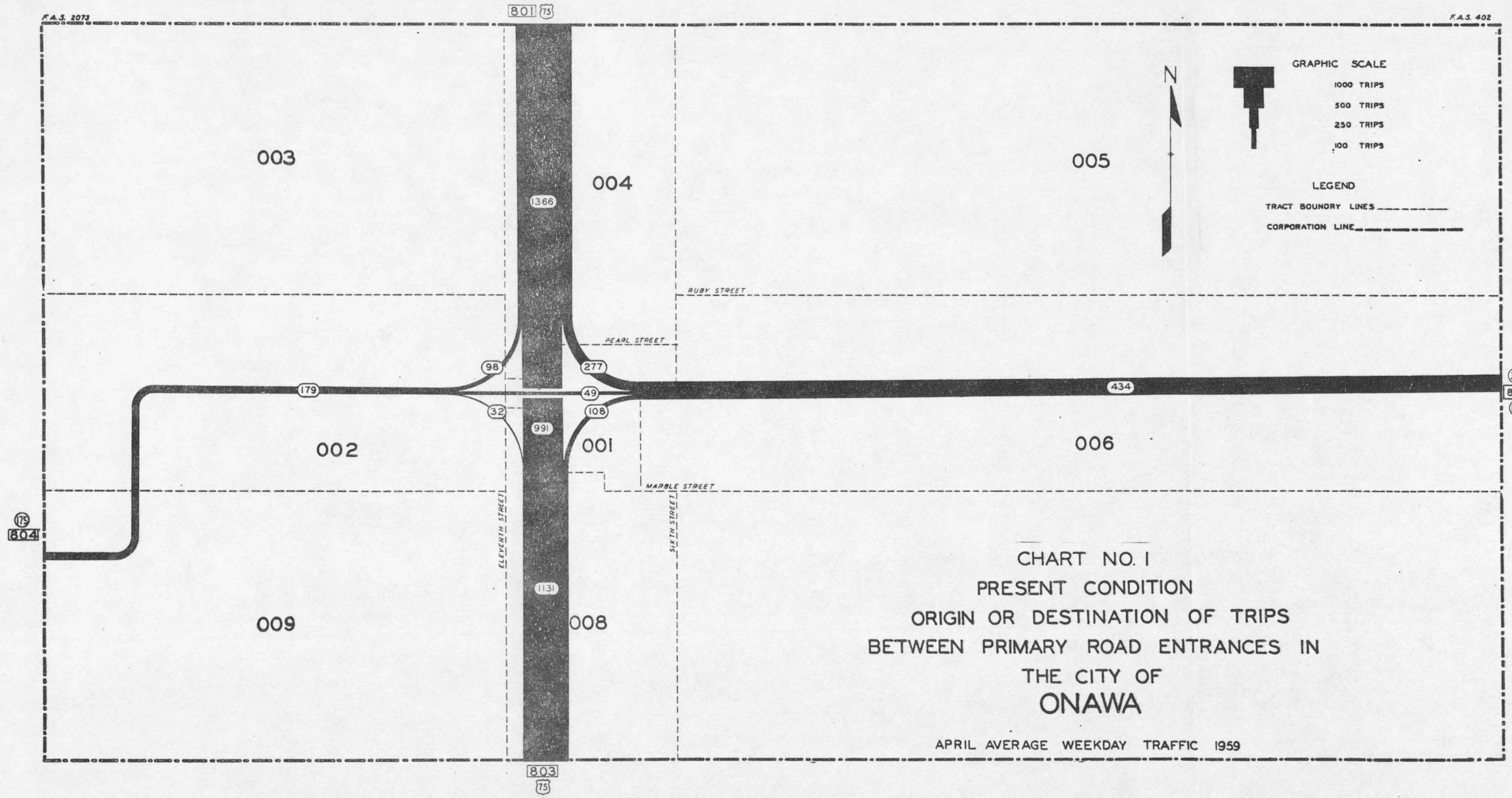


CHART NO. 1
 PRESENT CONDITION
 ORIGIN OR DESTINATION OF TRIPS
 BETWEEN PRIMARY ROAD ENTRANCES IN
 THE CITY OF
ONAWA

APRIL AVERAGE WEEKDAY TRAFFIC 1959

3. Trips Through Each Station With
Termini in the Central Business District:

Table 3 compares the total trips passing through each station with the percentage of these respective trips having termini in the central business district. It also relates the total of all trips passing through all of the stations to the number of these same trips having termini in the central business district. On this comparative basis 34.78 per cent of the total trips passing through all external stations fall into the above explained category.

Table 3 Trips Through Each Station With Termini in the Central Business District on an Average Weekday in April 1959			
External Station Location	Total Trips Through Station	Termini in the CBD	
		Number	Per Cent of Total
US 75 N	2,393	516	21.56
Ia 37-175 E	1,248	491	39.34
US 75 S	1,909	430	22.52
Ia 175 W	714	201	28.15
Less Duplicates	1,555	---	-----
Total	4,709	1,638	34.78

4. Trips Through Each Station With Termini
Between the Station and the Central Business District:

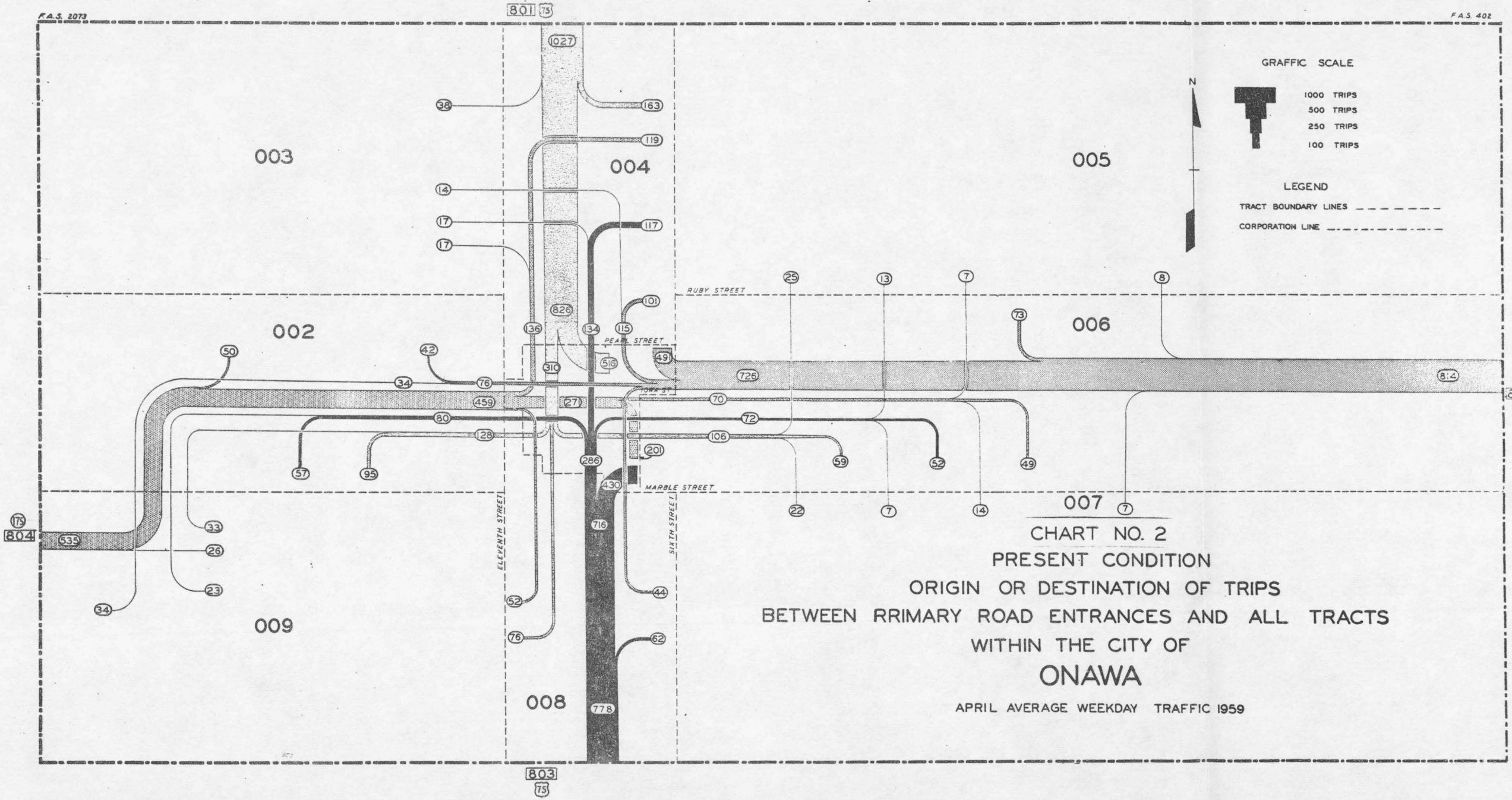
The information contained in Table 4 reveals a comparison of the total trips passing through each station and the percentage of these trips having termini in the residential and intermediate areas between that station and the central business district. In addition to this, the summation of the total trips passing through all of the external stations is compared to the percentage of these total trips having termini as explained above. These comparisons are pointed out both numerically and on a percentage basis. As can be seen from the table, 499 trips, or 10.60 per cent of the total trips passing through all of the external stations, had termini in the residential and intermediate areas between the stations and the central business district.

Table 4 Trips Through Each Station With Termini Between the Station and the Central Business District on an Average Weekday in April 1959			
External Station Location	Total Trips Through Station	Termini Between Station and CBD	
		Number	Per Cent of Total
US 75 N	2,393	226	9.45
Ia 37-175 E	1,248	88	7.05
US 75 S	1,909	92	4.82
Ia 175 W	714	93	13.03
Less Duplicates	1,555	--	-----
Total	4,709	499	10.60

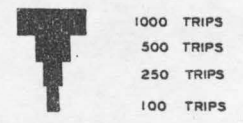
5. Trips Through Each Station With Routes Via
and Termini Beyond the Central Business District:

In Table 5 a comparison is made between the total trips passing through each external station, and the number and percentage of these trips which pass directly via and have their termini beyond the central business district. It can also be seen from the following table that 1,017 trips, or 21.60 per cent of all trips passing through all stations, travel directly via the central business district and have their termini beyond it. These comparisons are made both numerically and on a percentage basis for all of the routes listed.

External Station Location	Total Trips Through Station	Routes Via-Termini Beyond CBD	
		Number	Per Cent of Total
US 75 N	2,393	285	11.91
Ia 37-175 E	1,248	235	18.83
US 75 S	1,909	256	13.41
Ia 175 W	714	241	33.75
Less Duplicates	1,555	----	-----
Total	4,709	1,017	21.60



GRAPHIC SCALE



LEGEND

TRACT BOUNDARY LINES - - - - -
 CORPORATION LINE - - - - -

CHART NO. 2
 PRESENT CONDITION
 ORIGIN OR DESTINATION OF TRIPS
 BETWEEN PRIMARY ROAD ENTRANCES AND ALL TRACTS
 WITHIN THE CITY OF
ONAWA

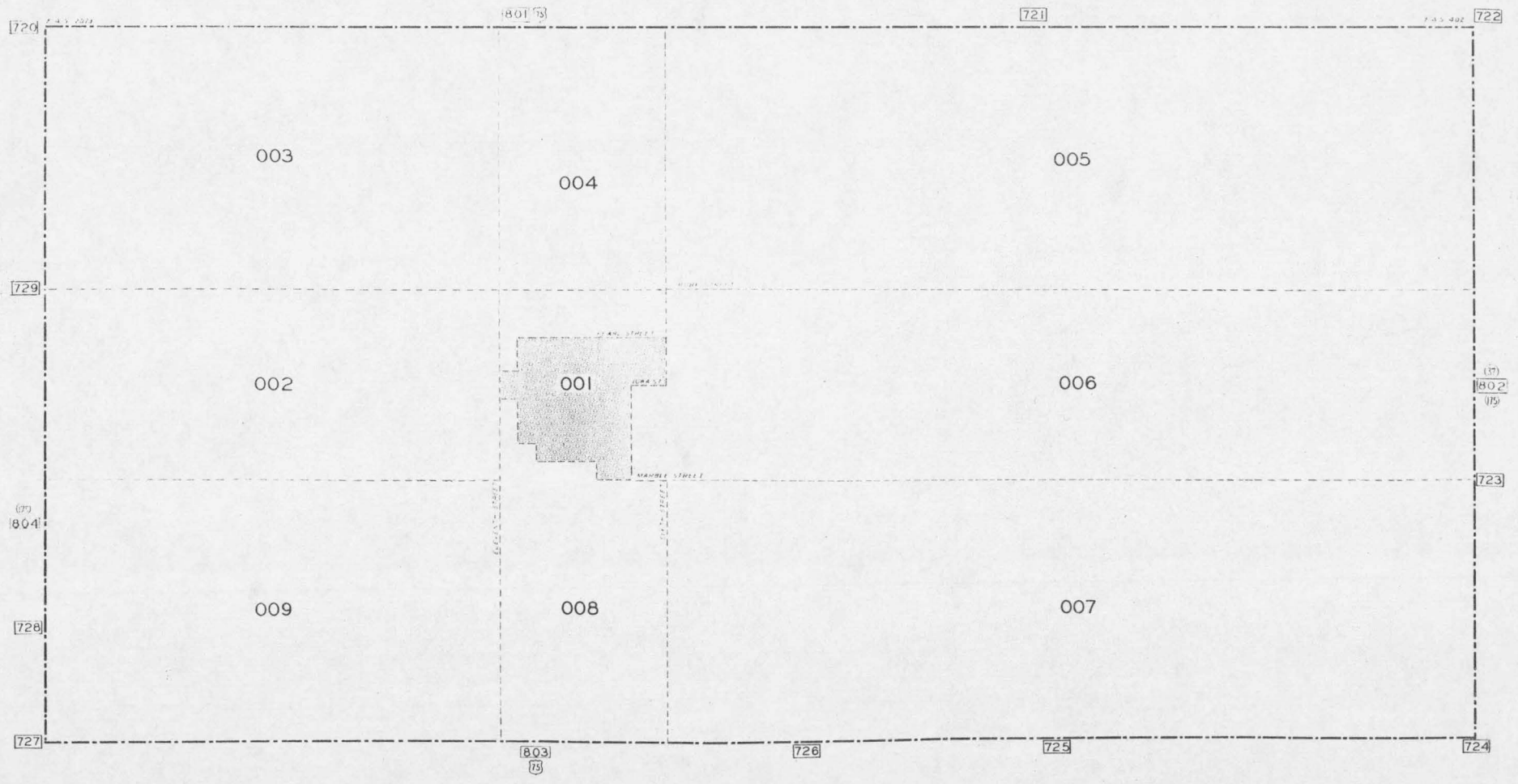
APRIL AVERAGE WEEKDAY TRAFFIC 1959

201

A P P E N D I X

TRACT MAP
OF
CITY OF ONAWA
WITH
EXTERNAL STATIONS

LEGEND
TRACT BOUNDARY LINES - - - - -
CORPORATION LINES - - - - -
EXTERNAL STATIONS - - - - -
CENTRAL BUSINESS DISTRICT - - - - -



1959 Onawa Origin and Destination
 Total Trips Through Station Located on
 U.S. 75 N, U.S. 75 S, Ia. 37 & 175 E and Ia. 175 W
 Average Weekday Traffic in April

		Onawa Incorporated Area									Onawa Total	External Area				External Area	Grand Total
		Central Business District	West	Northwest	North	Northeast	East	Southeast	South	Southwest		U.S. 75 N	Ia. 37 & 175 E	U.S. 75 S	Ia 175 W		
		Tract 001	002	003	004	005	006	007	008	009		01	02	03	04		
Tract	Trip Origin	Trip Destination															
001	Central Business District											243	245	200	103	791	791
002	West											49	15	32	23	119	119
003	Northwest											14	6	9	8	37	37
004	North											78	51	51	62	242	242
005	Northeast											15	2	5	4	26	26
006	East											32	40	25	30	127	127
007	Southeast											8	3	4	4	19	19
008	South											39	28	25	21	113	113
009	Southwest											15	13	14	16	58	58
Onawa Total												493	403	365	271	1532	1532
01	U.S. 75 N	273	46	24	85	10	27	14	37	18	534		83	458	15	556	1090
02	Ia. 37 & 175 E	246	27	8	50	6	33	4	16	21	411	194		53	24	271	682
03	U.S. 75 S	230	25	8	66	8	27	3	37	9	413	533	55		14	602	1015
04	Ia. 175 W	98	27	9	57	3	19	10	31	10	264	83	25	18		126	390
External Total		847	125	49	258	27	106	31	121	58	1622	810	163	529	53	1555	3177
Grand Total		847	125	49	258	27	106	31	121	58	1622	1303	566	894	324	3087	4709

