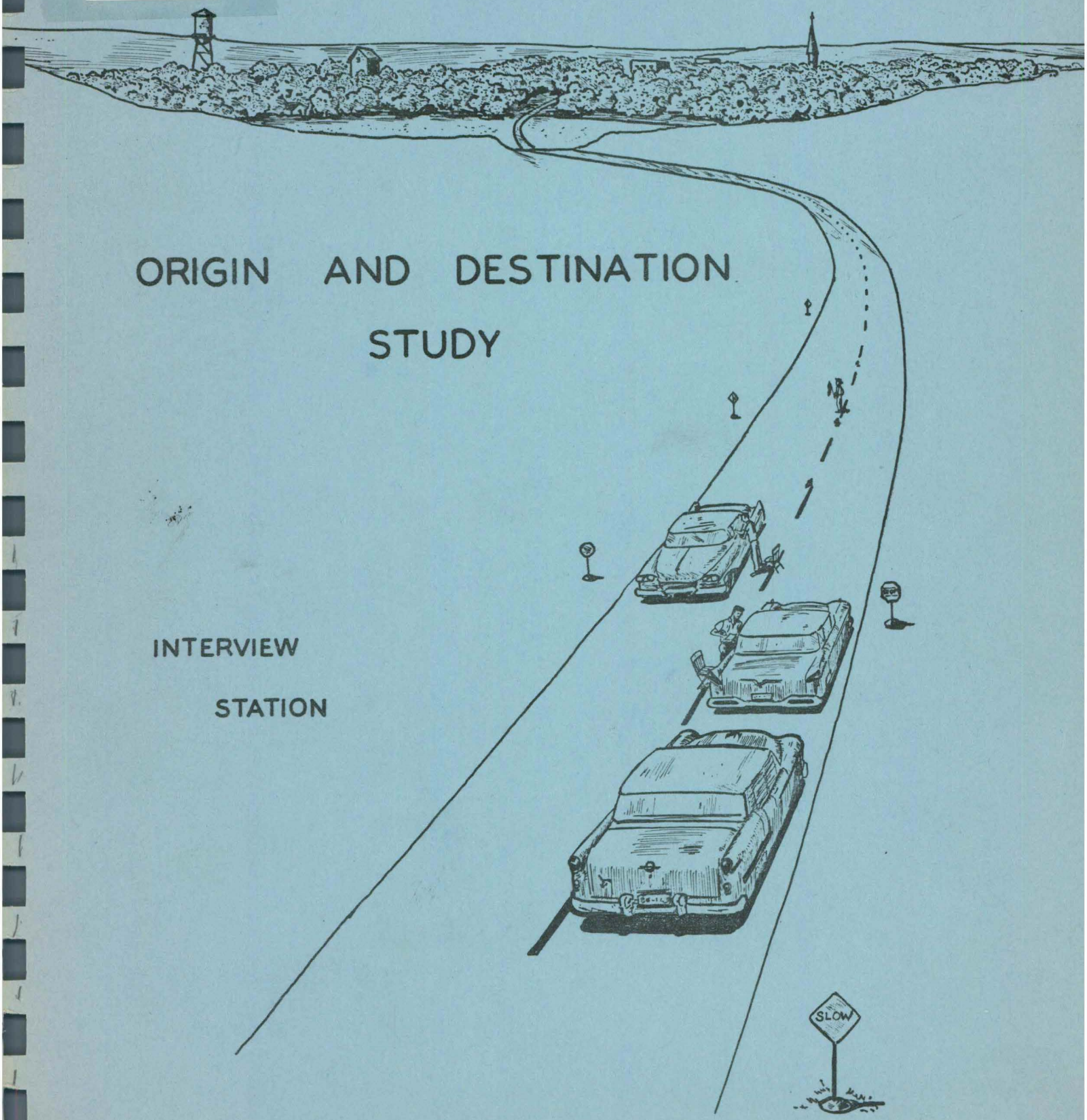
CHARLES CITY



ORIGIN AND DESTINATION STUDY

INTERVIEW STATION

Charles City Urban Area
Origin and Destination
Traffic Survey

April 1959

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

INDEX

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.

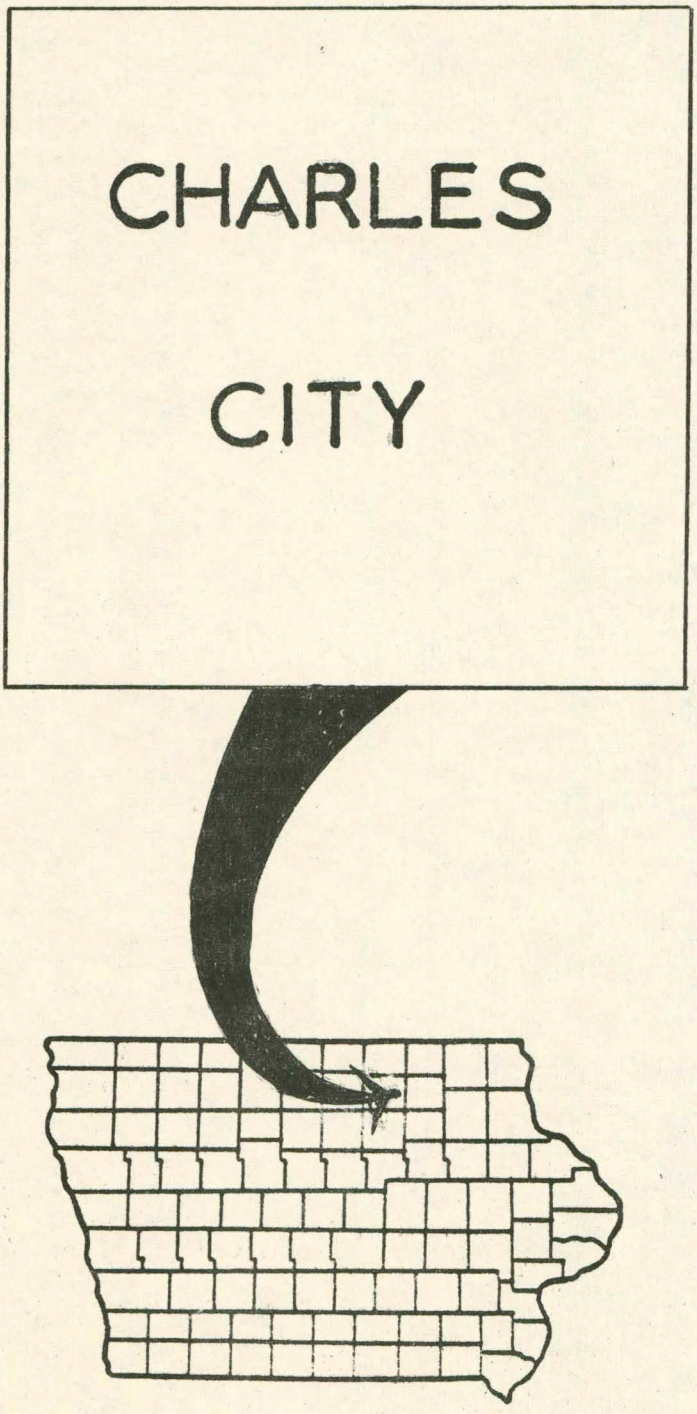
Duplicated Through Trips (Duplicates)

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



This report of the Charles City Urban Area Traffic Survey describes briefly the characteristics of the urban 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.

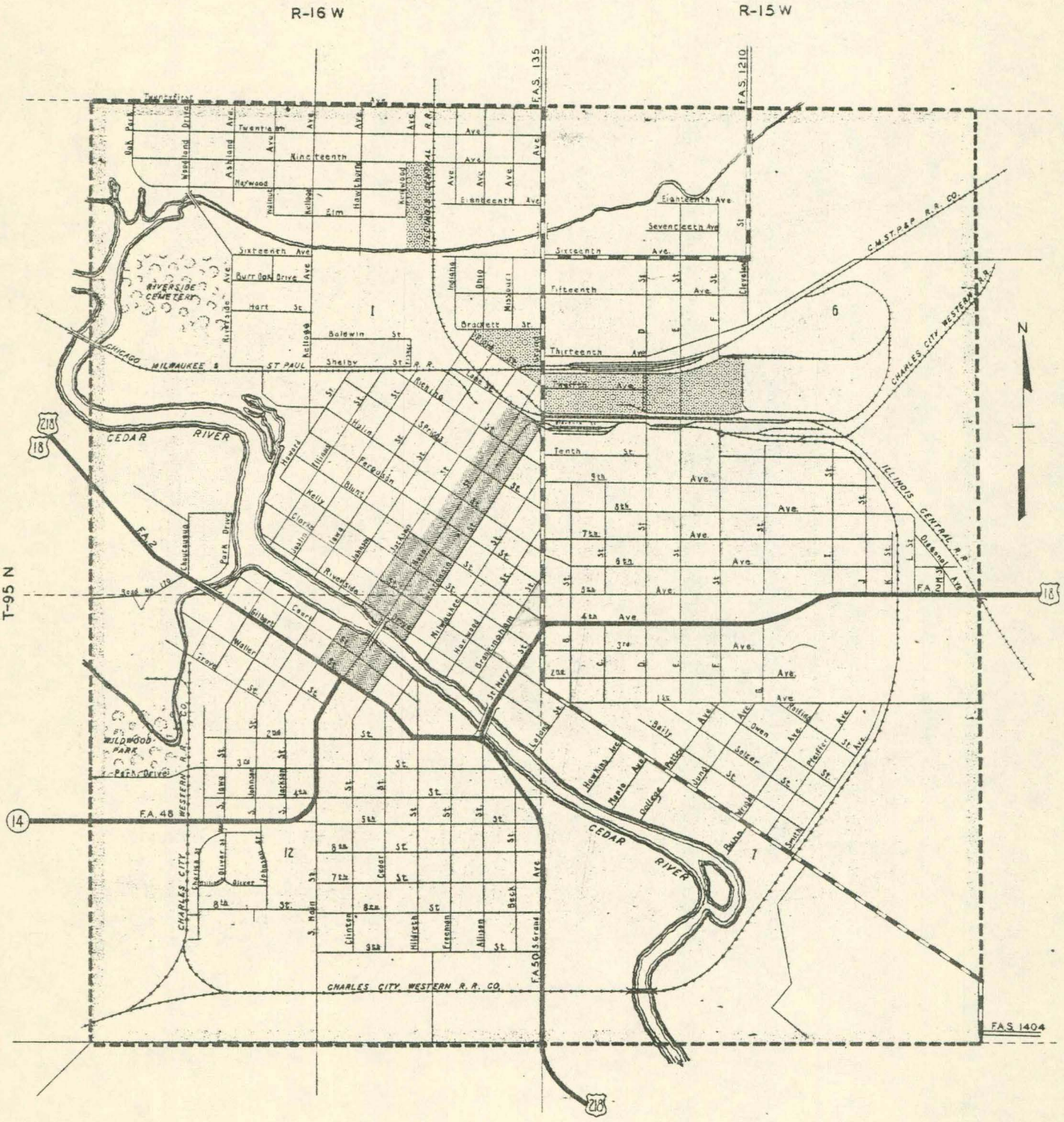
For this particular study, information was gathered by interviewing 89.20 per cent of the average weekday traffic. After the expansion of this information it was found that for an average weekday in July 1958, a total of 7,747 trips crossed the Charles City city limits. Out of this total 24.87 per cent were classified as external through trips, which passed via the central business district.

Of all trips passing through the interview stations 24.76 per cent had termini in the central business district. However, another 17.26 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 33.11 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

CHARLES CITY URBAN AREA



A. HISTORY

Joseph Kelly was the first white settler within the present bounds of Charles City. He selected the town-site on the banks of the Cedar River because of its ideal setting and availablility of water power. The river crossing there was known as the "Ford of the Cedar" and had been the location of a Winnebago Indian village until the inhabitants moved north to Minnesota.

In 1852 about 25 families arrived in the area. Among them was John Blunt, who built the first house on the east side of the river. Joseph Kelly's family came to join him in 1854, and they erected a cabin at the location of the present First Christian Church. Kelly also built a log dam and used the water power for a saw and grist mill. He furnished lumber to the early settlers of the area, and named the settlement Charlestown in honor of his 14-year old son, Charles. The original town of Charlestown was dedicated September 22, 1854, and the first hotel in the town opened that year in a log cabin. In 1855 a postmaster was selected, and a small school was opened.

Floyd County soon became organized and Charlestown was selected as county seat. The fact that there was another Iowa town called Charlestown was soon discovered, and so the name of the community was changed to St. Charles. The St. Charles Intelligencer, the town's original newspaper, sold its first copy July 31, 1856 at auction for twenty dollars. A flour mill also began production in 1856, using the river as a source of power. A court house, built in 1857, was a 50 by 70 foot, two-story structure which included a large fireproof stone vault. The entire building was reported to have cost $18,000 and since then has been twice replaced on

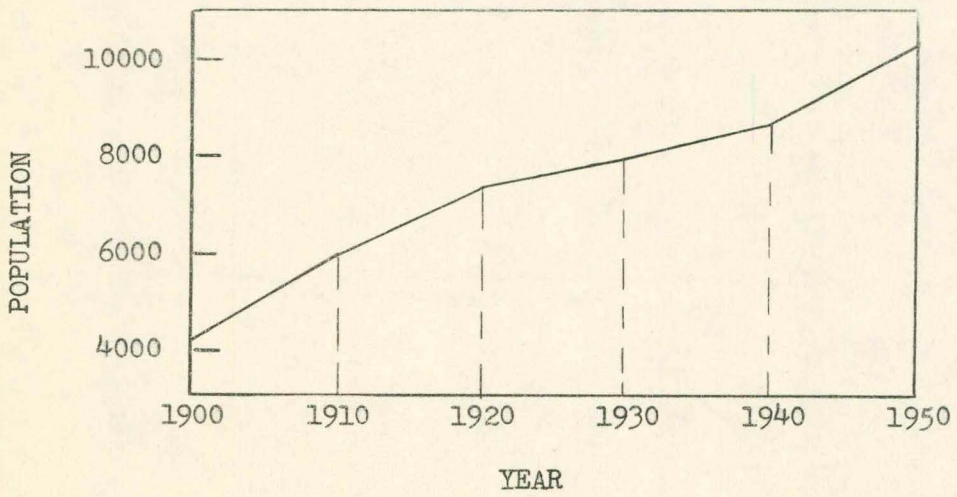
its original site.

A plow factory began production in 1859. In 1860, after finding that St. Charles was a duplication of an earlier Iowa Town's name, the townspeople re-named the community Charles City. The McGregor and Western Railroad reached the community in September 1869, connecting the town with McGregor. The city was incorporated that year, and a fire protection company was organized in 1881. In 1883 a telephone was installed for Charles Barrows, providing communication between the Union House and the Milwaukee Depot. A switchboard was placed in service in 1885.

It was in Charles City that Charles Hart and Charles Parr developed one of the first gasoline traction engines for agricultural and industrial use. This tractor was produced by them from 1901 to 1929 and continued by their successors.

Charles City's population growth from 4,227 residents in 1900 to 10,309 in 1950 is illustrated below.

CHARLES CITY POPULATION TRENDS



B. CHARACTERISTICS

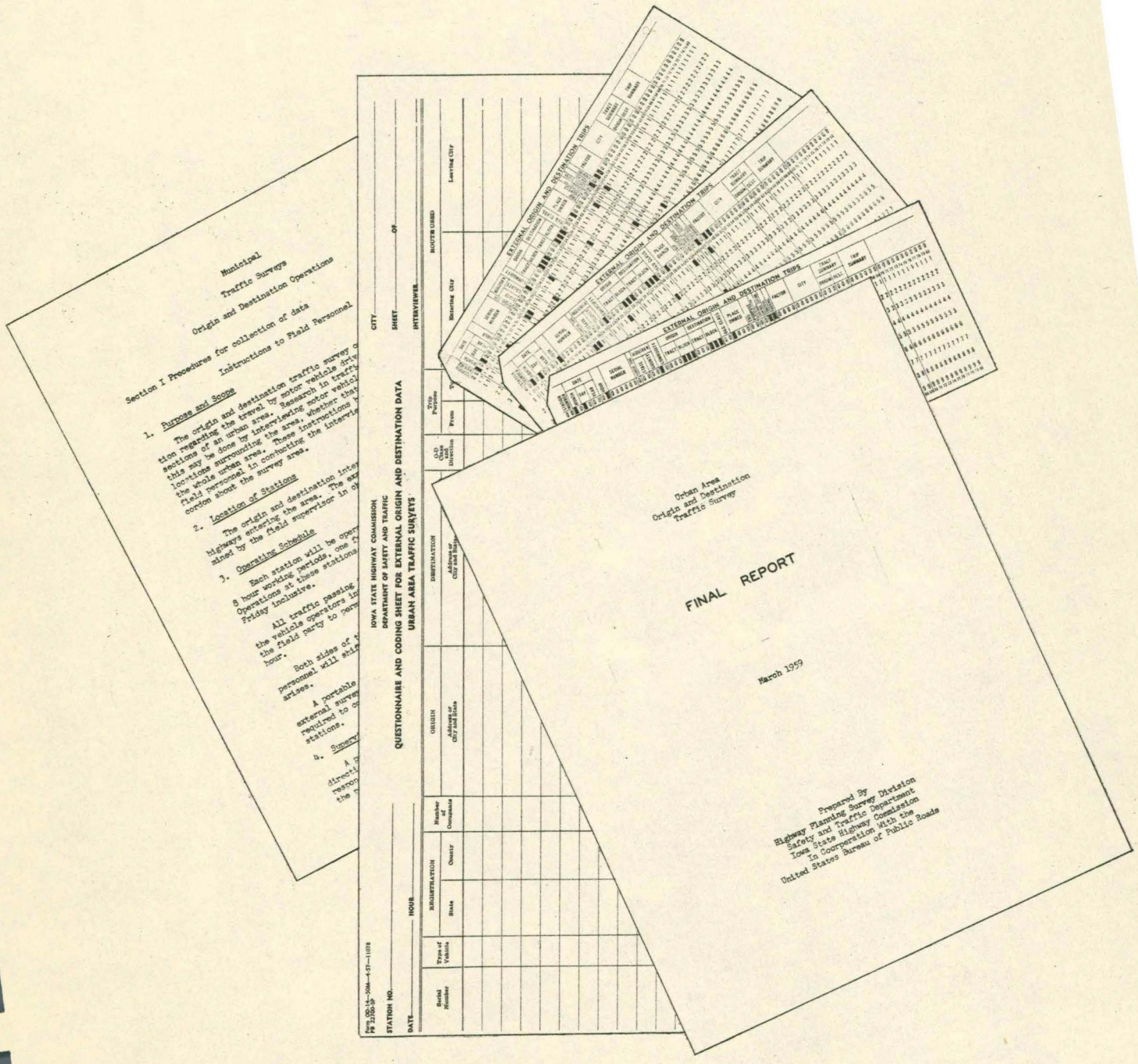
Charles City is located in the second tier of counties south of the Iowa-Minnesota border and the fourth tier west of the Mississippi River. The incorporated area is about two miles square and is situated in rolling terrain with the Cedar River flowing diagonally southwesterly across the city.

The central business district is in the west central part of the incorporated area. It covers about ten square blocks and consists principally of service and retail firms. Industrial areas are found in the north central region of the city and are located along railroad lines. Some of the items produced are chemicals, electric fences, farm and industrial tractors, metal farm tanks, mill work, nursery stock, poultry and livestock medicines, and spraying equipment.

Three railroads serve Charles City. The Charles City Western Railroad is an electric line connecting the city with two Floyd County town's, Colwell and Marble Rock. Its' tracks form a loop within the city and functions as an industrial switch track. The Illinois Central and the Chicago, Milwaukee, St. Paul, and Pacific lines cross the north half of the city, serving the industrial areas.

There are four primary road entrances to the municipality. Combined U.S. 18 and U.S. 218 border the southwest edge of the central business district and also intersect Ia. 18 there. Only two bridges cross the Cedar River. One is on U.S. 18 and the other on Main Street in the central business district.

PART III
SURVEY PRESENTATION



A. INTRODUCTION

Part III of this report describes briefly the purposes and objectives, procedures, and findings of the Charles City Urban Area Traffic Survey. Summaries and illustrations of the significant data classifications are included. All information was collected during the period of July 21 to 25, 1958, inclusive. It is reported in terms of the number of trips daily on an average July weekday in 1958 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 urban 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 urban 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.

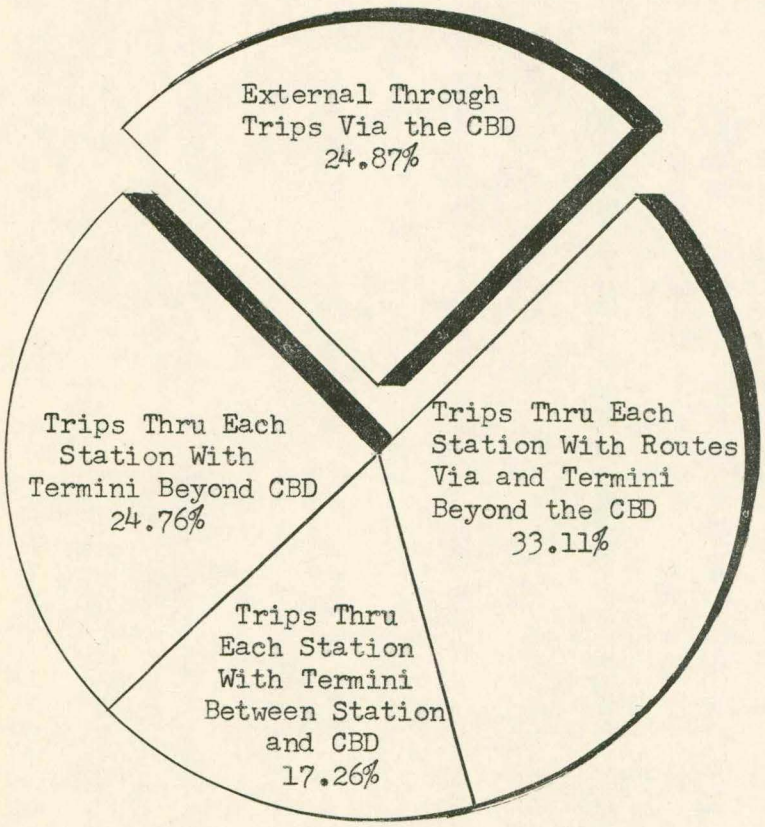
Each interview station was operated for 16 hours starting at 6 AM and ending at 10 PM. This scheme of operation provided for coverage of all but a small portion of the trips passing through each station in the twenty-four hour day. This small portion of traffic was accounted for by portable automatic 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 July 1958. 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.

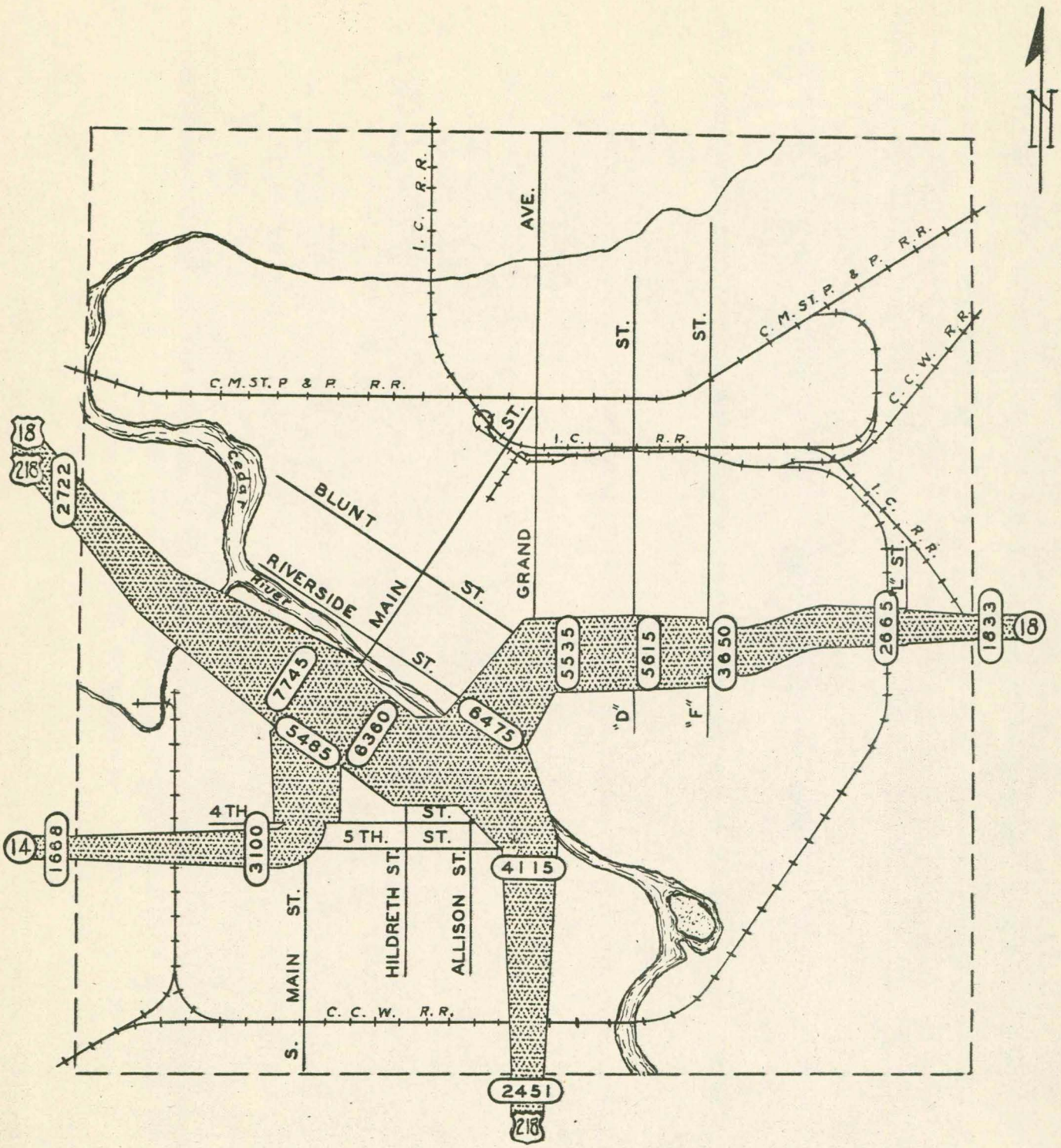


1. Traffic and Interview Summary:

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 July 1958.

Table 1
Traffic Entering or Leaving the Charles City Urban Area by Way of the Principal Rural Road Entrances

External Station Locations	Average Weekday Traffic-July 1958				No. of Interviews Taken	Per Cent Interviewed
	Passenger Cars and Pick-Ups	Single Unit Trucks	Truck Combinations	Total		
US 18-218 NW	3,228	264	230	3,722	3,210	86.24
Ia 14 W	1,516	119	33	1,668	1,619	97.06
US 18 E	1,561	140	132	1,833	1,627	88.76
US 218 S	2,156	141	154	2,451	2,173	88.66
Total	8,461	664	549	9,674	8,629	89.20



TRAFFIC FLOW MAP

CITY OF CHARLES CITY

FLOYD COUNTY

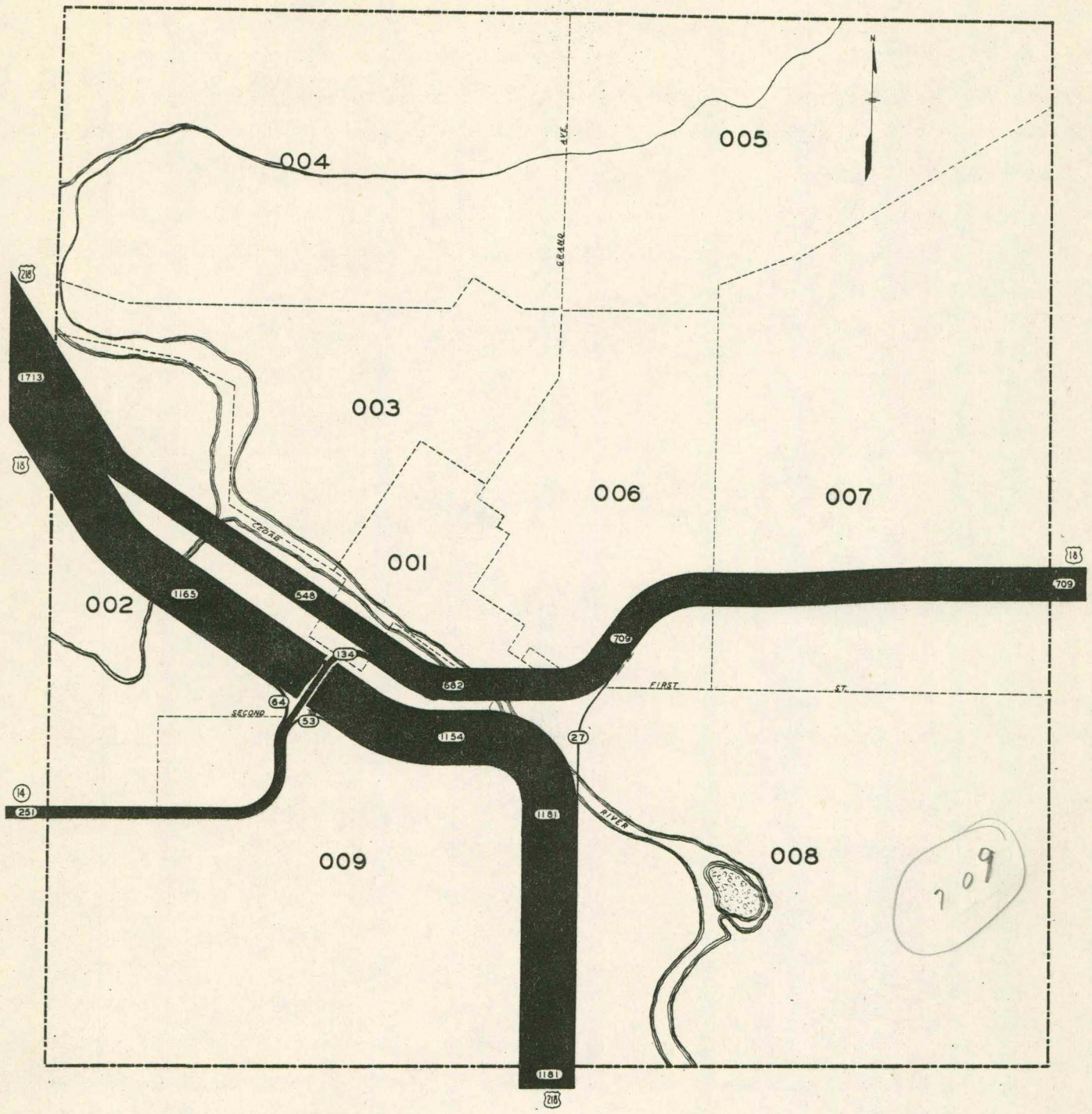
AVERAGE WEEK DAY TRAFFIC JULY - 1958

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 urban 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 1,927 trips, or 24.87 per cent of the total trips passing through all external stations, were external through trips traveling via the central business district.

Table 2
External Through Trips Via the Central Business District on an Average Weekday in July 1958

External Station Location	Total Trips Through Station	Through Trips Via the CBD	
		Number	Per Cent of Total
US 18-218 NW	3,722	1,713	46.02
Ia 14 W	1,668	251	15.05
US 18 E	1,833	709	38.68
US 218 S	2,451	1,181	48.19
Less Duplicates	1,927	1,927	100.00
Total	7,747	1,927	24.87



GRAPHIC SCALE

1,000 TRIPS
500 TRIPS
250 TRIPS
100 TRIPS

LEGEND

TRACT BOUNDARY LINES ----------

CORPORATION LINES ——————

CHART NO. 1

ORIGIN OR DESTINATION OF TRIPS BETWEEN PRIMARY ROAD ENTRANCES IN THE URBAN AREA OF

CHARLES CITY

JULY AVERAGE WEEKDAY TRAFFIC 1958

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 24.76 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 July 1958

External Station Location	Total Trips Through Station	Termini in the CBD	
		Number	Per Cent of Total
US 18-218 NW	3,722	704	18.92
Ia 14 W	1,668	473	28.36
US 18 E	1,833	363	19.80
US 218 S	2,451	378	15.42
Less Duplicates	1,927	---	-----
Total	7,747	1,918	24.76

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, 1,337 trips, or 17.26 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 July 1958

External Station Location	Total Trips Through Station	Termini Between Station and CBD	
		Number	Per Cent of Total
US 18-218 NW	3,722	218	5.86
Ia 14 W	1,668	397	23.80
US 18 E	1,833	522	28.48
US 218 S	2,451	200	8.16
Less Duplicates	1,927	---	-----
Total	7,747	1,337	17.26

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 2,565 trips, or 33.11 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.

Table 5
Trips Through Each Station With Routes Via and Termini Beyond the Central Business District on an Average Weekday in July 1958

External Station Location	Total Trips Through Station	Route Via-Termini Beyond CBD	
		Number	Per Cent of Total
US 18-218 NW	3,722	1,087	29.20
Ia 14 W	1,668	547	32.79
US 18 E	1,833	239	13.04
US 218 S	2,451	692	28.23
Less Duplicates	1,927	----	----
Total	7,747	2,565	33.11

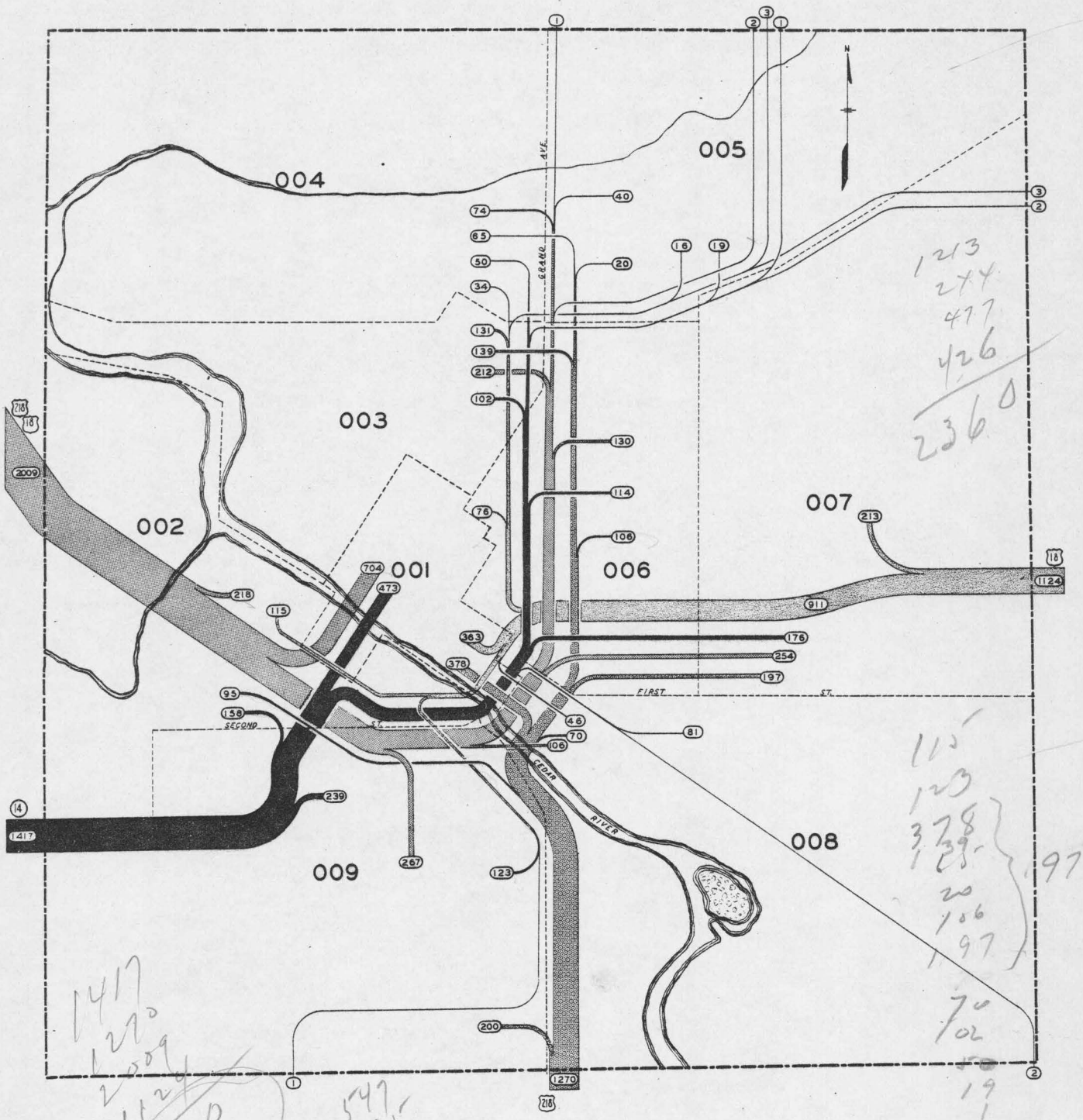


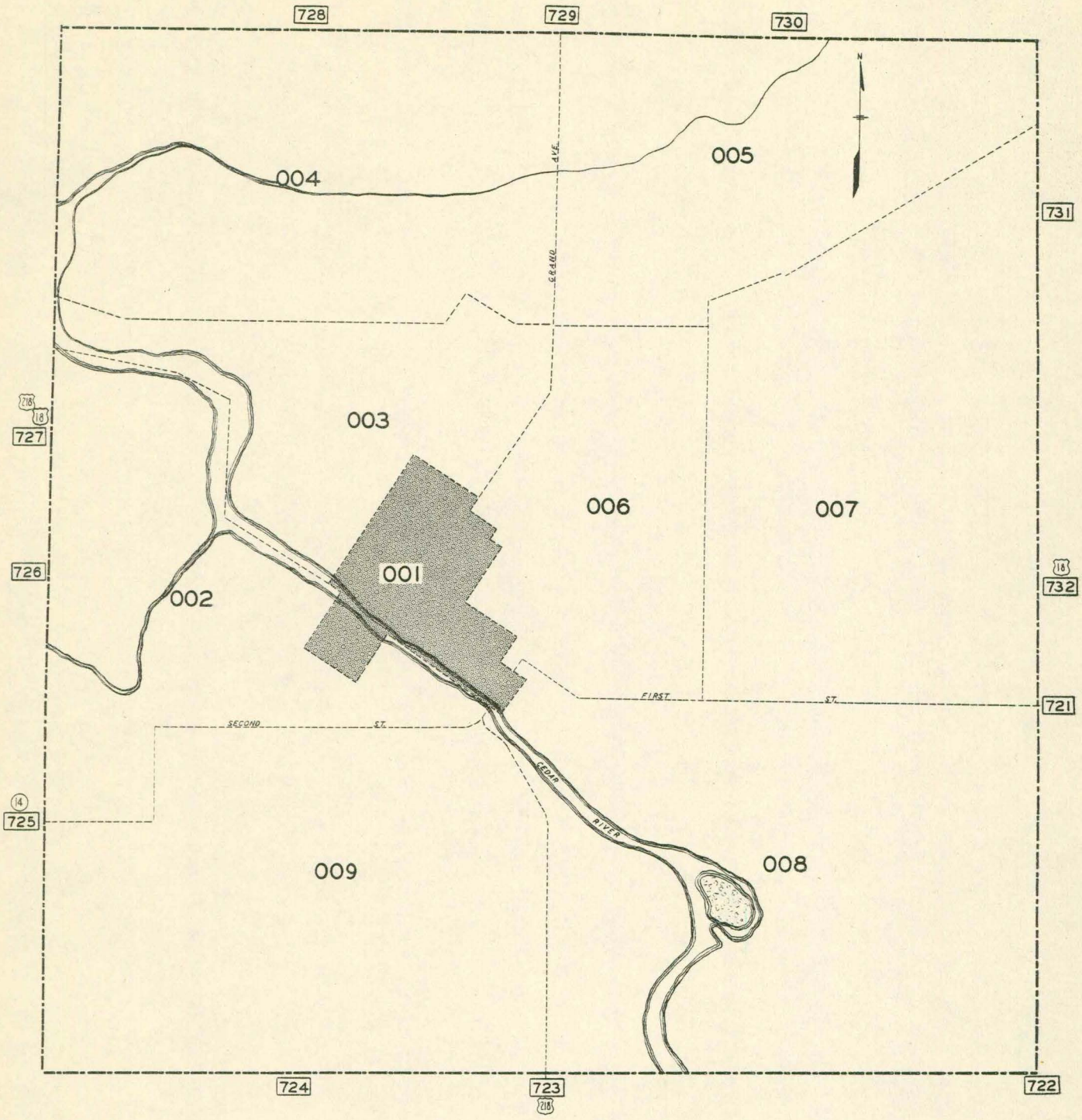
CHART NO. 2

ORIGIN OR DESTINATION OF TRIPS BETWEEN PRIMARY ROAD ENTRANCES AND ALL TRACTS WITHIN THE URBAN AREA OF

CHARLES CITY

JULY AVERAGE WEEKDAY TRAFFIC 1958

A P P E N D I X



LEGEND

TRACT BOUNDARY LINES

CORPORATION LINES

EXTERNAL STATIONS 724

CENTRAL BUSINESS DISTRICT

TRACT MAP
OF
CHARLES CITY URBAN AREA
WITH
EXTERNAL STATIONS