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## CLINTON

ORIGIN AND DESTINATION
STUDY

INTERVIEW
STATION


# Clinton Urban Area Origin and Destination Traffic Survey 

June 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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## 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.


This report of the Clinton Urban 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. For this particular survey the town of Camanche and the area between the Camanche corporate limits and the Clinton urban limits were both given tract numbers and included within the study area. To facilitate this arrangement the southernmost station was located on U.S. 67 just outside of the southwest corner of the Camanche corporate area. Survey interviews were made only at the external stations indicated by diamonds on the tract map in the appendix. Trips through these stations, for which the data were obtained, may be defined as "rural trips." Knowledge of the number of "urban trips" or "intracity trips" is not available in this external type survey. For this particular study, information was gathered by interviewing 79.27 per cent of the average weekday traffic at the above enumerated stations. After the expansion of this information it was found that for an average weekday in August 1958, a total of 16,003 trips crossed the study area limits. Out of this total 22.71 per cent were classified as external through trips. These were divided into two groups. External through trips which did not pass through the Clinton central business district accounted for 20.05 per cent. Trips using U.S。 30 along the south edge of the centrol business district are included in this totel. The remaining 2.66 per cent, which were also external through trips,
traveled through the central business district.
Of all trips passing through the interview stations 24.62 per cent had termini in the Clinton central business district. However, another 24.76 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, 27.91 per cent of the total trips passing through the interview stations had routes via and termini beyond the Clinton central business district.

When the 1958 August weekday traffic passing over the Lyon-Fulton Bridge (station 761) and over the Gateway Bridge (station 762) is collated with the 1953 August weekday traffic passing these same points, several interesting comparisons can be drawn. Initial modifications of the 1958 obtained data had to be made in order to make these figures comparable to the 1953 figures. These changes and comparisons are shown on chart 3 and chart 4.

In 1956, the new Gateway Bridge was opened to traffic and U.S. 30 in Illinois was rerouted to connect with it. In 1958, there were nearly three and one-half more trips, on an average weekday, using the new bridge than used the old structure in 1953. Meanwhile during this same period from 1953-1958, the number of trips crossing the Lyon-Fulton Bridge decreased more than one-half of the 1953 figure. Through trips passing via the central business district accounted for 65.63 per cent of all through trips in 1953. In 1958, there were only 8.36 per cent of all through trips passing via the central business district.

## PART ■ <br> HISTORY AND CHARACTERISTICS CLINTON URBAN AREA



## A. HISTORY

Elijah Buell, first white settler in the community, came to the Narrows in the Mississippi River near the present location of Fulton, Illinois in 1835. He settled on the Iowa side of the river and, with the aid of friendly Indians, erected a cabin. Buell's cabin site was in Lyons which was annexed to Clinton 60 years later.

John M. Bartlett filed the first claim to property in the original city of Clinton. He sold lots, and developed plans for a town, known first as New York。 Barlett also operated a store and did most of his business trading with Indians. In 1836 Bartlett sold his property to Captain C. G. Pearce. Nineteen years later the Iowa Land Company purchased the property and replatted it. They also renamed the community after DeWitt Clinton, former Governor of New York.

Isaac Baldwin taught 30 pupils in the town's first school during the winter of 1855-1856. In 1856 a post office, a newspaper, and a hotel were established and began operation. Charles A. Lombard built the first sawmill in the spring of 1856. It had a capacity of 5,000 feet of lumber per day, much of which came from logs floated down the Mississippi.

In 1857 D. W. Dakin founded the first bank in Clinton, which later became the Clinton National Bank. Two years later St. John's Episcopal Church, the first in the community, was organized. That same year Clinton was incorporated as a city and became the county seat of Clinton County. The following year the first train used the bridge from Illinois to "Little Rock Island". In 1865 the bridge over the main channel to Clinton was completed.

A public líbrary was established March 23, 1864 by the Railway Library Association. In 1878, the first telephones were demonstrated and installed in the city. That same year Ringwood was also annexed to the city。 By the early $1880^{\circ}$ s Clinton was recognized as the largest lumber producing city in the world. Every spring hundreds of $\log$ rafts were floated down the Mississippi to Clinton's sawmills. An immediate problem of this prosperity was the disposal of sawdust. Streams and sloughs along the river were filled with sawdust, and large portions of the city were later built on sawdust fills.

Clinton was reincorporated in 1881 and annexed Chaney in 1892 and Lyons in 1895. By 1900 the city had a population of $22,698$. Population trends since the turn of the century are illustrated below. CLINTON POPULATION TRENDS


## B. CHARACTERISTICS

Clinton is located on the Iowa-Illinois border, approximately 200 miles east of Des Moines. It is situated on the rolling to hilly terrain of the Mississippi River valley. The city lies parallel with the river
for about seven miles and covers an area of approximately 10 square miles.
Four major railroads serve Clinton. They include the Chicagom North Western, the Minneapolis, St. Paul and Pacific, the Chicago, Burlington, and Quincy, and the Chicago, Rock Island and Pacific lines。 These railroads enter the southwest part of the city and run northerly, roughly paralleling the Mississippi River, across Clinton to an exit point near the northeast corner of the urban area.

Many of Clinton's 70 industries are located along the railroad lines. About 7,000 people are employed by industries within the city. Some of the products produced are cellophane, corn products, dairy product containers, fabricated steel products, furniture, locks and builders hardware, millwork, wire products, and women's garments.

Highways U.S. 30 and U.S. 67 intersect near the southwest corner of Clinton's urban area. The combined routes continue northeasterly through the city to an intersection near the central business district where U.S. 30 turns east, passes along the south edge of the central business district and crosses the Mississippi River via the new Gateway Bridge. U.S. 67 and U.S. 30A continue northerly through the central business district to an intersection in the Lyons Business District where U.S. 30A turns east and leaves the city. U.S. 67 turns west at the central business district intersection, runs three blocks to an intersection with $I a$ 。 136 , turns north and runs northerly out of the eity.

## PART III <br> SURVEY PRESENTATION



## A. INTRODUCTION

Part III of this report describes briefly the purposes and objectives, procedures, and findings of the Clinton Urban Area Traffic Survey. Summaries and illustrations of the significant data classifications are included. All information was collected during the period of August 18 to 22 and August 25 to 28, 1958. It is reported in terms of the number of trips daily on an average August 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 the 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. An additional objective was to obtain information which could be used for comparison purposes with the bridge traffic data gathered in 1953.

## 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, 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 $I_{.} B_{\circ} M_{0}$ 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.

Five 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, between the two external through trip tables. The third flow diagram is found immediately following the group of tables relating all of the external local trips to their termini. Finally, the last two diagrams, showing 1953 and 1958 traffic comparisons on the two river bridges, will be found on the last few pages near the close of the report.

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 August 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 August 1958.

| External <br> Station <br> Locations | Table 1 <br> eaving the Clinton Urban Area cipal Rural Road Entrances |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Average Weekday Traffic-Aug. 1958 |  |  |  | No. of Interviews taken | Per Cent Interviewed |
|  | Passenger Cars and Pick-ups | Single Unit Trucks | Truck <br> Combinations | Total |  |  |
| US 67 N | 1,871 | 79 | 34 | 1,984 | 1,639 | 82.61 |
| US 30A E Bridge | 2,040 | 113 | 34 | 2,187 | 1,414 | 64.65 |
| $\begin{gathered} \text { US } 30 \mathrm{E} \\ \text { Bridge } \end{gathered}$ | 5,231 | 224 | 658 | 6,113 | 5,061 | 82.79 |
| US 67 S | 1.319 | 197 | 56 | 1.572 | 1,443 | 91.79 |
| US 30 W Ia 136 W | 5.045 1.574 | 262 | 814 3 | 6,121 1,660 | 4,755 1.255 | $\begin{aligned} & 77.68 \\ & 75.60 \end{aligned}$ |
| Total | 17,020 | 988 | 1,629 | 19.637 | 15,567 | 79.27 |



TRAFFIC FLOW MAP

## CITY OF CLINTON

CLINTON COUNTY
AVERAGE WEEK DAY TRAFFIC-AUGUST 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. However, trips on US 30 along the south boundary of tract 001 , or the Central Business District, were not included in this table. 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 425 trips, or 2.66 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 August 1958

| External Station Location | Total Trips Through Station | Through Trips Via the CBD |  |
| :---: | :---: | :---: | :---: |
|  |  | Number | Per Cent of Total |
| US 67 N | 1,984 | 248 | 12.50 |
| US 30A. E Bridge | 2,187 | 89 | 4.07 |
| US 30 E Bridge | 6,113 | 175 | 2.86 |
| US 67 S | 1,572 | 156 | 9.92 |
| US 30 W | 6,121 | 94 | 1.54 |
| Ia 136 NW | 1,660 | 88 | 5.30 |
| Iess Duplicates | 3,634 | 425 | 11.70 |
| Total | 16,003 | 425 | 2.66 |

CHART NO. I
ORIGIN OR DESTINATION OF TRIPS BETWEEN PRIMARY ROAD ENTRANCES

IN THE URBAN AREA
OF
CLINTON
august average weekday traffic 1958

3. External Through Trips Not

Via the Central Business District:
The following table reveals the exact relationship between a.ll trips passing through each external station and the percentage of these trips which pass directly on through and out of the urban area, but not via the central business district. Trips on U.S. 30 along the south boundary of tract 001 or the central business district are included in this table. This same comparison is also presented for the total of all external through trips passing through a.11 external stations. From Table 3 it is then noted that this figure is 20.05 per cent.

## Table 3

External Through Trips Not Via the Central Business District on an Average Weekday in August 1958

| External Station | Total Trips | Through Trips Not Via the CBD |  |
| :--- | :---: | :---: | :---: |
| Location | Through Station | Number | Per Cent of Total |
| US 67 N | 1,984 | 111 | 5.59 |
| US 30A E Bridge | 2,187 | 185 | 8.46 |
| US 30 E Bridge | 6,113 | 2,980 | 48.75 |
| US 67 S | 1,572 | 192 | 12.21 |
| US 30 W | 6,121 | 2,846 | 46.50 |
| Ia I36 NW | 1,660 | 104 | 6.27 |
| Less Duplicates | 3,634 | 3,209 | 88.30 |
| Total | 16,003 | 3,209 | 20.05 |

4. Trips Through Each Station With

Termini in the Central Business District:
Table 4 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 24.62 per cent of the total trips passing through all external stations fall into the above explained category.

| External Station Location | Table 4 <br> ips Through Each Station With Termini <br> in the Central Business District <br> on an Average Weekday in August 1958 |  |  |
| :---: | :---: | :---: | :---: |
|  | Total Trips Through Station | Termini in the CBD |  |
|  |  | Number | Per Cent of Total |
| US 67 N | 1.984 | 393 | 19.81 |
| US 30A E Bridge | 2,187 | 569 | 26.02 |
| US 30 E Bridge | 6,113 | 1,041 | 17.03 |
| US 67 S | 1,572 | 323 | 20.55 |
| US 30 W | 6,121 | 1,030 | 16.83 |
| Ia 136 NW | 1,660 | 583 | 35.12 |
| Less Duplicates | 3,634 | ----- | ----- |
| Total | 16,003 | 3,939 | 24.62 |

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

The information contained in Table 5 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, 3,963 trips, or 24.76 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 5
Trips Through Each Station with Termini Between the Station and the Central Business District on an Average Weekday in August 1958

| External Station Location | Total Trips Through Station | Termini Between Station and CBD |  |
| :---: | :---: | :---: | :---: |
|  |  | Number | Per Cent of Total |
| US 67 N | 1,984 | 712 | 35.89 |
| US 30A E Bridge | 2,187 | 844 | 38.59 |
| US 30 E Bridge | 6,113 | - |  |
| US 67 S | 1,572 | 597 | 37.97 |
| US 30 W | 6,121 | 1,023 | 16.71 |
| Ia. 136 NW | 1.660 | 787 | 47.41 |
| Less Duplicates | $\overline{3.634}$ |  |  |
| Total | 16,003 | 3,963 | 24.76 |

## 6. Trips Through Each Station With Routes Via

 and Termini Beyond the Central Business District:In Table 6 a comparison is made between the total trips passing through each external station, and the number and porcentage of these trips which pass directly via and have their tormiri hevond the central business district. *Included in this ce
the trips on US 30 along the south boundry of the Cont mid vimoss
District (tract 001). It can also be seen from the collouine table
that 4,467 trips, or 27.91 per cent of all trips passins; throuch 211 stations, travel directly via the central business district and have their temini beyond it. These comparisons are made both numberically and on a percentage basis for all of the routes listra.

| Table 6 <br> Trips Through Each Station With Routes VE and Termini Beyond the Central Business Dis on an Average Weekday in August 1958 |  |  |  |
| :---: | :---: | :---: | :---: |
| External Station Total Trips  <br> Location Through Station |  | Route Via-Termini Beyond CBD |  |
|  |  | Number | Per Cent of Total |
| US 67 N | 1,984 | 520 | 26.21 |
| US 30A E Bridge | 2,187 | 500 | 22.86 |
| US 30 E Bridge | 6,113 | 1,917* | 31.36 |
| US 67 S | 1,572 | 304 | 19.34 |
| US 30 W | 6,121 | 1,128 | 18.43 |
| Ia 136 NW | 1,660 | 98 | 5.90 |
| Less Duplīcates | 3.634 | --- | - |
| Total | 16,003 | 4,467 | 27.81 |

7. Trips Crossing the

Gateway and Iyon-Fulton Bridges:
The information in Table 7 indicates the change in the traffic pattern crossing the Mississippi River at Clinton. The new Gateway Bridge was opened in 1956, and U.S. 30 in Illinois was re-routed to connect with it. There were 348.1 per cent more trips using the new Gateway Bridge in 1958 than used the old structure in 1953. The number of trips across the Lyon-Fulton Bridge decreased 51.3 per cent during this same period. Charts 3 and 4 on the following pages portray the 1953-1958 bridge traffic in more detail.

| Trip Designations | Gateway Bridge |  | Lyon-Fulton Bridge |  |
| :---: | :---: | :---: | :---: | :---: |
|  | 1953 | 1958 | 1953 | 1958 |
| Through Trips Via CBD | 26 | 175 | 1439 | 124 |
| Through Trips Not Via CBD | 468 | 3092 | 299 | 185 |
| Trips to CBD | 384 | 1041 | 779 | 569 |
| External Local Trips Via CBD | 198 | 523 | 680 | 336 |
| External Local Trips Not Via CBD | 680 | 1282 | 1292 | 973 |
| Totals | 1756 | 6113 | 4489 | 2187 |

CHART 3
ORIGIN AND DESTINATION OF TRIPS CROSSING LYON-FULTON BRIDGE

IN
CLINTON
DURING AVERAGE WEEKDAY IN 1953 AND 1958


## CHART 4

ORIGIN AND DESTINATION OF TRIPS CROSSING GATEWAY BRIDGE

IN
CLINTON
DURING AVERAGE WEEKDAY IN 1953 AND 1958

8. Gateway and Lyon-Fulton Bridge External Local and Through Trip Traffic Routes Relative to the Central Business District:

Table 8 presents an excellent comparison between the 1953 and the 1958 bridge traffic and its respective routes relative to the central business district. As can be seen from the sub-totals of both bridges, the through trips traveling via the central business district dropped from 65.63 per cent of the total trips in 1953 to 8.36 per cent of the total trips in 1958. This is very significant because it gives an indication of how much the re-construction of the Gateway Bridge was responsible for alleviating the business area traffic congestion due to through trips.
Several other comparative figures are also available from the table.


> APPENDIX

1958 CLINTON ORIGIN AND DESTINATION
TOTAL TRIPS THROUGH STATIONS LOCATED ON PRIMARYS
US. 67 N., US. 30A E. US. 30 E., US. 67 S. US. 30 W., IA. 136 NW.,
aVERage weekday traffic in august


ORIGIN AND DESTINATION OF TRIPS
CROSSING GATEWAY AND LYON-FULTON BRIDGES
IN CLINTON
DURING AVERAGE WEEKDAY IN 1953 AND 1958


