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**TRAFFIC SPEED REPORT NO. 64**  
**TRUCK WEIGHT - SPEED STUDY**

**SEPT., 1958**  
**NO. 23**

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**Joint  
Highway  
Research  
Project**

PURDUE UNIVERSITY  
LAFAYETTE INDIANA

PROGRESS REPORT

TRAFFIC SPEED REPORT NO. 64

TO: K. B. Woods, Director  
Joint Highway Research Project

FROM: H. L. Michael, Assistant Director

September 25, 1958

File: 9-3-6  
Project C-36-100

Attached is Traffic Speed Report No. 64. This is the report of the annual truck weight-speed study that is made in cooperation with the State Highway Planning Survey of the State Highway Department of Indiana. The report has been prepared by Mr. Paul D. Cribbins, Research Assistant of our staff. Mr. Gerry Ingram assisted in the collection of data. This study

This study indicates that the average weight of single-unit and semi-trailer trucks increased over 1957, with the semi-trailers showing a 2,000-pound increase. The speed of both single-unit and semi-trailer trucks was also greater in 1958 than in 1957.

In accordance with our usual practice, copies of this report will be transmitted to the Bureau of Public Roads, the Indiana State Police, and the Highway Planning Survey.

The report is presented for the record.

Respectfully submitted,


*Harold L. Michael*

Harold L. Michael, Assistant Director  
Joint Highway Research Project

HL:jt

Attachment

|                   |                   |
|-------------------|-------------------|
| cc: A. K. Branham | R. D. Miles       |
| J. R. Cooper      | R. E. Mills       |
| W. L. Dolch       | B. H. Petty       |
| W. H. Goets       | H. B. Scott       |
| J. T. Hallett     | C. E. Vogelgesang |
| F. F. Havay       | J. L. Valing      |
| G. A. Hawkins     | J. E. Wilson      |
| G. A. Leonards    | E. J. Yoder       |
| J. F. McLaughlin  |                   |



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Progress Report

TRAFFIC SPEED REPORT NO. 64  
TRUCK WEIGHT - SPEED STUDY

by

Paul D. Cribbins  
Research Assistant

Joint Highway Research Project  
Project: C-36-100  
File: 8-3-4

Performed in Cooperation  
With

The State Highway Planning Survey  
State Highway Department of Indiana

August 7, 13, 14, 15, 20, 25, 26, 27, 29, 1958

Purdue University  
Lafayette, Indiana

September 25, 1958

## INTRODUCTION

The Joint Highway Research Project of Purdue University cooperated with the Highway Planning Survey Unit of the State Highway Department of Indiana, in conducting the annual truck weight-speed study during August 1958. This was the fourteenth year in which such a cooperative study was made.

Prior to 1944, studies were limited to a determination of truck-weight distribution patterns and twenty permanent stations were selected for this purpose. The first truck weight-speed studies were made in 1944 and have been continued annually to the present with the exception of 1945. When the truck weight-speed studies were initiated in 1944, speeds were taken at only four of the twenty truck-weight stations. From 1944 to 1950 the number of truck-speed stations varied until 1951 when twelve stations were selected. The location and number of the truck weight-speed stations remained constant from 1951 to 1953. In 1954, 1955, and 1957, however, speeds were taken at only ten of the twelve stations used in 1953 and in 1956 only nine stations were studied. This year speeds were also observed at nine stations.

The speed observations for this study were made with an Electro-Matic Radar Speed Meter. The meter was concealed as part of a rural mailbox and aligned as nearly as possible parallel to a tangent section of highway in order to minimize the angular error. Observers concealed themselves as well as local conditions permitted. It is believed that the observations were taken without influencing the speeds of the vehicles. Before using the meter, it was checked for accuracy and calibrated in the

speed range of 20 to 80 miles per hour. During the observation periods the meter was checked for accuracy every two hours with a special tuning fork. A voltmeter was also utilized at two hour intervals to check the voltage in the batteries.

The speed data were collected by the writer and Mr. Gerry Ingram and analyzed by members of the Traffic Engineering laboratory staff.

#### OBSERVATION PROCEDURE

The weight stations used for the coordinated truck weight-speed study, which are shown on the attached map of Indiana in Figure 1, were located as indicated below, and were operated on the dates noted:

| <u>Date</u> | <u>Station</u> | <u>Highway</u> | <u>Location</u>                                     | <u>No.<br/>Of Lanes</u> |
|-------------|----------------|----------------|---|-------------------------|
| Aug. 7      | 6 45B          | S.R. 67        | 1.00 miles S. W. of Luncie                          | 2                       |
| Aug. 13     | 12 5           | U.S. 30        | 1.30 miles E. of E. city<br>limits of Bourbon       | 2                       |
| Aug. 14     | 13 4           | U.S. 31        | 1000' S. of Jct. of U.S. 6                          | 4                       |
| Aug. 15     | 14 2           | U.S. 20        | 1500' W. of Jct. of S.R. 2                          | 4                       |
| Aug. 20     | 19 14          | U.S. 41        | 0.50 miles S. of N. Jct. of<br>S.R. 2               | 4                       |
| Aug. 25     | 24 42          | U.S. 52        | 600' S.E. of N. Jct. of S.R.<br>28                  | 4                       |
| Aug. 26     | 25 58B         | U.S. 31        | 1000' S. of Jct. of Co. Rd.<br>to Southport         | 4                       |
| Aug. 27     | 26 75          | U.S. 41        | 0.25 miles S. of Jct. of<br>U.S. 41, business route | 4                       |
| Aug. 29     | 28 81          | U.S. 150       | 0.50 miles E. of W Jct. of<br>S.R. 56               | 2                       |

The speed stations were selected on the basis of topography and alignment and were located from one to three miles from the weight





FIG. 1 LOCATIONS OF TRUCK WEIGHT - SPEED STATIONS

stations. The intervening distance between each weight station and the speed station was sufficient to allow the trucks which had been stopped to regain their normal cruising speeds.

The weighing crew, operating portable loadometer scales, stopped and weighed all trucks moving in a given direction for a two-hour period. During the succeeding two hours, trucks moving in the opposite direction were stopped and weighed. This procedure was continued for an eight-hour period from 8:00 A.M. until 4:00 P.M. C.D.S.T.

Speed stations were operated at the same time as the weight stations. At each speed station, the speed of each truck moving in the proper direction was recorded to the nearest mile per hour.

For the purpose of correlating the speed and weight data, both the weight crew and the speed crew briefly described each truck. The color, owner, and type of truck were listed as well as the time at which the truck passed each station. Information on all of the trucks passing the speed station could not be obtained. Some trucks turned off between the speed station and the weight station, some trucks parked until the operation was changed to the opposite direction, and a few trucks were waved through the weight station without being weighed due to congestion. Some trucks also were missed in the direction change-over on divided highways as it was necessary to move the radar unit to the opposite side of the road.

#### REPORTING PROCEDURE

For the purposes of this report, all trucks were divided into two groups. These groups are single-unit trucks and multiple-unit, semi-trailers. The former group was further subdivided for some of the



analysis into those having a gross weight of 5,000 pounds or more and those having a gross weight of less than 5,000 pounds in order to compare the observed speeds of these units with the existing speed limits. The present legal speed limits for trucks are 45 miles per hour for trucks with a weight of 5,000 pounds or more and 65 miles per hour for trucks with a gross weight of less than 5000 pounds.

Table I provides the speed and weight data observed at each station for single-unit trucks weighing less than 5000 pounds. Similar information is presented in Table I for all single-unit trucks with gross weight greater than 5000 pounds. Table II is arranged in a manner similar to Table I in order to provide all speed and weight data for semi-trailer multiple units. The number and percentage of vehicles exceeding the legal and "enforcement" speed limits, by station, is presented in Table III. All-station curves for single-unit trucks and for semi-trailers are shown in Figure 2. Similar speed accumulation curves for single-unit trucks and semi-trailers on two-lane and four-lane highways are shown in Figures 3 and 4 respectively. A speed-weight comparison is presented in graphical form for single-unit trucks in Figure 5 and for semi-trailers in Figure 6.

The heaviest vehicles observed were a 3-axle tractor-truck with a 2 axle, van-type semi-trailer having a gross weight of 81,600 pounds and traveling at a speed of 44 miles per hour, and a 3-axle tractor-truck with a 2-axle, platform-type semi-trailer having the same gross weight and traveling at a speed of 43 miles per hour.

The fastest vehicle observed was an empty, open pickup weighing 4000 pounds and traveling at 72 miles per hour.

TABLE I SINGLE UNIT TRUCK SPEEDS IN MILES PER HOUR

| STATION 45-B<br>AUG. 7 |               | STATION 5<br>AUG. 13 |               | STATION 4<br>AUG. 14 |               | STATION 2<br>AUG. 15 |               | STATION 14<br>AUG. 20 |               | STATION 42<br>AUG. 25 |               | STATION 58-B<br>AUG. 26 |               | STATION 75<br>AUG. 27 |               | STATION 81<br>AUG. 29 |               | SUMMARY          |               | WEIGHT<br>(KIPS) |                  |
|------------------------|---------------|----------------------|---------------|----------------------|---------------|----------------------|---------------|-----------------------|---------------|-----------------------|---------------|-------------------------|---------------|-----------------------|---------------|-----------------------|---------------|------------------|---------------|------------------|------------------|
| WEIGHT<br>(KIPS)       | AVG.<br>SPEED | NO. OF<br>TRUCKS     | AVG.<br>SPEED | NO. OF<br>TRUCKS     | AVG.<br>SPEED | NO. OF<br>TRUCKS     | AVG.<br>SPEED | NO. OF<br>TRUCKS      | AVG.<br>SPEED | NO. OF<br>TRUCKS      | AVG.<br>SPEED | NO. OF<br>TRUCKS        | AVG.<br>SPEED | NO. OF<br>TRUCKS      | AVG.<br>SPEED | NO. OF<br>TRUCKS      | AVG.<br>SPEED | NO. OF<br>TRUCKS | AVG.<br>SPEED | NO. OF<br>TRUCKS | WEIGHT<br>(KIPS) |
| 0-4                    | 50.3          | 7                    | 36.0          | 1                    | 52.3          | 4                    | 58.5          | 2                     | 52.4          | 8                     | 54.8          | 4                       | 53.7          | 9                     | 44.9          | 12                    | 46.5          | 17               | 49.5          | 64               | 0-4              |
| 4-5                    | 42.2          | 10                   | 48.6          | 9                    | 52.5          | 11                   | 51.5          | 4                     | 52.3          | 10                    | 54.7          | 6                       | 51.0          | 16                    | 45.9          | 22                    | 44.7          | 23               | 48.2          | 111              | 4-5              |
| TOT. TRUCKS            | 17            |                      | 10            |                      | 15            |                      | 6             |                       | 18            |                       | 10            |                         | 25            |                       | 34            |                       | 40            |                  | 175           |                  | TOT. TRUCKS      |
| AVG. WT. (LBS)         | 4,200         |                      | 4,300         |                      | 4,200         |                      | 4,100         |                       | 4,100         |                       | 4,100         |                         | 4,200         |                       | 4,100         |                       | 4,000         |                  | 4,100         |                  | AVG. WT. (LBS)   |
| AVG. SPEED             | 45.5          |                      | 47.3          |                      | 52.5          |                      | 53.8          |                       | 52.3          |                       | 54.7          |                         | 52.0          |                       | 45.5          |                       | 45.4          |                  | 48.6          |                  | AVG. SPEED       |
| % EMPTY                | 41.2          |                      | 50.0          |                      | 73.3          |                      | 50.0          |                       | 33.3          |                       | 30.0          |                         | 48.0          |                       | 35.3          |                       | 47.5          |                  | 44.6          |                  | % EMPTY          |
| 5-8                    | 46.7          | 20                   | 49.7          | 17                   | 48.4          | 20                   | 49.3          | 16                    | 47.2          | 24                    | 51.7          | 22                      | 45.4          | 31                    | 47.9          | 28                    | 45.4          | 43               | 47.5          | 221              | 5-8              |
| 8-12                   | 45.7          | 12                   | 46.3          | 12                   | 45.2          | 21                   | 48.3          | 9                     | 47.3          | 18                    | 47.2          | 23                      | 46.1          | 55                    | 42.6          | 31                    | 45.1          | 39               | 45.6          | 220              | 8-12             |
| 12-16                  | 50.0          | 1                    | 45.8          | 5                    | 44.8          | 9                    | 50.0          | 3                     | 46.3          | 4                     | 49.0          | 12                      | 47.4          | 18                    | 44.9          | 19                    | 43.3          | 17               | 45.8          | 88               | 12-16            |
| 16-20                  | 44.5          | 2                    | 42.7          | 6                    | 48.2          | 5                    | 42.0          | 4                     | 43.0          | 6                     | 48.3          | 4                       | 47.5          | 6                     | 45.1          | 11                    | 41.6          | 27               | 43.8          | 71               | 16-20            |
| 20-24                  | 43.8          | 5                    | 56.0          | 1                    | 47.0          | 3                    | 46.0          | 1                     | 41.0          | 1                     | 46.0          | 3                       | 43.2          | 6                     | 43.5          | 4                     | 40.1          | 15               | 43.0          | 39               | 20-24            |
| 24-28                  |               |                      | 49.0          | 1                    |               |                      |               |                       | 42.0          | 1                     | 48.5          | 2                       | 39.0          | 1                     | 38.5          | 2                     |               |                  | 43.4          | 7                | 24-28            |
| 28-32                  |               |                      | 54.0          | 1                    |               |                      |               |                       |               |                       |               |                         | 36.0          | 1                     | 43.7          | 3                     | 37.5          | 2                | 42.3          | 7                | 28-32            |
| 32-36                  |               |                      |               |                      |               |                      |               |                       | 43.0          | 2                     | 44.5          | 2                       | 44.0          | 1                     |               |                       | 42.0          | 1                | 43.5          | 6                | 32-36            |
| 36-40                  |               |                      |               |                      |               |                      |               |                       | 29.0          | 1                     |               |                         |               |                       |               |                       | 44.0          | 1                | 36.5          | 2                | 36-40            |
| 40-44                  |               |                      |               |                      |               |                      |               |                       |               |                       |               |                         |               |                       |               |                       |               |                  |               |                  | 40-44            |
| 44-48                  |               |                      |               |                      |               |                      | 43.0          | 1                     |               |                       |               |                         |               |                       |               |                       |               |                  | 43.0          | 1                | 44-48            |
| TOT. TRUCKS            | 40            |                      | 43            |                      | 58            |                      | 34            |                       | 57            |                       | 68            |                         | 119           |                       | 98            |                       | 145           |                  | 662           |                  | TOT. TRUCKS      |
| AVG. WT. (LBS)         | 10,100        |                      | 10,900        |                      | 10,100        |                      | 10,800        |                       | 11,400        |                       | 11,500        |                         | 10,900        |                       | 11,800        |                       | 12,600        |                  | 11,400        |                  | AVG. WT. (LBS)   |
| AVG. SPEED             | 46.0          |                      | 47.6          |                      | 46.6          |                      | 48.0          |                       | 46.1          |                       | 49.0          |                         | 45.9          |                       | 44.9          |                       | 43.7          |                  | 45.9          |                  | AVG. SPEED       |
| % EMPTY                | 22.5          |                      | 18.6          |                      | 37.9          |                      | 35.3          |                       | 29.8          |                       | 44.1          |                         | 42.9          |                       | 24.5          |                       | 40.0          |                  | 34.9          |                  | % EMPTY          |



**TABLE II SEMI-TRAILERS (MULTIPLE UNITS) — SPEEDS IN MILES PER HOUR**

| WEIGHT (KIPS)    | STATION 45-B<br>AUG. 7 |              | STATION 5<br>AUG. 13 |              | STATION 4<br>AUG. 14 |              | STATION 2<br>AUG. 15 |              | STATION 14<br>AUG. 20 |              | STATION 42<br>AUG. 25 |              | STATION 58-B<br>AUG. 26 |              | STATION 75<br>AUG. 27 |              | STATION 81<br>AUG. 29 |              | SUMMARY    |              | WEIGHT (KIPS)    |
|------------------|------------------------|--------------|----------------------|--------------|----------------------|--------------|----------------------|--------------|-----------------------|--------------|-----------------------|--------------|-------------------------|--------------|-----------------------|--------------|-----------------------|--------------|------------|--------------|------------------|
|                  | AVG. SPEED             | NO. OF SEMIS | AVG. SPEED           | NO. OF SEMIS | AVG. SPEED           | NO. OF SEMIS | AVG. SPEED           | NO. OF SEMIS | AVG. SPEED            | NO. OF SEMIS | AVG. SPEED            | NO. OF SEMIS | AVG. SPEED              | NO. OF SEMIS | AVG. SPEED            | NO. OF SEMIS | AVG. SPEED            | NO. OF SEMIS | AVG. SPEED | NO. OF SEMIS |                  |
| 0—8              | 44.5                   | 2            |                      |              |                      |              |                      |              |                       |              |                       |              |                         |              |                       |              |                       |              | 44.5       | 2            | 0—8              |
| 8—12             | 44.0                   | 1            |                      |              |                      |              |                      |              |                       |              | 50.0                  | 1            |                         |              |                       |              |                       |              | 47.0       | 2            | 8—12             |
| 12—16            | 48.0                   | 1            |                      |              | 41.0                 | 1            | 41.0                 | 1            | 45.7                  | 3            | 45.5                  | 2            | 49.7                    | 3            | 38.0                  | 1            |                       |              | 45.4       | 12           | 12—16            |
| 16—20            | 46.8                   | 6            | 46.1                 | 11           | 45.0                 | 3            | 47.5                 | 4            | 46.1                  | 18           | 49.6                  | 12           | 45.6                    | 14           | 46.4                  | 8            | 49.0                  | 3            | 46.8       | 79           | 16—20            |
| 20—24            | 43.4                   | 16           | 42.1                 | 9            | 45.0                 | 2            | 44.8                 | 9            | 47.5                  | 24           | 49.4                  | 26           | 47.2                    | 33           | 47.4                  | 10           | 49.5                  | 12           | 46.9       | 141          | 20—24            |
| 24—28            | 46.4                   | 12           | 43.9                 | 16           | 44.6                 | 7            | 47.4                 | 16           | 48.3                  | 32           | 50.3                  | 31           | 47.8                    | 36           | 44.9                  | 9            | 48.1                  | 8            | 47.6       | 167          | 24—28            |
| 28—32            | 50.2                   | 10           | 45.4                 | 19           |                      |              | 46.7                 | 12           | 51.0                  | 8            | 50.7                  | 15           | 47.7                    | 18           | 45.2                  | 9            | 42.8                  | 5            | 47.6       | 96           | 28—32            |
| 32—36            | 48.5                   | 2            | 42.6                 | 14           | 44.4                 | 5            | 50.0                 | 3            | 49.8                  | 12           | 50.0                  | 4            | 46.1                    | 9            | 45.6                  | 8            | 46.6                  | 5            | 46.4       | 62           | 32—36            |
| 36—40            | 48.0                   | 8            | 44.1                 | 15           | 49.0                 | 3            | 44.8                 | 4            | 47.0                  | 4            | 46.8                  | 11           | 46.0                    | 8            | 44.3                  | 8            | 46.5                  | 4            | 45.9       | 65           | 36—40            |
| 40—44            | 45.5                   | 2            | 42.0                 | 6            | 45.2                 | 5            | 43.8                 | 11           | 45.3                  | 7            | 48.8                  | 8            | 46.9                    | 9            | 40.5                  | 2            | 41.7                  | 3            | 45.0       | 53           | 40—44            |
| 44—48            | 45.6                   | 5            | 41.9                 | 7            | 38.0                 | 1            | 46.4                 | 9            | 49.3                  | 10           | 45.2                  | 5            | 45.5                    | 6            | 47.7                  | 3            | 47.0                  | 1            | 45.9       | 47           | 44—48            |
| 48—52            | 44.7                   | 11           | 45.1                 | 19           | 46.0                 | 2            | 47.9                 | 7            | 46.9                  | 7            | 46.2                  | 9            | 43.5                    | 11           | 47.0                  | 4            | 41.4                  | 5            | 45.2       | 75           | 48—52            |
| 52—56            | 45.5                   | 13           | 43.4                 | 23           | 47.0                 | 6            | 44.6                 | 12           | 47.2                  | 15           | 44.9                  | 9            | 44.9                    | 18           | 44.0                  | 5            | 43.7                  | 3            | 45.0       | 104          | 52—56            |
| 56—60            | 45.3                   | 8            | 44.4                 | 10           | 41.5                 | 2            | 45.6                 | 14           | 46.1                  | 14           | 46.8                  | 10           | 46.4                    | 11           | 41.9                  | 8            | 45.2                  | 5            | 45.3       | 82           | 56—60            |
| 60—64            | 47.3                   | 9            | 44.5                 | 11           |                      |              | 47.2                 | 5            | 46.6                  | 11           | 49.0                  | 1            | 41.8                    | 4            | 38.5                  | 2            | 48.0                  | 1            | 46.6       | 44           | 60—64            |
| 64—68            | 46.2                   | 5            | 42.1                 | 7            | 38.0                 | 1            | 44.2                 | 5            | 46.3                  | 4            | 49.0                  | 3            | 41.7                    | 3            | 43.8                  | 4            |                       |              | 44.3       | 32           | 64—68            |
| 68—72            | 44.0                   | 2            | 43.5                 | 4            |                      |              | 43.7                 | 3            | 43.3                  | 3            | 44.0                  | 5            | 42.7                    | 3            | 43.3                  | 4            |                       |              | 43.5       | 24           | 68—72            |
| 72—76            | 45.0                   | 1            | 41.6                 | 7            |                      |              | 43.0                 | 2            | 45.0                  | 5            | 44.0                  | 1            | 42.0                    | 2            | 41.5                  | 2            |                       |              | 42.9       | 20           | 72—76            |
| 76—80            | 43.0                   | 1            | 46.0                 | 1            | 38.8                 | 4            | 44.0                 | 6            | 44.5                  | 2            | 44.7                  | 3            | 40.0                    | 2            |                       |              |                       |              | 42.7       | 19           | 76—80            |
| 80—84            | 44.0                   | 1            |                      |              |                      |              | 47.0                 | 1            | 48.0                  | 1            | 43.0                  | 1            |                         |              |                       |              |                       |              | 45.5       | 4            | 80—84            |
| TOT. TRUCKS      | 116                    |              | 179                  |              | 42                   |              | 124                  |              | 180                   |              | 157                   |              | 190                     |              | 87                    |              | 55                    |              | 1130       |              | TOT. TRUCKS      |
| AVG. WT. (LBS.)  | 41,100                 |              | 43,500               |              | 42,100               |              | 44,700               |              | 38,800                |              | 36,300                |              | 36,100                  |              | 39,300                |              | 34,800                |              | 39,500     |              | AVG. WT. (LBS.)  |
| AVG. SPEED (MPH) | 46.0                   |              | 43.8                 |              | 44.3                 |              | 45.8                 |              | 47.1                  |              | 48.4                  |              | 46.2                    |              | 44.7                  |              | 46.2                  |              | 46.1       |              | AVG. SPEED (MPH) |
| % EMPTY          | 34.5                   |              | 23.5                 |              | 33.3                 |              | 29.0                 |              | 37.2                  |              | 41.4                  |              | 42.6                    |              | 39.1                  |              | 38.2                  |              | 35.4       |              | % EMPTY          |

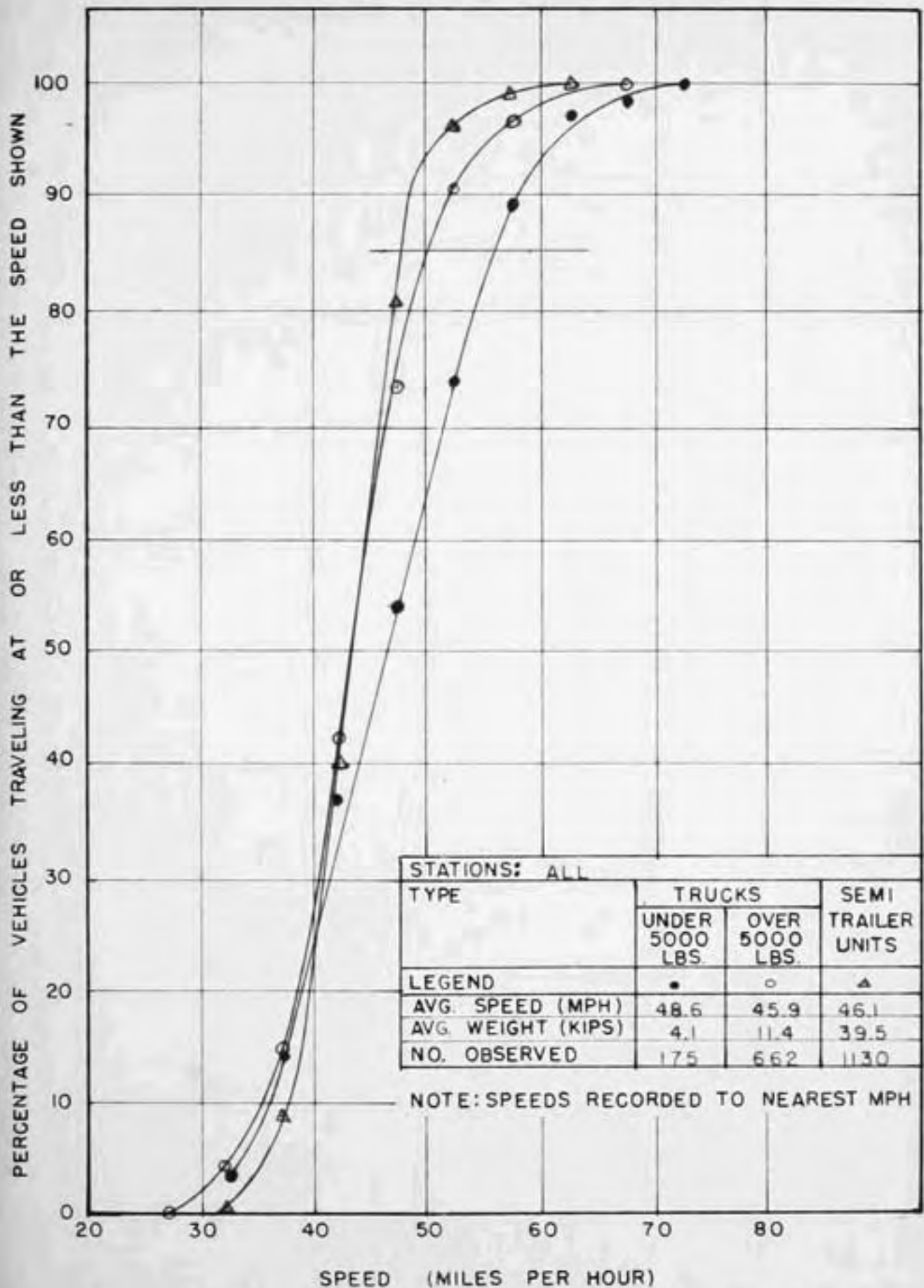
TABLE III  
VEHICLES EXCEEDING SPEED LIMIT

| Station | * Trucks Weighing Under 5000 Lbs. |                    | ** Trucks Weighing Over 5000 Lbs. |                    | *** Multiple Units |                    |                    |
|---------|-----------------------------------|--------------------|-----------------------------------|--------------------|--------------------|--------------------|--------------------|
|         | No. Noted                         | % Exceeding 65 MPH | No. Noted                         | % Exceeding 45 MPH | No. Noted          | % Exceeding 45 MPH | % Exceeding 50 MPH |
| 45-B    | 17                                | 5.9                | 40                                | 50.0               | 116                | 51.7               | 12.9               |
| 4       | 15                                | 0                  | 58                                | 62.0               | 42                 | 47.6               | 4.8                |
| 2       | 6                                 | 16.7               | 34                                | 73.5               | 124                | 54.0               | 17.7               |
| 14      | 18                                | 5.6                | 57                                | 52.6               | 180                | 66.1               | 21.7               |
| 42      | 10                                | 0                  | 68                                | 67.6               | 157                | 69.4               | 31.8               |
| 58-B    | 25                                | 8.0                | 119                               | 50.4               | 190                | 57.4               | 21.6               |
| 75      | 34                                | 0                  | 98                                | 39.8               | 87                 | 43.7               | 10.3               |
| 81      | 40                                | 0                  | 145                               | 35.2               | 55                 | 60.0               | 16.4               |
| 5       | 10                                | 0                  | 43                                | 46.5               | 179                | 36.9               | 8.9                |
| SUMMARY | 175                               | 2.3                | 662                               | 49.4               | 1130               | 55.0               | 18.0               |
|         |                                   | 1.0                |                                   | 6.9                |                    | 21.7               | 5.2                |
|         |                                   | 2.9                |                                   | 22.3               |                    | 55.0               | 18.0               |

\* Indiana State Speed Limit for Trucks with gross weight less than 5000 lbs. is 65 M.P.H.

\*\* Indiana State Speed Limit for trucks with gross weight 5000 lbs. or more is 45 M.P.H.

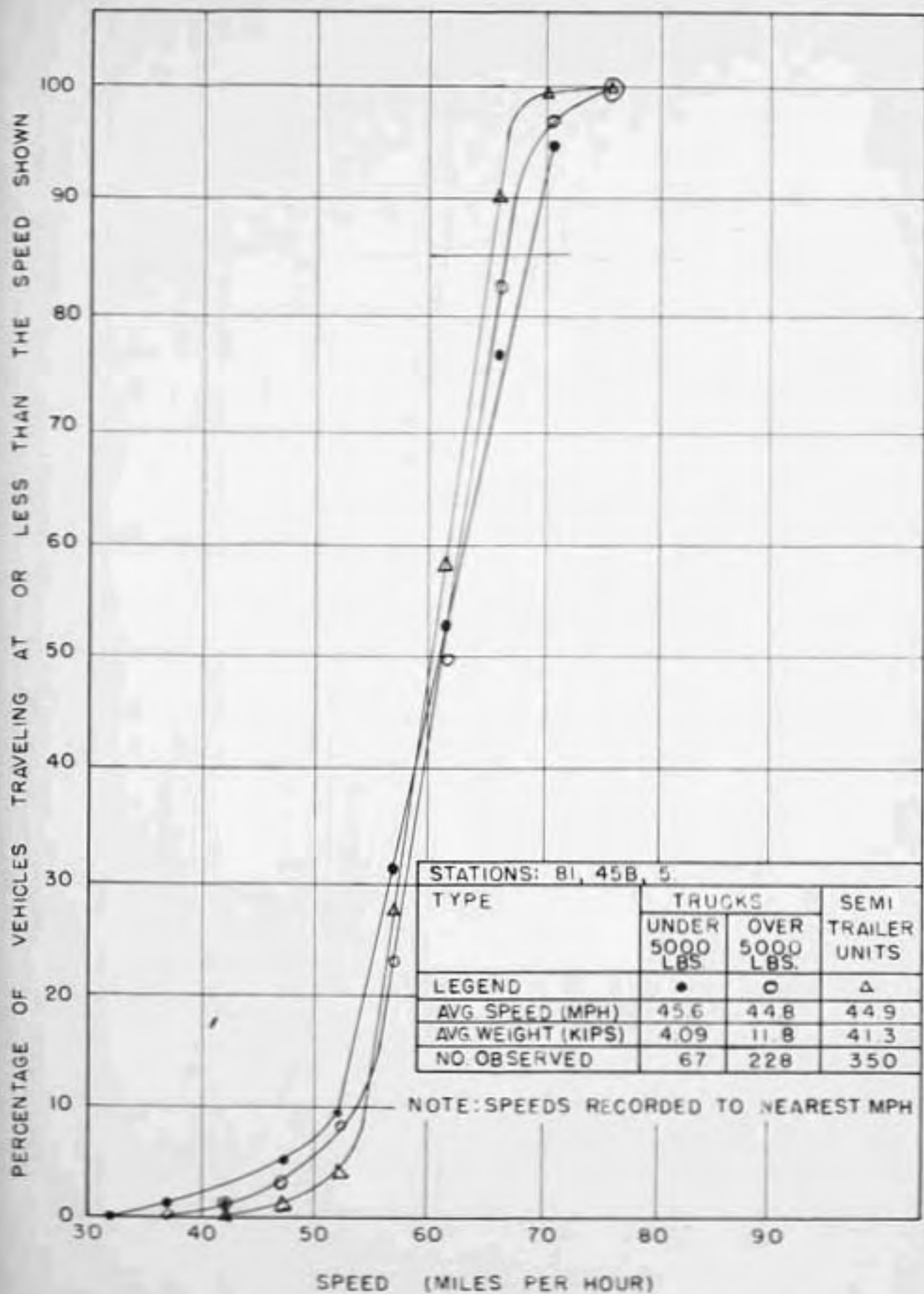
\*\*\* The Enforcement Speed Limit is usually considered to be the legal speed limit plus 5 M.P.H.



SPEED ACCUMULATION CURVES FOR ALL HIGHWAYS

FIG. 2

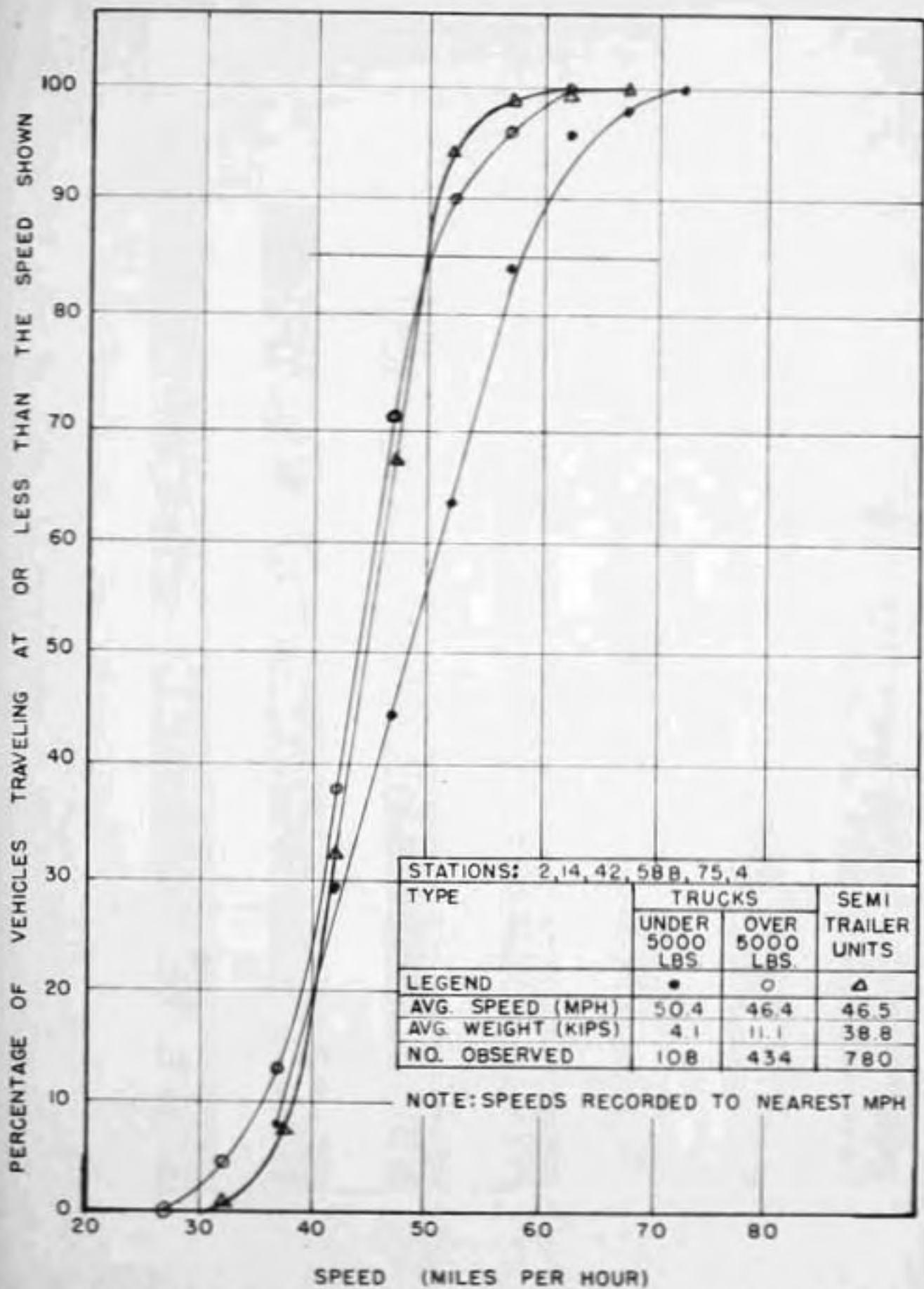




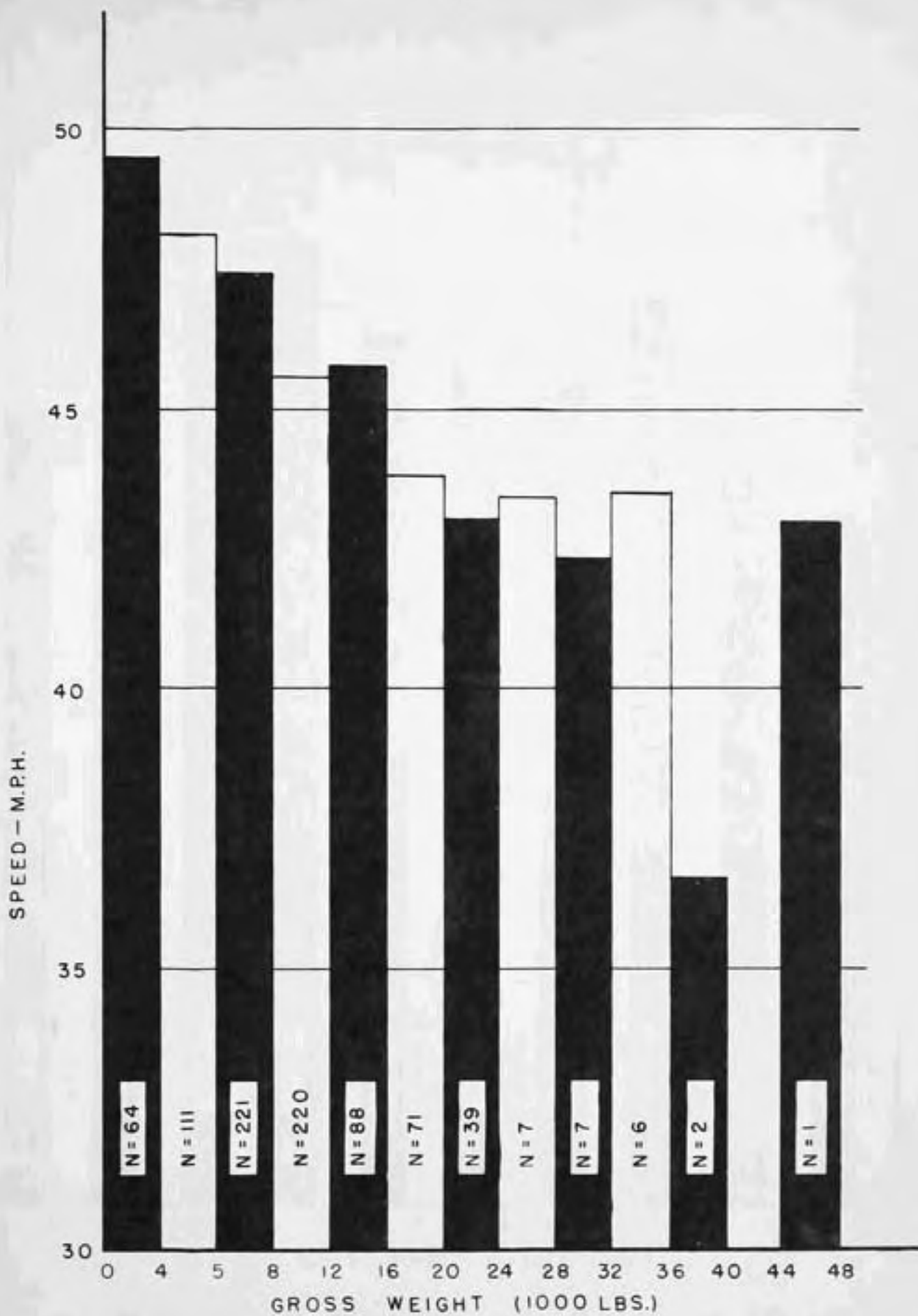
SPEED ACCUMULATION CURVES FOR TWO-LANE HIGHWAYS

FIG. 3

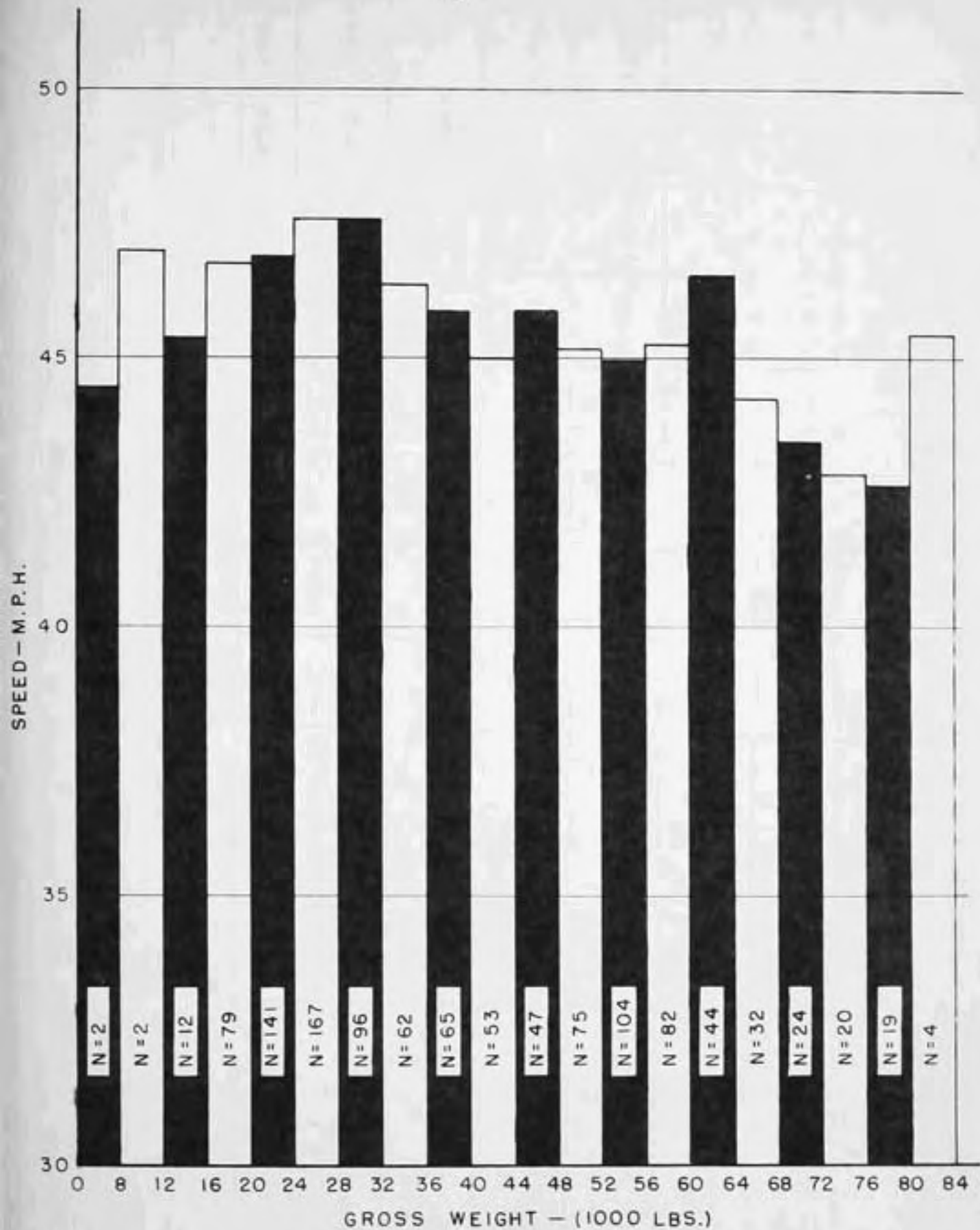




SPEED ACCUMULATION CURVES FOR FOUR-LANE HIGHWAYS  
FIG. 4



AVERAGE SPEED VS. GROSS WEIGHT FOR SINGLE UNITS  
FIG. 5



AVERAGE SPEED VS. GROSS WEIGHT FOR SEMI-TRAILERS  
FIG. 6

TABLE IV

TRUCK WEIGHT-SPEED DATA  
COMPARISON OF DATA FROM STUDIES IN VARIOUS YEARS

|                                     | 1946   | 1948   | 1949   | 1950   | 1951   | 1952   | 1953   | 1954   | 1955   | 1956   | 1957   | 1958   |
|-------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| No. of Single-Unit Trucks           | 839    | 493    | 578    | 791    | 1242   | 1482   | 1239   | 905    | 762    | 952    | 1028   | 837    |
| Ave. Speed of Single-Unit Trucks *  | 40.0   | 42.4   | 42.2   | 42.4   | 43.0   | 43.4   | 43.9   | 45.8   | 45.9   | 47.0   | 46.3   | 46.5   |
| Ave. Weight of Single-Unit Trucks * | 8,600  | 8,800  | 9,400  | 8,700  | 8,600  | 8,700  | 8,400  | 8,000  | 8,900  | 8,300  | 9,400  | 9,900  |
| No. of Semi-Trailers                | 586    | 627    | 581    | 879    | 1,402  | 1,354  | 1,507  | 1,064  | 1,120  | 1,033  | 1,161  | 1,130  |
| Ave. Speed of Semi-Trailers         | 39.8   | 42.7   | 43.2   | 42.7   | 43.5   | 44.1   | 43.1   | 43.6   | 43.5   | 44.4   | 42.5   | 46.1   |
| Ave. Weight of Semi-Trailers        | 29,200 | 31,900 | 32,500 | 36,700 | 36,700 | 35,900 | 35,800 | 37,400 | 38,400 | 37,900 | 37,100 | 39,500 |

DELETE 1946

SUMMARY OF RESULTS

From Tables I and II the Following Observations Are Made:

Single-Unit Trucks with a gross weight of less than 5,000 lbs:

|                             |                 |
|-----------------------------|-----------------|
| Number of vehicles observed | 175             |
| Average Speed               | 48.6 MPH 47.2   |
| Average Weight              | 4,100 lbs. 4380 |
| Percent empty               | 44.6            |

Single-Unit Trucks with a gross weight of 5,000 lbs. or more:

|                             |                   |
|-----------------------------|-------------------|
| Number of vehicles observed | 662               |
| Average Speed               | 45.9 MPH 42.9     |
| Average Weight              | 11,400 lbs. 11100 |
| Percent empty               | 34.9              |

All Single-Unit Trucks:

|                             |                 |
|-----------------------------|-----------------|
| Number of vehicles observed | 837             |
| Average Speed               | 46.5 MPH 45.5   |
| Average Weight              | 9,900 lbs. 9230 |
| Percent empty               | 36.9            |

Semi-Trailers (Multiple Units):

|                             |                   |
|-----------------------------|-------------------|
| Number of Vehicles Observed | 1,130             |
| Average Speed               | 46.1 MPH 49.6     |
| Average Weight              | 39,500 lbs. 40300 |
| Percent empty               | 35.4              |

Data for 1946, 1948, 1949, 1950, 1951, 1952, 1953, 1954, 1955, 1956 and 1957 have been obtained from Traffic Speed Reports 33, 40, 43, 45, 46, 50, 52, 54, 57, 59, and 63, respectively, and are compared with the 1958 data in Table IV. The data obtained during the 1958 study indicate that the average speed of single-unit trucks weighing more than 5,000 pounds increased 1.0 miles per hour since 1957, while the average speed of multiple unit trucks increased 3.6 miles per hour.

When compared with average weights obtained in the 1957 study, the 1958 data show that the average weight of single unit trucks has increased approximately 500 pounds and the average weight of multiple-unit trucks has increased about 2,400 pounds.

It was observed that 2.9 percent of the trucks weighing less than 5,000 pounds were exceeding the legal speed limit of 65 miles per hour and only 0.6 percent were exceeding 70 miles per hour. In the case of single-unit trucks with gross weight greater than 5,000 pounds, 49.4 percent were exceeding the legal speed limit of 45 miles per hour and 22.3 percent were exceeding 50 miles per hour. Of the multiple-unit trucks observed, 55.0 percent were exceeding the legal speed limit of 45 miles per hour and 18.0 percent were exceeding 50 miles per hour.

These percentages indicate a decrease in speed violations of 17.2 percent for single-unit trucks weighing less than 5,000 pounds, an increase of 15.7 percent for single-unit trucks with gross weight greater than 5,000 pounds and an increase of 83.3 percent for multiple-unit trucks, when compared with 1957 percentages.