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TRAFFIC SPEED REPORT
NO. 66

MAY 1959
NO. 10

Joint
Highway
Research
Project

PURDUE UNIVERSITY
LAFAYETTE INDIANA

by
D.F. PETTY

Progress Report

TRAFFIC SPEED REPORT NO. 66.

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

FROM: H. L. Michael, Assistant Director
Joint Highway Research Project

May 14, 1959

File: 8-3-3
Project: C-36-100

The attached Traffic Speed Report No. 66 has been prepared by Mr. Donald F. Petty, Research Assistant on our staff, under the direction of Prof. H. L. Michael.

This report presents the analysis and data for the winter season of 1959. The Project has conducted similar studies at the same locations semi-annually for the past twenty years. Copies of this report will be distributed as usual to the Indiana State Police, the Indiana Office of Traffic Safety, and the Bureau of Public Roads. The report is submitted for the record.

Respectfully submitted,

H. L. Michael

H. L. Michael, Secretary

HLM:ac

Attachment

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TRAFFIC SPEED REPORT NO. 66

By

Donald F. Petty, Research Assistant

Joint Highway Research Project

Project No: C-36-100

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Purdue University
Lafayette, Indiana

May 14, 1959

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TRAFFIC SPEED REPORT NO. 66

This report covers spot speed observations made from December, 1958, through March, 1959. The data were collected by the writer. All observations were made of free-moving vehicles on level tangent sections of rural highways. The locations of the observations were as follows:

1. U.S. 52 - 1.0 miles South of S. Jct. S.R. 28 (Dual Lanes)
2. U.S. 52 - 1.0 miles West of Klondike (Dual Lanes)
3. U.S. 52 - 2.2 miles Northwest of Templeton (2 Lane)
4. U.S. 31 - 7.2 miles North of Perrysburg (2 Lane)
5. S.R. 25 - .7 miles South of Americus (2 Lane)
6. U.S. 41 - 1.0 miles North of Boswell (2 Lane)

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 which was placed approximately two feet from the edge of the pavement. It was directed along the highway at a small angle with respect to the direction of traffic so that it was not necessary to apply an angle correction to the readings.

Radar equipment will not operate properly if the operating voltage is more than $1/2$ volt low or 1 volt high. The voltage, therefore, was checked periodically in the field with a voltmeter and maintained within the desired range. The radar equipment was also maintained in correct calibration by checking the registered speed with a 60 MPH tuning fork.

The observer concealed himself from the traffic as far from the highway as local conditions required. This was possible by using a 150 foot extension cable between the meter reading unit on which the

readings were observed, and the pick-up unit. It is, therefore, believed that the speeds of the vehicles were not influenced by the equipment or the observer.

A summary of the results of this study as well as the last seven studies is given in Table I. Indiana state law limits the speed of passenger cars and trucks weighing less than 5,000 pounds to 65 miles per hour. During the period of these studies, the maximum speed limit for trucks weighing more than 5,000 pounds was 45 miles per hour. The General Assembly of Indiana, however, changed this in their last session so that the maximum speed limit for trucks weighing more than 5,000 pounds is now 50 miles per hour on all highways except that on four-lane highways which have a median strip at least 20 feet wide the maximum speed limit is 55 MPH. Very few of the speed limit signs on the highways have been changed as of May 1, 1959 to reflect this new regulation, however. This change in speed limits may be reflected in the next speed studies and should be taken into consideration in the analysis of these future studies.

Truck speeds are shown for three groups: light trucks, heavy trucks and all trucks; also, it is noted in each table whether the road is a two-lane or four-lane type (all 4-lane highways studied had a median greater than 20 feet wide). Since it is impractical to accurately determine the exact weight of each truck, panel and single-wheel pickup types were classed as less than 5,000 pounds. All other types of trucks were classed as weighing over 5,000 pounds.

In order to compare the present and last previous observations at a given location, the results of each study are tabulated in Tables

II through VII. All speed observations for this study were taken at approximately the same location as for the last previous study.

The average speed for all passenger cars increased by 0.7 miles per hour since the last study (August, 1958) while average speed for all trucks decreased by 1.7 miles per hour. Indiana passenger cars increased their average speed on two-lane highways by 1.2 miles per hour while their average speed on four-lane highways increased by 0.2 miles per hour. An increase of 1.4 miles per hour on two-lane highways and 1.1 miles per hour on four-lane highways was observed for the average speeds of out-of-state passenger cars.

The average speed for light trucks decreased 2.6 miles per hour on two-lane highways and 0.7 miles per hour on four-lane highways. For heavy trucks, a decrease in the average speed of 0.9 miles per hour on two-lane highways and 2.0 miles per hour on four-lane highways was observed.

Trend information on the average speed of passenger cars and trucks is shown in Table I and Figures 7 and 8.

TABLE I

SUMMARY OF SPOT SPEED OBSERVATIONS
ON INDIANA HIGHWAYS

(Free-Moving Vehicles on Level, Tangent Sections)

		Passenger Cars				Trucks		
		Ind Mean	Non-Ind Mean	All Mean	All 85 per	Light Mean	Heavy Mean	All Mean
Two-lane Highways	July '55	53.8	55.7	54.5	64.8	46.2	45.5	45.6
	Feb. '56	54.9	58.0	55.9	63.2	47.1	43.2	44.4
	Aug. '56	55.0	56.3	55.5	63.4	50.6	45.5	46.6
	May '57	55.6	59.1	56.9	64.0	50.2	44.8	46.1
	Aug. '57	55.5	56.7	55.9	62.1	51.7	45.8	47.3
	Aug. '58	54.3	56.3	55.0	61.7	53.0	46.3	47.8
	Mar. '59	55.5	57.7	56.1	61.9	50.4	45.4	46.3
Four-lane Highways	July '55	54.5	56.6	55.2	63.7	47.5	43.9	44.8
	Feb. '56	58.1	60.1	58.7	65.7	47.8	45.2	45.8
	Aug. '56	57.4	58.8	58.2	66.8	49.6	46.0	47.4
	May '57	59.9	63.6	61.0	69.0	52.2	46.0	47.9
	Aug. '57	57.5	59.9	58.5	64.8	52.0	46.6	47.6
	Aug. '58	58.0	59.6	58.7	65.0	54.3	49.0	50.0
	Mar. '59	58.2	61.7	59.0	64.9	53.6	47.0	48.4
All Highways	July '55	54.1	56.6	55.2	64.3	46.9	44.7	45.2
	Feb. '56	56.0	58.6	56.8	63.8	47.3	44.0	44.9
	Aug. '56	55.7	57.3	56.4	64.5	50.2	45.6	46.9
	May '57	57.2	60.3	58.3	66.0	50.9	45.2	46.6
	Aug. '57	56.2	58.3	56.9	63.2	51.8	46.1	47.4
	Mar. '59	56.6	59.0	57.2	63.1	51.5	45.9	47.0

TABLE III
SPEED DATA

Station #2 - 1 Mile West of Klondike on U. S. 52

Surface 4 Lane Divided. 24' Portland Cement Concrete

Weather Cloudy & Dry

Last Previous Observation (Speed Report No.)

Date December 30, 1958

Time 1:30 P.M. - 4:05 P.M.

Date August 12, 1958

Time 2:40 P.M. - 5:51 P.M.

	PASSENGER CARS										TRUCKS						BUSES									
	All					Indiana					Non-Indiana					All			Less than 5000 pounds			5000 pounds or more		All		
	Last	Present		Last	Present	Last	Present		Last	Present	Last	Present		Last	Present	Last	Present	Last	Present	Last	Present	Last	Present	Last	Present	
All Vehicles	OBSERVATION																									
	No. of Vehicles Obs.																									
	Ave. Speed (m.p.h.)																									
	Under 45 m.p.h.																									
	50 m.p.h.																									
	55 m.p.h.																									
BOUND	All Vehicles																									
	No. of Vehicles Obs.																									
	Ave. Speed (m.p.h.)																									
	Max. Speed (m.p.h.)																									
	State or Type																									
	Min. Speed (m.p.h.)																									
BOUND	All Vehicles																									
	No. of Vehicles Obs.																									
	Ave. Speed (m.p.h.)																									
	Max. Speed (m.p.h.)																									
	State or Type																									
	Min. Speed (m.p.h.)																									

IV

2.0 Miles North of Templeton on U. S. 52

22' Bituminous

Weather Clear, Sunny, Good

This Observation

Date January 8, 1959

Time 2:45 - 4:30 P.M.

[illegible]

TABLE VII
SPEED DATA

Station #6- 1.0 Mile North of Boswell on U. S. 41

Surface 2 Lane 22' Bituminous

Weather Cloudy & Dry

This Observation

Last Previous Observation (Speed Report No.)

Date March 31, 1959

Date _____

Time 9:30 A.M. - 12:30 P.M.

1

OBSERVATION	PASSENGER CARS						TRUCKS						BUSES							
	All			Indiana			Non-Indiana			All			Less than 5000 pounds			5000 pounds or more		All		
	Last	Present		Last	Present		Last	Present		Last	Present		Last	Present		Last	Present		Last	Present
No. of Vehicles Obs.	—	311		—	128		—	183		—	99		—	23		—	76		—	—
Ave. Speed (m.p.h.)	—	56.5		—	56.2		—	56.6		—	45.1		—	48.0		—	44.2		—	—
45 m.p.h.	—	96.0		—	96.1		—	96.17		—	52.5		—	69.6		—	47.4		—	—
50 m.p.h.	—	86.5		—	79.7		—	91.3		—	27.3		—	47.8		—	21.1		—	—
55 m.p.h.	—	66.2		—	63.3		—	68.3		—	8.1		—	21.7		—	4.0		—	—
60 m.p.h.	—	33.4		—	34.4		—	32.8		—	1.0		—	4.4		—	0		—	—
65 m.p.h.	—	10.6		—	11.7		—	9.8		—	0		—	0		—	0		—	—
70 m.p.h.	—	2.9		—	5.5		—	1.1		—	0		—	0		—	0		—	—
75 m.p.h.	—	0.6		—	1.6		—	0		—	0		—	0		—	0		—	—
No. of Vehicles Obs.	—	158		—	64		—	94		—	52		—	9		—	43		—	—
Ave. Speed (m.p.h.)	—	57.1		—	57.5		—	57.0		—	44.0		—	45.7		—	44.1		—	—
Max. Speed (m.p.h.)	—	78		—	78		—	70		—	55		—	51		—	55		—	—
State or Type	—	Ind.		—	—		—	—		—	Over 5000		—	—		—	—		—	—
Min. Speed (m.p.h.)	—	42		—	42		—	42		—	36		—	36		—	36		—	—
State or Type	—	Ind. & Non-Ind.		—	—		—	—		—	Less than 5000		—	—		—	—		—	—
No. of Vehicles Obs.	—	153		—	64		—	89		—	47		—	14		—	33		—	—
Ave. Speed (m.p.h.)	—	55.6		—	55.0		—	56.1		—	45.9		—	49.6		—	44.3		—	—
Max. Speed (m.p.h.)	—	74		—	74		—	71		—	64		—	64		—	58		—	—
State or Type	—	Ind.		—	—		—	—		—	Less than 5000		—	—		—	—		—	—
Min. Speed (m.p.h.)	—	34		—	34		—	38		—	38		—	32		—	30		—	—
State or Type	—	Ind.		—	—		—	—		—	Over 5000		—	—		—	—		—	—

FIGURE 1

FIGURE 2

FIGURE 3

FIGURE 4

FIGURE 5

FIGURE 6

INDIANA RURAL SPEED TRENDS 1942-1960

TRENDS IN PERCENTILE SPEEDS AND SPEED DIFFERENTIAL 1949-1960

FIG. 8