

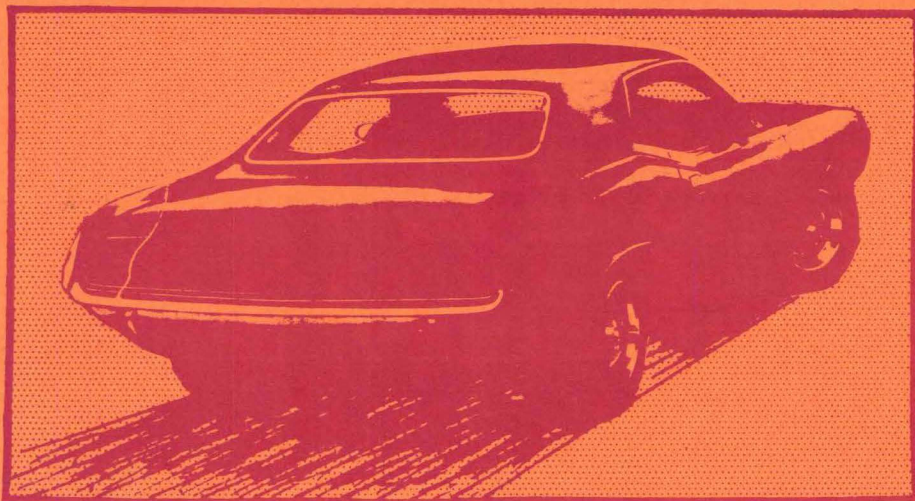
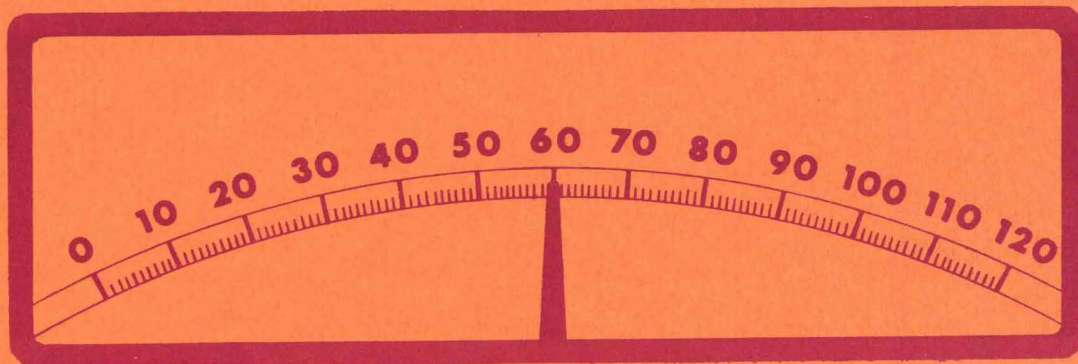
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17-H53TS
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972

Annual

Speed Check

at Selected Primary Road Locations



IOWA
July 1972

17-1453 TS

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972

IOWA

SPEED STUDY

1972

Prepared by
Traffic and Safety Department
Iowa State Highway Commission

In Cooperation With
Federal Highway Administration
U.S. Department of Transportation

INTRODUCTION

The Iowa State Highway Commission conducted speed studies during the month of July, 1972, at 24 locations. Normally 25 locations are surveyed, but because of road construction, one station was omitted. Twenty of the stations are located on Primary highways and five are situated on the Interstate System. At four of the locations, data was also obtained during the nighttime. In the past, data had been collected semi-annually through 1967; and in 1968, studies were made at each station during the months of May, July and October.

The general locations of the 25 annual speed check stations are illustrated on an Iowa map, shown on Page 4. Since the area at Station 81 was becoming urbanized, it was relocated south to a more rural location at the Port Neal Landing interchange.

Vehicular speeds were measured by the use of an electronic radar speed meter. Vehicles were classified as passenger cars or commercial. Passenger cars were classified as local, other Iowa, or foreign. The commercial vehicles were classified as local and other. A two hour study was made at each station. The stations are on level, tangent sections of paved rural highways and only the speeds of "free-flowing" vehicles were recorded.

DESCRIPTIONS OF STATIONS BY HIGHWAY SYSTEMS

Interstate

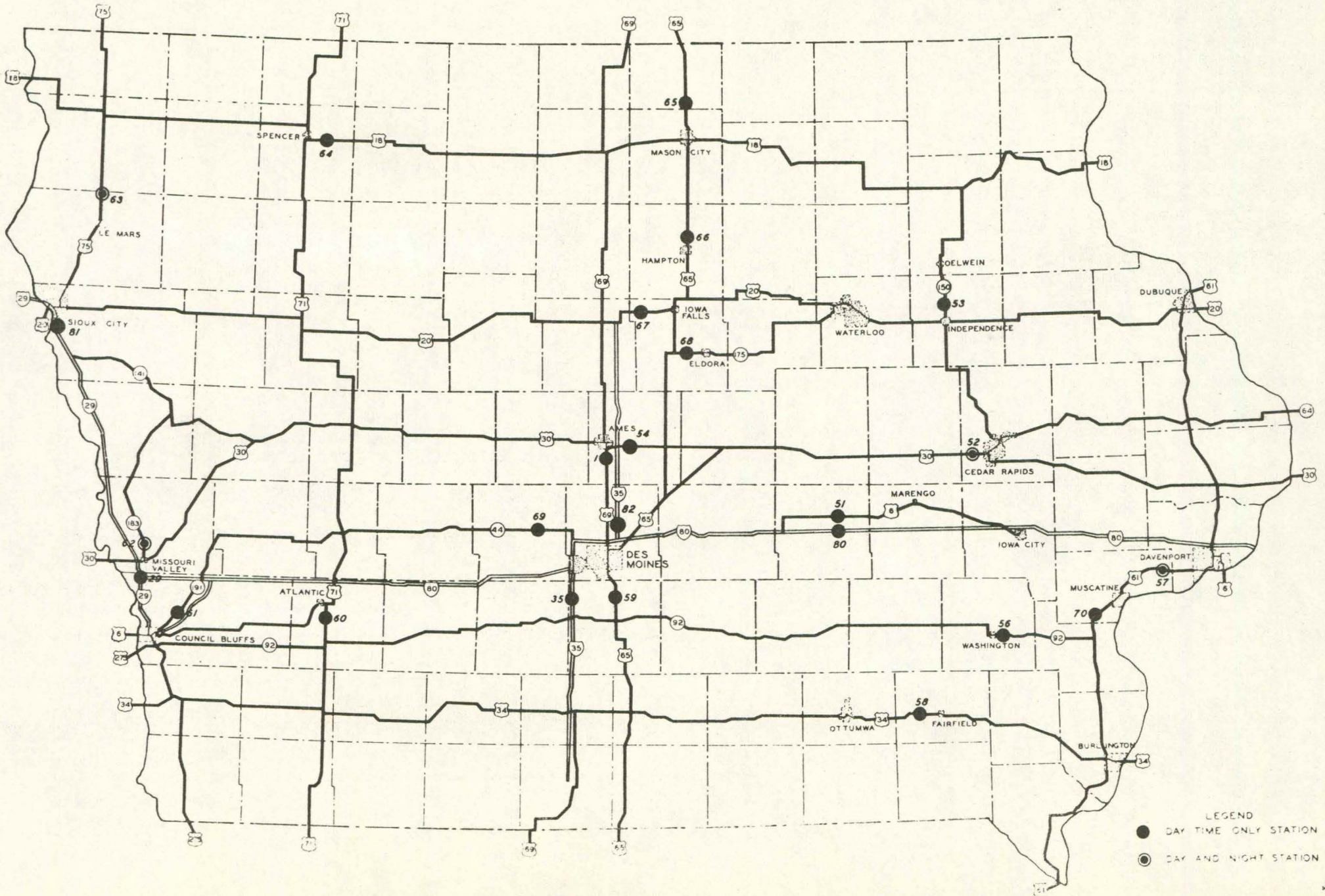
Station 29	I-29	1 mile south of Loveland Exit
Station 35	I-35	North of North River Bridge
Station 80	I-80	East of Brooklyn Exit
Station 81	I-29	Port Neal Landing Interchange
Station 82	I-35	South of Bondurant Interchange

Primary

Station 1	U.S. 69	4 miles south of Ames
Station 51	U.S. 6	1.8 miles east of Iowa 398
Station 52	U.S. 30	1 mile west of Cedar Rapids
Station 53	Iowa 150	1 mile north of Independence
Station 54	U.S. 30	4 miles east of Ames
Station 56	Iowa 92	2 miles east of Washington
Station 57	U.S. 61	2.5 miles west of Blue Grass
Station 58	U.S. 34	5 miles west of Fairfield
Station 59	U.S. 69	6 miles north of Indianola
Station 60	U.S. 71	4 miles south of Atlantic
Station 61	Iowa 191	2.5 miles south of Underwood
Station 62	Iowa 183	2.5 miles north of Missouri Valley
Station 63	U.S. 75	7 miles north of Le Mars
Station 64	U.S. 18	5 miles east of Spencer
Station 65	U.S. 65	7.7 miles north of Mason City

Station 66	U.S. 65	2 miles north of Hampton
Station 67	U.S. 20	3 miles west of Alden
Station 68	Iowa 175	2.8 miles east of U.S. 65
Station 69	Iowa 44	0.5 mile east of Dallas Center
Station 70	U.S. 61	9 miles south of Muscatine

ANNUAL SPEED CHECK
STATION LOCATIONS



LEGEND
 ● DAY TIME ONLY STATION
 ○ DAY AND NIGHT STATION

AVERAGE AND 85th PERCENTILE DAYTIME
SPEEDS OF MOTOR VEHICLES

*Interstate
Stations

ON PRIMARY AND INTERSTATE HIGHWAYS

Speed Check Location No.	Rt. No.	Passenger Cars			Commercial Vehicles			All Vehicles		
		No. Obs.	85th % Speed	Avg. Speed	No. Obs.	85th % Speed	Avg. Speed	No. Obs.	85th % Speed	Avg. Speed
51	6	98	70.0	62.8	8	62.6	52.9	106	69.8	62.3
52	30	570	68.0	60.8	116	59.8	55.1	686	67.1	59.6
53	150	274	68.1	59.3	57	58.6	55.3	331	67.2	58.2
54	30	442	71.5	65.4	65	60.7	56.6	507	70.8	64.1
1	69	318	69.0	60.6	33	56.3	52.0	351	68.4	59.6
56	92	356	67.3	59.1	50	59.2	55.2	406	66.5	58.2
57	61	425	69.3	63.0	87	60.9	56.0	512	68.6	61.7
58	34	356	69.1	61.1	59	58.7	54.3	415	68.4	60.2
59	69	516	67.5	58.7	75	59.4	52.9	591	66.9	57.9
60	71	177	69.8	60.3	31	62.8	55.2	208	69.1	59.7
61	191	172	69.9	62.4	26	55.1	52.4	198	69.4	60.8
62	183	134	71.6	61.5	15	63.7	56.0	149	70.8	61.1
63	75	Road Under Construction								
64	18	272	70.8	64.0	46	63.4	57.9	318	70.4	63.0
65	65	607	64.1	55.9	96	59.6	53.1	703	63.5	55.4
66	65	354	69.5	64.5	86	62.8	56.9	440	68.9	62.5
67	20	316	69.7	63.4	78	60.6	57.3	394	69.3	61.3
68	175	212	69.6	61.6	24	59.3	54.9	236	69.3	60.6
69	44	198	70.2	60.7	28	60.7	54.9	226	69.4	59.6
70	61	363	67.1	59.6	119	58.7	55.1	482	65.7	57.9
29*	29	604	75.8	68.7	105	68.2	62.2	709	74.8	67.6
35*	35	920	78.2	70.7	221	64.0	59.1	1141	77.3	69.1
80*	80	1432	79.8	72.4	308	68.0	62.5	1740	79.0	70.6
81*	29	802	78.1	70.7	115	69.9	63.2	917	77.5	70.0
82*	35	1210	75.4	68.6	234	64.4	58.3	1444	74.6	66.8
All Stations	-	11128	72.6	65.2	2082	63.1	57.8	13210	71.9	63.9

AVERAGE AND 85th PERCENTILE DAYTIME
SPEEDS OF MOTOR VEHICLES
ON PRIMARY HIGHWAYS

Speed Check Location No.	Rt. No.	Passenger Cars			Commercial Vehicles			All Vehicles		
		No. Obs.	85th % Speed	Avg. Speed	No. Obs.	85th % Speed	Avg. Speed	No. Obs.	85th % Speed	Avg. Speed
51	6	98	70.0	62.8	8	62.6	52.9	106	69.8	62.3
52	30	570	68.0	60.8	116	59.8	55.1	686	67.1	59.6
53	150	274	68.1	59.3	57	58.6	55.3	331	67.2	58.2
54	30	442	71.5	65.4	65	60.7	56.6	507	70.8	64.1
1	69	318	69.0	60.6	33	56.3	52.0	351	68.4	59.6
56	92	356	67.3	59.1	50	59.2	55.2	406	66.5	58.2
57	61	425	69.3	63.0	87	60.9	56.0	512	68.6	61.7
58	34	356	69.1	61.1	59	58.7	54.3	415	68.4	60.2
59	69	516	67.5	58.7	75	59.4	52.9	591	66.9	57.9
60	71	177	69.8	60.3	31	62.8	55.2	208	69.1	59.7
61	191	172	69.9	62.4	26	55.1	52.4	198	69.4	60.8
62	183	134	71.6	61.5	15	63.7	56.0	149	70.8	61.1
63	75	Road Under Construction								
64	18	272	70.8	64.0	46	63.4	57.9	318	70.4	63.0
65	65	607	64.1	55.9	96	59.6	53.1	703	63.5	55.4
66	65	354	69.5	64.5	86	62.8	56.9	440	68.9	62.5
67	20	316	69.7	63.4	78	60.6	57.3	394	69.3	61.3
68	175	212	69.6	61.6	24	59.3	54.9	236	69.3	60.6
69	44	198	70.2	60.7	28	60.7	54.9	226	69.4	59.6
70	61	363	67.1	59.6	119	58.7	55.1	482	65.7	57.9
All Stations	-	6160	68.5	60.9	1099	60.0	55.1	7259	67.9	59.8

AVERAGE AND 85TH PERCENTILE DATA
 SPEEDS OF MOTOR VEHICLES
 ON INTERSTATE HIGHWAYS

Speed Check Location No.	Rt. No.	Passenger Cars			Commercial Vehicles			All Vehicles		
		No. Obs.	85th % Speed	Avg. Speed	No. Obs.	85th % Speed	Avg. Speed	No. Obs.	85th % Speed	Avg. Speed
29	29	604	75.8	68.7	105	68.2	62.2	709	74.8	67.6
35	35	920	78.2	70.7	221	64.0	59.1	1144	77.3	69.1
80	80	1432	79.8	72.4	308	68.0	62.5	1740	79.0	70.6
81	81	802	78.1	70.7	115	69.9	63.2	917	77.5	70.0
82	82	1210	75.4	78.6	234	64.4	58.3	1444	74.6	66.8
All Stations	-	4968	77.7	70.4	983	66.5	60.8	5951	76.9	68.9

AVERAGE AND 85th PERCENTILE NIGHTTIME
SPEEDS OF MOTOR VEHICLES
ON PRIMARY HIGHWAYS

Speed Check Location No.	Rt. No.	Passenger Cars			Commercial Vehicles			All Vehicles		
		No. Obs.	85th % Speed	Avg. Speed	No. Obs.	85th % Speed	Avg. Speed	No. Obs.	85th % Speed	Avg. Speed
52	30	336	63.5	57.5	90	59.9	55.8	426	62.9	57.0
57	61	218	67.8	60.2	22	60.8	57.4	240	67.4	59.8
62	183	74	70.8	60.5	3	67.1	62.9	77	70.6	60.7
63	75			Road Under Construction						
All Stations	-	628	65.8	58.8	115	60.3	56.3	743	65.2	58.3

DAYTIME TRAFFIC
FOR ALL STATIONS

	VEHICLE TYPE					All
	Passenger Cars			Commercial		
	Local	Other	Foreign	Local	Other	
No. checked	4439	2,938	3,751	586	1496	13210
Avg. Speed	62.1	64.9	68.8	54.1	58.6	63.9
85% Speed	71.2	73.7	77.3	60.4	65.4	71.9

PERCENT OF VEHICLES TRAVELING
AT OR BELOW INDICATED SPEED

Speed In Miles Per Hour	Local	Other	Foreign	Commercial Local	Commercial Other	All
85	99.6	99.6	98.7	100.0	100.0	99.4
80	98.8	97.9	95.2	100.0	100.0	97.8
75	93.4	88.6	78.5	100.0	99.5	89.1
70	84.7	77.1	62.1	100.0	97.9	78.7
65	61.9	50.1	34.8	97.5	84.0	55.6
60	45.2	32.9	22.2	87.4	66.2	40.2
55	20.5	12.0	7.9	55.1	27.5	17.4
50	9.1	4.7	3.1	29.7	9.7	7.4
45	1.3	0.4	0.3	6.0	1.3	1.0
40	0.0	0.0	0.0	1.7	0.2	0.2
35	0.0	0.0	0.1	0.2	0.1	0.0
30	0.0	0.0	0.0	0.0	0.0	0.0
25	0.0	0.0	0.0	0.0	0.0	0.0

Violations	PASSENGER CARS		COMMERCIAL VEHICLES		ALL VEHICLES	
	Primary Routes	Interstate Routes	Primary Routes	Interstate Routes	Primary Routes	Interstate Routes
Below Minimum Exceed Limits	-	6	-	11	-	17
5 MPH or Less	273	997	448	198	721	1295
6 to 10 MPH	142	193	86	15	228	208
11 to 15 MPH	22	58	27	13	49	71
16 to 20 MPH	9	8	2	-	9	8
21 to 25 MPH	-	-	1	-	1	-
Over 25 MPH	2	3	-	-	2	3
Violation Sub-Total	448	1265	564	237	1010	1602
Vehicle Sub-Total	6160	4968	1099	983	7259	5951
Percent Sub-Total	7.3%	25.5%	51.3%	24.1%	13.9%	26.9%
Total Vehicles	11,128		2082		13,210	
Percent	15.4%		38.5%		19.8%	

Primary Routes SPEED LIMITS
 Cars-Day 70, Night 60
 Trucks - Day & Night 55
 Buses - Day & Night 60

Interstate Routes
 Cars - Day 75, Night 65
 Trucks - Day & Night 65
 Minimum 40

Exceeding Limits by	Nighttime Violations On Primary Routes		
	Passenger Cars	Commercial Vehicle	All Vehicles
5 MPH or Less	112	57	169
6 to 10 MPH	82	8	90
11 to 15 MPH	9	4	13
16 to 20 MPH	10	-	10
21 to 25 MPH	3	-	3
Over 25 MPH	3	-	3
Total Violations	219	69	288
Total Number of Vehicles Surveyed	628	115	743
Percent Exceeding Speed Limit	34.9%	60.0%	38.8%

CUMULATIVE FREQUENCY CHART

ALL DAY STATIONS
 STATION NO. All Stations

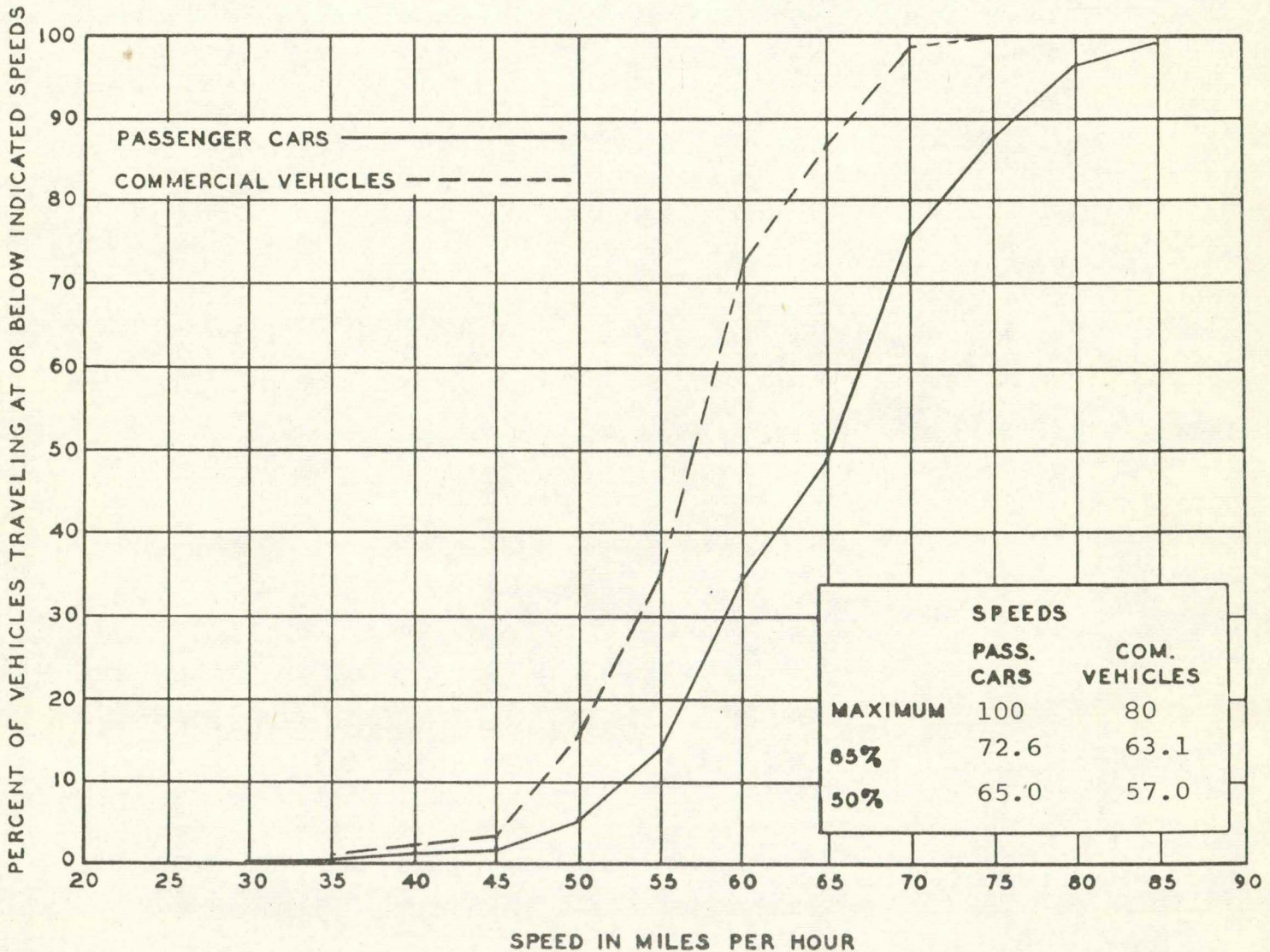
PASSENGER CARS

COMMERCIAL VEHICLES

Local and Other 7,377
 OUT OF STATE 3,751
 TOTAL 11,128

Local 586
 Other 1,496
 TOTAL 2,082

TOTAL VEHICLES 13,210

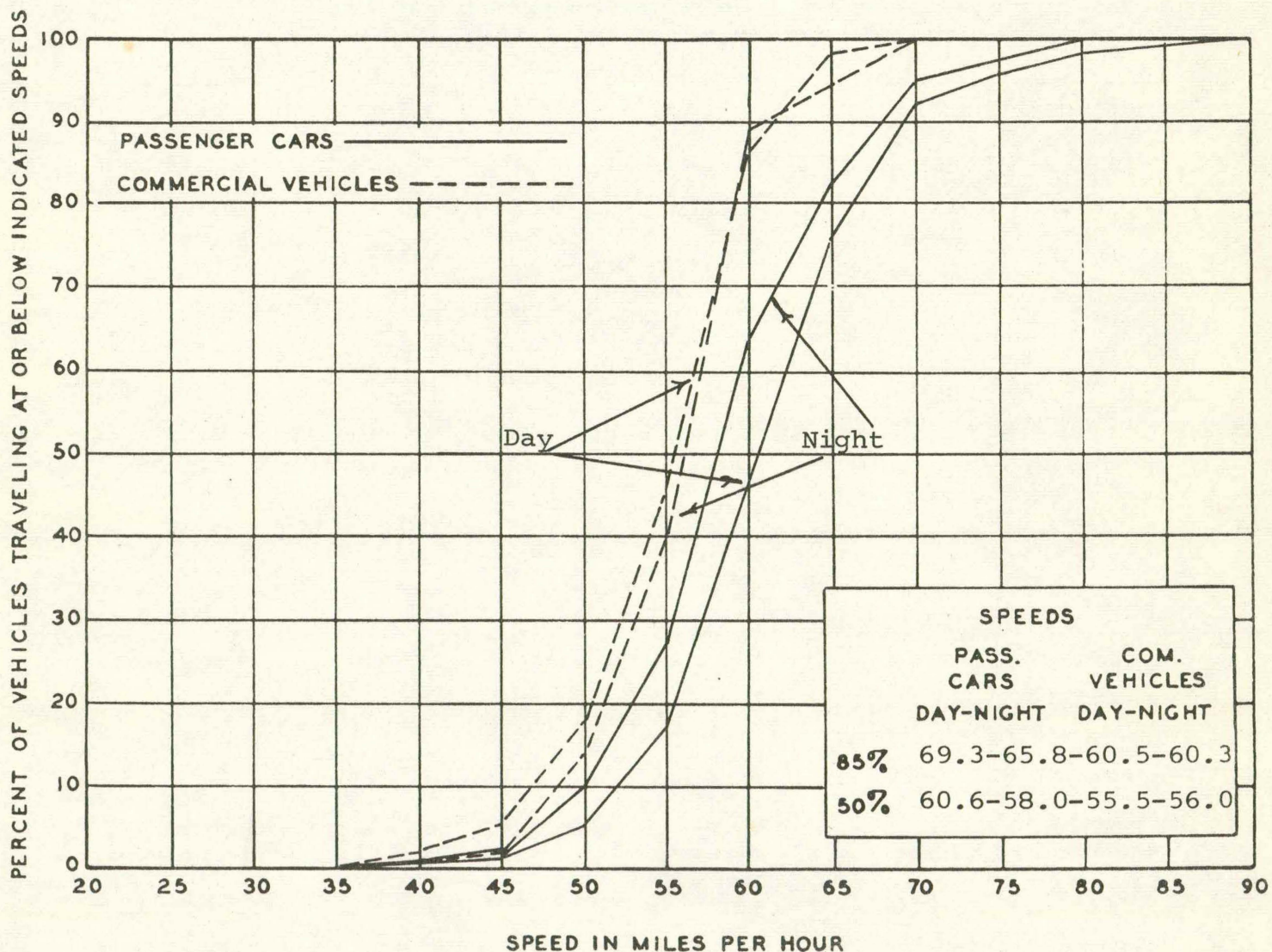


CUMULATIVE FREQUENCY CHART

CORRESPONDING DAY AND NIGHT STATIONS

STATIONS 52-57-62-63

DAY	NIGHT
PASSENGER CARS <u>1129</u>	PASSENGER CARS <u>628</u>
COMMERCIAL VEHICLES <u>218</u>	COMMERCIAL VEHICLES <u>115</u>
TOTAL <u>1347</u>	TOTAL <u>743</u>
SPEED LIMIT <u>Cars 70 - Trucks 55</u>	SPEED LIMIT <u>Cars 60 - Trucks 55</u>



10

YEARLY COMPARISON OF 85th PERCENTILE SPEEDS
IN JULY FOR PASSENGER AND COMMERCIAL VEHICLES

YEAR	PASSENGER CAR			COMMERCIAL VEHICLE		
	Primary		Interstate	Primary		Interstate
	Day	Night	Day	Day	Night	Day
1967*	62.4	62.5	72.5	54.2	56.6	61.7
1968	66.9	63.8	72.0	58.0	58.4	62.3
1969	67.7	63.9	74.6	58.1	59.0	65.3
1970	68.8	66.4	75.5	59.0	58.0	66.6
1971	66.4	64.3	75.6	57.9	60.5	67.3
1972	68.5	65.8	77.7	60.0	60.3	66.5

* Data was collected in October, 1967

SUMMARY

The 1972 Annual Speed Study data was obtained during the day at 24 rural stations (19 on Primary roads and five on Interstate Highways) using electronic radar speed meters. Normally, data is collected at 25 locations, but due to reconstruction, one Primary station was omitted. In addition, data was gathered at three of the Primary road locations during nighttime hours.

A total of 13,953 vehicles was surveyed during the day and night hours at the 24 stations in July, 1972. The daylight survey totaled 13,210 of which 11,128 were passenger cars and 2,082 were commercial vehicles. The three night stations checked a total of 743 vehicles. Passenger cars accounted for 628 and commercial vehicles for 115 of the total.

Of the 13,210 vehicles observed during the daytime, 33.6% were local passenger cars, 22.2% were other Iowa Passenger cars, 28.4 were out-of-state passenger cars, 4.4% were local commercial vehicles, and 11.3% were other Iowa and out-of-state commercial vehicles.

The 85th percentile daytime speeds of 68.5 MPH for passenger cars and 60.0 MPH for commercial vehicles indicates the 70 MPH car daytime speed limit is reasonable and proper. Commercial vehicles are traveling faster than the 55 MPH truck daytime speed limit. The 85th percentile nighttime speeds were 65.8 MPH for

passenger cars and 60.3 MPH for commercial vehicles on the Primary roads. Iowa has a posted nighttime speed limit of 60 MPH for cars and 55 MPH for trucks.

The 85th percentile daytime speeds of 77.7 MPH for passenger cars and 66.5 MPH for commercial vehicles is in fairly close agreement with the 75 MPH car and 65 MPH truck daytime speed limits posted on the Interstate System.

It has also been determined that of the 7,259 daytime vehicles on the Primary highways, 13.9% were exceeding the posted car/truck speed limits of 70/55 MPH. Approximately 71% of the violators, however, were traveling only 5 MPH or less over the posted speed. Of the 5,951 daytime vehicles on the Interstate highways, 26.9% were exceeding the posted car/truck speed limits of 75/65 MPH. Again, approximately 81% of the violators, however, were traveling only 5 MPH or less over the posted speed. From reviewing the 743 nighttime vehicles surveyed at the three Primary road stations, it was discovered that 38.8% were exceeding the posted car/truck speed limits of 60/55 MPH. About 59% of the violators, however, were traveling only 5 MPH or less over the posted speed. In Iowa, on rural highways, a speeding violation of 5 MPH or less over the posted limit is not cited for a traffic offense. A violator exceeding the posted speed limit from greater than 5 MPH to 10 MPH may be given a warning summons.

SUMMARY OF 1972 ANNUAL SPEED SURVEY REPORT

The Iowa State Highway Commission has been cooperating with the Federal Highway Administration in the collection of speed study data since 1940. The twenty (20) Primary road locations originally selected in 1940 are still in use today, though there have been some changes due to highway modernization, improvements and the growth of urban areas.

A brief summary with some of the pertinent facts and conclusions that may be gained from this study may be found on page 14 of the report.

A comparison of 85th percentile speeds for the years 1967 thru 1972 is shown on page 13 and reproduced here. The following speeds are the level commonly used by traffic authorities nationwide for establishment of reasonable and proper speed limit zones. This level is referred to as the 85th percentile speed, that speed at or below which 85 percent of the traffic is traveling through an area.

<u>Year</u>	<u>Passenger Cars</u>			<u>Commercial Vehicles</u>		
	<u>Primary</u>		<u>Interstate</u>	<u>Primary</u>		<u>Interstate</u>
	<u>Day</u>	<u>Night</u>	<u>Day</u>	<u>Day</u>	<u>Night</u>	<u>Day</u>
1967	62.4	62.5	72.5	54.2	56.6	61.7
1968	66.9	63.8	72.0	58.0	58.4	62.3
1969	67.7	63.9	74.6	58.1	59.0	65.3
1970	68.8	66.4	75.5	59.0	58.0	66.6
1971	66.4	64.3	75.6	57.9	60.5	67.3
1972	68.5	65.8	77.7	60.0	60.3	66.5

The charts on page 10 provide information on the number of day and night speed limit violations observed among the vehicles surveyed during the study period. Following are listed violations expressed as a percentage of the total vehicles studied in each group of passenger cars and commercial vehicles:

Daytime Violations--All Stations--Primary and Interstate

	<u>Passenger Cars</u>		<u>Commercial Vehicles</u>	
	<u>Primary</u>	<u>Interstate</u>	<u>Primary</u>	<u>Interstate</u>
Percent Violation	7.3%	25.5%	51.3%	24.1%

Nighttime Violations--Four Primary Road Stations

	<u>Passenger Cars</u>	<u>Commercial Vehicles</u>
Percent Violation	34.9%	60.0%

Considering daytime violations, 2,016 or 77 percent of the vehicles observed to be in violation were traveling in the range of one to five miles above the speed limit. The nighttime survey indicated that 169 of the 288 violators, or 59 percent, were traveling at speeds in this range.

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