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### SPOT SPEED ANALYSIS - A CASE STUDY OF GH-4 TO GH-5 ROAD GANDHINAGAR

MITTAL PATEL<sup>1</sup>, KAUSHAL RAVAL<sup>1</sup>, KAJAL DESAI<sup>1</sup>, SACHIN N. BHAVSAR<sup>2</sup>, VINAY JAISINGHANI<sup>2</sup>

1. Assistant Professor, civil engineering department, SVBIT, Vasan, Gujrat-382650 Dist. Gandhinagar, Vasan, Gujarat- 382650
2. Lecturer, civil engineering department, SVBIT, Vasan, Gujrat-382650 Dist. Gandhinagar, Vasan, Gujarat- 382650.

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**Abstract:** Traffic engineering provides methods and techniques to create the safe and time efficient movement of people and goods on roadways. It is reliant on Traffic flow, which is directly linked to the traffic individuality. The three main parameters of a traffic flow are volume, speed and density. In this work emphasis was given on traffic speed data compilation and the analysis which was carried out through primary traffic flow surveys. Traffic flow is experiential with manual methods with the help of the data collection. An attempt had been made to appreciate the traffic patterns during different time periods of peak and non-peak hours. Traffic control at that junction is also reliant on the traffic flow individuality. Hence the results from the present study are helpful in controlling the traffic at the junction and also in suggesting some of the remedial measures to improve the traffic safety in the region.

**Keywords** Traffic engineering

Corresponding Author: MITTAL PATEL



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## INTRODUCTION

People always try to cope up with time. But this is not as easy as it can be said in few words. To cope up with time people need speed and for a good speed people need a transportation system by which s/he can travel to their desired destination in the shortest possible time. But balancing is the intuitive tendency of nature. When a transportation system offers a good speed then a person try to use that system as much as possible and then congestion takes birth. This is the ultimate enemy of speed. If a road system is occupied by a large numbers of vehicles then it is not possible for the travelers to maintain their desired speed which is the consequence of the congestion created by the abnormal number of vehicles occupying the road. Here comes the importance of a transportation engineer. What a transportation engineer does is, he collects data of a roadway system (Speed data occupies the most important part of them. It mostly indicates the overall efficiency of the traffic system), analyze them and then finally provide the most suitable solution of the problem <sup>[1]</sup>.

### Purposes:

- For geometric design of roads purposes on improved or new facilities likewise horizontal curvature, vertical profile, sight distance, and super-elevation can be determined.
- For regulation and control of traffic operations.( - Speed limits - Traffic signs - Signal settings - Road markings - Speed change lanes - No passing zones - Pedestrian crossings)
- For analysing the causes of accidents and identifying any relations between speed and accidents, spot speed data are needed.
- Determine the desired speed by motorists.
- For determining the problems of congestion on roads

### OBJECTIVES.

- To measure the spot speed and travel speed of vehicles and note other related traffic Characteristics
- To present detailed diagram of spot speed and travel speed calculations
- To determine weighted average speed, pace, modal speed, speed limit (85th percentile Speed), design speed, etc. of spot speeds.
- To plot, frequency curves and cumulative frequency curves of spot speeds

## METHODS

### Data Collection

- Based on manual counting
- Observation: Record travel times within a small strip of 50 meter length.
- Method: Manual count
- Location: Mid-block

- Duration: 1 hour effective duration

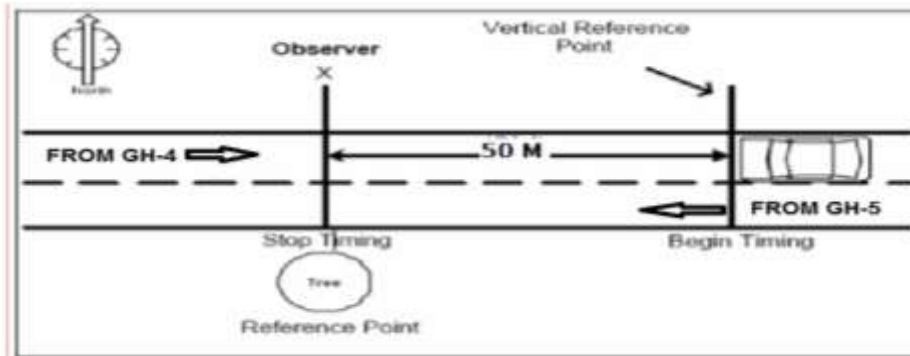


Figure 1 Spot Speed Data Collection Setup

- 1) First two reference points are marked on the pavements at a suitable distance apart (50 m or more).
- 2) Two observers one at each reference point.
- 3) The first observer standing on vehicle pass first, signals that a vehicle to be timed is passing the point and the second observer then starts a stopwatch.
- 4) The second observer stops the stopwatch when he observes the same vehicle passing the reference point.

## RESULT AND CONCLUSION

TABLE 1 CLASSIFICATION OF VEHICLE SPEED

Speed Class (kmph)	2w	3w	4w	H/o
0 to 10	672	1100	294	118
10 to 20	2299	978	2218	319
20 to 30	379	5	433	7
30 to 40	32	0	39	0
40 to 50	18	0	6	0
50 to 60	2	0	0	0

TABLE 2 SPEED CLASSIFICATIONS

Speed Class (kmph)	Mean Speed (kmph)(x)	No. of Vehicles (f)	Frequency (%)	Cumulative Frequency	f*x	f/x
0 to 10	5	2184	24.4871	24.4871	10920	436.8
10 to 20	15	5814	65.1867	89.6738	87210	387.6
20 to 30	25	824	9.2387	98.9125	20600	32.96

30 to 40	35	71	0.79605	99.7085	2485	2.02857
40 to 50	45	24	0.26909	99.9776	1080	0.53333
50 to 60	55	2	0.02242	100	110	0.03636
		8919	100		0	

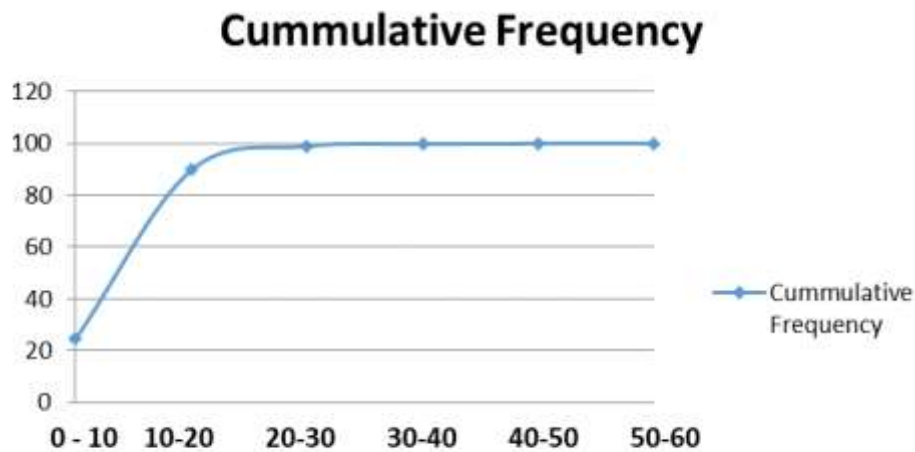


FIG 2 CUMMULATIVE FREQUENCY CURVE

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