

Accident Severity Index Analysis on NH-16 between Srikakulam to Chilakapalem-A Case Study

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ABSTRACT

Accident rate increases in India every year due to vehicle collisions on all classified roads. Due to more demand in utilization of highways by freight traffic increased enormously, but road infrastructure not fulfilling the need and leading to vehicular accidents due to average geometrical and environmental conditions. Thinking about the significance of point, distinguishing the reasons for rural highway accidents has turned into the principle plan to decrease the harm. So, study was carried to reduce accidents by identifying hazard locations and improvement on priority bases on NH16 from Srikakulam to chilakapalem. To utilize funds efficiently for the immediate requirement improvement has to do based on priority. so prioritizing of the locations on for 9 km stretch is analyzed statistically by weighted severity index method.

KEYWORDS: Weighted Severity Index, freight

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I. INTRODUCTION:

There are a lot of vehicles driving on the roadway every day, and traffic accidents could happen at any time anywhere [1]. The data identifying with car crashes and unfortunate casualties speaks to a fundamental device to control and distinguish security issues in transport, to recognize need activity regions and to assess the adequacy of the measures used to improve security. The issue of giving safe travel out and about system inside the urban and rural one of the major standards overseeing the building, traffic and transportation arranging [3]. Almost 3,500 individuals died on the world's streets each day Tens of a large number of individuals are harmed or impaired each year. Youngsters, people on foot, cyclists and the old are among the most defenseless of street clients.

In some cases due to skidding of vehicles were seen, due to very less maintenance of roads [3]. Srikakulam is a city and the district headquarters of Srikakulam district in the Indian state of Andhra Pradesh. It is a municipal corporation and also the Mandal headquarters of Srikakulam Mandal in Srikakulam revenue division. the city had a population of 2,699,473. National Highway 16 (India), a part of Golden Quadrilateral highway network, bypasses the city. Area 20.89 Sqkm Population density 7000/km²

Study area:

Analysing road crash data:

Estimates have shown that 1.24 million road users die every year on the world's roads, and another 20 to 50 million sustain non-fatal injuries as a result of road traffic crashes Traffic safety is a societal issue and all over the world guidelines are made in an attempt to improve traffic safety and thereby decrease the high fatality and injury numbers [5]. Traffic safety is described as the science providing methods (and/or measures) to reduce the number of fatalities and injured road users in traffic accidents

Details of accident data collected

1. Date and time of accident
2. Location wise details of accidents
3. Total number of accidents
4. Type of accidents
5. Total number of fatalities and non-fatalities

Study Analysis:

Table 1 Rate of road accident deaths during 2016 to 2018

year	No. of Road accident Deaths	Estimated mid-year Population	Fatality risk Col2*100/Col3
2016	79.6	203424	39.8
2017	67.9	240315	28.2
2018	63.6	267534	23.7

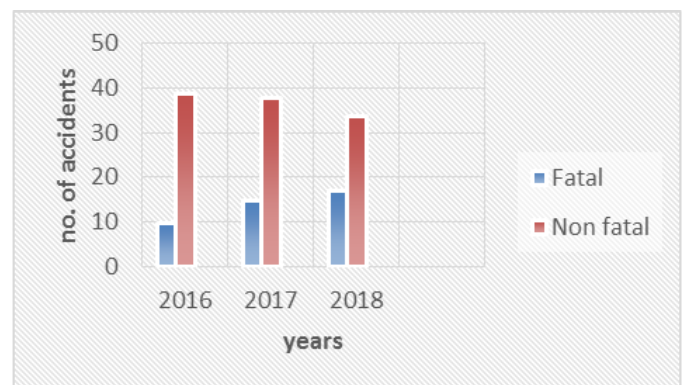


Fig.1-year wise distribution of accidents on study stretch

Weighted severity index method:

Under this method casualties divided into two types

- A. Fatal
- B. Non fatal

$$WSI = N_f W_f + N_n W_n$$

N_f - Number of fatal accidents at the spot in the last three years

W_f - Weight assigned to fatal accidents = 7

N_n - number of non fatal accidents at the spot in the last 3 years

W_n - weight assigned to nonfatal accident= 3

Location Identification:

Location No.	Location
1	Chilakapalem
2	Etcherla
3	Arch Jn
4	Navabharath Jn
5	Kesavaraopeta
6	Jalipinaidupeta
7	Bypass
8	Kinthalimill
9	Kusalipuram
10	Seepanaidupeta
11	Thamminaidupeta
12	Allinagaram
13	AAvalasa
14	Fareedpeta

Table 4 Weighted Severity Index Values

Location	No. of Accidents		WSI	Priority for Improvement
	Fatal	Non-Fatal		
1	5	15	90	2
2	10	22	170	1
3	2	10	62	3
4	0	10	50	5
5	3	8	58	4
6	0	3	15	12
7	0	4	20	10
8	3	5	43	6
9	1	2	16	11
10	1	2	16	11
11	1	3	21	9
12	0	8	40	7
13	4	3	39	8
14	1	3	21	9

Conclusion

Based on the analysis it is observed that location 2 with WSI 170 identified as first priority to improve. Where location 1 and 3 with WSI 90, 62 in the next priority. Among fourteen eight locations were with WSI above 30 need to improve.

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