

Accident Analysis on National Highway-3 Between Indore to Dhamnod

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ABSTRACT

The population is increase day by day and from the beginning of this century the vehicle population is going on increasing. From the past studies they are increased to double within 5 year duration but the length of the road existing is not able to place this much of increasing traffic. Hence, mixed traffic conditions are arising and congestion will takes place. After certain limit they may cause road crashes by which loss of human live is happening. By this the loss in world economy is over US \$50 Billion per year. In India the accident is occurring for every minute. In India the accident problem is a combination of various factors viz., prevailing lack of traffic management measure, improper placement of traffic control devices, roadside hazards and ribbon development along the road network.

Road accident scenario in the country is a very grim, more so on National Highway. In fact the present study corridor, portion of NH-3 accounts, more rates of the accidents. This paper presents an analysis of accidents on small portion NH-3 Indore to Dhamnod. The data for analysis is collected for the period of 2009 to September 2011. More accidents occurred in Manpur region by faulty road geometry.

KEYWORDS: Road Accident, Causalities, Fatalities, Severity Index

1. INTRODUCTION

From the beginning of this century the number of motorized vehicle has been increasing continuously. The spectacular increase in number of motor vehicles on the road has not kept pace with corresponding increase in total length of road network. The supply lane for traffic i.e. the road length not has been able to meet the demand created by the growth of vehicle population. Further the mixed traffic situation prevailing on our road network has further aggravated the traffic situation. Thus the vehicles population increases in year by year. Coupled with mixed traffic situation has created a major social problem- the loss lives through road accident. Increase in traffic brings out extremely severe problem of road accident. The impact of road traffic accident in term of injuries, impairments and fatalities are global social and public health problems. It is now well established that many developing countries face a serious problem of road accidents. Accident fatalities rate in developing countries like India is high in the comparison with that in the developing countries. The population of India has double during the last 30 year while vehicle population has double in the last 5 year. Since the growth of the road infrastructure could not cope up with growth in travel demand. Traffic accidents in deaths constitute 40% of the total accident deaths in India, which is not sufficiently recognized by lay by public.

The road accident are happening manly of fatal type on National Highway. The vehicles that mostly causing accident on National Highway are trucks due to more numbers of goods traffic on National Highway. The 2% length on National Highway carry 40% of good traffic, while 7% of State Highway carry 30% of good traffic. However, estimate based on government statistics indicate that about one third of all road crash fatalities takes place on National Highways and another one-third on State Highways.

The human misery and the serious economic loss caused by road accident demand the attention of the traffic engineering and call for evolving appropriate solutions to tackle this problem. The causes of road accidents were found to be faulty road user behavior, deteriorating traffic law enforcement, unscientific accident recording and investigation, encroachment problem, lack of traffic control devices, road safety furniture, and proper traffic management planning.

2. STUDY AREA

Study has been carried out on urban & rural sections of the National Highway no.-3 from Indore to Dhamnod. Indore is a commercial city with large number of in and out flow of vehicles. So with the present study it is possible to reduce the frequency of vehicle accidents passing through Indore city.

3. DATA COLLECTION AND ANALYSIS

The following data collected from the study area:

3.1 Traffic and No. of Accidents

The traffic data collected since Year 2009 to 2011 and converted into Average Daily Traffic. Year wise Average Daily Traffic (A.D.T.) and No. of Accidents, along with study corridor, are given in Table1.

Table1 Average Daily Traffic and No. of Accidents

| Area | Rajendra Nagar | | Manpur | | Gujri | |
|------|----------------|------------------|--------|------------------|--------|------------------|
| | A.D.T. | No. of Accidents | A.D.T. | No. of Accidents | A.D.T. | No. of Accidents |
| 2009 | 24293 | 61 | 7517 | 53 | 8041 | 99 |
| 2010 | 27046 | 62 | 8453 | 31 | 8564 | 122 |
| 2011 | 34714 | 80 | 9547 | 31 | 8768 | 53 |

3.2 Area wise Accident

The Accident data collected from Sayogitaganj square Indore to Dhamnod since 2009 to 2011 and given as follows:

Table 2 Area wise Accident

| Year/ Location | 2009 | 2010 | 2011 |
|-------------------|------|------|------|
| Sayogitaganj | 44 | 55 | 8 |
| Bhawarkua | 32 | 38 | 27 |
| Rajendra Nagar | 62 | 80 | 61 |
| Kishanganj | 79 | 89 | 66 |
| Manpur | 53 | 31 | 31 |
| Dhamnod | 122 | 99 | 53 |

3.3 Distribution of Accidents

The year wise Casualties, with in study area, are given in Table 3.

Table 3 Year Wise Distribution of Accidents

| Year | Casualties | | |
|--------------|------------|------------|------------|
| | Fatal | Serious | Minor |
| 2009 | 92 | 12 | 366 |
| 2010 | 82 | 38 | 325 |
| 2011 | 62 | 50 | 186 |
| Total | 236 | 100 | 877 |

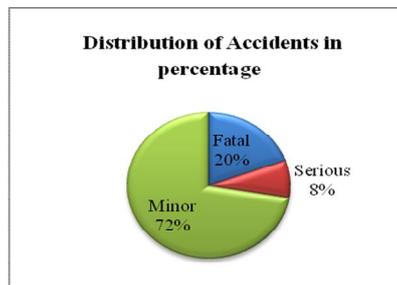


Figure 1 Distribution of Accidents

3.4 Severity Index

The year wise severity Index, since 2009 to 2011, is given in Table 4.

Table 4 Severity Index

| S.N. | Year | Severity Index |
|------|------|----------------|
| 1 | 2009 | 19.97 |
| 2 | 2010 | 18.42 |
| 3 | 2011 | 20.8 |

4. CONCLUSIONS

Based on above study following conclusions are drawn:

1. The traffic flow is goes on increasing year to year in the present study corridor.
2. The trend of accidents occurring in urban portion (Indore) is more than 35 % to rate of total accidents in each year. This may due to high speeds and more vehicular traffic.
3. The maximum number of Fatalities is registered in rural highway portion. This may due to heavy goods traffic coming from villages in early hours towards city.
4. In the present study area the frequency of fatal accidents are 2 in a week and 6 for minor accidents in a week.
5. More number of accident observed in 6 p.m. to 8 p.m. duration because in that time more buses are travels between villages and city.
6. Maximum accidents observed are of Truck/ Eicher accidents in the study corridor followed by buses and Nagar sewa vehicles. It is inferred that NH's are mainly meant for trucks.
7. In the urban area (Indore city) maximum accidents are caused due to Tempos and Auto rickshaws.
8. Rajendra Nagar area stands first among all the places in the study area in the number of accidents. More number of industries and cold storages present in that area may account for this.
9. Out of the all the police stations maximum cases of minor accidents are registered in Dhamnod. Because the Dhamnod police station covers more length of NH in the present study corridor. But more fatal accidents are observed in Manpur because of ghat portions in between Manpur and Dhamnod.
10. The accidents caused by faulty road geometry are very less in city and the accidents causing by faulty road geometry in rural highway portion.
11. One fatal and five casualties are occurring per km per year in the study area
12. The volume of the trucks passing through study corridor is increasing by year. At Rajendra Nagar from 2000 onwards the traffic is reduced due to the construction of by passes in that area.

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