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# Accident Analysis of Accident Prone Road Stretch (From Chadoora to Charari Sharief- J&K)

Asraar Nida<sup>1</sup>, Er. Sonu Ram<sup>2</sup>, Er. Irfan Ahmad Najar<sup>3</sup> M.Tech Scholar, Desh Bhagat University, Punjab, India<sup>1</sup> Asst. Professor, Desh Bhagat University, Punjab, India<sup>2</sup> PhD Scholar, IIT Delhi, India<sup>3</sup>

**ABSTRACT:** -The main purpose of the present day research on the traffic systems of India is to reduce accidents and congestions on the roads. Various achievements have been attained but still it needs greater study with extensive technological breakthrough. In the current study various ITS devices in collaboration with advanced engineering methods have been employed to reduce accidental deaths and injuries in addition to property damages on a road stretch having great accidental record.

KEYWORDS: Accidents, GPS, GIS, Convex Mirror, Laser, Blind curves, Grade, Geo nets, Geo fibers, etc.

### I. INTRODUCTION

#### 1.1 General

The revolution in the modern age is basically due to the advancement in the field of road networking and transportation. The advancement in the development of a nation depends upon its road networks, which has played a vital role in the development, transformation and modernization of the nation. For the peace and war, roads are necessary for better results, for the deployment of troops, to maintain the law and order and the movements of their vehicles, tanks, armed & unarmed cars, trucks, field guns, etc. Roads are of vital importance as there should be good connectivity between the urban and the rural areas so that there would be the fastest growth of commercial markets, investment and advancement in the human livings and living style.

Roads have played a vital role in the economic development, industrialization, human resources, education, customs, idea exchange, social behavior, civilization, tourism, job advancement and job creation of every country. As we look into history, the roads are the mother of development and betterment of a nation. In our country 70 % of the population is living in villages which indicate that for the development of villages (rural areas), roads are needed for the development of these areas in particular and for the development of the nation in general.

#### 1.2 Importance of Chadoora-Charari Sharief Road Stretch

The Chadoora-Charari Sharief road stretch is adjoiningto NH1 in J&K State. It is the only vital connectivity which connects Chadoora and Charari Sharief (at an elevation of 6342 ft. above sea level) with the main citycenter Srinagar (Charari Sharief about 30 km from Srinagar). It further connects the surrounding villages of Charari Sharief and Chadoora with the main city. Thus this road serves to about 2 lakh population in general and provides accessibility to different services availed from the main city of Srinagar. Chadoora-Charari Sharief road stretch is very important and useful not only to the common populace residing there but also to the army base camps located at different locations such as Nagam, CharariSharief - Zaloosa, Kandajan, Yousmarg, for defending territory. It serves to the movement of army troops and their vehicles easily and safely. Moreover, the Chadoora-Charari Sharief road connects one of the most famous, historical and sacred Shrine in the Kashmir Valley, i.e., the shrine of Sheikh Noor-ud Din Noorani <sup>(RA)</sup> at Charari Sharief, a famous Sufi saint (700 year old shrine) and also the shrine of Pakharpora where thousands of people from all over the valley visit throughout the year.



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Fig. 1.1 - Ditches and ruts formed due to water lodging

Not only this, the road stretch connects the picturesque Yusmarg, a famous health and tourist resort of the Kashmir Valley to the main city.

### **1.3Problem Identification**

Since Roads are primarily the main source of connectivity between different areas of a region but due to constant and striking increase in the number of motor vehicles on the roads, it has given birth to a considerable social problem, i.e., the road accidents.



Fig 1.2 – Sharp exceptional grade curves



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Not only the precious lives are lost due to road accidents but it also causes economic loss to a nation. This serious and awful social and economic loss caused by road accidents demand the attention of the society and evokes for the solution of the problem. In order to understand the problem and provide desirable solutions, a multi-disciplinary approach is required. While analyzing the road accident statistics, it indicates different factors responsible for road accidents and suggests improvements which might be desirable based on accidents via proper and adequate planning, innovated designing and construction procedures, maintenance and organizing traffic operations. In order to make the road travel safer and assured, the transportation engineers here must be seriously concerned regarding the proper regulation and management of traffic besides planning, designing and construction of road ways. The qualitative and quantitative data of road accidents provide us very useful and helpful information so as to control, regulate and manage the road traffic in a more efficient and effective way. Moreover, in analyzing and estimating any advanced and improvised scheme for reducing the rate of road accidents, the cost of traffic accidents is very helpful for a transportation engineer.

The number of road accidents is increasing day by day in India and all over the world at an alarming rate. The causal factors include increase in the number of vehicles on the roads and decrease in road dimensions besides speeding, reckless driving, drunk driving, distracted driving, bad weather conditions, wrong over takings, etc.

While discussing the Chadoora-Charari Sharief road stretch, it is a disastrous and highly accident prone at various spots and have damaged lots of precious lives, property and vehicles because of its terrain topography and uneven gradient. As there are lots of common known accidents points known as Malik Mood, Potnar, Sabad Chadey, Nowhar Mood, Kakawring Mood, Nagam Mood, etc.

#### 1.4 Study Area



Fig:-1.3 - Map of Charari Sharief-Chadoora road stretch

The area chosen for the present study is Chadoora-Charari Sharief road stretch, a sub district road of district Budgam in the state of Jammu & Kashmir. The road stretch starts from Srinagar to Charari Sharief but it is the most accident prone because of its irregular terrain and topography at its maximum stretch from Nagam to CharariShariefportion. The total length of the chosen road stretch is 17kms. The present study will be based on major accident zones along this road stretch for the collection and analysis of data.

The said road stretch being highly disastrous and has eliminated large precious lives and caused ir-repairable damage to property. The various accidents which occurred in the recent past on the said road stretch are as tabulated below:-



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S. No.	Year	No. of deaths	No. of injuries	Vehicle damage (%)
1.	1974	49	60	90%
2.	1989	50	50	83%
3.	1995	58	85	70%
4.	2003	37	94	85%
5.	2005	47	100	80%
6.	2010	36	123	87%
7.	2014	30	136	90%
8.	2017	32	145	78%
9.	2018	28	157	83%

Table 1.2 Road Accidents on said road stretch -1974-2018 (Courtesy:- J&K police department)

#### **1.5Short Comings**

- 1) Due to its terrain topography its gradient is more than exceptional gradient.
- 2) Due to heavy snowfall roads become slippery.
- 3) Large scale encroachment.
- 4) Due to heavy rainfall ditches, cracks development, landslides occur.
- 5) Overcrowding of vehicles as being only link connecting capital city headquarter with Charari Sharief.

#### 1.6Need of the Study

While analyzing the road accident data and going through the literature review regarding the present study, it is the need of the hour to have more research in this area of transportation engineering field so as to provide more improvised and appropriate planning and innovated designing to diminish the recurrence and seriousness of the road accidents.



Fig 1.4 - Excessive wearing of surface course

As though a lot of study and improvised schemes has been applied in this field but a lot is yet to be done.



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In India, the rate of road accidents is raising at an alarming rate. More than 1 lakh deaths occur due to road accidents in our country and the toll is still going up. These road mishaps lead to fatal deaths, serious injuries, loss of precious lives and property. No doubt these mishaps could not be completely controlled, yet further improvisation and innovation in designing, planning and control could be done in this regard to a greater extend. Moreover, the transportation engineers need to recognize the road accidents and explore the causal factors behind these so as to provide proper and improvised preventive measures to decrease the rate of road accidents and also keep a record of its data. Qualitative and quantitative investigations of road accidents at both district and zonal level road stretches will lead to rational increase in diminishing the rate of road accidents subsequently.

#### **II. LITERATURE REVIEW**

• Patel savankumar et al (2017) carried out analysis of road accident its aim was to analyze the traffic accidents occurring in a selected stretch by statistical method which is facing strain as diminished level of administration and increment in numerous quantities of accidents because of vast number of road user clients, specially four wheelers. It achieves exploratory inspection of the mishaps information and suggests remedial measures for reduction in accidents on stretch.

• **DhirajBoroleetal**. (2017) studied on Road Accidents on National highway No.6 found that there is an increasing trend in road accident in Jalgaon over a few years. GIS used to locate the accident hotspots and also in analyzed the trend of road accident in Jalgaon.

• Athiramohan and Dr. V.S. Landge(2017) identified the accident prone location along Amravati- Nagpur road stretch from Asian highway 4. Thepinnacle accident prone spot were selected as black spots based on weighted Severity index method and some suggestion and made to improve the transportation system.

• **Dr.A.S.Kanagalakshmi et al.** (2016)studied on highway NH-5 They concluded road accident on NH-5 avoided by advanced marking and signaling system and make the people to follow the road rule giving speed limit to vehicles, giving a high road high road grip, giving correct elevation and curves, designing proper super elevation.

• Naqvi.HandTiwari. G (2015) were done investigation on accidents on two -lane NH-8 stretch (from Beawar at km 64.000 to Gomtichouraha at km 162.000 in Rajasthan) using data from 2008-2012. They suggested various remedial measures to prevent accidents.

• **Kiran .r et al.** (2014) analyzed number of road accident, person killed and injured in the national highway and the state highway using data from 2009 -2012 . The NH accounts for the highest number of accidents, persons killed and injured in the road accidents in Bangalore, Bangalore accounted for 1/6th of total accidents one tenth of persons killed in the accidents and one seventh of the highest number of accidents.

#### **III. OBJECTIVE**

The various objectives of the present study are as discussed below:-

1. To reduce the accident rate on the said road stretch.

2. To minimize the travel time for completing the journey from Chadoora to Charari Sharief.

3. To minimize the vehicle damage factor (VDF) of various vehicles and other properties of the road users.

4. To maintain and keep intact the natural beauty and beautiful topography of the said area.

5. To suggests improvements which might be desirable based on accidents via proper and adequate planning, innovated designing and construction procedures, maintenance and organizing traffic operations.

#### **IV. METHODOLOGY**

1) Proper maintenance of this road stretch by patch work and suitable wearing course at certain portions.

- 2) Scheduling of proper timing for different types of vehicles.
- 3) Providing proper grillage/parapet walls at sharp bends.



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- 4) Providing proper and suitable installation of traffic signals at various crossings and blind curves.
- 5) Providing and installation of convex mirrors at sharp bends.
- 6) Stopping of encroachment.
- 7) Use of GIS for proper identification of dead areas and spots of accidental areas.
- 8) Provision of proper drainage system.
- 9) Providing of proper breast walls/retaining walls at various locations were bearing capacity is low.
- 10) Provision of speed limits at various locations having exceptional gradients.
- 11) Educating people about various ill effects of overloading, benefits of proper obeying of traffic rules.
- 12) Use of geo-fibers and geo-grids for netting the landslide prone areas.
- 13) Installation of sign boards at various warning zones as well as informatory zones.
- 14) Proper installation of GPS on public transport system.
- 15) Use of various ITS (Intelligent Transport System) devices like Laser, cameras and various GPS devices.

#### **V. CONCLUSION**

By the application of the above methods we can minimize the rate of accidents on the said road stretch. Accidents on this road could be further minimized and controlled through proper maintenance of the road stretch by respective governments by applying necessary policies and administrative measures in order to ensure and improved safety on this road. Moreover, safety on the said road stretch can be improved through awareness generation and educating the common masses to strictly follow all the road safety rules, regulations, signs and symbols of the road traffic.

Hence, in this way the accidents on Chadoora-Charari Sharief road stretch could be avoided and controlled to a greater extend and many precious lives and property would be saved for better future.

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