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Road Safety Audit: A Case Study Navsari to Chikhli National Highway 48

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Abstract— In the past one decade, over 1.3 million people have been killed in road accidents but there is still no comprehensive road safety legislation in the country. The accidents are increasing rapidly day by day. There is a great amount of economic loss occurring due to accidents and also many lives are lost in it. There is a loss of productivity and costs to the hospital system and emergences services. Road Safety Audit can be increased by providing safety measures such as traffic clamming devices, proper geometric designs of a location, traffic signs, signals, markings, street lighting, bridges and culverts, over bridges and underpass, ditches along the road way, parking regulations, removing sight obstructions in the road way etc. Road Safety Audit is an extension of activity building that arrangement with decreasing the recurrence and seriousness of accidents. The essential objective of this paper is to gather the road accident data of chosen stretch from Navsari CH 00.00 km (NH-48) to Chikhli CH 38.00 km (NH-48) from police home office and to workout purposeful examination of road accident of it and propose remedial measures too. All out road accidents recorded are 721 amid the period 2011-2015 on NH-48.So measure to reduce road accidents and road audit at the stretch has been shown.

Keyword—Road Safety Audit, Road accidents, increase safety

I. INTRODUCTION

A Road safety audit is the systematic checking of the safety aspects of new/existing highway and traffic management schemes, including modifications to existing layouts. The main aim of road safety audit is to ensure that all new road schemes operate as safely as practicable from the beginning and to reduce future problems. A road traffic accident is an accident between two or more vehicles, a vehicle and a cyclist, a vehicle and a pedestrian, a vehicle and a fixed object such as a bridge, building, tree, post, etc., or a single vehicle that overturned on or near a public road. In an era of continuous growth in mobility and demand for transportation, safety is an issue of major social concern and an area of extensive research and work. The rate of accident in developing countries like India increases year by year. To reduce this adverse ef fectof transportation the work towards road safety is become necessary now a day. Study of the road network and geometric feature are essentially to tackle problems of accident in a city. The occurrence of accident not only causes immediate loss in term of property and life but may
al so cause a long term pain or grief. The Gujarat State Road Transport Corporation provides facility of transportation to approximately 24 lakh people every day.

Road Safety Audit is a system to assess the road accidents and the execution of the road with respect to safety. Safety Audit is derived on principle of "Prevention is better than cure".

Road Safety Audit (RSA) is formal strategy for evaluating accident potential and security execution in the procurement of new roads, the change and the restoration of existing road and in maintenance of existing roads. It should form an internal part of designing, planning, construction and maintenance. Road safety Audit has become now mandatory for all the newly all roads.

In India, at present, there is no formal requirement for road safety audits to be undertaken. However, India has also started realizing the importance of road safety audits. It is because of this that Ministry of Road Transport and Highway sponsored the project on "Development of Safety Audit Methodology for Existing Roadway Sections" to Central Road Research Institute (CRRI) in April, 2002. Under this project, Manual for Road Safety Audit has been prepared. First Road Safety Audit was carried again by CRRI IN 2000 on Indore Bypass.

II. CRITICAL LITERATURE REVIEW

F Following literature review are considered related to identification of black spot area, Development of accident models, causes of road accidents, based on Road Safety Audit.

1. Identification of Black spot

Chakarborty et. al. (1995) have used a scientific approach for identification of accident black Spot sections including nodes and links based on the data relating to terrain, number of lanes, traffic volume and number as well as severity of accidents.

Sarkar and Malleswari (1995) have presented a case study of the city of Visakhapatnam (India), which has experienced a tremendous increase in road traffic accidents in recent times.

Shaheem et. al. have selected a stretch of National Highway-47, Thiruvananthapuram district for identification and evaluation of accident prone locations.

Deepthi Jayan K, B.Ganeshkumar (2008) (PSNA College of Engineering & Technology, Dindigul and Tamilnadu, India) have make research work on Identification of Black Spots: A GIS Based Implementation for Kannur District, Kerala. In this study, an effort has been made to identify the accident prone zones within Kannur district, Kerala using GIS.

2. Identification of Development of Accident Models

Vashi and Damodariya (2003) have studied accident scenario in Vadodara city. They have analysed yearly variation of accidents. They have identified top twelve accident prone locations of Vadodara city.

Rastogi (2006) has studied a macro level analysis of accidents occurred on different categories of roads in and around Kota city.

Chand (2004) has attempted to measure the accident risk statistically for metropolitan cities in India.

Chand and Alex (2005) have analysed accident causative factors using time dependent accident data. They have analysed accident frequency for Thiruvananthapuram city traffic limit and Kozhikode city traffic limit areas of Kerala state.

3. Identification of Road Accidents

Kumar et al (2008), Jha and Agrawal (2004): identified November as the month with the highest number of fatal accidents in Delhi, 11.04% of all fatal accidents in Delhi occurred in November.

Mehta (1968) and Ghosh (1992): In a research conducted in Delhi by Mehta (1968) and Ghosh (1992) found that most people were killed in road accidents which occurred in January but National Crime Record Bureau (2005) reported higher incidence of road accidents with much victims in May and March in India.

4. Identification of Road Safety Audit

Jain et al. (2011) have studied the study aims to evaluate road safety audit of a section of four-lane national highway (NH)-58 and will focus on evaluating the benefits of the proposed actions that have emanated from deficiencies identified through the audit process.

Mishra et al. (2013) have carried out RSA of Selected Stretch From Umreth Junction To Vasad Junction , their study area consists of cities and villages such as Umreth, ode, Khambolaj, Sarsa, Vehrakhadi and Vasad is located in Anand district of Gujarat state. The whole stretch is located in Anand and Umreth Talukas of Anand district.

Dinesh Mohan (2012) has shown that, Road traffic fatalities have been increasing at about 8% annually for the last ten years and show no signs of decreasing. Two modelling exercises have attempted to predict the time period when we might expect fatality rates to start to decline in a range of countries.

Deshpande (2014) has shown in the study that, Road accidents are a human tragedy. They involve high human suffering and monetary costs in terms of untimely deaths, injuries and loss of potential income.

Arun S. Bagi has investigated identification of accident prone areas on the road from FIR, to study the effect of roadway geometrics and traffic conditions on the road stretch and development of statistical relationship between accident rates and various factors causing accidents.

B. Srinivas Rao has undertaken a study on NH-5 between Anakapalli to Visakhapatnam during the year 2003 and it runs through urban, semi urban and rural areas. The accident data for the last five years was collected from the concerned police station and analyzed thereafter.

Dr.S.S.Jain evaluate Road Safety Audit of a section of four-lane National Highway (NH)-58 and will focus on evaluating the benefits of the proposed actions that have emanated from deficiencies identified through the audit process.

Juregan Gerlach focuses on the four procedures of a Road safety impact assessment, Road safety audits, Network safety management and Safety inspections.

G. Kondala Rao study the increasing frequency and severity of recent Road Traffic Accidents (RTAs) in India involving modern vehicles have caused grave concern for road safety, posing serious challenge to transport policy makers, planners, regulators, police, engineers and civil society alike.
Pawan Deshpande Many a countries have curbed the menace of road accidents by adopting a multipronged approach to road safety that encompasses broad range of measures, such as, traffic management, design and quality of road infrastructure, application of intelligent transport system, safer vehicles, law enforcement, effective and quick accident response and care etc.
Parikh Vaidehi Ashokbhai has investigate black spot study area selected is corridor of Narol to Naroda national highway- Ahmadabad city of Gujarat state.
Ravishankar Rajaraman has conducted detailed investigations of accidents occurring on the National Highway 45 over a 60 km stretch.
T.Sivakumar has conducted road traffic accidents due to drunken driving in India challenges in prevention.

III. CONCLUSION

By referring these papers, I have studied and got the idea about,

Identification of black spot, various statically model for road accidents, various techniques for reducing road accidents and road safety audit for various stretch in India. Identified the various prone location and gives possible solutions for reducing accidents at those locations. Investigate the road accidents and analyzed the data and gave the possible solution. Road safety audit is better choice to reduce the economic loss in road accident and save the life of people. Road safety audit provides better serviceability, safety, comfort and consumption of less time.

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V. REFERENCES

[1] Arun S Bagi, Dheeraj N kumar “Road Safety Audit” IOSR Journal of Mechanical and Civil Engineering, (July-August 2012).
[2] B. Srinivas Rao “Accident study on National Highway-5 between Anakapalli to Visakhapatnam” Proceedings of the Eastern Asia Society for Transportation Studies, 2005.
[3] Desai Manisha Minesh and Prof Patel A.K, “Safety Measures for controlling Road Accidents Injuries and Fatalities”, National Conference On recent trends in Engineering and Technology, B.V.M Engg college, May 13-14 2011.
[4] Dinesh Mohan “Traffic safety and transport system: Case study of Bengaluru, India”2010.
[5] Dr.Ing. Juergen Gerlach “Road infrastructure safety management as part of the Decade of Action for Road Safety-- preconditions, instruments and examples from Europe”, Association for European Transport and Contributors 2012.
[6] Dr. S. S. Jain “Road Safety Audit for four lane National Highways” International Conference ON Road Safety and Simulation, September 14-16, 2011, Indianapolis, USA.
[7] Dr. Sanjay Kumar Singh and Ashish Mishra “Road Accident Analysis: A case study of Patna City”, Urban Transportation Journal, 60-75 page.
[8] G. Kondala Rao “Road Traffic Safety Management in India–Analysis – Exploring Solutions” International Journal of Application or Innovation in Engineering & Management (IJAIEM), ISSN 2319 – 4847, December 2013.
[9] Grosskopf S E, Labuschange F J J and Moyana H, “Road Safety Audits: The Way Forward”, Road Traffic Management cooperation, Pretoria.
[10] Karim Mohamed Rehan, Abdullah Sulaimen and Marjan Jamilah, “Road Safety Audit- Issues and Challenges from the Malaysian Experience”, Journal of the Eastern Asia Society for Transportation studies, Vol 5, Malaysia, October 2003.

[11] Pawan Deshpande "Road Safety And Accident Prevention In India:a review", International Journal of Advanced Engineering Technology E-ISSN 0976-3945, April-June,2014/64-68.
[12] Parikh Vaidehi Ashokbhai "Road Safety Audit: An Identification of Black Spots on Busy Corridor between Narol- Naroda of Ahmedabad City" International Journal of Engineering and Technical Research (IJETR), ISSN: 2321-0869, Volume-2, Issue-3, March 2014.
[13] Ravishankar Rajaraman "Analysis of Road Traffic Accidents on NH45, Kanchipuram District (Tamil Nadu, India)" INDIA, JP Research,4th IRTAD conference,16-17,September,2009,Seoul,Korea.
[14] Rao B Srinivas, Madhu E, Jalihal Santosh and Reddy T.S, "Accident study on National Highway -5 between Anakapalli to Vishakhapatnam", Proceedings of the Eastern Asia Society For Transportation Studies, Vol. 5, pp. 1973-1988, 2005.
[15] Schermers G and Kraay J.H, "Road Safety Audits- Towards a safer road Infrastructure", Workshop "Road traffic safety: Policy, Research, Implementation and Co-operation between South Africa and the Netherlands", South Africa, September 1999.
[16] T.Sivakumar "Road traffic accidents (rtas) due to drunken driving in India challenges In prevention" IRACST-International Journal of Research in Management & Technology (IJRMT), ISSN: 2249-9563, Vol. 2, No. 4, August 2012.