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IDENTIFICATION OF BLACKSPOTS ON A STRETCH OF NH52

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Abstract: Road accidents are increasing rapidly in India with the increase in traffic density. Due to which there is a huge loss of life and property. The location of road where the maximum number of accidents occurs is known as a Black Spot. The national highways network of India is responsible for development of civilizations and economic development of the country by meeting travel requirements of people and goods. Road accidents are one of the major elements which block the development of civilizations and economic growth due to the high economic loss as well as loss of life it causes. Hence it is important to identify such places of high accident chances and rectify them as soon as possible. Accidental black spots are the spots where accidents have occurred historically many times. Government of India formulated Accidental Prevention Committee (APC) in year 1997 by identifying accidental prone spots on the rural highways of the state and suggested the suitable remedial measures for reducing the accidents. According to road safety report of world health organization, India may be losing more than 3 lakh individuals consistently. Mishap happens because of expanding in vehicle populace, nature of street, exorbitant speed, land-utilization of the encompassing zone and street security guideline. The connection among accidents and land-use seems self-evident. Different kinds of land-utilizes will in general create and pull in various sorts of visit and excursion making conduct influence the nature and volume of traffic. As the utilization of land increment, it doesn't appear to be irrational to anticipate that that the potential presentation should accidents would likewise increment. The primary goal of the examination is to survey the dark spot and give arranging proposition for the chose stretch of study zone.

Keywords: Road Accidents, Fatalities, NH-65 (NH-52), Black Spots, Improvement Measures

1. INTRODUCTION

Road accidents are increasing day by day in India, as India is the largest country in the phase of larger number of Accidents in the Worldwide. More than 700 Black spots were identified & analyzed on National Highways across the country in the year 2011 to 2014 according to Ministry Of Road, Transport & Highways (MORTH). The accident rate is much higher in India as compared to the other countries such as USA , Canada, Europe As, there is a huge network of Highways in India but traffic density is also very much high. Indian Literacy percentage is 65% and hence people are less aware of the traffic rules and regulations. These factors have added in increase in road accidents and further increase in the loss of life and property. Traffic collision-related deaths increased from 1.5% in 20014 to 2.5% rises in 2015. Road crash is a random phenomenon; however, crashes may not be randomly distributed across road networks. There are locations with a concentration of crashes. In this regard, blackspot management process will help to identify those locations where higher numbers of crashes having similar nature are occurring as a result of local risk factors. Often the circumstances that are specific for a location are partly responsible for the high number of crashes. Location-specific, infrastructural measures can be implemented to decrease the number of crashes and to put an end to the concentration of crashes at that location. This can be defined as “treating the blackspot sites”.

1.1 Background

Notwithstanding the effectiveness of blackspot improvements, road safety professionals should keep in mind that blackspot identification and treatment (Blackspot Management) are only one among the many road safety interventions to reduce road crashes and associated fatalities and serious injuries. It has to be borne in mind that only a certain level of reduction in road crashes will be possible through blackspot improvements. The concerned agencies may have to adopt various other interventions to achieve a sustainable reduction in road crashes in their respective jurisdiction. The other measures include road safety assessment, road safety audits and other non-engineering interventions like enforcement, road safety campaigns and post-crash care. Desirably a comprehensive road safety action plan in line with ‘Safe System approach’ has to be implemented which covers all aspects of road safety. Road Traffic Accidents are a human tragedy. They involve human suffering in larger volumes and socio-economic costs in terms of premature deaths, injuries, loss of productivity, and so on. Of all the systems with which people have to deal every day, road traffic systems are the most complex and the most dangerous.

1.2 Motivations

It has been a tradition in road safety to analyse road safety data for understanding why crashes occur, which factors influence risks, and what determines crash severity, and based on this understanding, to arrive at reliable conclusions on how to prevent them most effectively and efficiently. We have ample evidence to suggest that road designs - lane width, shoulder presence, number of lanes, median design influence driving behaviour (operating speeds, lane changes etc.), therefore, one could expect that roads themselves play an important role in road safety, and improved geometry design and infrastructure could in turn help to improve road safety. Some countries have had RTC site programmes for many years, and they have proved to be a highly cost-effective way to reduce RTCs. Road infrastructure improvements (e.g., road upgrading and pavement texture) and round about design is found to be beneficial for safety. Speed control through traffic calming measures have proved to be very beneficial. Road accidents cannot be totally prevented but by suitable traffic engineering and management the accident rate can be reduced to a certain extent. For this reason systematic study of traffic accidents are required to be carried out. Proper investigation of the cause of accident will help to propose preventive measures in terms of design and control. In road safety management, an accident blackspot or black spot is a place where road traffic accidents have historically been concentrated.

1.2 Aim of the paper

The task is to identify where accidents are happening and investigate them to determine the factors involved so that appropriate and effective remedial measures can be applied for a stretch in AURANGABAD city.

1.3 Objectives of the paper

1. To assess black spot data and identify critical stretch (accidental prone spots) by considering different parameters such as; nature of accident, classification of accident and causes of accident.

2. Daily variation of accidents, timely variation of accidents, gender wise analysis, vehicle wise distribution, age limit variation of accidents, and monthly variation of accidents.

3. To find out different methods to prioritize hazardous locations.

4. To specify the safety problems, selecting countermeasures, prioritizing sites for treatment, performing a benefit/cost analysis, and assessing the effects of the implemented countermeasures.

1.4 Problem Statement

The problem of accident is a very acute in highway transportation due to complex flow pattern of vehicular traffic, presence of mixed traffic along with pedestrians. Traffic accident leads to loss of life and property. There has often been a severe deterioration in driving conditions and a significant increase in the hazards and competition between different classes of road users.

2. LITERATURE REVIEW

Apparao, et. al(2013), The Critical Crash Rate Factor Method is an easy-to-use statistical test method, which is very effective in identifying Accident-prone stretches for Four Lane Highways. From analysis, it is clear that maximum number of crashes occurs during the weekends; this may be due to the large number of tourists coming to Haridwar and Rishikesh. From analysis it is evident that maximum number of crashes occurs in the months of August and December. This may be due to the onset of rainy season in august and due to the fog in the month of December. The peak period for Crashes comes out to be between 14.00 - 16.00 hrs. The Crash ratio developed for the sections can be used for prioritizing Safety Development program.

Isen, et. al (2013),The study was an attempt to find out the most vulnerable accident locations or the black spots in Alappuzha and Ernakulam districts making use of GIS. The WSI method was used to rank the accident locations, and top ranked six spots in Alappuzha and ten spots in Ernakulam were selected as per the WSI value for the data collection and analysis in GIS platform. Based on the analysis, Kalavoor in Alappuzha and two spots Kalamassery and Mulamthuruthy in Ernakulam were identified as most vulnerable accident locations and suggested some possible alternative or corrective measures to improve the transportation system in these locations, from which the decision maker can select suitable measure for the location. The method is found to be effective in identifying the black spots, provided sufficient secondary data is available.

Nikhil, et. al (2013),It is observed during the study that the Gorgunte Palya and Jalahalli Junctions were already declared Black Spot / accident zone. From the accident data we also observed that the accidents are increasing Inadequate sight distance, road condition, poor visibility at night, drivers negligence etc. It is also observed during study that there is lot of pedestrian deaths in spite of having Zebra crossing and pedestrian signals mainly due to high speed of vehicles, so it is suggested to construct speed brake or road humps before pedestrian signals.

Nguyen, et. al (2015), In order to avoid unexpected shortcomings in the implementation of the method, it is important to pay special attention to the following two aspects. First, safety potential is the difference between the actual accident cost and the expected accident cost conforming to the best-practice design standard. The expected accident cost depends on the basic accident cost rate. In ideal circumstances this expected accident cost contains no influence of the infrastructure on the accidents

any more but represents the accident cost caused only by the other two components of the transport system – vehicle and road users.

Bobade, et. al (2016) Readings taken on Pune-Bangalore Highway from 820 km-830 km are analysed by Ranking Method, In method of ranking according to importance of parameter (i.e. parameter which is responsible for occurrence of more number of accidents) the rank and weightage are given. The percentages after giving rank and weightage are calculated and on the basis of value of percentage the accidental black spot is identified. By considering all these parameters by using Ranking Method accidental black spots can be identified. it is clear that skidding, grievous injuries and over speeding are responsible for occurrence of more number of accident.

Reddy (2017),Ten accident hot spots /accident-prone locations were identified. Most of the road accidents of vehicles that are getting into a junction wherever a lot of aspect roads. Vehicles liable for most of the accidents are Trucks/Lorries and followed by Auto Rickshaw and Car/Jeep/Van. Most of the road accidents occurred during 9-10am and 4-5pm; it may be due to peak hour traffic. Vehicles approaching intersections are directed to definite paths with appropriate islands and channels, marking etc. Shoulder width, pavement width, sight distance, signal and pedestrian crossing facilities ought to be improved.

Ghadi, et. al (2017), Based on the results obtained from the case studies and overall comparison, it can be summarized and concluded that; dangerous locations on two types of roads had been compared to discover the affection of the speed factor on the efficiency of each selected BS analysis method. Two types of BS identification methods had been selected; the first is the SPA method which is based on a spatial identification of accidents clustering locations, and the second is the SLW screening method. It was noted that in low speed urban road accidents tend to be more aggregated around real dangerous points or conflict areas like, intersections or pedestrian crossing locations.

***Mohan, et. al* (2017),** The Weighted Severity Index (WSI) method was used to rank the accident locations. The top five spots were selected as black spots as per the WSI value from the collected data and suggested some possible alternative measures improve the transportation system. The overall methodology was found to be effective for the identification, evaluation, and treatment of accident black spots if sufficient data is available. The deficiencies like non-availability of parking lane, no zebra crossing, no guard rails and sign boards and also the no proper road markings and unauthorized parking etc. It is also observed that most of the 2-wheelers are not using the helmets and also over speeding their vehicles. Implementation of the suggested improvements will help to increase the overall road safety.

Verma, et. al (2018),This study carried out two critical data one was road accident data and other was a road geometric data. Road accident data was collected from Police department, this data are used to briefly describe general characteristics of the road accidents like accident location, number of accidents per year, number of person die and number of person injured. Road geometric data collected from field survey this data describe wide range of road geometric design elements and its harmful effects on the traffic.

***Maltaş*, et. al (2018**), In this study, ABS has been identified by simple ranking, sliding window and, peak searching using by K-means clustering method in Istanbul, Sogutlucesme-15 Temmuz Sehitler Bridge corridor. In the analysis, three different performance measures such as ACF, EPDO-ACF, and RSI were used. According to three performance measures and network screening methods that used, Temmuz Sehitler Bridge tollbooths segment was identified and marked with red color as the first ABS section of the corridor in the study corridor. As seen in the analysis, the tollbooths segment, where has a high traffic volume, has been the riskiest site regarding all of the performance measures. Therefore, the factors that cause accidents in this region should be identified and effective countermeasures should be taken.

John, et. al (2019), The project was aimed to identify, evaluate and improve the accident blackspots in the Westfort-Kunnmkulam road. Analysis was done by Weighted Severity Index method and identification of blackspot was done by Quantum Geographic Information System (QGIS). The characteristic analysis of accident data results the causes for accidents .Major black spots are Amala junction, in front of Amala hospital, Peramangalam, Mundur, Kaiparmbu junction and in front of the beverage outlet in Kaiparambu. Appropriate remedial measures were suggested in order to reduce the intensity of accidents. The overall methodology was found to be effective by locating the high severe black spots using QGIS.

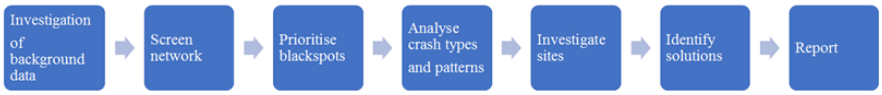
Ashokbhai and Jain, has collected from Zonal Police from 2009-13 and on the basis of that data the spots causing the maximum number of accidents are identified and top 5 black spots are listed down. Inventory survey was conducted on the black spots considering the number of fatal major injury and minor injury accidents. The paper conclude that the accidents are happening due to poor road geometrics like absence of footpath, service lane /parking lane , zebra crossing , traffic signals

3. STUDY AREA IDENTIFICATION

Fig No 1 Google Map Of Beed by Pass

Beed bypass road from Mahanubhav Ashram (T- point of Paithan road) to Zalta Phataa stretch of 13.150 km, this road is a part of NH-52 (NH-211). In the 14 years since this bypass was constructed, 102 people have died. The aim of this project is to collect and analyse the data, identifying the black spots andproposing some remedial measures to reduce the possible accidents. The scope of the study is to reduce accidents on road network, reducing severity of accidents and the need for costly remedial work is reduced. The road selected for the study is Beed Bypass road (13.150 km). The accident analysis will be done from previous year's data.

4. PROPOSED METHODOLOGY



Step 1: Investigate Background Data
As a preliminary step, the data for the whole country, state, network or jurisdiction should be investigated and analysed to gain a broad understanding of the data and general trends. The main types of information required are:

1. General trends in crash data across the available years of data
2. Typical number of casualties per crash severities (separately for high speed rural and urban roads, if possible)
3. Average number of crashes per year for: Different types of road (NH, SH, Single carriageway, dual carriageway, other roads etc.)

Step 2: Screen Network for Blacks pots
Consideration of whether a site constitutes a blackspot is often based on very simple rules and definitions. A site is usually considered as being a blackspot if there are greater than 'x' crashes in a section or at a site of less than 'y' length in 'z' years within a distance of 'a' metres. These definitions need to be determined locally in every State since patterns in crash reporting and occurrence vary so greatly. In order to achieve a robust result, three years of crash data need to be used as a minimum. Under some circumstances (i.e. where there is significant under-reporting in States) it may be necessary to use up to five years of data. Reference should be also made to the blackspot definition guidelines issued by the MoRTH from time to time.

Step 3: Prioritise black spots for further investigation
It is unlikely to be possible to investigate all blackspots in detail; therefore it is necessary to prioritise further review and treatment. Road authorities may wish to focus their efforts on strategic/important roads that have higher traffic flows or those locations that have a greater number of higher severity crashes. Embedded in the Safe Systems approach is a clear focus on reducing the most severe crashes; those which result in fatalities and serious injuries. Economically it is also more efficient to tackle these more serious crashes as a priority since they also inflict significantly greater financial losses on the economies of countries in addition to the pain and grief resulting. Blackspot sites will have different numbers of crashes, with different severity profiles. These differences in site characteristics can be used to sort them into prioritised lists for investigation and analyses. To help focus actions and resources on the locations which have more fatalities or KSI (Killed and Serious Injury) crashes a severity-linked weighting scheme can be used give an initial rank to the identified cluster sites.

Step 4: Analyse Crash Types and Patterns
The crash characteristics from identified black spots should be investigated to identify patterns in the occurrences of the crashes For example: 1. if there is a high proportion of crashes in the cluster involved pedestrians, it could be due to a lack of appropriate infrastructure (footpaths or safe crossings) provisions for pedestrians 2. If there is large number of rear end collisions, it could be due to a light phasing issue, a surface friction problem, or a general speed related problem 3. If there are large number of head-on collisions, it could be due lack of overtaking opportunities encouraging dangerous overtaking 4.

Step 5: Site Investigation
Site Visit It is always necessary to inspect the site where the accidents have happened, because you will learn things that are not evident from a study of the accident data. But to avoid jumping to conclusions do not does this until you have carried out the preliminary analysis of the accident data. Take the accident reports and analyses with you to the site. There are two main reasons for doing the site inspection: • to accurately assess the road conditions and other site factors which may be relevant • to try and experience the problems that road users are facing. Try and make the site visit at the same time of day as when the dominant accidents occur (if time-of-day is identified as an important factor). Ideally the investigator should walk, drive and perhaps cycle through the site in both day and night-time conditions, and should carry out the manoeuvres that have been causing problems. It is rarely practicable to do all this, but a lot can be learnt from just walking and driving through the site. Look out for crash evidence, such as broken glass, skid marks, and broken walls and trees.

Step 6 Final Diagnosis
It may sometimes be necessary to carry out additional surveys and studies in order to help confirm your analysis and prepare the way for designing countermeasures.
Step 7 Summarise the results of the analysis.

The findings must be soundly-based and clearly expressed, because they are the basis for selecting the countermeasures. Remember that the aim is to identify contributory factors that we might be able to change.

5. DATA COLLECTION AND ANALYSIS

The stretch between Beed bypass roads from Mahanubhav Ashram (T- point of Paithan road) to Zalta Phata is a heavy traffic flowing region.
Frequent accidents are observed due to various reasons.

1. Head to head collision
2. Over speeding
3. Not maintaining the vehicle
4. Ignorant pedestrians
5. Intersection crossing
6. Wrong side driving etc.

The severity score between Ch.2250 to Ch.3000 is 85 and hence should be prioritized for treatment over other crash locations.

5.1 Severity score calculation

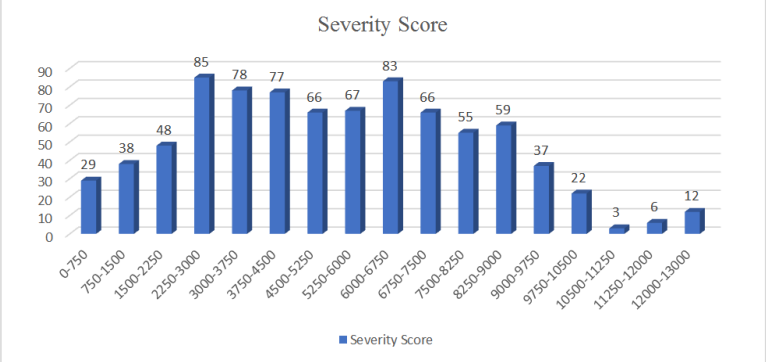


Fig No 2 Severity Score Graph

5.2 Accident Classified to Type and Traffic Violation

Table No 3 Accident Types and Traffic Violation

Sr. No	Type of traffic violation	Fatal	Grievousinjury	Minorinjury	No injury
1	Over speeding	10	17	4	9
2	Drunken driving	0	2	0	0
3	Driving on wrong side	3	5	3	2
4	Jumping red light	0	0	0	0
5	Use of mobile phone	0	0	0	0
6	No violation	0	0	0	0
7	Not known	2	1	0	0
Total		15	25	7	11

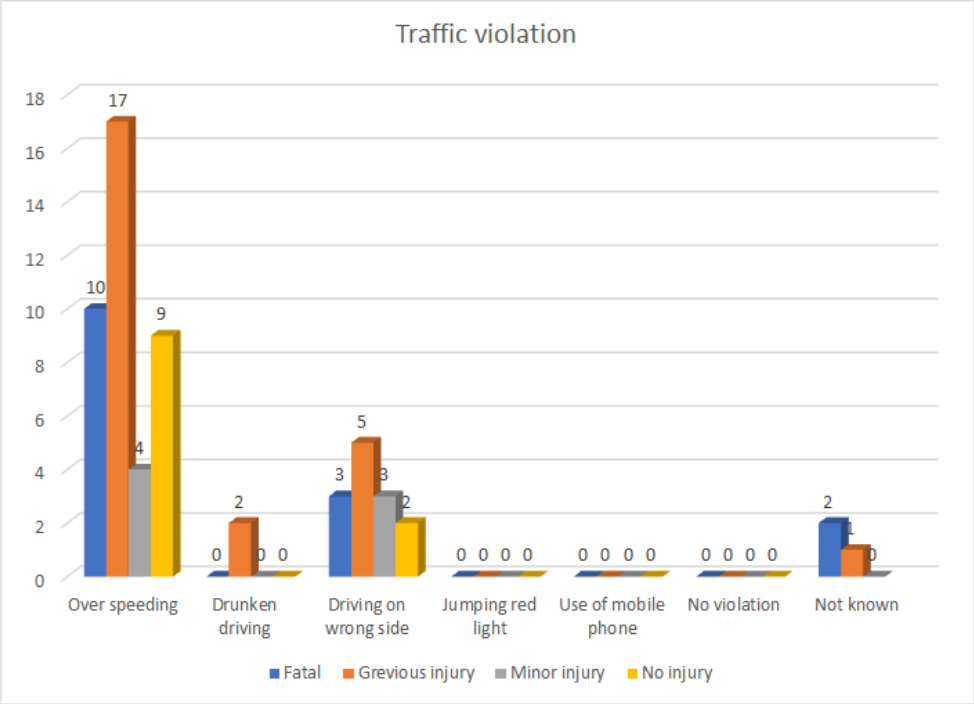


Fig No 3 Graph Of Accident Types And Traffic Violations

5.3 Major issues on beed bypass road

1. Accidents occur on the road frequently.
2. The road is full of heavy traffic.
3. Many people drive along wrong sides on the road.
4. Drink and drive cases are more seen on this road.
5. Speed limit is not being followed by drivers.
6. Rickshaw drivers and motorcyclists drive carelessly and try to overtake heavy vehicles without caution.
7. Road users do not follow signals properly.
8. Obstruction to vision at intersections.
9. Unauthorized breaking of median at number of places.
10. Road markings are hidden behind trees and advertisements.
11. After closure of railway gate near Deolai chowk all traffic on Shivaji nagar road come on highway which makes the movement of fast-moving traffic difficult and dangerous.
12. People don't follow rules even if traffic police is available on the junction.
13. Road width is insufficient according to current traffic requirement.
14. The slope of the shoulder is not properly levelled at many places this leads to formationof cuts at the edges.
15. Absence of pedestrian markings.

5.4 Traffic volume study: MIT chowk

The no. of accidents on the MIT chowk and Deolai chowk are more in number to study more about this junction I did a traffic survey on these junctions i.e MIT chowk and Deolai chowk. I conducted this survey manually. While conducting the survey i categorized the traffic into 5 categories according to the vehicles type and size viz. 2-wheeler, 3-wheeler, 4-wheeler (car), Bus/Truck, Heavy Vehicle.

1) Paithan road to Zalta phata

Table No 6.1 Traffic (Paithan Road To Zhalta Phata)

TIME	2-WHEELER	3-WHEELER	4-WHEELER	BUS/ TRUCK	HEAVY
09:15 TO 10:15	1007	135	370	73	16
10:15 TO 11:15	882	155	315	55	14
11:15 TO 12:15	814	125	421	69	**345**
12:15 TO 01:15	860	162	433	73	282
04:45 T0 05:45	1418	126	619	80	27

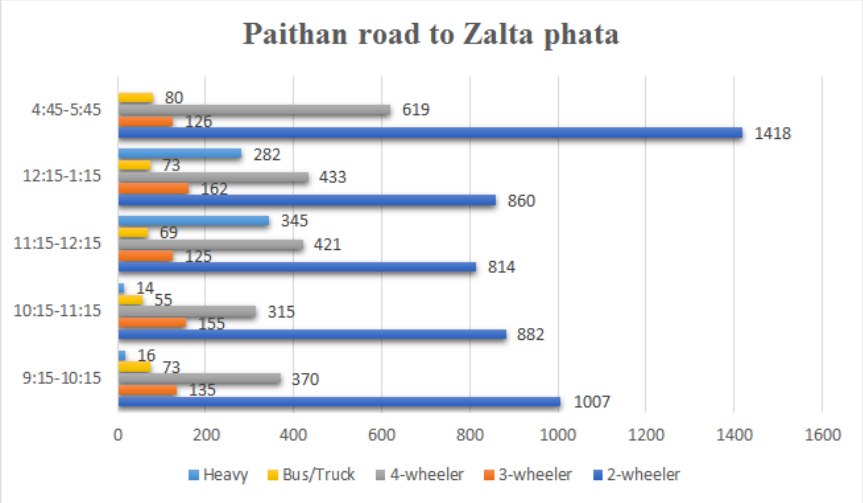


Fig No 4 Graph Of Traffic (Paithan Road To Zhalta Phata)

2) Zalta phata to Paithan road

Table No 6.2 Traffic (Zhalta Phata To Paithan Road)

TIME	2-WHEELER	3-WHEELER	4-WHEELER	BUS/ TRUCK	HEAVY
09:15 TO 10:15	1536	125	576	109	36
10:15 TO 11:15	1355	155	546	188	23
11:15 TO 12:15	965	140	445	183	**408**
12:15 TO 01:15	760	196	335	110	226
04:45 T0 05:45	955	135	350	82	86

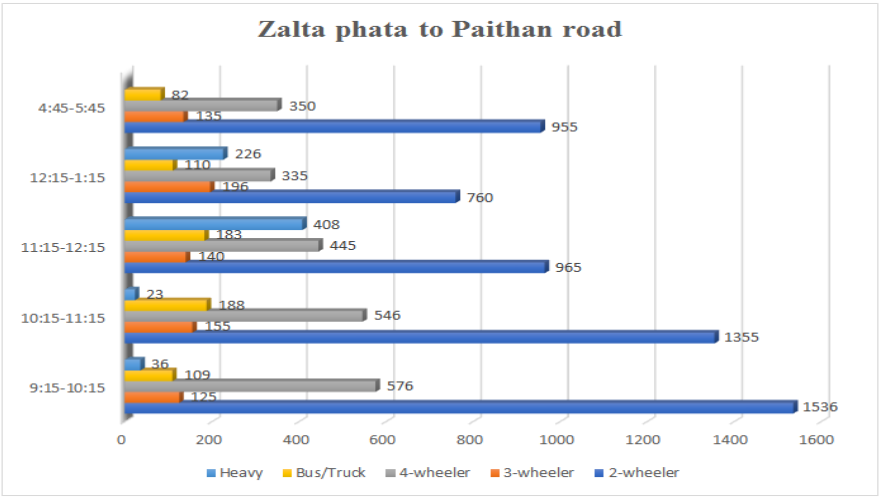


Fig No 5 Graph Of Traffic (Zhalta Phata To Paithan Road)

3) Towards MIT

Table No 6.3 Traffic (Towards Mit)

TIME	2-WHEELER	3-WHEELER	4-WHEELER	BUS/ TRUCK	HEAVY
09:15 TO 10:15	443	42	45	90	0
10:15 TO 11:15	380	35	49	18	0
11:15 TO 12:15	225	20	32	8	0
12:15 TO 01:15	353	33	41	14	0
04:45 T0 05:45	302	54	44	19	01

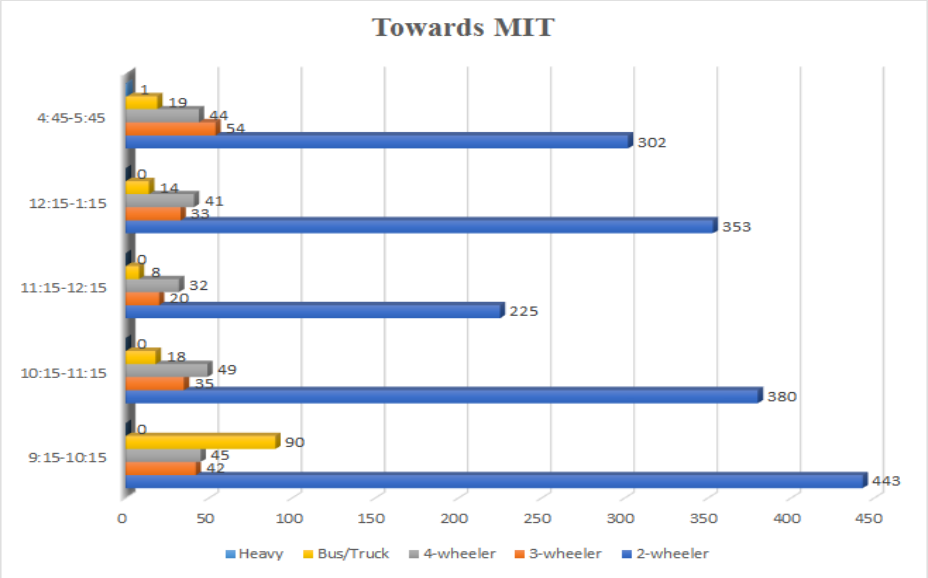


Fig No 6 Graph Of Traffic (Towards Mit)

4) From MIT

Table No 6.4 Traffic (From MIT)

TIME	2-WHEELER	3-WHEELER	4-WHEELER	BUS/ TRUCK	HEAVY
09:15 TO 10:15	296	32	55	19	0
10:15 TO 11:15	347	32	48	19	0
11:15 TO 12:15	355	28	53	12	0
12:15 TO 01:15	447	35	59	15	0
04:45 T0 05:45	645	32	96	10	0

Fig No 7 Graph Of Traffic (From MIT)

Deolai chowk

1) Paithan road to Deolai road

Table No 7.1 Traffic (Paithan Road To Deolai Road)

TIME	2-WHEELER	3-WHEELER	4-WHEELER	BUS/ TRUCK	HEAVY
09:15 TO 10:15	146	15	33	06	0
10:15 TO 11:15	152	22	35	08	0
11:15 TO 12:15	139	19	37	05	0
12:15 TO 01:15	120	13	31	03	0
03:45 T0 04:45	116	08	30	05	0
04:45 TO 5:45	127	10	28	04	0

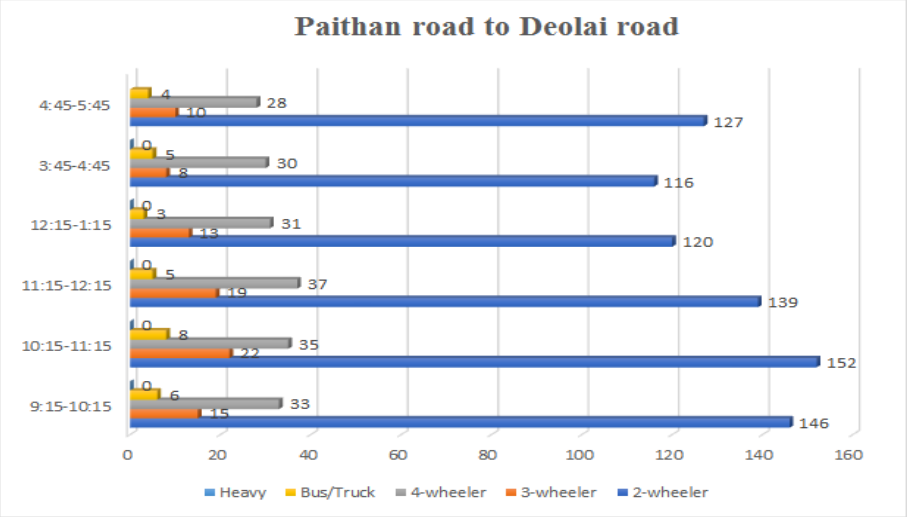


Fig No 8 Graph Of Traffic (Paithan Road To Deolai Road)

2) Paithan to Shivaji nagar road

Table No 7.2 Traffic (Paithan Road To Shivaji Nagar Road)

TIME	2-WHEELER	3-WHEELER	4-WHEELER	BUS/ TRUCK	HEAVY
09:15 TO 10:15	357	37	43	05	0
10:15 TO 11:15	332	43	46	06	0
11:15 TO 12:15	330	41	44	08	0
12:15 TO 01:15	363	45	57	09	0
03:45 T0 04:45	357	40	53	10	0
04:45 TO 5:45	398	46	60	07	0

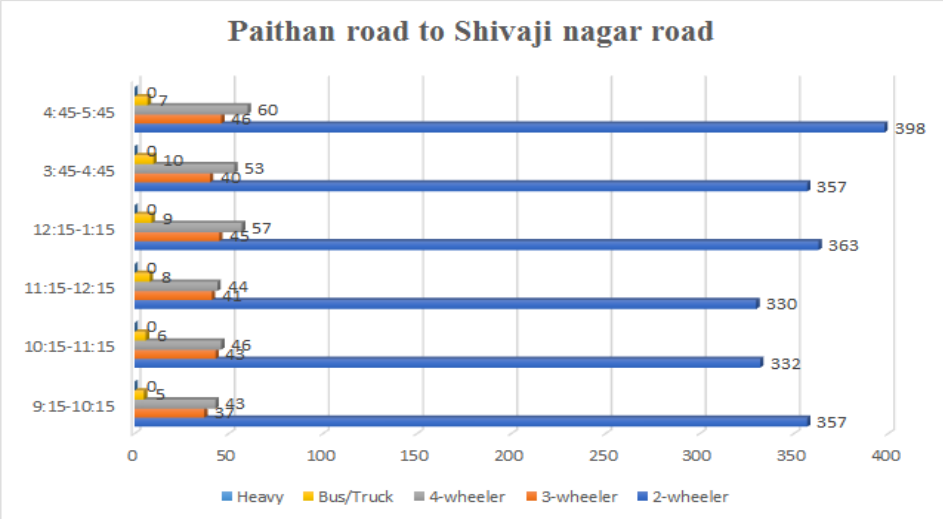


Fig No 9 Graph Of Traffic (Paithan Road To Shivaji Nagar Road)

3) Shivaji nagar road to Deolai road

Table No 7.3 Traffic (Shivaji Nagar Road To Deolai Road)

TIME	2-WHEELER	3-WHEELER	4-WHEELER	BUS/ TRUCK	HEAVY
09:15 TO 10:15	481	30	36	05	0
10:15 TO 11:15	459	24	35	04	0
11:15 TO 12:15	443	22	34	06	0
12:15 TO 01:15	402	25	39	05	0
03:45 T0 04:45	394	20	35	03	0
04:45 TO 5:45	418	19	42	01	0

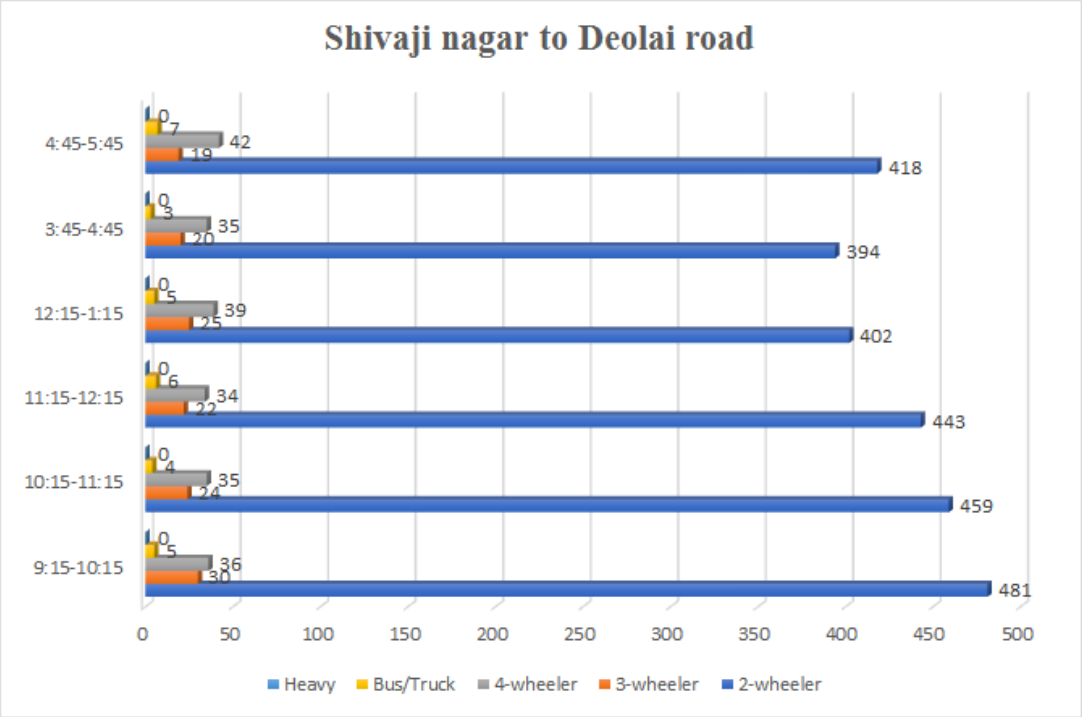


Fig 10 Graph Of Traffic (Shivaji Nagar Road To Deolai Road)

4) Shivaji nagar road to Zalta phata

Table No 7.4 Traffic (Shivaji Nagar Road To Zhalta Phata)

TIME	2-WHEELER	3-WHEELER	4-WHEELER	BUS/ TRUCK	HEAVY
09:15 TO 10:15	469	39	76	21	01
10:15 TO 11:15	489	36	98	17	01
11:15 TO 12:15	478	35	95	15	02
12:15 TO 01:15	440	28	89	11	01
03:45 T0 04:45	430	29	88	06	01
04:45 TO 5:45	422	23	85	09	02

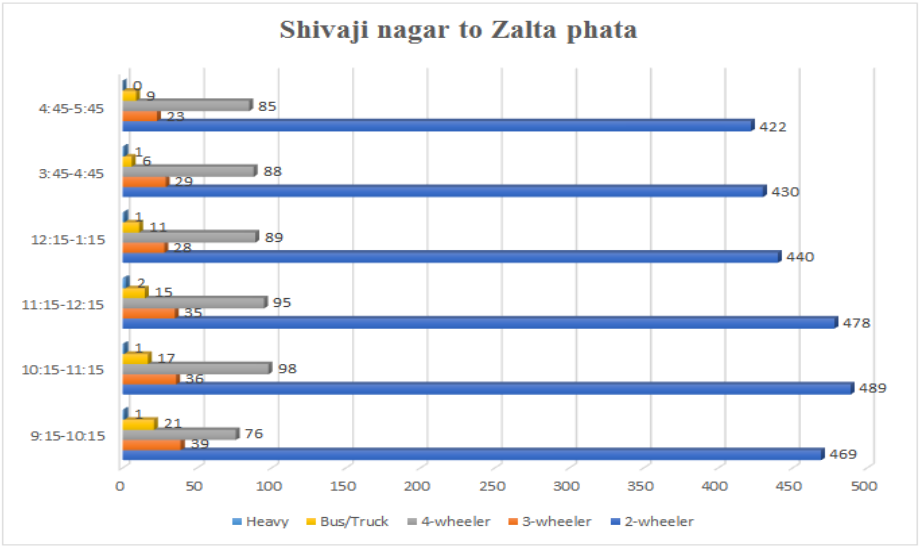


Fig No 11 Graph Of Traffic (Shivaji Nagar Road To Zhalta Phata)

5) Shivaji nagar road to Paithan road

Table No 7.5 Traffic (Shivaji Nagar Road To Paithan Road)

TIME	2-WHEELER	3-WHEELER	4-WHEELER	BUS/ TRUCK	HEAVY
09:15 TO 10:15	**658**	40	71	07	0
10:15 TO 11:15	610	47	63	08	0
11:15 TO 12:15	598	41	69	06	0
12:15 TO 01:15	370	43	67	08	0
03:45 T0 04:45	363	39	61	09	0
04:45 TO 5:45	343	36	58	0	0

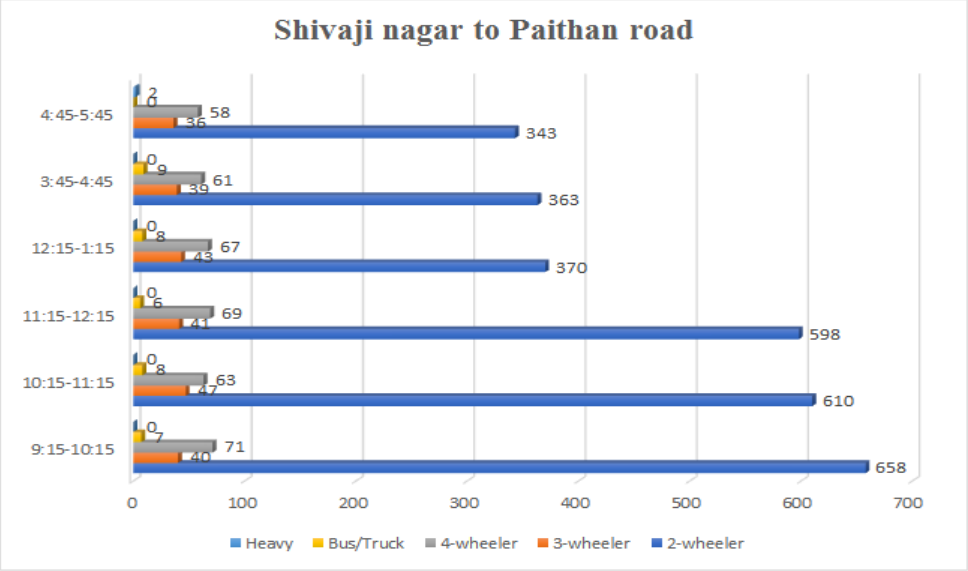


Fig No 12 Graph Of Traffic (Shivaji Nagar Road To Paithan Road)

6) Deolai road to Shivaji nagar road

Table No 7.6 Traffic (Deolai Road To Shivaji Nagar Road)

TIME	2-WHEELER	3-WHEELER	4-WHEELER	BUS/ TRUCK	HEAVY
09:15 TO 10:15	**668**	32	45	03	0
10:15 TO 11:15	622	41	44	04	0
11:15 TO 12:15	544	37	43	05	0
12:15 TO 01:15	388	31	45	03	0
03:45 T0 04:45	356	29	40	04	0
04:45 TO 5:45	352	27	42	05	0

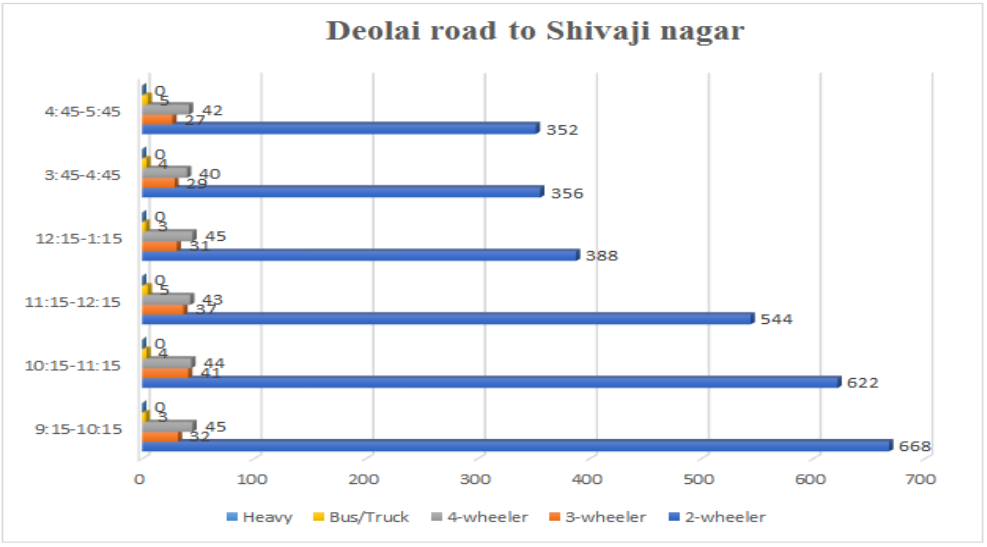


Fig No 13 Graph Of Traffic (Deolai Road To Shivaji Nagar Road)

CONCLUSION

From the accident analysis, it is observed that maximum accidents are occurring during night as compared to day time. This may be attributed due to heavy road traffic, poor lighting conditions on highway, poor pavement markings and formation of ruts, pot holes and cracks. Policies during rush hours must be there on highway. This will reduce the accident on black spots considerably. This paper presented black spots study that highlighted issues in safety management. It examines the defects in the road safety in relation to motorized traffic. It suggested the various recommendations which are easy to do and are economical. This study is applied to the r risks outside the framework of standards and codes. The accident data, traffic volume and field observations show the risk involved while travelling on the road. Also, it gives the information about causes of accidents and vulnerable road users. Those measures that require investment of large sums of money are termed as long-term measures. Those measures which are lesser cost in nature are termed as short-term measures. Short term measures can give straight away benefits. Though long-term measures are capital intensive, it should be understood in proper context in highway development in the country and hence provision should be made for its implementation in the foreseeable future. The preventive measures brought through this study further control us to control or cut down the accidents by utilizing distinctive new safety measures, infrastructural configuration fatalities and most recent vehicle engineering. The central purpose of mishap aversion and control methodology is depending on 4 E's.

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