

The Impact of Hazards on Traffic Safety

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ABSTRACT: A Road Safety Audit (RSA) is a procedure for assessing accident potential and safety performance for a provision of new schemes and schemes for the improvement and maintenance of existing roads. The selected area is inner ring road of Hyderabad city, the road length is 33.6 Kilometres. The investigation done in the areas of Mehdiptnam, Uppal, Nagole, LB Nagar, Santhosh Nagar, Chandrangutta, Ahramghar, Attapur, Rethibowli places of Telangana State. Audit had conducted following the guidelines of as per IS codes IRC: SP: 88-2010, IRC: 67-2012, IRC: 35-1997. This paper explore the defects in the design and other safety features. Finally, we concluded with some changes in the geometric designs to reduce the accidents.

Keywords: Accidents, Blackspots, National Highways, RSA.

I: INTRODUCTION

1.1 Benefits of RSA:

AUSTROADS identified the following benefits of conducting a road safety audit; (AUSTROADS, 1994 and IT, 1996).

An RSA can:

- Reduce the risk of accidents on new projects and at interfaces with existing roads;
- Increase the prominence of road safety, involved in the planning, design, construction, and maintenance of the project.
- Reduce the whole life cost of the project by reducing the number of post opening modifications.

1.2 Objectives of study:

- To develop a methodology for Road Safety Audit for Inner Ring Road.
- To examine safety features adopted in the selected section of Mehdiptnam to Uppal x road inner ring road and find out deficiencies in the road network which led to accident and safety hazards.

1.3 Site Selection:

The stretch from Mehdiptnam to Uppal x road of inner ring road had been selected for the investigation.

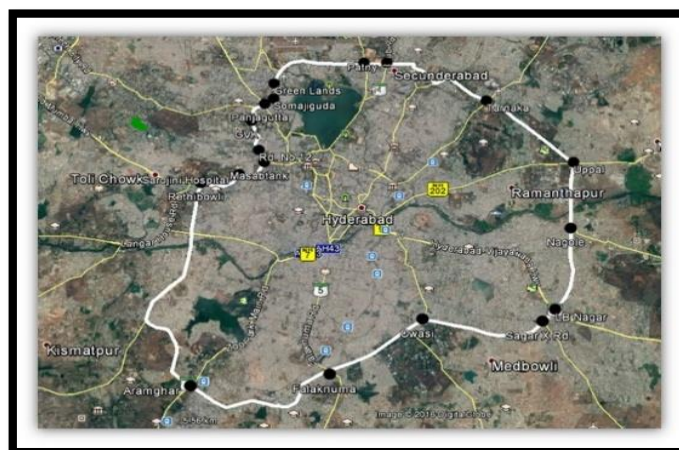
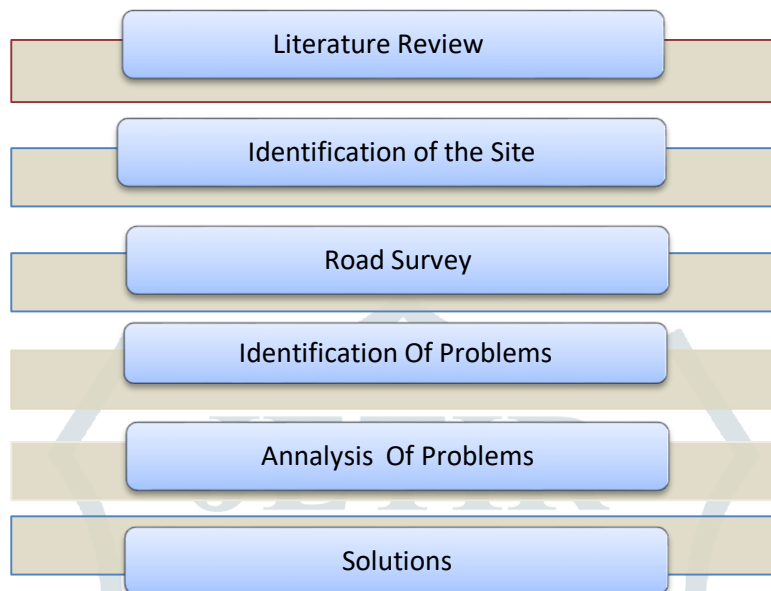


Fig 1.1: The map shows Mehdiptnam to Uppal x road.

II. METHODOLOGY

The methodological approach for the selection and prioritization of the initial set of safety measures is presented and discussed, based on an impact analysis to improving and designing the road by salient features are used to leads minimise/reduced the road accidents and problems .










To carry out safety audit on new roadway sections scheme/old rehabilitation scheme, the following should thoroughly crosschecked. The team should check planning, cross-sections, Alignment, roadside furniture and facilities available, junctions, facilities for road users, signs, Markings and lighting and roadside hazards.

III. SIGHT INVESTIGATION

Road safety audits differ from conventional traffic safety studies. Safety audit was conducted at “Mehdipatnam to Uppal x road which is of 33.7 km. In this stretch of road, we checked proper/in proper provision sign boards such as U-turn sign boards, pedestrian sign boards, road hazard sign boards, chevron sign boards, curve speed limit sign boards, carriageway reduced sign boards, petrol bank sign boards, warning sign boards, indication sign boards and no markings on the road such as alignments markings, centre line markings, pedestrian markings, messages markings, warning markings, and other materials such as paints on the roads, lightings of the road in night vision, sign board sheets, colour of the sign boards, letters, symbols, board on the road etc. All this defects are checked by using IRC code books.

3.1 General Observations and Study Application:

Element	Image	Problem	Recommendation
Horizontal and Vertical Curve details		<p>Design of horizontal curves were checked to ensure whether adequate super elevation, transition lengths have been provided for chosen radius of curve and for design speed.</p>	<p>At this Horizontal curve, the minimum sight distance is not there, drivers will face difficulty to control the speed of vehicle and accidents will occur at this U-turn.</p>
Crash Barrier locations.		<p>Crash barrier is not properly connected with bridge concrete. In the approaches of structures, it should be extended up to the end of approach.</p>	<p>At this place crash barrier is good but maintenance is required.</p>
Major Junction Locations		<p>At this Major junction carriageway markings as well as warning markings are not provided.</p>	<p>Installation of road studs has to be done in all junctions. Object / hazard markers are to be provided within the channelizing and divisional island facing traffic to warn the drivers in advance.</p>

<p>Grade separator and Vehicular underpass Locations</p>		<p>At this place under pass crossing is 20 meters, but lightings is not provided.</p>	<p>Adequate vertical clearances have been provided. Geometrical improvement of at-grade road needs to be taken-up with proper channelizing islands for uninterrupted traffic movements.</p>
<p>Sign posts, Hazard markers and Road Studs</p>		<p>Hazard sign board is not placed and reduce road width is also not mentioned.</p>	<p>Speed limit signboards and Hazard markers shall be provided for channelizing and divisional islands at all major junctions, median openings, before parapet of CD structures/bridges, before crash barrier, before vertical posts/columns of overhead gantry signboards resting on shoulders.</p>
<p>Lighting arrangement</p>		<p>Adequate lighting arrangement is in progress on flyovers and on at grade roads in town limits. High mast lighting has to be provided at some locations.</p>	<p>Illumination is required at this carriageway</p>
<p>Pedestrian Markings</p>		<p>No proper pedestrian markings and carriage way damage at this spot. This causes inconvenience to pedestrians and vehicular.</p>	<p>Conflicts exits between vehicular and pedestrians at the junctions. Proper Lane markings and pedestrian's markings need to be maintained.</p>



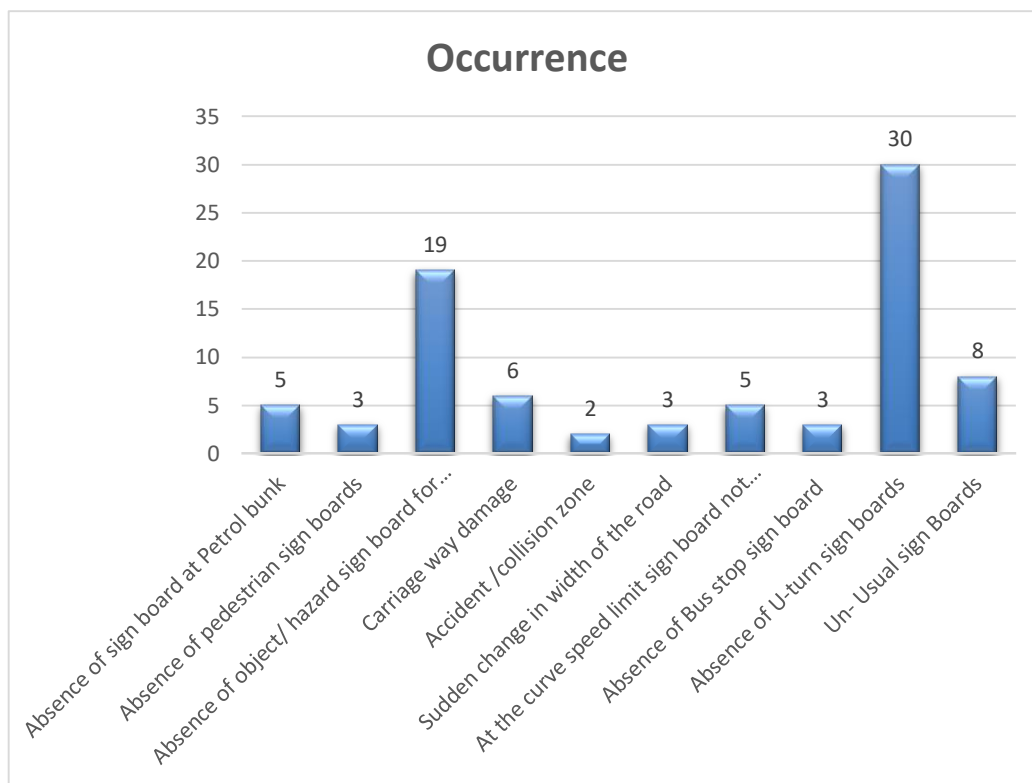
<p>Bus bay</p>		<p>Bus bay sign board in not provided, this creates confusion to the vehicular and users.</p>	<p>Informatory sign boards shall be installed ahead of the bus bay. Pavement marking needs to be carried out. Raised pedestrian footpath needs to be constructed for safety of passengers.</p>
<p>U-TURN</p>		<p>At the place U-turn signboard is not provide, so vehicular cannot identify the U-Turn. Sometimes this causes the accidents if the fron vehicle takes a turn suddenly.</p>	<p>U- Turn sign board need to place</p>

Table 3.2: Hazard on the carriageway and its occurrence.

S.No	Issue	Occurrence
1	Absence of sign board at Petrol bunk	5
2	Absence of pedestrian sign boards	3
3	Absence of object/ hazard sign board for bridge	19
4	Carriage way damage	6
5	Accident /collision zone	2
6	Sudden change in width of the road	3
7	At the curve speed limit sign board not provided	5
8	Absence of Bus stop sign board	3
9	Absence of U-turn sign boards	30
10	Un- Usual sign Boards	8



Graph 3.1: The variations of the Hazard types on the Carriageway.

CONCLUSIONS

From above study, work and analysis of collected data, expert reviews, Questionnaire survey, following conclusion can be made. U-turn signboard absence at the major junctions, improper Object sign boards, creates a confusion in the driver and leads to the accidents. Irregular longitudinal markings effects the driving behaviour and Vehicles moves in a Zig – Zag position. It found that Road Markings, Condition of Shoulder, Traffic Volume, Spot Speed, improper drainage arrangement were main parameters for causing accidents. Absence of road informatory signs, regulatory signs boards, and road markings adds into seriousness of the problem.

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