



ROAD SAFETY AUDIT OF ANANTHAGIRI HILLS GHAT ROAD AT VIKARABAD DISTRICT

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ABSTRACT:

A Road Safety Audit (RSA) is the formal safety performance of an existing Road by an independent, multidisciplinary team. This paper explores the defects in the design and other safety features. The selected area is from Vikarabad to Kerelli Towns. The road length is of 10 Kilometers. The area is a part of Vikarabad District road, which connects Vikarabad – Tandur towns of Telangana State. It is a busy road connecting the industrial, commercial, educational areas, has a mixed traffic and Hilly terrain, which leading to the accidents. Audit had conducted following the guidelines of IRC: SP:88, IRC: 67-2012, IRC:35-1997. Correction of Road signs, markings, message signs, delineators, hazard markers, traffic safety barriers, identification of Blackspots had done based on the requirements. This paper worked for Safe roads, Self-Explaining roads, Forgiving roads. In conclusion, we argued that significant measures should be taken on Road Safety aspects to mitigate the accidents and ensure the safety to vehicular traffic.

Key words: Blackspots, Forgiving roads, IRC: SP:88, IRC: 67-2012, IRC:35-1997, Road Safety Audit, Self-Explaining roads.

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1. INTRODUCTION

RSA is a formal process and not an informal check

- 1) Carried out by persons who are independent of the design and the construction.
- 2) Carried out by persons with appropriate expertise, experience and training.
- 3) Restricted to road safety issues.

The outcome of a road safety audit identifies any road safety deficiencies and formulation of recommendations aimed at removing/ reducing those deficiencies.

Aspects to be checked are Safety and Operational implications of alignment and junctions, any deviation from standards, Road safety implication on maintenance, Non-Motorized Road Users, Day and Night trials checks, Drainage, Climate conditions, Landscaping, Services, Access, Skid resistance, Fences , Adjacent development, Bridge parapets, Local Alignment, Visibility, New / existing road surface, Safety Aids on steep hills, Road signs markings, T, X, Y-junctions, Traffic signals, Adjacent land, Pedestrians, Cyclists, Non-motorized vehicles, Signs and Lighting , Lighting, Signs, Variable message signs.

Road traffic injuries are the No.1 cause of death among those aged 15 to 29. Behavior of road users appears as a contributing factor in all the road accidents. The main cause for the accidents is road users, Confusion in drivers, fatigue, stress, negligence.

Following considerations should be taken while doing RSA

1. Level of safety
2. considering the function of the road
3. Readability of road
4. Delineation
5. Roadside hazards

The key principles of the Safe System approach should be,

1. Recognition of human error in the transport system
2. Recognition of human physical vulnerability and limits
3. Promotion of system accountability
4. Promotion of ethical values in road safety
5. Promotion of societal values

2. ROAD SELECTED

The road selected for this study is existing road from Vikarabad to Kerelli Towns. This is the road connecting 2 major towns Vikarabad and Tandur in Telangana state, India. The District road serves an enormous number of heavy vehicles, lorries for the transport of flooring stone, blue limestone and cement materials to the other parts of state and the country.

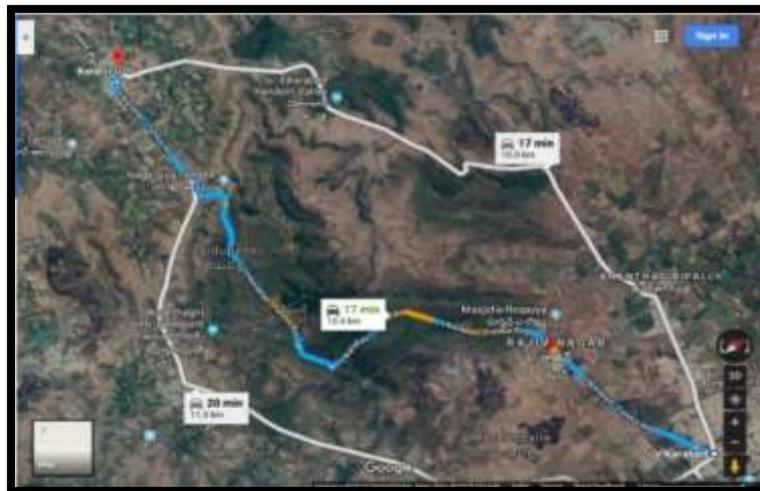


Figure 1 The image showing Blue line, connecting Vikarabad to Kerelli Towns, touching Anantha Padmanabha swamy Temple area.

The road (Fig 1), length of 10 Kilometers from Vikarabad to Kerelli towns, touching Anantha Padmanabha swamy Temple area. This is used as a one-way road for Heavy Vehicles to come down to kerelli town.

Substantial number of vehicles fly on this road. Safety Audit had done considering the Sign boards, Road markings and Roadside Hazards. Black spots were detected in this study.

3. INVESTIGATIONS AND RECOMMENDATIONS

3.1. Observation: Traffic signs which are not authorized and faded are placed.



Figure 2 Unauthorized Traffic sign/ Legibility on the traffic signs is inadequate

Reason for Concern: This creates confusion to the driver and it decreases the respect towards traffic signs.

Recommendation: Proper sign placements need to be done and the unwanted signs need to be removed.

Priority: Essential

3.2. Observation: Numerous sign placed at a junction. Illumination of the junction had done with the street lights.



Figure 3 Too many signs placed at a location/Illumination the diversion road

Reason for Concern: Placing of advertainment boards, Route signs and traffic signs at a same place is not good and it causes fatigue to the drivers. Driver may not able to find out the traffic signs from all these boards.

Recommendation: Unwanted signs which create confusion and fatigue need to be removed. Longitudinal distances of 10 meters need to be maintained between the signs. It would be better if road markings are provided at junctions.

Priority: Very Essential

3.3. Observation: Though the sign is not standardized, it is showing the place of animal crossing the road. The sign may be installed by the Forest Department.



Figure 4 Indication of Animal crossing area

Reason for Concern: Placing of this sign helps the vehicular to reduce their speed and be cautious about the safety of forest animals.

Recommendation: Along with the standard animal crossing sign board, speed limit tag/sign need to be installed.

Priority: Highly Essential

3.4. Observation: Red border of the sign board is not solid line. The sign board cannot be easily identified by the driver. The height of the sign is less than the standards. The sign post is not in a good condition.



Figure 5 Nonstandard sign /Unauthorized sign

Reason for Concern: Non-standard signs have less respect in the vehicular view, thinking that they are old signs and need not to follow the rules.

Recommendation: Proper sign boards with red solid boarder need to be arranged. The sign height of 2.1 meters from the carriage way need to be maintained.

Priority: Essential

3.5. Observation: Presence of speed breakers not indicated by a sign board or a marking, Fixed road side Hazards.



Figure 6 Presence of speed breakers not indicated, fixed road side Hazards

Reason for Concern: Sudden change in the level of the carriageway throws away the vehicle from it. Culvert walls may be a hazard to the errant vehicles. It can become a black spot.

Recommendation: Sign boards indicating speed breaker, two-way hazard marker sign board need to be installed at 120 meters ahead of the speed breaker. White solid transverse line need to paint ahead indicating speed breakers. Retro reflective stickers or paint need to be done on the culvert walls facing the traffic.

Priority: Highly Essential

3.6. Observation: Absence of steep curve descent sign and series of bend sign



Figure 7 Absence of steep curve descent sign

Reason for Concern: Driver may not know the situation of the road ahead, moves with the same speed. This causes the vehicle to lose the control and may be a chance of hitting the wall or overturning.

Recommendation: Steep descent sign and series of bend sign need to be installed at 120 meters ahead of the hazard and chevron signs need to be arranged at the outside of the curve. This enables the drivers to decrease his speed and check his breaks.

Priority: Very Essential

3.7. Observation: Non-standardized signs boards seen near the carriageway. The height/colour of the sign boards not matching the standards.



Figure 8 Unauthorized signs/ Nonstandard signs

Reason for Concern: Non-standard signs have less respect in the vehicular view and create stress to the driver, this leads to non-obeying of the traffic sign rules.

Recommendation: Proper warning sign boards need to be arranged, with a height of 2.1 meter from the carriage way

Priority: Essential

3.8. Observation: Sign board direction changed due to wind force.



Figure 9 Poor Maintenance of sign boards

Reason for Concern: Improper directional signs create confusion to the drivers and they mislead the travel time.

Recommendation: Proper maintenance of the sign board need to be done at regular intervals. Sign boards and markings need to be checked once in six months.

Priority: Essential

3.9. Observation: Sharp curves lessen the sight distance and create tension to the drivers.



Figure 10 Absence of Right/Left hand curve, chevron signs, Crash Barriers at a horizontal sharp curve

Reason for Concern: While moving on the sharp curves, the vehicular may not control with the same speed.

Recommendation: Clear indication of the curve need to be shown to the vehicular with Right/Left hand curve, chevron signs indicating the arrows towards turning. Crash barrier need to be installed at the outside of the curve.

Priority: Highly Essential

3.10. Observation: Tree Branches, Telephone Poles near to the carriageway.



Figure 11 Road side Hazards

Reason for Concern: This road side objects are very hazardous to the two wheelers and they can be hazardous to the window seaters in the buses.

Recommendation: The branches, poles near to the carriageway should be removed. Gap of 1.5 meters need to maintain from the road side objects to the carriageway end. Left side hazard marker need to be installed at 90 meters from the hazard. The road side hazards are to be marked in white colour to enhance the visibility.

Priority: Highly Essential

3.11. Observation: Sudden decrease of pavement width and dangerous dip at a horizontal curve



Figure 12 Absence of reduced carriageway sign and dangerous dip sign.

Reason for Concern: This gives no time to the vehicular to respond to the situation on the road and may lead to the overturning of the vehicle, or vehicle moving out of control.

Recommendation: Proper lane joining need to be done and width is maintained same throughout the road. Adequate shoulder width needs to be maintained to avoid inconvenience. To make the driver known about the situation, proper sign boards need to be installed.

Priority: Highly Essential

4. CONCLUSIONS

This paper presented a Road Safety Audit that highlighted issues in safety management showing the contents like observation, reason for concern, recommendation and priority of the issue. It examined the defects in the road safety in relation to motorized traffic especially Heavy Vehicles.

We have noticed few issues which may be considered for the improvement of safety. Improper/ Inadequate sign boards creating a confusion/Fatigue & tension to the drivers. Most of the road signs are non-retroreflective sign boards. Chevron signs not placed at the sharp curves. Road markings were not at all marked throughout the road. Center markings, carriageway boarder markings, chevron alignment markings were not marked. This inadequate traffic regulators will cause a hazard to, day and night driving. It would be better if proper Road signs/ markings were done properly, to increase the safety.

Considering the safety and investing more capital is not a clever idea. The paper suggested the various recommendations which are easy to do and at low cost. Self-Explaining Roads and Forgiving Roads will save the lives of drivers and Passengers. The audit is applied to the risks outside the framework of standards and codes, to ensure the safety.

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