• Road Safety audit an overview

1. Road safety audit

A road safety audit (RSA) is formal procedure for assessing safety performance of anexisting or future road or interaction by an independent audit team.

Road safety audit can use any phase of project development form planning and preliminary engineering, design and construction, RSAs can also be used on any sizeproject form minor rural roads to interstate National highway, RSAs can be viewed as a proactive low cost approach to improve safety.

Safety audit and counter measures should be considered as a necessary cost within the project and not as additional expenses.
The RSA is only a check of road safety aspects and is not concerned with monitoring whether a certain road standard has been followed or checking whether drainage, structural strength, and other elements are appropriate for the road and location.

2. OBJECTIVE

Objectives of the RSA are the access project for potential accident elimination/reduction on the basis of road user's knowledge, attributes and skills, day/night, wet /dry road conditions.

Since our roads are designed and construction by striking a socio- economy and locally available material and skill, RSA may determine the shortfall in safety ,but may not beable to correct the deficiencies in pavement design, drainage , appropriate space standardetc.

The main aim is to ensure that all new highway schemes operate as possible. The basis for road safety audits is the systematic application of safety principals.

Specific aims are;

1. To minimize the risk of accidents accruing on the scheme, and to minimize the severityof accident that do occur;

2. To minimize the risk of accident occurring on adjacent roads as a result of a scheme, i.e. to avoid creating accident elsewhere on the network;

3. To recognize the importance of safety in highway design to meet the needs andperceptions of all types of road users; and to achieve balance needs where they may be expensive or even impossible may be in conflict;

4. To reduce the long term costs of a scheme , bearing in mind that unsafe design may be expensive or even impossible to correct at a later stage; and
5. To improve the awareness of safe design practices by all involved in the planning, design, construction and maintenance of roads.

3. BENEFITS OF RSA

A number of important benefits were identified. AUDITS were found to -
1. Provide safety beyond established standards;
2. Identify additional improvements that can be incorporated into the project;
3. Create consistency among all projects;
4. Encourage personnel to think about safety in the course of their normal activities,throughout all stage of project;
5. Invite interdisciplinary input;
6. Enhance the quality of field reviews
7. Provide learning experiences for the audit team and design team mem beers;
8. Provide feedback to highway designers that they can apply to other projects asappropriate;
9. Provide feedback that helps to affirm actions taken to work through outstanding issues;and
10. Ensure that high quality in maintained throughout a projects life cycle.

4. STAGES OF ROAD SAFETY AUDIT

Safety audit can be applied in (a) new road and (b) existing roads. On new roads, safety audit will lead to avoiding building accident-prone situations and on existing roads, audit will lead or improved roads from the safety point of view. It should be realized that safety audits are a necessary coast, and not an additional expenses. As project is audited it providing further scope to improve enhances safety.

In project where there is a choice of route or standards, or there are known safety problems, the designers should discuss these with auditor at the initial stage. The safety audit shall be carried out on road and traffic

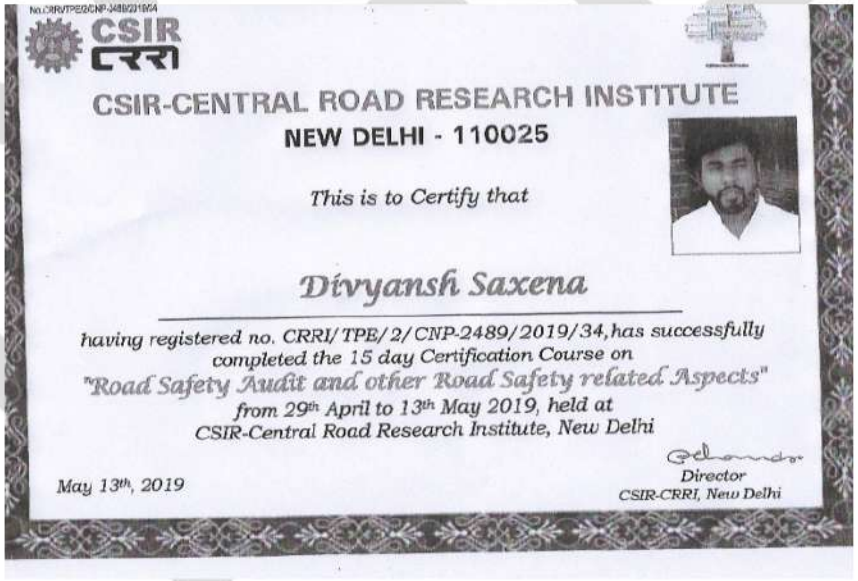
improvement project. Safety audit during construction stage is a new concept and no country has developed any checklist for carrying road safety audit during construction stage.

a) New construction

During feasibility study	- Stage 1 Audit
During preliminary design	- Stage 2 Audit
Completions of construction stage	- Stage 3 Audit
During construction stage	- Stage 4 Audit
Completions of construction stage (pre-opening)	- Stage 5 Audit

b) Existing Roads :

on existing Roads (Monitoring)	Monitoring



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CSIR-CENTRAL ROAD RESEARCH INSTITUTE
NEW DELHI - 110025

This is to Certify that

Divyansh Saxena

having registered no. CRRI/TPE/2/CNP-2489/2019/34, has successfully completed the 15 day Certification Course on
"Road Safety Audit and other Road Safety related Aspects"
from 29th April to 13th May 2019, held at
CSIR-Central Road Research Institute, New Delhi

May 13th, 2019

Director
CSIR-CRRI, New Delhi

➢ CHECKLIST (DURING CONSTRUCTION STAGE)

1. Have all recommendations from the previous stage been followed? If not, why not?
2. Whether information regarding the construction zone approaching has been provided well advance or not?
3. Whether standard procedure and contact conditions provided for proper management of the construction site and road users are properly and safetyaccommodations?
4. Whether the transitions form the existing road to the site of work safe and clearly bad out?
5. Whether the width of the lanes is satisfactory for the traffic passing through the work area?
6. Whether site and stopping distances adequate at site of work and it intersections?
7. Whether bus stop appropriate located with adequate clearance from the traffic lane for safety and visibility.
8. Whether appropriate street lighting or other delineation provided at the road work to ensure that the safe is safe at night? Checking the night time visibility of traffic control devices.
9. Check for proper education and training programme for site operations and managers, which would assist in creating and maintaining safer environment for construction workers and road users.
10. For clear and sufficient information to be road user, advance warning signs installed or not?
11. Is there any provision of marked lanes for safe and clearly guiding road users?
12. Whether suitable measured provided of marked lanes through constructions zones to control drive behavior?
13. Check for the adequacy of traffic control devices (such as signs, marking, cones , drums, delineators , barricades ,etc.) required for each zone i.e. at advance warning zones, at advance warning zones, at approach transition zone and at workzone? Check for placement and visibility of these control devices.
14. Has permission been taken while changing the standard layouts from safety pointof view?
15. Whether police and other emergency services been consulted.
16. Check the proper care and attention for pedestrian and mom-motorized traffic at construction sites.
17. Check the adequate safety provisions for the elderly and persons with disabilities.
18. Whether construction workers provided with protective clothing etc. reflecting jacket hardhats, gloves, etc.
19. Whether flagmen are available on duty at the appropriate places? Check for propertraffic management practice to avoid inhibiting traffic to pass clear of work siteand necessary attention to road side safety.

1. Whether the temporary diversion is provided at work zones in compliance with thecontract and traffic management plan approved by the Engineer.

2. Whether the Traffic Management Plan at work site prepared and submitted by theContractor to the Engineer for approval.
3. Is the Supervision Engineer ensuring the required quality of traffic managementplan?
4. Whether arrangements of First Aid Box and other emergency care exist for persongetting injured.
5. Whether suitable speed reducing measures are provided at work zones.
6. Other Checks made at directions of auditor or Client.

➢ Contractor's Obligations in respect of Road /Traffic Safety

- As started in IRC: Sp-55:2014
- As started in IRC: Sp-67:2012
- As started in IRC: Sp-88:2010
- As started in clause 18.1 of general condition of contract & sub clause 112.1 & 112.4 of MORTH specifications.
- As directed in LEA's HSE induction Manual.

20. As started in Manual for safety in Road design issued my MORTH.


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BAGNALL
Please drive carefully


CSIR-CRRI

PROOF CONSULTANT

Er. Rajesh ji.
B.E. Civil Eng.
Senior Highway Engineer

Er. Ajay Kundu
B.E. Civil Eng.
M.TECH (Transportation)

Er. Suresh Patidar
B.E. Civil Eng.

- *Survey & Valuation of Affected Structure any any other value addition to the land (multi Storied Building, Trees, Borewell, other value addition assests etc.) within PROW of NH-352-W in Gurugram & Rewari Distt in the State of Haryana – Client – PIU – Rewari, NHAI*
- *Design and Preparation of Cost Estimate for Minor Bridge on Siri to Assandh road at RD 21000 in Karnal Distt in the State of Haryana – Client – PWD – Haryana.*
- *Design and Preparation of Cost Estimate for Minor Bridge on Jundla to Aungad road at RD 62350 in Karnal Distt in the State of Haryana – Client – PWD – Haryana.*
- *Design and Preparation of Cost Estimate for Minor Bridge on Alawla to Dacher road at RD 99300 in Karnal Distt in the State of Haryana – Client – PWD – Haryana.*
- *Detail Project Report of Village Roads (9 Nos.) under PMGSY Scheme in Jhajjar District in the State of Haryana – Project Length – 41.39 Km - Client – HRRIDA – Haryana.*
- *Detail Project Report of Village Roads (5 Nos.) under PMGSY Scheme in Mewat District in the State ofHaryana – Project Length – 41.25 Km - Client – HRRIDA – Haryana*

- *Detail Project Report of Village Roads (6 Nos.) under PMGSY Scheme in Yamunanagar District in the State of Haryana – Project Length – 38.74 Km - Client –HRRIDA – Haryana*
- *Detail Project Report of Village Roads (4 Nos.) under PMGSY Scheme in Fatehabad District in the State of Haryana – Project Length – 72.21 Km - Client – HRRIDA – Haryana*
- *Detail Project Report of Village Roads (8 Nos.) under PMGSY Scheme in Hisar District in the State of Haryana – Project Length – 87.43 Km - Client – HRRIDA – Haryana*
- *Detail Project Report of Village Roads (6 Nos.) under PMGSY Scheme in Sonipat District in the State of Haryana – Project Length – 50.73 Km - Client – HRRIDA – Haryana*
- *Detail Project Report of Village Roads (11 Nos.) under PMGSY Scheme in Panipat District in the State of Haryana – Project Length – 80.70 Km - Client – HRRIDA – Haryana*
- *Detail Project Report of Village Roads (3 Nos.) under PMGSY Scheme in Palwal District in the State ofHaryana – Project Length – 23.24 Km - Client – HRRIDA – Haryana*
- *Detail Project Report of Village Roads (2 Nos.) under PMGSY Scheme in Faridabad District in the State of Haryana – Project Length – 11.77 Km - Client –HRRIDA – Haryana*
- *Detail Project Report of Village Roads (3 Nos.) under PMGSY Scheme in Bhiwani District in the State of Haryana – Project Length – 34.41 Km - Client – HRRIDA – Haryana*

II. *Proof Consultant for Construction of VUP with RE Wall Approaches (Design Chainage Km 43+050/ Existing Chainage Km 43+070) and Service Road (Design Chainage Km 42+650 to Km 43+450 BHS) of Bar-Bilara-Jodhpur Road Project of NH-25 (Old NH- 112) on EPC mode in the State of Rajasthan*

Representative List of Clients

40. *National Highways Authority of India*
41. *PWD B&R – Haryana*
42. *HSRDC – Haryana*
43. *PWD (NH) – Rajasthan*
44. *M/s RITES ltd.*
45. *Irrigation and Water Resource Department- Haryana*
46. *M/s Marc Technocrats Pvt. Ltd.*
47. *M/s Brij Gopal Construction Company (P) ltd.*
48. *M/s Sklyark Infra Engineering Pvt. Ltd.*
49. *M/s Feedback Infra, Gurugram, Haryana*
50. *M/s S A Infra, Nodia UP*
51. *M/s CHAITANYA Projects Consultancy PrivateLimited , GZB, UP*
52. *Mayur Construction Company, Barmer, Rajasthan*
53. *M/s SDS Consultancy, Gurugram, HR*
54. *Haryana Irrigation and Water Resource Department*
55. *M/s The E5 Company*
56. *M/s Gawar Constructions Ltd.*
57. *M/s Jandu Constructions*
58. *M/s Yearn Construction Pvt. Ltd.*