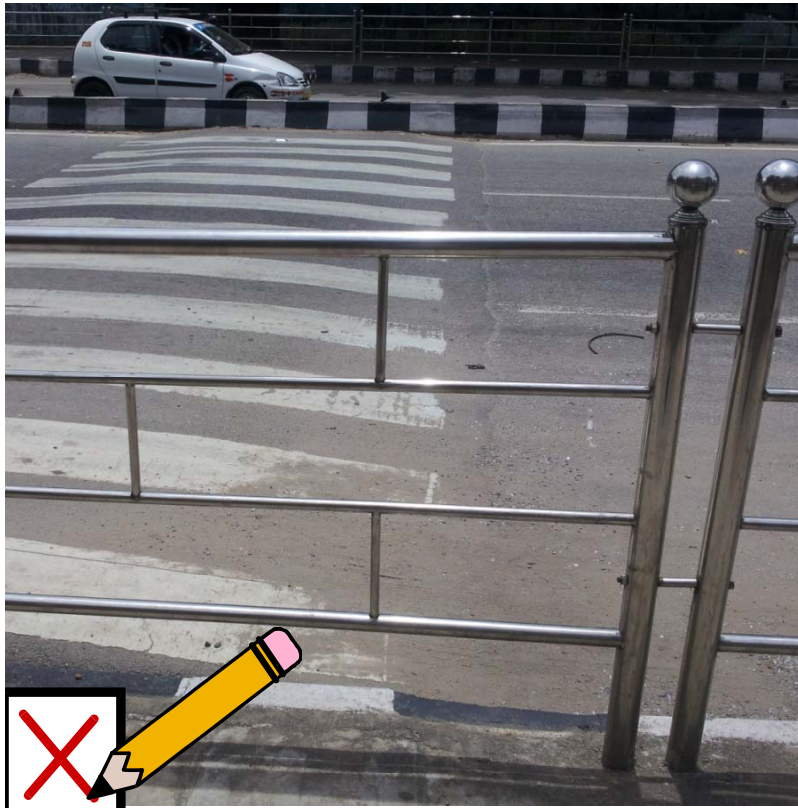


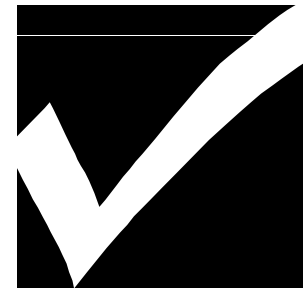
Shall the Road Safety Audits be Mandatory for New Projects and Implementation of the Agreed Recommendations be Legally Binding?



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CONTENTS

- to briefly outline the road safety audit (RSA) and road safety review (RSR) processes,
- to provide a review of the RSA Guidelines - shall the RSA and RSR be mandatory?
- if yes, for what Projects?
- shall implementation of agreed recommendations be legally binding on road authorities?
- If yes, what shall be done?



DEFINITION OF THE ROAD SAFETY AUDIT?

“The **formal** safety performance examination of an existing or future road or intersection by an **independent, multidisciplinary team**.

It **qualitatively** estimates and reports on potential road safety issues and identifies opportunities for improvements in safety for **all** road users.” (FHWA–USA-2006)



THE RSA PROCESS

- Is Formal;
- By a Team of qualified, experienced and trained professionals;
- Independent of the design;
- Is restricted to road safety issues

THE QUALITY AUDIT

QA provides a check that high quality roads are designed, constructed and maintained for the benefit of all road users.

QA systematically reviews projects and ensures that the broad objectives of roads, functionality (access and mobility), maintenance and safety are achieved.

The responsibility for “Quality Audit” (including implementation of agreed changes for safety), under “Duty of Care”, remains with the Project In-Charge and **NOT** with a RS Audit Team / Auditor.

The RSA / RSR

- **The RSA can find safety concerns before they contribute to crashes.**
- **Lack of crash data is a reason to use the audit process.**
- **The earlier that a project is audited-in the design process, it is more beneficial. As early auditing can achieve better results at much lower remedial cost.**
- **One of the key elements of the RSA framework is guidance, which provides clear and concise direction, actions, identification of responsibilities, and explanation of how to implement.**

Road Traffic Accident (Crash) Database

Processed Data 3 year tabulations, listings

Identify hazardous locations – Site Selection

Crash black Spot sites- single site investigations

Route studies

Mass Action Plan

Area Wide projects

REMEDIAL PROJECTS IMPLEMENTED

Monitoring (before / after studies)

Best practice

Crash studies Frequency of Crashes in relation to highway conditions

Special studies' before and after' Crash rate comparisons

Proposed Highway Improvement, Rehabilitation Projects

New Highway Projects

Road Safety Audit An assessment of Crash risk in the design and construction of Highway

SAFER PROJECTS IMPLEMENTED

Monitoring

THE RSA IS NOT A BLACKSPOT INVESTIGATION

The Road Safety Audits are PROACTIVE to prevent crashes - a means of minimizing crash situations.

Prevention is better than cure, as it:

- Involves less trauma; and
- Costs a road authority and community less money than remedial treatments.

The Blackspot / Hazardous Road Location - HRL investigations (identifying, diagnosing, designing and implementing countermeasures) are REACTIVE to reduce crashes. These are crash data (evidence) based interventions.

THE INT. 5 STAGES OF THE RSAs ARE:

- 1. Planning / Feasibility**
 - 2. Preliminary design**
 - 3. Detailed design**
 - 4. During road works - Traffic management**
 - 5. Pre - opening**
- For an existing road, process is called “Road Safety Review” - RSR or “Road Safety Inspection” - RSI**

OBJECTIVES OF THE RSA / RSR

- **to reduce the whole-life costs of a future project / scheme (unsatisfactory designs can be expensive to correct after they are built);**
- **to minimise the risk of crashes on the adjacent road network, (particularly at tie-ins) as well as on the new road scheme;**
- **to enhance the relevance of road safety engineering in highway design work; and**
- **to enhance consideration of the safety of all road users in all future and existing schemes.**

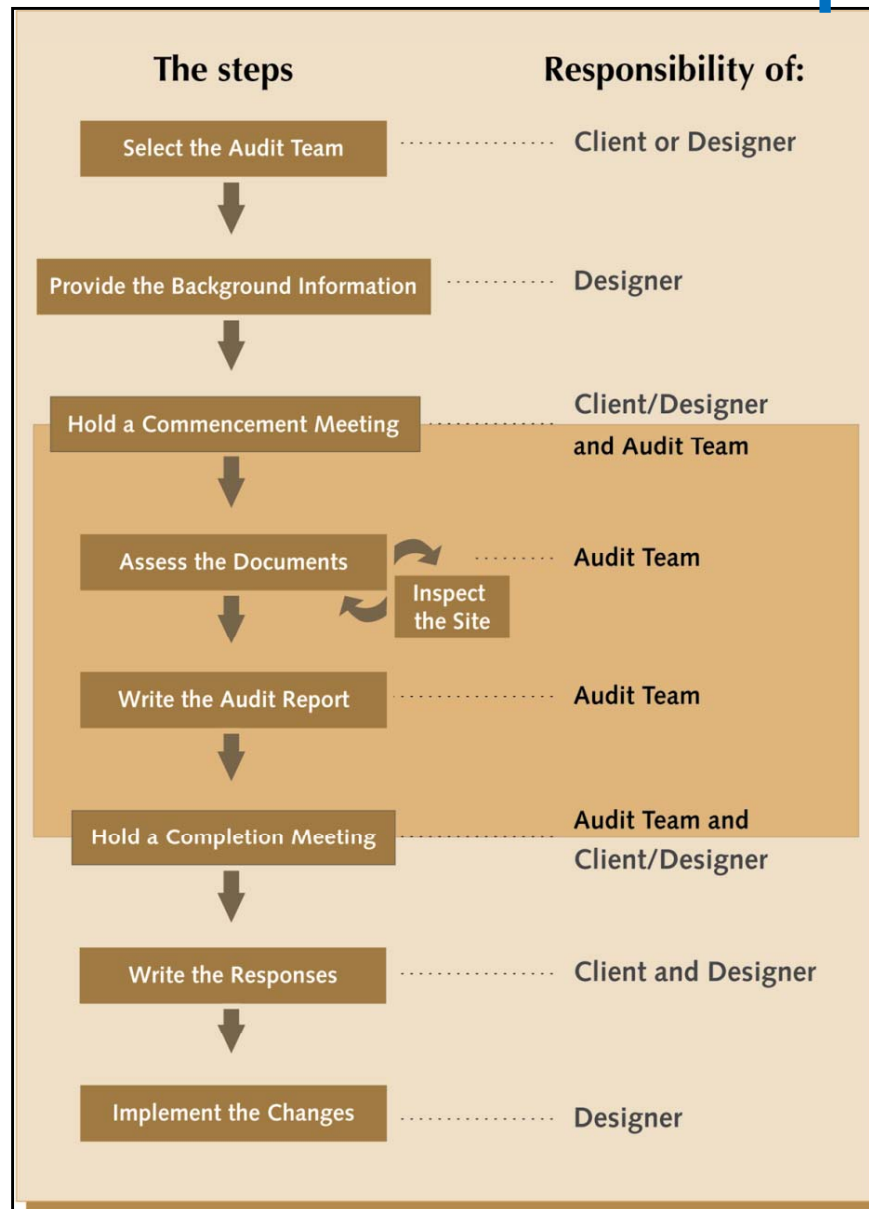
The Steps of the RSA and Responsibilities

Select an Audit team

Provide all information

Commencement meeting

Assess documents
- inspect site at night too



Write audit report

Hold completion meeting re concerns

Respond to the RSA Report's concerns and agree

Client to ensure implementing agreed corrective actions

Examples of crash barriers in Bangalore (left), and in Australia (right and below)



Safety features are to be built in...

Review of the RSA Guidelines / Status

Country	Status
UK (2003-08)	<ul style="list-style-type: none">-Mandatory for highway schemes on the motorway and trunk road Network.Recommended for local roads as good practice.-Where a scheme value exceeds £10,000 but is less than £25,000 or where a significant change to the highway is being made then they will be subject to the full RSA process.-All schemes exceeding £25,000 will be subject to the full RSA process.
Europe (2008) and SEETO (2012)	<ul style="list-style-type: none">-European Union has made a clear decision in October 2008 that the RSA will be mandatory for the Trans-European Road Network in the next years.-South East Europe Transport Observatory (SEETO) countries (Albania, Bosnia and Herzegovina, Croatia, Kosovo, Macedonia, Montenegro and Serbia) have also agreed to adopt the mandatory RSA for the entire SEETO comprehensive road network.
USA (2006)	<ul style="list-style-type: none">-The Federal Government have no mandatory requirements for conducting RSAs. Recommendations are not legally binding.-There are several of 50 States that require a RSA depending on the size and / or scope of the process, (Over US\$250,000 or highly controversial projects or safety enhancements).

Review of the RSA Guidelines / Status

Country	Status
South Africa (2012)	<p>-The Road Traffic Management Centre - RTMC will make recommendations to Parliament that Road Safety Audits be made the legislative requirements and that roads authorities must conduct road safety audits regularly.</p> <p>-In line with the “Decade of Action for Road Safety (2011-2020)”, the RTMC has called all Road Authorities to ensure that in their budgets, safety to be integrated in all phases of planning, design, construction, operation and maintenance of road infrastructure for Safer Roads for Development.</p>
China (2004)	<p>-The Ministry of Communication (MoC) had recommended that each newly designed Expressway and Class I highway should be MANDATORY to be audited according to the RSA Guidelines.</p> <p>-The road design engineers who undertake safety audits, must refer the RSA Guidelines.</p>

Review of the RSA Guidelines / Status

Country	Status
Australia (revised 2009)	<p>-Safety audit creates a safer road environment. A major objective of litigation is to encourage safety, therefore the use of safety audit will be encouraged by the legal system.</p>
	<p>-Roads can be made safer by different methods: Black spot treatment; Periodic inspection; Adoption of higher standards of engineering practice; and Greater allocation of funds and road safety audits. It is for highway authorities to decide which mix of these is best for a given project.</p> <p>-No mandatory requirements for conducting RSAs. Recommendations are not legally binding.</p>
Dubai (2008) and Abu Dhabi (2011)	<p>Using the road safety audit manuals, ARRB audited over 3000 km long major roads. However, agreed recommendations were partially implemented.</p>

Summary of RSA Status

COUNTRY / CONTINENT	MANDATORY FOR MAJOR ROAD NETWORK	LEGALLY BINDING
UK	YES	NO
EUROPE	YES	YES
SEETO COUNTRIES	YES	YES
AUSTRALIA	NO	NO
SOUTH AFRICA	YES	NA
CHINA	YES	NO
USA	NO	NO
UAE	NO	NO
INDIA	NO	NO

Review of the RSA Guidelines / Status (India)

Country	Status
- Sunder Committee	Estimated fatalities in road crashes in India, by the Sunder Committee, were 154,600 in 2015.
- National RS Policy - NRSC Res. 13/2/2013	An estimated over 1.0 million road users have died in road crashes on the Indian roads, during the last 9 years.
- IRC-SP88-2010 - IRC-SP55 - K-PWD RSA and RSR Field Guides 2013	Engineering aspects of safety of road design, construction and operation are dealt with by the Roads Wing of Central Ministry, which sets standards for safety in the design, construction and operation of national highways in consultation with the IRC.
- FINAL REPORT OF THE WORKING GROUP ON ENGINEERING (ROADS)	Sunder Committee had recommended establishment of a NRSTM Board through an Act, and “Conduct / commission road safety audits of national highway projects through all phases (pre, during and post) to monitor adherence to prescribed standards and issue directions, where necessary, to take corrective action” . Also for States: “Conduct / commission safety audits to monitor compliance with the standards” ;

Review of the RSA Guidelines / Status (India)

Status

Limited RSA (proactive process) is being undertaken for NH / major road projects, mainly due to resource constraints. There are no legal bindings to implement the agreed safety concerns.

There is often delays in appointing Auditors and lack of appreciation, understanding and commitment.

The concerns of the RSA are hardly taken in right spirit to change design and the safety deficiencies remain. The codes and standards have contradictory requirements inviting different interpretation.

There is acute shortage of properly trained, qualified and experienced road designers / safety auditors. Institutional strengthening / capacity building is urgently required.

Recommendations (1 / 2)

- The Governments / NRSC to urgently take appropriate measures to ensure that the required legal, institutional and financial environment for road safety are further strengthened.
- To develop and agree to a comprehensive National / State Road Safety Strategy and Audit Policy;
- To provide adequate funds especially for RSAs, external and On-the-Job-Training of Auditors and Designers, and for implementation;
- To initiate the legislative requirements, to ensure that for all budgeted new road projects / traffic schemes of Indian Rupees 10.0 million (Rs. One Crore) and above, RSA shall be “**MANDATORY**”* according to the Class of road and Stage (see Table in the Slide Number 20);

*Mandatory - authoritatively ordered; obligatory; compulsory.

Recommendations (2 / 2)

- Implementation of the agreed recommendations (concerns) shall be **LEGALLY BINDING** on road authorities;
- To make the RSR “Mandatory” for existing roads having contract-works of Rs. 10.0 million (1.0 Crore) and above;
- The RSA / RSR shall be strictly in accordance with the formal procedures as per the RSA Manuals / Guidelines.

The IRF, IRC and Key Stakeholders shall take a lead.

Which Project shall be Mandatory for RSA / RSR?

ROAD SAFETY AUDIT STAGE	NEW / UP GRADE WORKS ON EXPRESSWAY AND FREEWAYS	NEW / UP GRADE WORKS ON NATIONAL HIGHWAYS AND PRIMARY ARTERIALS	NEW / UPGRADE WORKS ON STATE HIGHWAYS, MAJOR DISTRICT ROADS, SECONDARY ARTERIALS	NEW / UPGRADE WORKS ON COLLECTOR, RURAL AND LOCAL STREETS
PLANNING / FEASIBILITY	√	√	N/A	N/A
PRELIMINARY DESIGN	√	√	Optional	N/A
DETAILED DESIGN	√	√	√	√
ROAD WORKS - TRAFFIC MANAGEMENT	√	√	Optional	Optional
PRE-OPENING	√	√	√	Optional
NO. OF AUDITS	5 Stages	5 Stages	Minimum 2	Minimum 1
FOR EXISTING ROADS: SAFETY REVIEW	√	√	√	Optional

Recommendations for a State (e.g. Karnataka)

RSA Policy to include SAFETY commitments by the State Government and all Road Authorities (such as PWD)

- **Responsibility: Head-Road Safety Unit / CE Projects**
- **Funds from: NHAI, State Government, WB/ADB, RS Cell**
- **What Projects? Requirements could be:**
 - **A percentage of Projects**
 - **Projects above a set value (Rs.10.0 million)**
 - **Projects on particular road type (NH, SH, Urban Arterial)**

Staff of the RSU are to play a crucial (imp.) role:

- **to be trained and must gain required experience,**
- **to undertake RSAs through RS Teams, and to train field engineers**

THANK YOU !

PREVENTION IS BETTER THAN CURE !!

IT IS VITAL FOR SAFETY TO “GET IT RIGHT THE FIRST TIME” TO SAVE LIVES, TIME AND MONEY !!!

