Session 3.3 Recap: Road Safety Audits and Appraisals

Conducting Road Safety Audits & Appraisals

Presented by: RTS & AGTT

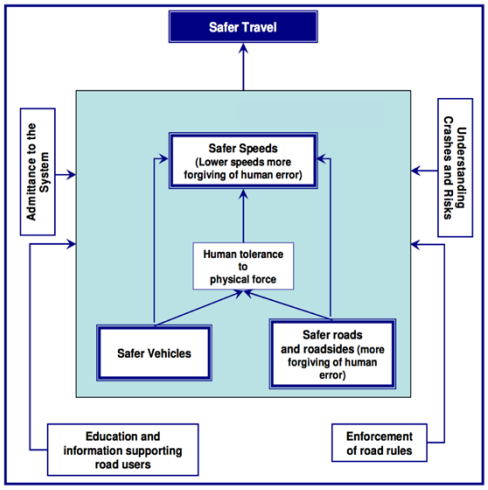
January 2022

Copyright Novus®Pty/Ltd – Presentation may only copied or distributed with permission of the authors

1

(WHO) 2004 Injury Prevention Report recommends a Safe System Approach

Safe System Approach



Source: RTMC SARSAM (2012), from Austroads.

Humans drive, walk, cycle etc.:

- In the road environment;
- Influenced by:
  - Education related to the use of the road system;
  - Information from the road environment; and
  - Enforcement of road rules.
- Perception of safety and crash risk.
- Humans as a (varying) limited ability to process information during a potential crash situation.
- Need to promote and design:
  - Safer vehicles;
  - Forgiving roads and roadsides;
  - Appropriate (safer) speeds.
  - Given that human body can sustain limited physical force.

Safer travel, with alert road users, making the correct choices with regard to the use of the roadway.

Holistic Approach to Road Safety

Copyright Novus®Pty/Ltd – Presentation may only copied or distributed with permission of the authors

2

Road Safety Management

Road Traffic Safety Management aims to integrate all activities affecting road safety.

Road authorities need to:

- Develop a road safety strategy
- Demarcate road management areas.
- Develop safety plans for each area.
- Consider all road users, especially vulnerable road users.
- Coordinate efforts towards achieving objectives of the road safety plans.

Source: SARTSM, RTMC, 2012

Copyright Novus ITPty ltd – presentation may only copied or distributed with permission of the authors

INTRODUCTION TO ROAD SAFETY AUDITS AND APPRAISALS

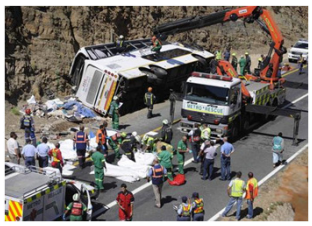
3

Road Safety Management

Effective road safety management programs should achieve a balance:

Proactive Strategies

Reactive Strategies



Copyright Novus ITPty ltd – presentation may only copied or distributed with permission of the authors

INTRODUCTION TO ROAD SAFETY AUDITS AND APPRAISALS

4

The Haddon Matrix

Proactive Reactive

		Human factors	Vehicle factors	Road /Environment factors
PRE-CRASH	Crash prevention	Education Training Attitudes	Roadworthiness Maintenance system	Safe Road design Maintenance
CRASH	Life sustaining	Use of restraints	Seat & Air bags Crash-worthiness	Protection and assistance Barriers, road verges, arrestor beds
POST-CRASH	Life sustaining	First aid skill Access to EMS	Ease of access Fire risk	Road verges Alternatives

Knowledge and Experience in reactive measures assist in insight of being pro-active

ROLES AND RESPONSIBILITIES

SARF SANRAL NOVUS RTS

Copyright Novus®Pty/Ltd – presentation may only copied or distributed with permission of the authors

5

Proactive

A **proactive approach** to road safety:

- **prevention** of safety problems before they manifest

A **Road safety audit** is an example of a proactive road safety strategy.

The advantages of a proactive approach include:

Crash prevention: implement measure **before** crash occurs.

Lower costs: changes during design and construction **cost less**.

INTRODUCTION TO ROAD SAFETY AUDITS AND APPRAISALS

SARF SANRAL NOVUS RTS

Copyright Novus®Pty/Ltd – presentation may only copied or distributed with permission of the authors

6

Reactive

Reactive approach is based on the analysis of existing crash data.

Reactive road safety engineering processes includes:

- *Collect crash data (**crash information systems**)*
- *Identification of **hazardous locations** on the road network;*
- *Analysis, development and implementation of **remedial measures**.*

Propose improvements to road safety risks in areas with high crash rates.

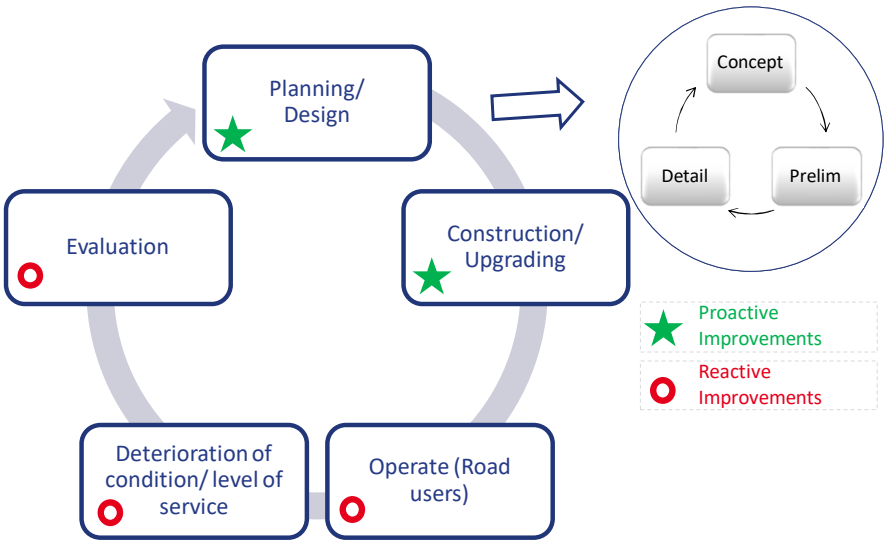
INTRODUCTION TO ROAD SAFETY AUDITS AND APPRAISALS

SARF SANRAL NOVUS RTS

Copyright Novus TEPs Ltd – presentation may only copied or distributed with permission of the authors

7

Road Safety Management



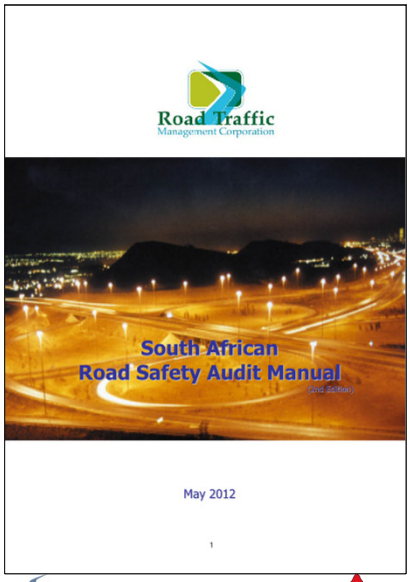
INTRODUCTION TO ROAD SAFETY AUDITS AND APPRAISALS

SARF SANRAL NOVUS RTS

Copyright Novus TEPs Ltd – presentation may only copied or distributed with permission of the authors

8

Relevant Guideline Documents in South Africa



SARF SANRAL NOVUS RTS

INTRODUCTION TO ROAD SAFETY AUDITS AND APPRAISALS

9

Definitions

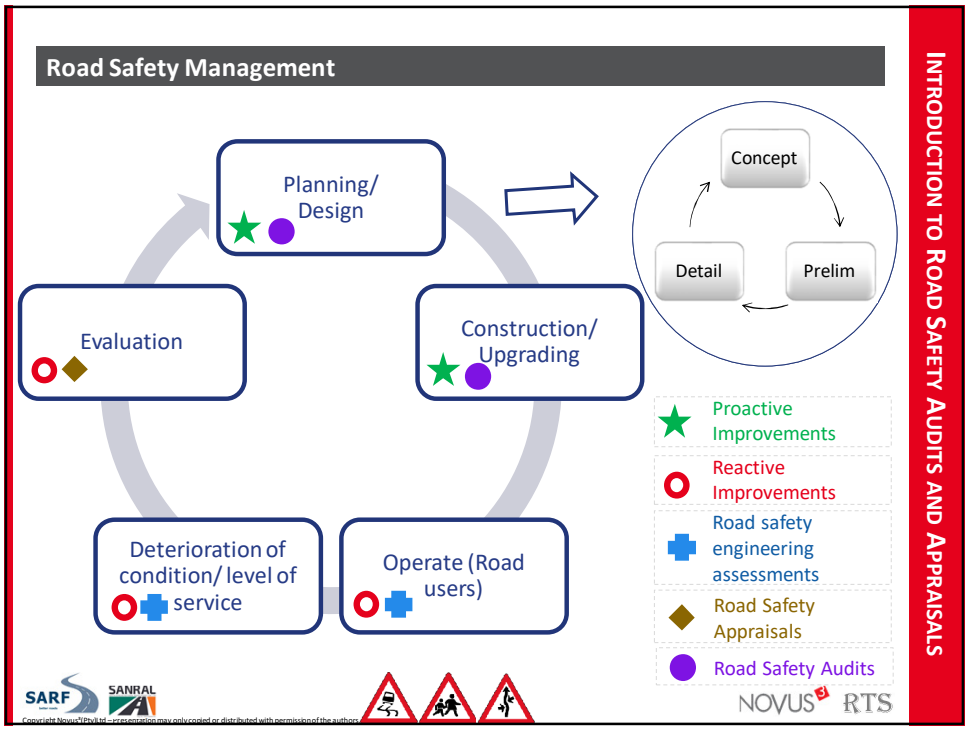
Road safety engineering assessment	The **screening process** to establish the road safety status of sections of an **existing** road network resulting in a list of prioritised **locations** that should be **further investigated**.
Road safety appraisal	A systematic examination of **an existing road location**, in which an independent and qualified team **reviews on-site conditions** and **historical evidence** to identify existing or potential **road safety problems** and suggest measures to **mitigate** those problems.
Road safety audit	A **formal examination** of a **new road** or **upgrading project**, in which an independent and qualified team **identifies potential road safety problems** and **suggest** measures to **mitigate** those problems.

Source: SARTSM, RTMC, 2012

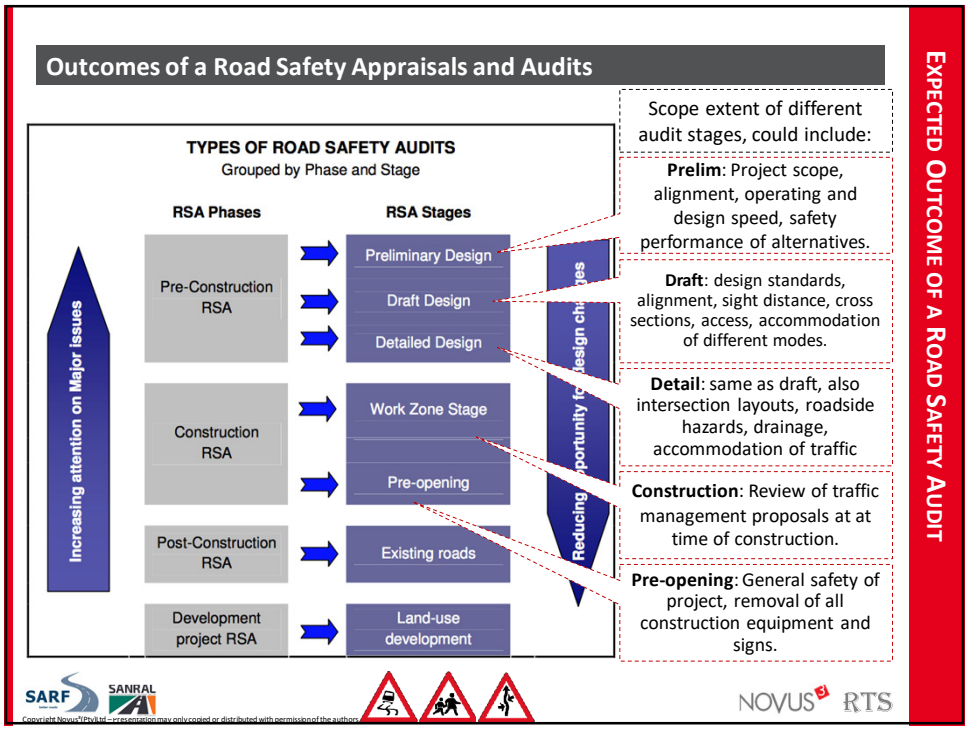
SARF SANRAL NOVUS RTS

INTRODUCTION TO ROAD SAFETY AUDITS AND APPRAISALS

10


Road Safety Management
Planning/ Design
Construction/ Upgrading
Operate (Road users)
Deterioration of condition/ level of service
Evaluation
Concept
Prelim
Detail
Proactive Improvements
Reactive Improvements
Road safety engineering assessments
Road Safety Appraisals
Road Safety Audits
SARF
SANRAL
NOVUS
RTS
INTRODUCTION TO ROAD SAFETY AUDITS AND APPRAISALS

11


Outcomes of a Road Safety Appraisals and Audits
TYPES OF ROAD SAFETY AUDITS
Grouped by Phase and Stage
RSA Phases
RSA Stages
Increasing attention on Major issues
Pre-Construction RSA
Construction RSA
Post-Construction RSA
Development project RSA
Preliminary Design
Draft Design
Detailed Design
Work Zone Stage
Pre-opening
Existing roads
Land-use development
Reducing opportunity for design changes
Scope extent of different audit stages, could include:
Prelim: Project scope, alignment, operating and design speed, safety performance of alternatives.
Draft: design standards, alignment, sight distance, cross sections, access, accommodation of different modes.
Detail: same as draft, also intersection layouts, roadside hazards, drainage, accommodation of traffic
Construction: Review of traffic management proposals at at time of construction.
Pre-opening: General safety of project, removal of all construction equipment and signs.
SARF
SANRAL
NOVUS
RTS
EXPECTED OUTCOME OF A ROAD SAFETY AUDIT

12

Outcomes of a Road Safety Appraisal

A Road Safety Appraisal should provide:

- Comprehensive analysis of crash history.
- Identification of crash risk contributing factors.
- Objective review of the safety performance of a road section.
- Identification and classification of road safety risks.
- Should include all causes (maintenance, management and design).
- Should address all modes of transport.
- Consider the entire road environment.
- Documentation of the appraisal process, with proposed mitigations.
- Could include conceptual solutions.

EXPECTED OUTCOME OF A ROAD SAFETY AUDIT

SARF SANRAL NOVUS RTS

Copyright Novus TPtyLtd – presentation may only copied or distributed with permission of the authors

13

Outcomes of a Road Safety Appraisal

A Road Safety Appraisal is not:

- A desktop exercise.
- A pavement or road asset condition assessment.
- A redesign of the road.
- An informal check, inspection or consultation.
- A means to ranking or comparing one project or option over another.

EXPECTED OUTCOME OF A ROAD SAFETY AUDIT

SARF SANRAL NOVUS RTS

Copyright Novus TPtyLtd – presentation may only copied or distributed with permission of the authors

14

Outcomes of a Road Safety Audit

EXPECTED OUTCOME OF A ROAD SAFETY AUDIT

A Road Safety Audit should provide:

- Objective review of the safety performance of a road project.
- Comprehensive safety review of the design.
- Identification and classification of road safety risks.
- Focus on potential serious and fatal risks.
- Highlight other risks, especially risk with low mitigation cost.
- Documentation of the audit process, with proposed mitigations.

SARF SANRAL NOVUS RTS

Copyright Novus ITPty Ltd – presentation may only copied or distributed with permission of the authors

15

Outcomes of a Road Safety Audit

EXPECTED OUTCOME OF A ROAD SAFETY AUDIT

A Road Safety Audit is not:

- A quality control review, a design review or a peer review.
- A judgement of the quality of a project.
- A compliance check with standards, guidelines or drawings and specifications.
- A redesign of a project.
- An informal check, inspection or consultation.
- A means to ranking or comparing one project or option over another.

SARF SANRAL NOVUS RTS

Copyright Novus ITPty Ltd – presentation may only copied or distributed with permission of the authors

16

END OF LECTURE

Copyright Novus®Pty/Ltd – Presentation may only copied or distributed with permission of the authors

17