

THE ROAD SAFETY AUDIT TOOLKIT

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ABSTRACT

The Road Safety Audit (RSA) Toolkit is an on-line tool to assist practitioners carry out road safety audits. The Toolkit was launched on-line in early 2005.

The computer based expert system is designed to assist road safety auditors by:

- prompting auditors with the Austroads Road Safety Audit Guide 2nd Edition (2002) checklist questions
- providing a medium in which they can record the audit location and team details
- providing a medium in which auditors can record the findings of an audit in a structured manner, based on the Austroads Road Safety Audit Guide 2nd Edition
- providing relevant Australasian and jurisdiction specific reference publications and a searching function that allows auditors to interrogate references using 'key words' to identify salient sections
- providing an export function that allows auditors to generate road safety audit reports
- allowing reproduction of the Austroads checklists for use in the field.

A key feature of providing access via the Internet is that it ensures that all users will have access to the latest version of the program, and the most recent edition of the references.

This paper describes the development of the system and its application.

1 INTRODUCTION

1.1 Background

In November 2001 ARRB was commissioned by Austroads to complete the computer based Road Safety Audit Advisory System. The specifications produced were based on the previously developed EASy Audit system, which had been prepared by ARRB for the Roads and Traffic Authority of NSW. During the development of the Australian Road Safety Audit Advisory System the name of the program evolved to become the Road Safety Audit (RSA) Toolkit.

The key objective of the development of the RSA Toolkit was to produce a computer based system that would assist road safety practitioners apply road safety audit processes and practices.

2 PROJECT STAGES

The development of the Toolkit comprised four separate stages:

- jurisdictional consultation and reference collation (Stage 1)
- production of an on-line prototype (Stage 2)
- finalising programming and developing a user manual (Stage 3)
- launch of Road Safety Audit Toolkit website (Stage 4).

2.1 Stage 1

The structure, desired functionality, references, required outputs and report formats of the RSA Toolkit were considered during consultation with representatives from each jurisdiction across Australia and New Zealand.

The development of the RSA Toolkit System was based on road design and traffic management practice across Australia and New Zealand. The key road safety audit reference used was the Austroads Road Safety Audit Guide 2nd Edition (2002).

Through consultation, a number of key road design and traffic management references were obtained to be included in the System. These include publications from Standards Australia, Austroads and the individual road authorities. Authority to reproduce part or the whole of documents was dealt with on a case-by-case basis. For publications that were not permitted to be fully reproduced, it was determined that references in the form of title and abstract be provided, so that practitioners are directed to the correct publication, even if not fully available on the system.

2.2 Stage 2

The second stage involved preparation of resources to be included in the web-based system. More specifically, this involved:

- conversion of the references into a suitable electronic format (generally PDF)
- updating checklist questions, from the prototype Road Safety Audit Advisory System (which had been previously developed), to match those included in the Austroads Road Safety Audit Guide 2nd Edition (2002)
- allocation of keywords to both the checklist questions and reference chapter/section headings to enable reference searching
- programming of the system, including:
 - provision of the ability to select the relevant jurisdiction
 - the development of the printing system
 - the reprogramming of the system from Visual Basic to an Internet compatible language (ie asp.net with an SQL Server database).

It was initially suggested that reports produced by the RSA Toolkit be generated in Microsoft Word format. This would allow text from the Toolkit to be easily incorporated into users' documents and updated to any templates/layout used. However, it was decided that the outputs be HTML based. This allows users to export the data into any word processing (or where relevant, spreadsheet) application that users may wish to use.

2.3 Stage 3

The third stage of the project involved:

- finalising programming of the system
- identifying further available relevant references and including them in the System
- development of a user manual.

The user manual is a comprehensive guide that steps users through all of the features of the RSA Toolkit. This is a working document that is updated with additional guidance during ongoing development of the System.

2.4 Stage 4

The fourth stage was the launch of Road Safety Audit Toolkit website. The website became live in December 2004. Since then users from State Road Authorities, Local Government and private consulting have commenced using the software. Further development of this initial (Beta) version of the Toolkit is anticipated, providing a valuable resource for all Australasian road safety practitioners.

3 DISSEMINATION AND DEMONSTRATION

Subsequent to the release of the RSA Toolkit website (see Figure 1), it was proposed that workshops be conducted across jurisdictions in Australia and New Zealand to ensure that the RSA Toolkit is widely disseminated to road safety practitioners. This phase is currently under way, and it is anticipated that a range of updates and upgrades to the System will result, after wider exposure of the Toolkit to road safety practitioners.

Further information and access to the software is available at:

www.arrb.com.au/software/rsatoolkit

- manage user accounts assigned to them
- view and manage audits created by users in their organisation

All users may browse the reference library.

4.3 Conducting audits

In line with the Austroads guide, an audit may be conducted for any stage as follows:

- Feasibility stage audit
- Preliminary design stage audit
- Detailed design stage audit
- Pre-opening stage audit
- Roadwork traffic scheme audit
- Existing roads: road safety audit

When a new audit project is commenced, general project information and details regarding the audit location and team members are collected. In addition, a series of summary notes allows users to enter any additional information relevant to the audit. For instance, details regarding additional site inspections that may have been undertaken.

Users are prompted to answer a series of checklist questions, which vary depending upon the stage selected for the audit. The checklist questions are those provided in the Austroads Road Safety Audit Guide 2nd edition.

Where the audit team identifies a road hazard or deficiency, a comment must be added to clarify the issue and assign priority.

More than one audit stage can be conducted for any project. Therefore, for large projects, where audits may be undertaken at a range of stages, project leaders can revisit and review any previous audits undertaken.

Projects with complete audit stages may be searched according to creator, date, client, file name, responsible road authority, etc. For projects where audits are undertaken at multiple stages, the Toolkit indicates which audit stages have been completed and which are currently in progress.

4.4 Creating reports

The following report types may be created for any completed audit stage:

- Detailed audit report by category – this report presents the issues/comments according to checklist question category
- Detailed audit report by priority – this report presents the issues/comments by assigned priority
- Corrective action report – this report lists all the issues/comments in a corrective report format, providing space for project leaders to respond to issues (see Figure 2 below).

CORRECTIVE ACTION REPORT						
Project Name:		Collector/Local intersection				
Location:		Collector/Local intersection				
Description:		intersection				
Region / Council:		Nouveau Estate / Local Government City Council				
Client:		Local government				
Date of Audit:		6/07/2005 to 22/07/2005				
Audit Findings / Hazard Description	Location	Audit Priority	Project Manager			Comments
			Recommendation / Proposed Treatment	Estimated BCR or RRCR	Accept (Yes/No)	
1. Access to property and developments						
Collector road not a heavy vehicle thoroughfare	Collector Road	Comment only				
2. Adjacent developments						
No major adjacent generators of traffic and developments planned at this stage	Collector Rd / Local Rd	Comment only				
Potential glare from lighting of adjacent property should not be a problem	Collector Rd / Local Rd	Comment only				
3. Bridges, culverts and causeways/floodways						
One culvert on Collector Rd may pose a problem to errant vehicles	Collector Rd	High				
4. Changes since previous audit						

Figure 2: Example section of corrective action report generated by RSA Toolkit

4.5 Browsing references

The reference library (see Figure 3 below) may be searched for documents according to:

- location (jurisdiction)
- keywords
- title
- section.

Also, a keyword searching facility is provided in the title bar of all screens. In addition, users may choose to 'find documents according to this sub-topic' (via a link) in any section of the checklist questions.

Road Safety Audit Toolkit

Home About RSA Toolkit Contact Browse Resources Help Audits Account: lisa enduser Logout

Document Search : Keywords Location: Search

Browse Resources

Location:

Keywords: Search

Title:

Section:

Any feedback regarding these resources should be provided to the appropriate contact that can be found [here](#).

Search found 605 results.
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Results
<p>Category: Australian Capital Territory > Standard Specification for Urban Infrastructure Works > SS01 Provision for Traffic 01</p> <p>File: SS01 Provision for Traffic 01 00.pdf</p> <p>Date added: 28/11/2003</p>
<p>Category: Australian Capital Territory > Standard Specification for Urban Infrastructure Works > SS02 Earthworks 01</p> <p>File: SS02 Earthworks 01 00.pdf</p> <p>Date added: 28/11/2003</p>
<p>Category: Australian Capital Territory > Standard Specification for Urban Infrastructure Works > SS03 Underground Services 01</p> <p>File: SS03 Underground Services 0100.pdf</p> <p>Date added: 28/11/2003</p>

Figure 3: Road Safety Audit Toolkit, resource browsing

5 FEEDBACK AND FUTURE DEVELOPMENT

Considering the relatively recent release of the software, feedback from users is encouraged. We are particularly interested to hear of useful references that may be incorporated into the reference library and additional features that may be included in the software. This will enable the software to evolve, becoming as useful as possible for road safety practitioners.

Future developments may include:

- versions that support use on a PDA
- development in the longer term for use as an audit management tool (to identify common deficiencies across the road network, etc)

6 CONCLUSION

The RSA Toolkit is designed to help road safety auditors undertake and manage Road Safety Audits. It is an on-line tool that allows users to record information regarding the audit location, the team responsible for the audit and other relevant details. Users are then prompted with the relevant Austroads Road Safety Audit Guide's checklist questions. The tool provides a medium in which they can record the findings of an audit, and allows users to search relevant technical guidance

documents. Finally, the reporting function of the Toolkit allows users to generate a number of reports.

Through workshops and feedback, the RSA Toolkit will continue to be updated and evolve in order most to effectively serve the needs of road safety practitioners.

REFERENCES

Austroads 2002 Road Safety Audit, (Second edition), Austroads Project No. RSS.SS.C.008, Austroads Incorporated, Sydney, NSW, Australia

Boschert, L, Tziotis, M and Kerner, J 2005 Australian Road Safety Audit Advisory System (re-named Road Safety Audit Toolkit), Austroads Project No. RSS.SS.C.008, Austroads Incorporated, Sydney, NSW, Australia.

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