

Safety management systems

Raising the profile of road safety engineering

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Abstract

Road controlling authorities (RCAs) have no specific duty in New Zealand law to consider and implement measures to address road safety risk. This is despite the quantified road safety benefits delivered by properly targeted roading measures. Safety management systems (SMSs) are being promoted as the best means of ensuring that all RCA decisions about construction, maintenance and management of the road networks lead to the achievement of clear safety targets

This paper records the development of an SMS in partnership with New Zealand RCAs. It showcases and creates discussion on the innovations in road safety engineering that have come out of this extensive project covering the majority of New Zealand's RCAs. To ensure the next generation advances the SMS approach the importance of developing road safety engineering expertise is emphasised.

What is an SMS?

An SMS consists of four major areas:

- The strategic **direction** of the RCA including the vision and plans to achieve it. The RCA partnerships needed to deliver safer roads are also identified.
- The road safety engineering 'toolbox' of **delivery** including crash reduction studies, safety audits, data collection, adopted standards and guidelines. These generally relate to the RCA's road hierarchy, staff structure, roles and technical expertise requirements.
- The management **control** systems and responsibilities for the SMS including road safety engineering processes that will be used.
- **Continuous improvement/audit** regimes to ensure best practices are in place and are being followed and delivered for the road users.

What is the purpose of a safety management system?

SMSs are being adopted by RCAs to ensure that safety is considered in decisions about construction, maintenance, planning and management of their road network. Specifically the purpose of an SMS is to:

- assist the achievement of targets and goals identified in national and local road safety strategies
- implement road management procedures consistently and efficiently
- ensure risk management is documented, providing protection from litigation
- ensure road safety knowledge and expertise needs are documented
- ensure methods to address any gaps are in place
- provide clear documented guidance for staff, including training new employees
- ensure that the development and audit of the roading network are undertaken in systematic way
- improve safety for **all** road users.

How have safety management systems been developed?

The New Zealand Government First Steps Programme (LTSA, September 2002) provided funding to the LTSA for 17 projects in support of the *Road Safety to 2010* strategy. In the engineering area a key component was an LTSA/RCA partnership for developing the SMS.

The project to achieve the national adoption of SMSs has focused on five activity areas.

Project management

Following the appointment of the project manager in December 2002 a detailed project plan was developed (Greenwood, January 2003). The plan identified 13 deliverables and 18 key milestones that needed to be achieved by the project.

Marketing

The communication plan developed for the project (Greenwood, April 2003) identified 12 objectives to be achieved by the plan. The target audiences along with the activities needed to reach them were also identified in the plan.

Guidelines

The LTSA is encouraging and assisting RCAs to develop their SMSs and road safety engineering skills through three sets of guidelines.

1. *Interim guidelines for **developing** a safety management system* (LTSA, February 2003).
2. *Guidelines for **developing** a safety management system for road controlling authorities* (LTSA, November 2003).
3. Trial issue *Guidelines for **implementing** a safety management system* (LTSA, May 2004).

The guidelines have used material from many previous research papers (Appleton, 2000; Cleal and Edgar, 2001; Nicolson, 2002; and Cleal and Croft, 2002) and examples from existing RCA SMSs.

Demonstration models

In the initial 18 months of the project, 42 RCAs developed their SMS with the support of the LTSA. These SMSs acted as continuous improvement models for further refinement of the voluntary approach sought by the New Zealand Government.

SMS and road safety engineering knowledge and experience gained by the RCA, consultant, and LTSA staff participating in the project, will be shared at an annual review workshop. This increasing knowledge and experience will be used to assist the remaining RCAs within New Zealand develop their SMSs. The plan is to have all 74 RCAs in New Zealand implementing an SMS by 2007.

Expertise development

Nine different firms have so far been contracted to assist RCA engineering staff develop and implement their SMS. In the case of the larger firms, staff in a number of their offices have obtained an understanding of road safety engineering while working on an SMS. A road safety engineer from the LTSA has also been involved in the development stages of the SMS. This, along with RCA participation in developing an SMS, has resulted in very wide exposure of staff to road safety engineering. By facilitating wide participation in the project, road safety engineering expertise gaps within the New Zealand engineering fraternity have to some extent been reduced. Quantification and documentation of the extent of any remaining gaps has now commenced. Once the extent of the problem is agreed with interested parties, solutions will be identified and actions taken to address these remaining gaps.

The project expertise development activities are now focused on:

- bringing together interested parties to exchange information on and develop momentum to address the remaining road safety engineering skill gaps

- specifying the road safety engineering expertise needed to implement and manage an SMS and the training needed to reach this level of expertise
- identifying audit regimes for SMSs
- conducting technical workshops with industry to develop and promote SMS audit regimes
- training SMS auditors.

What road safety engineering innovations have occurred?

The project has to date:

- marketed road safety engineering to RCA decision-makers
- supported 42 RCAs in the development of their road safety engineering activities
- provided guidelines to assist development, use and continuous improvement of road safety engineering and SMS skills
- identified best practice road safety engineering standards and guidelines for use within an RCA
- conducted workshops with industry to develop and promote road safety engineering and SMSs
- outlined a model road safety strategy for RCAs to use in their Long Term Council Community Plans
- identified gaps in 'best practice' road safety engineering standards and practice and disseminated the findings to New Zealand RCAs.

The identification of gaps in best practice road safety engineering standards and practice and dissemination of the findings to New Zealand RCAs has been undertaken in conjunction with the SMS project (Jackett, 2004). The SMSs developed by 20 RCAs were reviewed to ascertain what standards, guidelines and procedures were identified within the documents and were being used by each of the RCAs. RCA staff were also interviewed to find if any uncommon or local documents were being used and if a need existed within the industry for new or revised documents. The findings from this project will be provided to interested parties to agree the priority for developing new or revised documents. Funding is included in the draft 2004/2005 SMS project budget for work on these documents.

Conclusions

The SMS project is one of the key components of the *Road Safety to 2010* strategy. The potential ability of the road-engineering sector to achieve safety benefits has been given greater emphasis in this national strategy. For this to be achieved and the benefits realised nationwide, it is important that road safety engineering expertise is applied as widely and as systematically as possible among the authorities responsible for road management. The project has supported the development of best practice SMSs and the resulting road safety engineering innovations that have occurred in two thirds of New Zealand's RCAs.

The implementation of SMSs through out New Zealand RCAs has increase road safety engineering knowledge and skills. The increased need created for these skills has also exacerbated the lack of road safety engineering skills within New Zealand. To ensure an ongoing high level of implementation of best practice SMS the road safety engineering expertise gaps will be researched and addressed.

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Note

Any views expressed in this note are those of the authors, and do not necessarily represent the position of the Land Transport Safety Authority.

Keywords

Systematic Road Safety Engineering Management