Part 2 Implementation guidelines

2.1   Introduction

The principal outcome of any safety management system (SMS) should be a reduction in the number and severity of crashes on the road network. While development of an SMS is in itself a significant step in the right direction, there will be no outcome from the system unless it is implemented. The earlier the SMS is implemented, the sooner the principal outcome starts to be realised.

These guidelines are intended to assist a road controlling authority (RCA) to fully implement their SMS so that the expected outcome of the system is achieved.

There are three main stages of SMS implementation:

∉ buy-in

∉ planning and operations

∉ continuous improvement.

During the earlier development of an RCA's SMS, the need was identified for these guidelines. Many benefits have been identified by RCAs who pursue the buy-in aspects of these guidelines during the SMS development process.

The focus of this part of the guidelines is the implementation of the engineering aspects of the SMS. To encourage the integration of the development and implementation processes a section on delivery planning has been included in both part 1, section 6 and part 2, section 3. See also part 3–C for spreadsheets to assist with preparation of the delivery plan.

2.1.1 Aim

The aim of these guidelines is:

'to assist RCAs to implement their SMSs to ensure safety is considered in decisions about planning, construction, maintenance, and management of the road network. This will assist in the achievement of targets and goals identified in the national, regional and local road safety strategies.'

2.1.2 Stakeholders

The stakeholders of any SMS encompass all road users. While all stakeholders have a role in the implementation of an SMS, implementation of the SMS from an engineering point of view relies on a few direct stakeholder groups.

These guidelines will concentrate on those stakeholders who have a particular influence on the implementation of the SMS.

The direct stakeholder groups are:

∉ councillors: general, works committee and regulatory committee

∉ community board members

∉ RCA staff: roading, parks and recreation, etc

∉ consultants: network and project

∉ contractors: network and project.

2.2 Direct stakeholder roles

It is necessary to set out the SMS role of each direct stakeholder group in order to create understanding and achieve full implementation of the SMS.

2.2.1 Councillors

Councillors have a formal policy setting and funding allocation role and are responsible for the long-term council community plan (LTCCP), strategies and annual plans. Setting policy often has economic implications. Decisions have to be made as to which competing demand will be allocated funds. Funding for road safety has to compete with demands for funding from other quarters such as cultural, environmental and townscape.

Councillors are involved in consultation and can also fulfil an important advocacy and networking role to promote road safety and the importance of adequate funding for safety work. They can also be an important source of information about safety issues on the road network.

2.2.2 Community board members

Community board members fulfil a similar role to councillors in their advocacy and networking for road safety and ensuring there is adequate funding for safety work. They can also be an important source of information about safety issues on the road network.

2.2.3 RCA staff

There are two main categories of RCA staff that fall into the direct stakeholder category:

∉ roading staff

∉ other staff such as those employed within the planning, services and parks and recreation departments.

Roading

RCA roading staff have the responsibility in their day to day operations to provide advice to politicians at a philosophical as well as detailed engineering level. They provide the information to politicians that will enable them to become road safety advocates. They give advice during policy development such as the LTCCP, strategy development and during the annual planning process.

RCA roading staff will develop the annual programme and provide input into the policy development that provides the funding and policy framework to enable SMS implementation.

They are responsible for identifying and acting on safety issues as well as developing and complying with standards, guidelines and procedures. Another responsibility is a marketing and guidance/mentoring role to assist staff in other departments of the RCA.

Roading staff also need to:

∉ be provided with the appropriate technical skills, mentoring and experience to be able to implement the SMS in their day-to-day work

∉ ensure that consultants and contractors are aware of and implement the operational components of the SMS

∉ support the SMS champion in the implementation of the SMS especially by ensuring there is continuous improvement in order to achieve a consistent and safe road for users.

Other staff, eg planning, services, parks and recreation

Staff in other RCA departments may undertake or manage work on roads and work that will have an effect on road safety. They need to be aware of the SMS and how it affects their operations.

Staff in other departments should also be able to identify and report safety issues on the road network.

2.2.4 Consultants: network and project

If a network consultant is employed, it is usually the consultant's role to ensure that the SMS is implemented. This happens through professional service contracts, and project and maintenance identification and development.

Network and project consultants may operate under contractual arrangements which could pre-date the SMS and differ from the document. The contract is likely to refer to a specification that may not contain all the safety issues or which may be more limited than the SMS. Existing contracts need to be improved to ensure that specifications are in line with the SMS.

The nature of consultant contracts can vary so that:

∉ in the traditional model the consultant role is very prescriptive

∉ in the hybrid model the focus is on outcomes

∉ in a design and build contract the consultant and contractor are in the same team.

Important functions consultants can fulfil are the identification of safety issues and new projects and preventing the inadvertent introduction of safety problems into the road network. It is important to document how this will be achieved. The safety management plans in part 4–H are examples of methods that can be used.

Land Transport NZ can provide support through a limited number of further trials to assist with the development of documents that will allow consultants to implement their role under the SMS.

2.2.5 Contractors: network and project

Network and project contracts can vary from traditional through to performance based models. The role of the contractor in implementing the SMS will vary depending on the type of contract.

Network and project work could be subject to contractual arrangements that may pre-date the SMS and may be at odds with the SMS. Variations are possible for minimum or no cost where contractors want to buy-in to best safety practice.

Land Transport NZ can provide support through a limited number of further trials to assist with the development of a document that will allow contractors to fulfil their role under the SMS, eg a safety intervention plan (see part 4–I for an example plan). The contractor should implement the SMS without introducing any safety problems and should also identify any new or existing safety issues.

2.3   Implementation

There are three main stages of SMS implementation:

∉ buy-in

∉ planning and operations

∉ continuous improvement.

Successful SMS outcomes rely on achieving the three stages of implementation. Implementation will take place over time with the three stages actioned in parallel. The rate of implementation will depend on the commitment level of the RCA and the corresponding support and resources they provide, including an SMS champion and safety team.

Buy-in to an SMS is a people-oriented process. Everyone within the direct stakeholder groups needs to buy-in to the SMS culture. This involves an awareness and education process.

Planning involves scheduling development or implementation of SMS components that are not current practice.

The planning and operation of systems and tools without developing culture, awareness and education for all stakeholders through the buy-in process, is not likely to result in improved safety on the road.

Buy-in without planning and operations is likely to result in some improvements but the full potential is not likely to be achieved and the results will be sporadic. These two stages of implementation are addressed together in this document.

As the SMS is operated over time, continuous improvements to systems and processes are likely to be identified. For example, the identification of further gaps, ambiguity, inconsistency or errors in standards, policies and guidelines are likely. Other examples of continuous improvement may arise from changes to traffic Rules, Acts or Regulations.

Continuous improvements are more likely to be made where SMS awareness and education has been successfully implemented and there is an ongoing commitment by all stakeholder groups.

2.3.1 Delivery plan

Preparing a delivery plan will assist with planning the whole process to ensure that all appropriate stakeholders are included in each stage of the process. The delivery plan provides a timeline for all processes in developing and implementing an SMS. It also specifies the person/s responsible for each process. A draft delivery plan is provided in part 3–C (see also 1.6 Delivery planning).

The initial delivery plan should be produced early by the consultant following the Stage 1 development workshop during the development process. Initially, the delivery plan will be detailed for the development process but less detailed for the buy-in and implementation stages. During regular updates of the delivery plan, the buy-in and implementation stages will have become more detailed.

The delivery plan at this stage will detail the requirements for buy-in and implementation of the SMS. All of those involved in these processes will understand their roles and the timeframes to implement the SMS.

2.3.2 Buy-in

The desired outcome from the buy-in programme is to enable each group to undertake their role in implementing the SMS. While the role of each direct stakeholder group has been identified, it is the individuals within those groups who will actually implement the SMS.

Direct stakeholders need to adopt the SMS culture to fulfil their role in promoting the SMS. They need to be aware of the SMS, educated about SMS philosophy and committed to that philosophy.

It is probable that personnel within stakeholder groups gradually change over time as people change their employment or their position within an organisation. Change may also occur following elections or where new contracts for consultants or contractors are let. There will be a need to maintain the buy-in to the SMS. The amount of effort required will depend on the rate of change within each organisation.

Developing a communication plan will assist with SMS buy-in.

2.3.2   Buy-in, continued

**Developing a
communication
plan**

A key role of the SMS champion within a RCA is to achieve buy-in of the SMS. By necessity SMS buy-in is a gradual and ongoing process. Individuals need to be aware of the SMS, educated in its philosophy and able to adopt it for themselves. It is not possible to impose the philosophy on people and expect the SMS to be successfully implemented.

SMS implementation involves selling the philosophy, strategy and safety reasons for each SMS. The communication plan is not intended to make individuals aware of the detailed process. The aim of the communication plan is to motivate stakeholders through:

∉   awareness

∉   knowledge

∉   understanding

∉   liking

∉   preference, and eventually

∉   buy-in to the SMS.

The plan will assist individuals within each stakeholder group to understand:

∉   the SMS purpose or aim

∉   why we are involved

∉   what's in it for me

∉   what my role is

∉   how I can learn more

∉   that I am part of a stakeholder group with a lot to offer safety

∉   that stakeholder groups working together will achieve more and understand their respective responsibilities

∉   what factors will affect the implementation programme, eg structure, budget, awareness, education.

There are differences between the safety issues that arise in an urban RCA compared with a rural authority and there are differences relating to the scale of the RCAs. Each direct stakeholder group has different roles, interests and drivers. There are management and contractual differences between RCAs. Within all stakeholder groups there are differences that arise from the individual and group dynamics. A successful and effective communication plan will recognise these differences and be tailored to each direct stakeholder group within each RCA.

Communication plans could include a combination of written information sheets, reports, presentations, workshops and meetings. Different tools will be more appropriate for some stakeholder groups than others. Examples of communication plans and the tools required are provided in part 4–E. Land Transport NZ can provide examples from other RCAs.

2.3.3 Planning and operations

SMS implementation requires planning for and implementing a number of systems and processes. Some of the processes and systems will already be in place, some will be partially implemented and others will be completely new.

SMS gaps and opportunities for improvement

A single table outlining SMS systems and processes to be implemented either within the SMS or elsewhere in the RCA system is highly recommended. It is suggested that a table listing those components and their current status be compiled and included as an appendix to the SMS. This table needs to identify any gaps in the policies, standards and guidelines that apply to the SMS. The table should indicate the opportunities for improvement identified at various stages of review and audit with a timeframe for the improvement to be actioned and included in the SMS. Refer to part 4–F for examples.

2.3.4 Process implementation

The implementation of new processes under the SMS will take time and resources. We recommend a staged and progressive implementation process. The order in which the processes are implemented should be prioritised in a logical sequence and according to the safety benefits of each item. The rate at which the new processes can be implemented will depend on affordability. The priority order and the anticipated completion date can be included in the delivery plan outlined in section 2.3.1 and the example in part 3–C and/or the SMS opportunities for improvement table outlined in section 2.3.3 and examples in part 4–F.

Standards, policies and guidelines development

Many SMSs include a list of the standards, policies and guidelines that the RCA currently uses. Many of these lists include generic standards, policies and guidelines that allow for options. If a consistent driving environment is to be provided to motorists, the interpretation of the standards, policies and guidelines to be used on the network should be defined. Please note that the intention is not to promote or condone the development of a wide range of RCA specific standards, policies and guidelines throughout the country. Instead, it should be recognised that there are options available within the generic standards, policies and guidelines. The decision making process may also be governed by factors other than safety, such as economics.

Identification of standards, policies and guidelines that are missing, incomplete or incorrect will take time. Clarification of all policies and guidelines is unlikely to be possible in a short timeframe.

Land Transport NZ and the RCA forum recognise that there are deficiencies in the available standards, policies and guidelines and have responsibility for and are committed to remedying the situation.

Standards, policies and guidelines clarification, and the implementation of SMS components should be prioritised. Dates should be established for completing the work that are achievable in terms of process, availability of personnel and affordability. Land Transport NZ can provide support with this, especially examples from other RCAs.

2.4   Continuous improvement

As the SMS is operated over time, the need for continuous improvements to systems and processes is likely to be identified. A best practice SMS will normally be subject to and include a continuous improvement programme. When improvements are identified it is important that they are added to the SMS opportunities for improvements (OFI) table so that they can be prioritised by the safety team in order of safety risk and affordability for discussion, analysis, development and implementation.

2.4.1   What is continuous improvement?

Continuous improvement means that system improvement takes place in incremental steps. It never stops. However good things may be, they can always be better. SMS continuous improvement is an ongoing effort to improve the processes and systems, in order to add value for the road user.

2.4.2   What is the SMS continuous improvement programme?

The SMS continuous improvement programme is intended to assist RCAs with the management of their individual safety management systems. This is to help the RCA work to achieve its road safety strategy and a vision of a greater degree of consistency in how our national road environments appear to road users. The continuous improvement programme consists of three separate stages conducted over a defined time, as required by the individual RCA, in partnership with Land Transport NZ.

The continuous improvement programme needs to be cyclical and ongoing and generally only involves one or two components of the SMS at any one time. In the interests of efficiency and effectiveness the component of the SMS that is subject to monitoring evaluation or review should be targeted to risk.

The continuous improvement programme consists of four stages:

- Monitoring the implementation of the SMS.
- Evaluating the results of the implementation.
- Reviewing the SMS document and updating it to reflect the opportunities for improvement identified in the first two stages.
- Auditing the SMS using an external consultant and Land Transport NZ staff.

2.4.2 What is the SMS continuous improvement programme?, continued

Monitoring

The initial stage of the continuous improvement programme is monitoring. The aim of this first stage is to clarify if the RCA is doing what is documented within its SMS manual and, if not, what improvements are required to achieve this.

Once the RCA's SMS is endorsed, (via the SMS stage 3 documentation review sign-off meeting) it is desirable to establish if the components that the RCA has chosen are being implemented. Monitoring seeks to obtain verification through objective evidence such as using a monitoring team to evaluate documentation and records held within the RCA to confirm how the RCA implements the SMS. A monitoring workbook is included in this guideline as part 3–I. The workbook suggests establishing a safety team of representatives from the various sections of the RCA that are involved with the SMS to champion the implementation of the SMS. The team needs to ensure that the components of the SMS to be monitored are targeted to risk and that they check whether systems and processes are falling over. Most staff will be able to tell this up-front, and if there is a medium or greater risk, then it needs to be addressed. If not, they will add it to the OFI table for later investigation.

Land Transport NZ can provide some monitoring support and examples from other RCAs. An exchange of engineers from similar RCAs to assist with monitoring is supported by Land Transport NZ.

2.4.2 What is the SMS continuous improvement programme?, continued

Evaluation
The second stage of the continuous improvement programme is evaluation. The aim of this stage is to identify if the solutions developed and implemented by the RCA (as documented in their SMS) are effective in ensuring the RCA is meeting its road safety strategy vision, goals and expected outcomes on their road network.

The essence of this stage of the continuous improvement programme is to survey and identify whether the road infrastructure provides a safe passage for road users. It will identify whether measures to eliminate or reduce known problems are fully operational and targeted to risk.

Land Transport NZ road safety survey and road safety data reports are a form of evaluation that is related to peer groups and in the future will also include road classification.

Generally the methods for undertaking a more detailed evaluation of a RCA network are based on the Land Transport NZ procedures *Safety audit of existing roads (1998)* and Transit NZ's *State highway asset management manual (2000)* section 2, clause 4.4 and clause 4.5 special inspections. An example of combining both types of evaluation in one report is included as part 4–G.

Land Transport NZ is developing a *Road infrastructure safety assessment manual* that is intended to provide more robust procedures for the evaluation of a roading network. Land Transport NZ in conjunction with the Ministry of Transport is also undertaking a road network performance project. This project is developing a national road classification system, setting performance targets and measures, risk profiles and assessing the extent of network roadside hazards. When these developments are completed they will be available for use by RCAs.

Land Transport NZ can provide support for a limited number of innovative evaluation methods being considered by RCAs and can provide examples from other RCAs. An exchange of engineers from similar RCAs to assist with evaluation is supported.

2.4.2 What is the SMS continuous improvement programme?, continued

SMS review

The third stage of a continuous improvement programme is the SMS review. The aim of this stage is for the RCA to improve its SMS, taking into consideration the results obtained from the monitoring and evaluation stages. The RCA will be able to determine how its SMS has helped it move closer to achieving its vision, goals and outcomes set out in its road safety strategy.

This stage of the continuous improvement programme is managed by the safety team. It could also be undertaken as a formal Audit by either internal staff or external consultants or a combination of the two. The SMS review will assist the RCAs safety team in following the continuous improvement path by identifying the actions they have or will need to take to develop their SMS in response to the monitoring and evaluation stages.

This stage of a continuous improvement programme if undertaken as an external audit is all encompassing in that it will explore all aspects of the RCA's SMS to determine if it is still valid, or in need of development and improvement.

SMS audit

An external audit normally covers the whole system and is therefore significant enough to require programming at three or four year intervals. Most SMSs that have been developed in partnership with Land Transport NZ are less than two years old and are unlikely to be audited for one to two years. Land Transport NZ staff will be involved to provide a level of consistency across the nation's total network and to identify any policy weakness that may need to be addressed by the government.

Land Transport NZ will work with RCAs during the next year to develop a suitable methodology for undertaking these audits with a view to providing detailed guidelines in 2006.

2.4.3 How could an SMS continuous improvement programme be conducted?

SMS stages	Continuous improvement programme		
Activity stage	Document review	Outcome evaluation	Implementation monitoring
Objectives	∉ SMS including the road safety strategy reflects improvements that have been identified in the monitoring and evaluation process	Measure improvements in safety performance including: ∉ consistent road environment ∉ use of standards ∉ good working relationships across RCA boundaries	∉ To assess that documented systems and processes are being followed ∉ To identify opportunities for improvement to existing processes ∉ Good working relationships across RCA boundaries
Land Transport NZ's role	∉ Technical support ∉ Guidance ∉ Monitor outcomes of review ∉ Limited financial support	∉ Leadership ∉ Outcome evaluation via the road network performance crash analysis system and data analysis ∉ Membership of an evaluation team ∉ Limited financial support	∉ Guidance ∉ Assist monitoring team ∉ Limited financial support
RCA's role	∉ Review SMS and road safety strategy documentation ∉ Change as necessary	∉ Evaluation of progress towards targets and goals set out in road safety strategy ∉ Assist own and other RCA evaluation teams	∉ Assist own and other RCA monitoring teams ∉ Implement improvements

2.4.4 Document control

Following a review of the SMS, it will be important to record and document all of the changes to the SMS so regular users can see that changes have been made to an item and that they need to re-read that item. If users are not aware of the changed sections, they may not adopt the new methodology or standards that are now expected.

This is carried out by a system of document control, an example from Christchurch City is shown in part 4–B.