Safety Management Plan

Prepared for

Taranaki District Councils

Appropriate District Council Logos



Safety Management System

SAFETY MANAGEMENT PLAN



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GLOSSARY OF TERMS

ARRB Australian Road Research Board

Crash Cluster Site within a 200m length of route or intersection (30m radius) with 3

or more injury crashes per year.

BRIM Bridge Inventory Management

CAS Crash Analysis System
CSR Customer Service Request

GIS Geographical Information System

Grey Spot Sites that show a sudden change in crash rate (3 in a year where

there were none before), that suggest some recent changed condition

for investigation.

MSI Minor Safety Improvement

Network The agent of the RCA responsible for managing the day to day

Consultant operation of the network.

RAMM Road Asset Maintenance Management

RCA Road Controlling Authority

Roading Asset RCA employee responsible for managing the roading asset

Manager

Safety Manager The key person from the Network Consultant's team responsible for

administering the SMS with the contractor.

SCRIM Sideways Force Co-efficient Routine Investigation Machine

SDR Safety Deficiency Database SIP Safety Intervention Plan

SLIM Street Light Inventory Management

SMP Safety Management Plan
SMS Safety Management System

SMS Champion The nominated Team Leader for the Taranaki Roads Safety Team Taranaki Roads Safety Champions from the three participating RCA's and their

Safety Team Network Consultants
TMP Traffic Management Plan

XXDC XXXXXXXXXXXXX District Council



1.0 INTRODUCTION

The LAND TRANSPORT NEW ZEALAND Guidelines for Implementing a Safety Management System defines a "Safety Management Plan (SMP) as a document that provides project control for the Network Consultant, identifying the safety issues, concerns and deficiencies and prioritising them for investigation, improvement or mitigation with a recognition of the funding requirements. It should allow for the implementation and monitoring of improvements, and be reviewed jointly by the RCA, the Network Consultant and Network Contractors annually".

The SMP is the mechanism by which the specific safety related responsibilities of the Network Consultant in relation to the roading network are documented. Included within this document are procedures for the identification, assessment and recording of safety deficiencies and the prioritization and monitoring of suitable solutions.

From the SMS Section 3.3 "Safety Management Plan "activities to be considered for inclusion are:

- Safety information databases
- Network safety inspections (day and night) existing road safety audits
- Ongoing crash review and reporting
- · Fatal and serious crash reporting
- Crash reduction and prevention studies
- Grey spot studies
- Safety deficiency database
- · Road safety hazard Register
- Safety deliverables programme

Figure 1 illustrates the general procedure for identification, assessment, recording, actioning and monitoring.

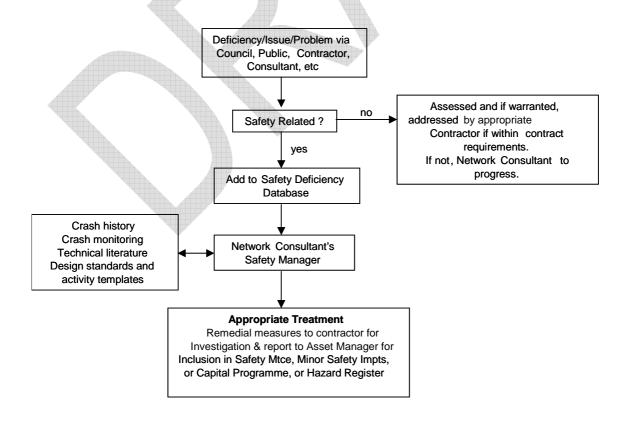


Figure 1: Safety Deficiency Process

2.0 REVIEW

The SMP will be refined and expanded as the Network Consultant's experience and understanding of the intended safety outcome increases.

The SMP will be reviewed annually in conjunction with Council's safety champion to ensure that it reflects changes in Council Policy, the SMS and "emerging best practice".

A number of areas have been identified for improvement within the SMP. These will be separately identified under an "Improvement Plan" item within the "Safety Deliverable Programme".

Related Worksheet SMP5 - Safety Deliverable Programme



3.0 PROCEDURES

The following procedures have been included in the SMP. Some of these are yet to be fully developed. It is anticipated that all procedures identified will be fully developed by December 2005. A number of these procedures are dependent on the completion of "action items" identified in the Improvement Plan of the SMS (Refer Table 5.1: SMS Improvement Plan).

Where procedures are specific to the RCA then they have been included in Appendix I – RCA Specifics.

3.1 Safety Inspections

The main objective of safety inspections is 'to ensure that drivers are getting the correct messages from the road'. Safety inspections are the principal means to identify safety deficiencies and ensure consistency in design and maintenance standards.

Inspections undertaken by the Network Consultant's Team under the framework of the Network Management Contract XXX that are specific to XXXX are incorporated in Appendix I – RCA Specifics.

Routine Safety Inspection

Routine safety inspections will take the form of a combined audit/inspection by the Network Consultant. Details of deficiencies and observations will be recorded and entered into the safety deficiency database for prioritisation, action and monitoring. The Land Transport New Zealand Safety Audit of Existing Roads inspection check sheet one will be used to record deficiencies.

Related Worksheet SMP3 - Inspection Checksheet

Safety Response Inspections

Safety Response inspections will be undertaken on specific items that are identified via LAND TRANSPORT NEW ZEALAND Safety Reports, previous routine inspections or generated from public enquiry.

Such inspection items could include:

- Intersection Visibility and Layout
- Intersection Control
- · Curve Warning.

Safety Response inspections will be undertaken on the instruction of the RCA.

Programme of Inspections

The routine safety inspection programme will primarily be determined by road hierarchy, with the initial focus on arterial and collectors roads. Crash history and emerging crash trends will also be considered in the development of the inspection programme.

Day and night (pre-winter) inspection will be carried out on all arterial routes annually. Fifty per cent of collectors and 20% of local roads will also be inspected annually. This will ensure a full coverage of the entire network within a five year period.

Note: This inspection regime is not currently covered within the network management contract and would be a variation to the Contract. Specific to NPDC & STDC.

3.2 Safety Deficiency Database

The collection and use of timely and accurate information on crashes, network deficiencies, pavement performance, condition of structures and road furniture is a key component of the SMP.

All safety deficiencies identified in safety inspections, crash analyse, queries received from the public, contractors and other sources will be entered into the database. Deficiencies include discrete locations, routes and generic safety concerns.

It is intended that this database will be the central repository of all safety deficiency information.

Monitoring and analysis of this database will enable the Network Consultant to identify and assess deficiencies and determine priorities.

The database will track actions on all safety deficiencies identified.

The process of monitoring and evaluation of the effectiveness of various road safety initiatives and projects implemented forms a key component of the SMS. This system is still to be developed.

The diagram below illustrates the variety of data sources feeding into the database and outcomes resulting from evaluation and monitoring of data.

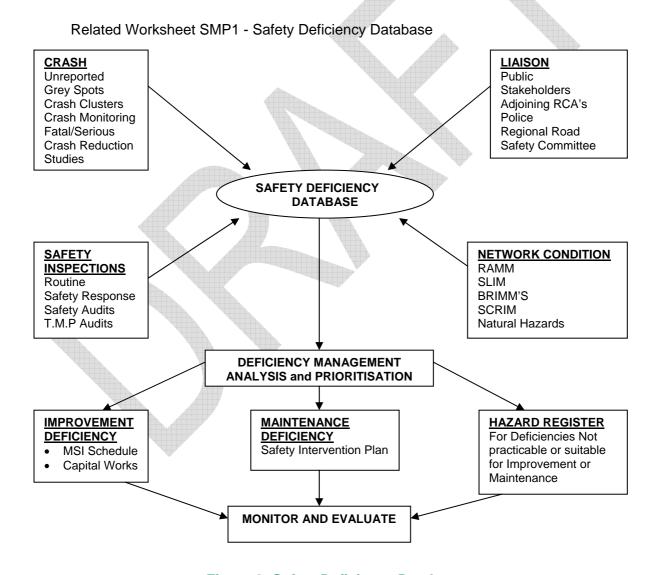


Figure 2: Safety Deficiency Database

3.3 Liaison

3.3.1 Public Safety Concerns

Many safety issues raised by the public are handled through Council's call centre. A call record is generated and forwarded to the Network Consultant or the Roading Asset Manager for action. Alternately issues can be raised by direct correspondence or email.

The Network Consultant investigates the issue to determine the nature of the safety deficiency and either issues a work instruction to the appropriate contractor to rectify or the details are recorded in the safety deficiency database for further analysis and prioritisation.

The call centre is advised of the action to be taken and when it is programmed to be completed.

3.3.2 Other Authorities

Safety deficiencies identified by other RCA's, Police, Contractors or Road Safe Taranaki will be logged into the safety deficiency Database for further action.

3.4 Crash Review and Reporting

3.4.1 Unreported Crashes

A network of local contacts is to be developed, to enable collection of unreported crash data. Contacts to be made include rural mail, panel beaters, insurance companies, maintenance contractors, school bus operators and community boards. This schedule of contacts will be expanded over time as the system develops.

Contacts will be given crash report forms to use and return to the Network Consultant.

Related Worksheet SMP2 - Crash Report

3.4.2 LAND TRANSPORT NEW ZEALAND Road Safety Reports

A review of LAND TRANSPORT NEW ZEALAND's Annual Road Safety Report shall be carried out by the Network Consultant. The review will analyse trends and crash grey/Crash Clusters with recommendations for further investigation.

Results of the review will be forwarded to the Roading Asset Manager annually for inclusion in the update of the SMS.

3.4.3 Fatal Crash Reporting

The Network Consultant shall provide an initial report on all fatal crashes within one month of the crash. The report shall include details of the crash location, any deficiencies of the network where they have been identified as a contributing factor and recommendation for remedial action.

Verbal advice of the crash will be made as soon as practical.

3.5 Safety Deficiency Management, Analysis and Prioritisation

3.5.1 Grey Spot

Grey spot analysis is a proactive approach which would result in the early identification and treatment of problem sites.

At quarterly intervals the Network Consultant shall carry out an analysis of network crashes using CAS and unreported data. If two crashes have occurred at the same relative location then the site will be considered a grey spot.

An analysis of the crashes will be undertaken to determine whether there are any commonalities and report to the Roading Asset Manager with recommendations for further investigation or remedial actions.

3.5.2 Crash Reduction Studies

The annual review of the LAND TRANSPORT NEW ZEALAND Road Safety Report (3.4.2) will identify blackspot sites for further investigation via a crash reduction study. The base frequency of such studies at 3 year intervals is still to be confirmed by the Taranaki Road Safety Management Team.

3.5.3 Carriageway Performance

a) Scrim

A list of potential sites for scrim testing has been included in the SMS. This list has been developed from sites identified in LAND TRANSPORT NEW ZEALAND'S CAS database where loss of control crashes have occurred and also from other areas identified by either the Network Consultant or the Roading Asset Manager to be high risk.

The annual review of road safety reports and RAMM data will be the principle source of future sites for SCRIM testing.

The Network Consultant will analyse the sites, to develop a schedule of survey routes for the Roading Asset Manager to consider.

b) Road Asset Data

Evaluation of asset databases (RAMM – potholes, low shoulder, roughness, signs etc, SLIM – light condition, and Bridge data base – bridge condition) will enable assessment of compliance with safety related standards.

The SMS identifies a need to review opportunities to interface the SDR with RAMM, CAS and GIS. The Network Consultant will have some involvement in the review process and can develop analysis procedures following implementation.

3.6 Safety Audits

3.6.1 Projects

A proactive process where by road safety issues are identified before they affect road users.

Taranaki Roads Safety Management Team has identified the need to develop a formal system that indicates the level at which a project is to be audited. This is included in the SMS Improvement Plan.

The Network Consultant will implement this system when it has been developed. Guidelines outlined in SMS Procedure 3.4 will be used.

There is a need for the Network Consultant to train staff as qualified safety auditors.

3.6.2 Existing Roads

A process whereby road safety issues of the existing network are identified.

Council has identified the need to develop a system suitable for low volume roads within the region. This is included in the SMS Improvement Plan.

The Network Consultant involvement is yet to be determined.

3.7 Recurring Hazard Register

This register includes a list of sites with potentially recurring hazards e.g. flooding, slips, ice, vegetation. These are sites where the network safety is at risk, but a cost effective solution is not available.

The SMS identifies the need for the development of a consistent approach to the establishment and maintenance of the register in the Improvement Plan.

The Network Consultant will establish a register once common criteria have been established.

Related Worksheet SMP4 - Hazard Register

3.8 Temporary Traffic Control

Temporary traffic management is required wherever a work activity alters the normal operating condition of the road. This activity may occur on the carriageway, shoulder, berm or footpath.

Whilst this activity directly affects the safety of road users, deficiencies are normally of a temporary nature and are addressed immediately by the contractor on the work site. This type of deficiency would not usually be identified within the SDD.

Evaluation of contractor performance with regard to traffic management is specifically undertaken during contractor performance evaluation undertaken at the completion of any contract and a schedule of contractor performance on temporary traffic management is maintained.

The application of temporary traffic management enables safe passage of traffic and the public through the work site and creates a safe work environment for the workmen.

3.9 Prioritisation and Programming

The SMS includes a risk evaluation matrix for assessing risk exposure of safety deficiencies / hazards identified on the network and prioritising remedial works.

Currently there is software being marketed in New Zealand that undertakes risk analysis. Consideration will be given to the utilisation of this software "Road Safety Risk Manager" or equivalent to assist in the risk assessment process.

Following identification and prioritisation of sites with safety deficiencies these sites will be programmed for inclusion as either a minor safety project or for action by an appropriate contractor as a maintenance deficiency either as programmed works or as an improvement via the Safety Intervention Plan.

3.10 Safety Deliverable Programme

The "Safety Deliverable Programme" identifies what safety management tasks are to be undertaken by the network consultant and when the programme is updated annually.

The timing of specific components of the programme is still to be finalised. The timing of these is dependant on the completion of improvements identified within the Improvement Plan of the SMS.

Figure 3 shows how the various components of the SMP are linked to produce the programme.

Related Worksheet SMP5 -Safety Deliverable Programme

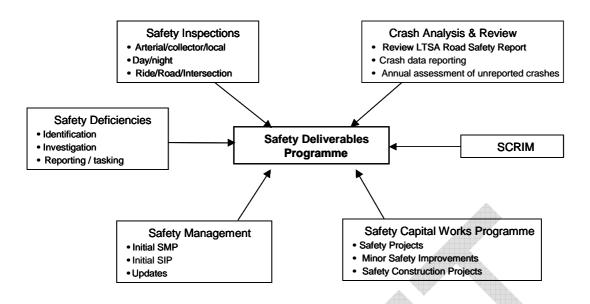


Figure 3: Safety Planning



4.0 DEVIATION FROM STANDARDS

Procedure Templates in Appendix E (SMS) provide direction for design, operation and network management activities.

Where a significant departure from the standards or guidelines is considered necessary it must be recorded and the Roading Asset Manager notified.

Where no appropriate standard or guideline is documented then those contained in Appendix B (SMS) should be used following confirmation from the Roading Asset Manager.

The Network Consultant shall manage a register of variations. The register shall include brief details of the request and its status. This register shall be reported quarterly to the Roading Asset Manager.

Related Worksheet SMP6 - Deviation Register

5.0 TRAINING AND DEVELOPMENT

Section 4.5 of the SMS outlines training and development requirements for staff involved with the SMS including network consultants.

The Network Consultant will undertake an evaluation of staff development needs in light of the requirements of the SMS. One area already identified for further staff development is safety auditing.

This exercise is expected to be completed by XXXX 2005.



6.0 SAFETY INTERVENTION PLAN

Section 3.4 of the SMS outlines requirements of the SIP.

This plan is to be developed jointly by the network consultant and the RCA's network contractors by December 2005.

Reviews will be undertaken six monthly with the contractors. Review outputs will be fed back into the SMS.

Further investigation is required to determine whether other term contractors such as road marking and streetlighting should develop SIP's.

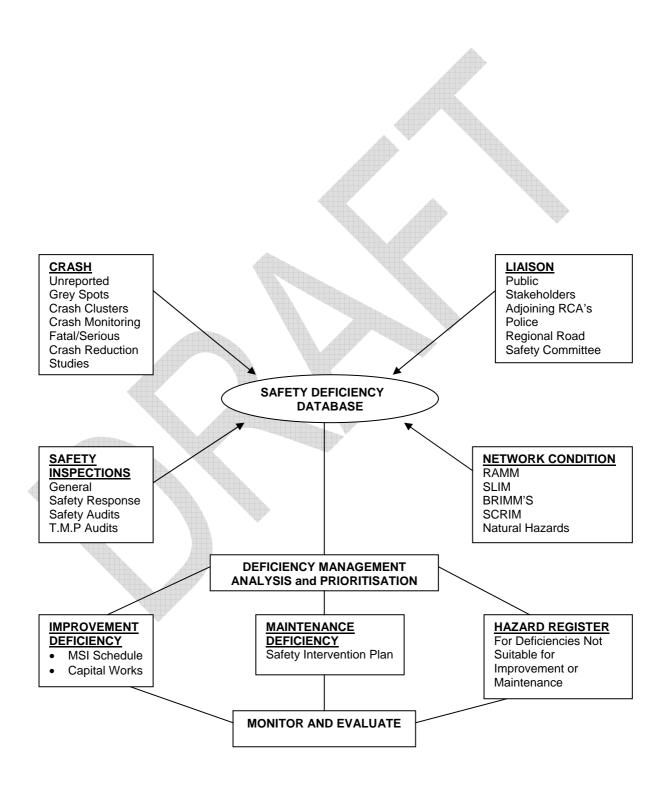


Appendix I - RCA Specifics



Appendix II - Related Worksheets

SMP1 - Safety Deficiency Database



SMP2	- Crash	Report
	- Olasii	IVEDOIL

ACCIDENT N ^O	
FILE N ^O	

The purpose of this form is to identify crash locations, to identify roading problems, and hence potential improvements. It will **not** be used for enforcement purposes. Please enter details as accurately as possible by circling or commenting as appropriate. This is particularly important in regard to location.

<u>Location</u>	<u>Injury</u>
Place: Or At m / km N/S/E/W of	Worst Injury
	Serious / Minor / None / Unknown
Local Road:	When Crash Occurred
	Date//
	Time am / pm
(side road / feature)	Day Su/Mo/Tu/We/Th/Fr/Sa
What Happened ie. Van travelling south on	Unnamed Road lost control on right hand bend
(space for diagram on following page).	
Codes (office use only) Object Mymt V1 NSEW Street	Non Vehicle Factors Fac1 Fac2 Fac3
Object Mvmt V1 NSEW Street	Fac1 Fac2 Fac3
Reported by	Driver/Vehicle Factors
Conditions (please enter / circle)	
	Paint Pedestrian Xing / Raised
Speed Limit (km/h)	Markings Island / Painted Island / Centre Line / No Passing Line / / Nil
Curve Advisory Speed / NA	accing,
Road Type 1 way / 2 way	Road Bridge / Motorway / Rail Xing
	Feature Flat / Hill
Curvature StRaight / Easy / Moderate / Severe	
Surface Sealed / Unsealed	Junction Driveway / Roundabout / Cross / Tee
Wet / Dry / Icy	/ Y / M ore than 4 legs
·	Control Traffic Signals / Stop / Give Way /
Light Bright Sun / Overcast / Twilight / Dark	UNcontrolled / School Patrol
Lighting On / Off / None / UnKnown	
Number of lanes	Weather Fine / Mist / Light Rain / Heavy Rain / Frost / Strong Wind

Continued

Diagram Damage Was any damage sustained to guard rails, signs, bridges etc?	
Please identify	
<u>Driver and Vehicle Details</u> (if known)	
NameM/F Age Veh	icle Reg Number
Address	
Police Attendance	
Did a Police Officer attend the crash? Yes / No	
Notified by (May be left anonymous)	
Name	
Contact Phone/Address	
Return to	(office use only)
	Initial:
	Date:
Your assistance will potentially help to improve Road Safety.	
Thank you. Roading Asset Manager, XXXXXXXXXXXXXX Dis	

SMP3 - INSPECTION CHECK SHEET

Road N		Position		Finish Position			\DT
or desc	ription(RS o	r side road)		(RS or side ro	oad)		
Weathe	Pr	Date	/ /	Completed B	y		
	Running Distance kms (Outgoing) 0.00	1.00	2.00	3.00	4.00	5.00	6.00
	Surface Condition/Ride						
=	Shoulder Condition/Edge Break						
Pavement	Side Slopes/Roadside Hazards/Water Table						
Ver	Drainage Features (culverts etc)						
Ра	Guardrails (exist) (requiring maintenance)						
	Vegetation (obstructing visibility & signs)						
	Centreline						
/uc	RRPMs						
elineatio Markings	Edge Lines						
ine arki	Marker Posts						
Delineation/ Markings	Curve Warning/Chevrons						
	Other Warning/Advisory						
·o	Intersection Marking & Signs						
o ii	Destination Signs						
ecti	Regulatory/Side Road Control						
Intersections	Lighting						
<u>T</u>	Running Distance kms (Return)						

(Note: Fill in before return trip)

SMP4 – Recurring Hazard Register

Hazard I D	Poad No	Poad Namo	Route	Location Description	Monitor For
Hazard I.D.	Road No	Road Name	Position	Location Description	Monitor For
Hazard I.D. Grey Spot Flooding Ice Vegetation	GS FL Ice VG			Monitor For Delineation Accidents Ice/Frost Overhanging branches	Flooding

Safety deliverable programme

SMP6 - Deviation Schedule

Deviation I.D.	SMS Element	Description	Standard/Guideline	Description of Deviation	Status	Date